Royal DSM Integrated Annual Report 2022

Creating brighter lives for all

NUTRITION · HEALTH · BIOSCIENCE

DSM BRIGHT SCIENCE. BRIGHTER LIVING.

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Forward-looking statements

This document may contain forward-looking statements with respect to DSM's future performance and position. Such statements are based on current expectations, estimates and projections by DSM and information currently available to the company. Examples of forward-looking statements include statements made or implied about the company's strategy, estimates of sales growth, financial results, cost savings and future developments in its existing businesses as well as the impact of future acquisitions, and the company's financial position. These statements can be management estimates based on information provided by specialized agencies or advisors.

DSM cautions readers that such statements involve certain risks and uncertainties that are difficult to predict and therefore it should be understood that many factors can cause the company's actual performance and position to differ materially from these statements. These factors include, but are not limited to, macro-economic, market and business trends and conditions, competition, legal claims, the company's ability to protect intellectual property, changes in legislation, changes in exchange and interest rates, changes in tax rates, pension costs, raw material and energy prices, employee costs, the implementation of the company's strategy, the company's ability to identify and complete acquisitions and to successfully integrate acquired companies, the company's ability to realize planned divestments, savings, restructuring or benefits, the company's ability to identify, develop and successfully commercialize new products, markets or technologies, economic and/or political changes and other developments in countries and markets in which DSM operates. Additional factors that could cause results to differ materially from those described in the forward-looking statements can be found in the 'Risk Management' section.

As a result, DSM's actual future performance, position and/or financial results may differ materially from the plans, goals and expectations set forth in such forward-looking statements. DSM has no obligation to update the statements contained in this document, unless required by law. The English-language version of this document is leading.

Key data

Key data[1]

	2022	2021
People		
Workforce at 31 December (headcount)	20,682	21,358
Female:male ratio[2]	31:69	30:70
Total employee benefit costs (in € million)	1,910	1,853
Frequency Index of Recordable Injuries (per 100 DSM employees and contractor employees)	0.28	0.22
Employee Engagement Index (in %)	77	76
Planet		
Primary energy use (in PJ)	19.5	21.4
Energy Efficiency Improvement (in %, year-on-year)	(0.4)	6.0
Greenhouse gas emissions, market-based (scope 1 + 2, in CO_2 equivalents, x million tons)	1.05	1.21
Greenhouse gas scope 1 + 2 cumulative absolute reduction (in %, baseline 2016)	35	27
Water withdrawal for non-once-through-cooling (x million m^3)	26	26
Brighter Living Solutions Plus (as % of running business)[3]	67	-
Profit (in € million)		
Net sales from continuing operations	8,390	7,269
Adjusted EBITDA from continuing operations[4]	1,395	1,379
EBITDA from continuing operations	1,304	1,288
Adjusted operating profit from continuing operations (EBIT)[4]	767	808
Operating profit from continuing operations (EBIT)	682	711
Net profit for the year	1,715	1,680
Adjusted net operating free cash flow from continuing operations[4]	310	626
Capital expenditure, cash based	644	570
Dividend for DSM shareholders (based on profit appropriation)	167[5]	438
Net debt	87	1,019
Shareholders' equity	10,743	9,318
Total assets	17,395	16,020
Capital employed	11,473	11,019
Market capitalization at 31 December[6]	19,978	34,608
Per ordinary share in €		
Net earnings	9.80	9.68
Financial ratios (%)		
Sales to high-growth economies / net sales (continuing operations)	47	47
Adjusted EBITDA margin (continuing operations)[4]	16.6	19.0
Average working capital / annualized net sales (continuing operations)	24.3	22.3
ROCE (continuing operations)[4]	7.3	8.7
Gearing (net debt / equity plus net debt)	0.8	9.7
Equity / total assets	62.3	58.7
Cash provided by operating activities / Adjusted EBITDA[4]	55.9	77.5

1 For definitions, see Explanation of some concepts and ratios. People and Planet are reported in accordance with the Non-financial reporting policy. As the divestment of DSM Engineering Materials was announced prior to the launch of the EES, Employee engagement and associated metrics are reported excluding DSM Engineering Materials.

2 For the indexes based on age, nationalities, gender, inflow and outflow, the companies that are not integrated into the HR systems (approx. 6% of the total workforce) are not taken into account.

3 The year 2022 was the first of reporting the new Brighter Living Solutions Plus.

4 In presenting and discussing DSM's financial position, operating results and cash flows, DSM (like many other publicly listed companies) uses certain Alternative performance measures (APMs) not defined by IFRS and referred to as 'Adjusted'. These APMs are used because they are an important measure of DSM's business development and DSM's management performance. A full reconciliation of IFRS performance measures to the APMs is given in Note 2 of the Consolidated financial statements.

5 Subject to approval by the Annual General Meeting of Shareholders.

6 Source: Bloomberg.

Co-CEO letter

Dear reader,

In our reflections for each of the past two years, we have described the challenges facing the world and expressed our admiration for how our DSM colleagues have successfully navigated such volatile and demanding times. 2022 was no different. While the COVID-19 pandemic eased in many regions, new human conflicts, extreme weather events and supply chain challenges caused a multitude of challenges to overcome, both for DSM and the global economy, once again. Within this context, our purpose has never been more relevant or valid.

This was also a year of change at DSM as we made major strides in our strategic journey. By setting in motion the divestment of all our Materials businesses and simultaneously announcing an exciting agreement to merge with Firmenich, we are putting in place the foundations of a unique company that can lead science-based progress in nutrition, beauty and well-being, and continue our purpose-led journey, creating value for all our stakeholders, including customers, employees, shareholders, and society at large.

A year of challenge and opportunity

Conflicts and extreme weather events in 2022 had worldwide repercussions, with increasing raw materials costs and soaring energy and food prices impacting everyone. Unfortunately, this disruption may only be a foretaste of the challenges that global warming will continue to bring. The United Nations' Intergovernmental Panel on Climate Change released updated research during the year warning that it is now or never if humanity is to avert the worst consequences of climate change. For DSM, this only makes our determination even greater to accelerate the potential that digital technology and bioscience have in driving environmental and societal prosperity, especially at the nexus of climate, food, nutrition, and health.

With a growing global population that needs and deserves the health benefits that come from good nutrition, we see a great opportunity to meaningfully improve the sustainability and productivity of the world's food systems for the benefit of people and the planet. There is also growing recognition, heightened by concerns during the pandemic, of the importance of being proactive about our own health. This shift in individual attitudes and public health policy towards preventative actions is an opportunity to reduce the future burden of healthcare more broadly through improved nutrition.

Throughout this report we highlight just a few of our growing range of solutions. For example, we are developing enzymes that help animals digest more nutrition from their feed, helping the sustainability and efficiency of farming. In our human nutrition activities, we are scaling our capabilities to enable the formulation of tasty and nutritious beverages with the vitamins, minerals and probiotics necessary to maintain an effective immune system, countering the declining nutritional value of what we eat. And we are also creating algae-based omega-3s that provide a sustainable alternative to fish oil, reducing the pressure on our oceans. Ultimately, our strategic focus means we are well positioned to contribute to resolving the looming polycrisis, capturing the opportunities to make an even bigger difference for people and the planet.

"As we harness the latest advancements in digital technology and bioscience, we can offer realistic, scalable solutions to the significant challenges associated with feeding humanity sustainably."

Focusing on growth in Health, Nutrition & Bioscience

Having announced an acceleration in executing our strategy in late 2021, we began 2022 with a new simplified operating structure, and were already well underway in a review of our two remaining Materials businesses, DSM Engineering Materials and DSM Protective Materials. That review ultimately concluded with us finding new owners for both and in deals that realized the considerable value that had been created over the decades. We are thankful to everyone who contributed to the success of these businesses and wish everyone working in them today every success as they continue their development under new ownership.

For our Health, Nutrition & Bioscience activities, we established three distinct yet complementary market-focused businesses – Animal Health & Nutrition, Health, Nutrition & Care, and Food & Beverage – each with clear opportunities to benefit the health of people and the planet. This structure better enables us to leverage DSM's strong scientific competences, the quality of our worldwide manufacturing operations, and our growing range of nutrition and health solutions. As we harness the latest advancements in digital technology and bioscience, we can offer realistic, scalable solutions to the significant challenges associated with feeding humanity sustainably. And by creating new value propositions and innovation opportunities for our customers, such as through the rapidly emerging area of precision & personalization, we can drive further long-term growth.

Performance-driven results

Against the backdrop of considerable global volatility, we delivered a solid financial performance that consolidated the rapid sales growth of recent years, highlighting the resilience of underlying consumer demand for our essential products and services. Rising energy and raw material costs weighed on profit margins, particularly in the second half of the year, owing to the time gap between the rate of inflation and the implementation of our multiple price actions. Underlying end-consumer demand however remained resilient across our markets.

Each of our Health, Nutrition & Bioscience businesses delivered good organic sales growth, reflecting their quality. Total group sales, for our continuing operations, were up 15% and Adjusted EBITDA was up 1%. Ultimately, we realized an Adjusted Net Operating Free Cash Flow from continuing operations of €310 million. Given the positive structural long-term drivers of our business, underpinned by our strong innovation pipeline, we remain confident in the mid-term financial targets for DSM.

Purpose-led progress

Within the context of such challenge, our people continued to demonstrate great resilience. Overall employee engagement remained at an all-time high of 77% and many associated indicators in our Employee Engagement Survey showed sustained improvement. Safety continues to be core to our purpose so we were disappointed to see the frequency of recordable Injuries return to pre-pandemic levels as COVID-19 restrictions in most countries eased. We will be scrutinizing every aspect of workplace safety in 2023 as our aim remains to make DSM fully incident- and injury-free. Looking at Diversity, Equity & Inclusion, the representation of women at executive level improved again (26%, up from 23%), helping us better reflect our global customer base and their end-consumers. Our Employee Resource Groups, which support a broader agenda including generational diversity, visible and non-visible disabilities, and LGBTQ+ inclusion, are now well established and having an important impact.

For the planet, we routinely evaluate what DSM can do to go further and faster toward net-zero, building a resilient business with a minimal environmental footprint. It remains possible to limit global warming to 1.5°C but this requires all organizations to align with the latest climate science. Consequently, we accelerated our target for cutting greenhouse gas emissions associated with our own operations for the second successive year. Our new target of a 59% reduction from 2016 levels by 2030 was also independently validated by the Science Based Targets initiative as aligned with limiting global warming to 1.5°C. We are able to go further faster thanks to our rapid action in recent years, such as switching to renewable sources of purchased electricity whereby we exceeded our target eight years early. We now aim for 100% worldwide by 2030. These efforts have again been acknowledged by CDP, considered the gold standard for evaluating corporate environmental disclosure, which awarded both our climate change strategy and water stewardship A ratings, making us one of only a handful of companies in our sector worldwide to achieve such high recognition.

Going beyond our own footprint, we continue to steer the development of our portfolio toward solutions that help our customers to have a better environmental and/or societal impact. In the first full year since setting clear Food System Commitments, targeting the areas where we feel we can make the greatest contribution to improving how the world produces and consumes food, we have our initial results. These quantify the considerable positive impact we are having on the health of millions of people, on healthy livelihoods, and on health of the planet, already although we have a long way to go to reach our ambitious aspirations for 2030.

The creation of DSM-Firmenich

As stewards of this great company, we were honored to be able to propose the next momentous step in DSM's evolution – a transformational merger with Firmenich that will create the leading creation and innovation company in nutrition, beauty and well-being. The transaction subsequently received overwhelming support from DSM shareholders – 99.86% – at an aptly named Extraordinary General Meeting. Like DSM, Firmenich enjoys a tremendous heritage of scientific discovery and purpose-led business. By uniting our complementary capabilities to bring about one of the largest creation communities in the industry, we intend to unlock new opportunities that benefit our customers as well as the world. In turn, this will position us to deliver enhanced growth and further shareholder value. DSM has a long track record of successful transformation, and the opportunity to bring together so many passionate people with a common commitment to improve the health of people and the planet is compelling as we seek to deliver value for all stakeholders.

“As stewards of this great company, we were honored to be able to propose the next exciting phase of DSM’s evolution.”

Thank you

As we prepare for an exciting new phase for DSM and the opportunities that the merger will bring, we would like to thank our employees for what they achieved in difficult circumstances in 2022. This has been another incredibly challenging year, but the future is bright.

A special note of appreciation goes to Helen Mets, who successfully led our Materials businesses in recent years and stepped aside after concluding the agreements to divest them. Our thanks go likewise to our Executive Committee colleagues Cristina Monteiro (People & Organization), Trish Malarkey (Science & Innovation), and Luca Rosetto (Operations), who will leave once the merger is completed in 2023. All four have been invaluable members of our leadership team over the years and their guidance and support has helped make the merger possible. We wish them all the very best for the future.

Finally, we thank our customers, suppliers, and shareholders for their continued trust. We look forward with continued optimism and confidence, ready to seize the opportunities ahead.

Stay safe and stay healthy!

Geraldine Matchett and Dimitri de Vreeze
Co-CEOs DSM

Our approach to the Sustainable Development Goals

The UN Global Goals for Sustainable Development (SDGs)

In 2016, the United Nations launched the SDGs, a roadmap to a more environmentally and socially conscious and responsible world by 2030. Companies have a key role to play in achieving the SDGs and we believe that our combination of Health, Nutrition & Bioscience contributes toward achieving the SDGs.

SUSTAINABLE DEVELOPMENT GOALS

Working on the SDGs

With our strong combination of scientific competences and our portfolio of health and nutrition solutions, we are ideally positioned to contribute to, and capture the growth opportunities offered by, the urgent societal and environmental consequences associated with how the world currently produces and consumes food. Our long-term strategy is based on challenges in our food systems and the SDGs. In 2021, we announced our new Food System Commitments for 2030 that demonstrate how we contribute to a positive impact on Health for People, Health for the Planet, and Healthy Livelihoods. For more information on how we contribute to food systems transformation, please see Food System Commitments.

Our initiatives and actionable framework comprise three pillars:

- *Improve:* We improve our own operations to do no harm to people and planet. We optimize our own operational impact by continually raising safety standards, promoting health and well-being in our own workforce, reducing our emissions and our impact on nature/biodiversity and improving our resilience, increasing our use of renewable energy, reducing our water consumption, and unlocking more value from limited resources
- *Enable:* We enable our customers and partners to have a positive impact by delivering products and solutions that enable them to deliver sustainable and healthy solutions for the planet and society
- *Advocate:* We advocate in our business ecosystem for systemic change — we advocate for the future we believe in and we fully accept our responsibilities as a corporate member of society

Our purpose and strategy align most closely with five of the SDGs, and we show here how we approach these core SDGs. Information about our engagements can be found in the Sustainability statements and throughout this Report.

SDG 2 and SDG 3

2 ZERO HUNGER

3 GOOD HEALTH AND WELL-BEING

Through our commitments, initiatives, and approach, we align most closely with the following SDG targets: 2.1, 2.2, 2.3, 3.2, 3.4 and 3.9.

The link between adequate nutrition and health has never been clearer. Diet-related non-communicable diseases (including type 2 diabetes, heart disease, stroke, and some cancers) have overtaken communicable diseases as the primary cause of deaths worldwide. At the same time, malnutrition in its various forms affects a significant portion of the world's population: around 40% of adults and 20% of children are overweight or obese, 3.1 billion people are unable to afford a healthy diet, and approximately 2.3 billion were moderately or severely food insecure (Global Nutrition report 2022). Recent research (Lancet, 2022) shows that at least 3 billion people suffer from one or more vitamin or mineral deficiency. Furthermore, the research found that half of all preschool-aged children and more than two-thirds of women of reproductive age fail to consume the most crucial nutrients needed for growth and development.

Our commitments

- We will help fill the micronutrient gap experienced by 800 million people by 2030 by the provision of fortified staple foods and health supplements that offer a proven and cost-effective method of combating malnutrition, as well as by empowering consumers to achieve healthier diets
- We will support the immunity of 500 million people by 2030 by delivering essential vitamins, minerals and other ingredients to consumers worldwide through high-performance dietary supplements
- Together with our partners, we will support the livelihoods of 500,000 smallholder farmers across value chains by 2030; we will achieve this by scaling up our innovative social enterprise model, Africa Improved Foods

Our initiatives

- We create awareness about the benefits of healthy diets and improved nutrition while continuing to develop new food solutions together with our partners of the World Business Council for Sustainable Development, the World Food Programme, World Vision, UNICEF, GAIN and the Sun Business Network
- It is our responsibility to obtain comprehensive information on the safe use of our products, and to make conscious choices concerning the substances we use and produce, taking into account the whole product life cycle

Our approach

Improve	Enable	Advocate
By reducing occupational safety incidents and promoting health & well-being in our own workforce, including good workforce nutrition, whereby we inform our employees about what constitutes a healthy diet, how consumers can make healthy choices and about the role of healthy nutrition throughout life stages.	By supporting customers to enable the production of healthy and affordable food and nutrition through solutions such as the sustainable production of animal protein foods (such as dairy, eggs, meat, poultry and fish), plant-based protein foods, fortified staples and public health supplements, immunity-supporting solutions, and food & beverage solutions. Our biomedical solutions improve quality of life for surgical patients. and improve people's health status.	We advocate a food system transformation that provides nutritious food that is sustainably produced, in partnerships to address sustainable and healthy nutrition through partners such as the World Business Council for Sustainable Development (WBCSD) and the World Economic Forum (WEF), and in partnerships to fight malnutrition, such as the UN World Food Programme (WFP), UNICEF, World Vision International and Scaling Up Nutrition (SUN).

SDG 7 and SDG 13

Through our commitments, initiatives, and approach, we align most closely with the following SDG targets: 7.2, 7.3, 13.2 and 13.3.

The stability of the world's climate is under threat. We believe there is an urgent need to take action to curb climate change and its irreversibly damaging effects by dramatically limiting greenhouse gas emissions, transitioning to renewable energy, and adopting low-carbon emission solutions and processes. At the same time, it is also crucial to strengthen the resilience and adaptive capacity of societies against intensifying climate hazards and their impact on people and the environment.

The food, agriculture and forestry sectors are responsible for at least one quarter of anthropomorphic greenhouse gas emissions (IPCC, 2021). Agri-food also signficantly impacts biodiversity loss on land and in the oceans. Transforming food systems from farm to fork will therefore be key to reduce environmental impacts and mitigate climate change while ensuring food stays affordable and farmers are provided a healthy livelihood.

The transition to a low-carbon economy will also create business opportunities and drive growth for our innovative and sustainable solutions. We contribute to the development of a low-carbon economy not just by reducing our own emissions but also by developing solutions to help customers and consumers to cut theirs.

Our commitments

- We commit to reaching net-zero emissions across our value chains by 2050, aligning our actions with a 1.5°C ambition, and to set us on this path, we work with our Science Based Targets (SBT), comprising a scope 1 + 2 absolute reduction of 59% and a scope 3 intensity reduction of 28% by 2030 versus baseline 2016
- We will enable double-digit reductions in emissions from on-farm livestock by 2030
- We will reach 150 million people with nutritious, delicious, sustainable plant-based protein foods by 2030
- Our SBTs are supported by targets of an average annual energy efficiency improvement of >1% and 100% purchased electricity from renewable sources by 2030

Our initiatives

- We apply an internal carbon price of €100/t CO_2eq to our key investments and acquisitions

Our approach

Improve	Enable	Advocate
Our long-term goal is net-zero emissions by 2050 at the latest. To put us on track to achieve this, by 2030 we will reduce our own carbon footprint and improve the resilience of our assets and supply chains. Our approach to resilience and adaptation, including physical and transition risk assessments, is summarized in Taskforce on Climate-related Financial Disclosures (TCFD).	By enabling the low-carbon economy through solutions that help customers cut emissions and improve society's ability to adapt to climate change. These include products with significantly lower carbon footprints (such as Quali-C®), improving the sustainability of animal farming (such as Bovaer®, which reduces methane emissions from cows by 30% or more) and advancing plant-based protein options (such as CanolaPRO®).	We advocate accelerated climate action and building the movement for a low-carbon, resilient economy by showcasing solutions and best practices in key climate platforms such as COP26 and through collaboration with cross-domain initiatives such as the World Economic Forum (WEF) and We Mean Business, and leading thematic climate platforms such as the Carbon Pricing Leadership Coalition (CPLC) and RE100.

SDG 12

Through our commitments, initiatives, and approach, we align most closely with the following SDG targets: 12.2, 12.3, 12.4 and 12.5.

As the world's population grows, demand for the Earth's resources will only continue to rise, and with a population projected to grow to 9.7 billion people by 2050, some estimates suggest we will need the equivalent of three Planet Earths by then to sustain our current lifestyles. In addition, over 30% of all food produced is either lost or wasted, representing a huge drain on natural resources. Considering our global economy is only 8.6% circular and that planetary boundaries are already crossed, society as a whole must move away from linear production and consumption systems and work together to build sustainable food and production systems. We are making important contributions to the development of a circular, bio-based economy founded on closed-loop solutions.

Our commitments

- We will improve water withdrawal efficiency in water-stressed areas by 10% by 2030 versus 2020
- We will maintain improvements in our total process-related waste efficiency and work towards a new target of 50% absolute landfill reduction by 2030 vs. 2020

Our initiatives

- 'Safe and sustainable by design' is the leading principle in the development of new and better products and processes
- We act as advocates for SDG 12.3 'Halving food loss and waste' and we actively support our customers with reducing food loss and waste reduction from farm to fork, for instance in the dairy, juice, meat and eggs value chains

Our approach

Improve	Enable	Advocate
By unlocking more value from the limited available resources. Water security, waste management and our impact on nature and biodiversity are important aspects of our continuous improvement mindset. We minimize the use of substances of concern wherever possible.	By enabling our customers to design safer and more circular end-products, and to minimize the use of finite resources by using renewable raw materials and valorizing by-products. These include our solutions Veramaris®[1] and CanolaPRO®.	We advocate the transition from a linear to a circular and bio-based economy through global platforms such as the World Business Council for Sustainable Development (WBCSD), and the reduction of food loss and waste through Champions 12.3.

1 Veramaris® is a trademark owned by Veramaris V.O.F, a joint venture between DSM and Evonik

Our contribution across the SDGs

Our purpose-led, performance-driven strategy is based on global megatrends and the SDGs. We align our approach with five 'core' SDGs: SDG 2 and SDG 3, SDG 7 and SDG 13 and SDG 12. In addition to these 'core' SDGs, we believe that we can also apply our Improve, Enable and Advocate approach to a varying extent across all the SDGs. Below we indicate our estimated contribution in respect of all the SDGs.

		Improve	Enable	Advocate
1	No Poverty	••	•	••
2	Zero Hunger	•	•••	•••
3	Good Health and Well-Being	••	•••	•••
4	Quality Education	•	•	••
5	Gender Equality	••	•	•••
6	Clean Water and Sanitation	•	••	•
7	Affordable and Clean Energy	•••	•	•••
8	Decent Work and Economic Growth	••	•	••
9	Industry, Innovation and Infrastructure	•	••	••
10	Reduced Inequalities	••	••	••
11	Sustainable Cities and Communities	•	••	••
12	Responsible Consumption and Production	••	•••	•••
13	Climate Action	••	••	•••
14	Life Below Water	•	••	••
15	Life on Land	•	••	••
16	Peace, Justice and Strong Institutions	•	•	••
17	Partnerships for the Goals	••	••	•••

Estimate of contribution

• Minor •• Moderate ••• Major

Improve: Improving the impact within our own operations.
Estimated based on a review of our strategy and company-wide programs, including the DSM Responsible Care Plan.

Enable: Products that enable our customers to deliver sustainable products for planet and society.
Estimated based on a qualitative assessment of the benefits of our products as measured through our environmental and social life cycle assessments.

Advocate: Advocating the future we believe in and acting on our responsibilities.
Estimated based on the topics addressed by the platforms and networks that we participate in.

Sustainable Portfolio Steering

More than a decade of positive impact

At DSM, sustainability is a core value and key business driver of the company. We deliver science-based, sustainable, and scalable solutions that address the challenges of our world today. In 2010, we introduced our Eco+ indicator to measure and steer the environmental performance of our products and innovations. We were a founding member of the Roundtable for Social Metrics, a methodology that we implemented as People+ in 2016, the year that our Brighter Living Solutions (BLS) key performance indicator (KPI) was introduced.

The commonality between these elements is that the insights from our product impact studies have shown us where to make further progress and apply our scientific competences. We have thus been able to steer and constantly improve the sustainability performance of our products for our customers and end-consumers. Externally, we contributed to a sector-wide framework developed by the World Business Council for Sustainable Development (WBCSD) to execute Portfolio Sustainability Assessments (PSA).

The area of impact measurement is constantly evolving and receives increased attention and scrutiny from internal and external stakeholders. This is evident from the increased attention that legislators provide to product performance impact. Building on the success of our previous impact measurement program, we foresaw the need to renew our methodology to improve transparency and prepare us for upcoming reporting requirements.

Measuring the sustainability performance of our products through BLS+

For our renewed methodology, we established 11 sustainable impact drivers against which our solutions are assessed to create insight into their sustainability profiles. This is a holistic assessment covering themes that impact people, livelihoods, and the planet. It can therefore be applied across our entire portfolio to increase the transparency of our reporting.

The solutions that are designated as Brighter Living Solutions Plus (BLS+) need to deliver a sustainability benefit while doing no significant harm to people or planet. These products pass our internal minimum performance requirements, deliver a recognized benefit to one or more of the 11 impact drivers, and have no recognized, urgent negative impacts across the other impact drivers. The 11 drivers enable us to align the impact of our products more closely with the Sustainable Development Goals.

"The improved BLS+ indicator builds on our decade-long experience in impact measurement and provides deep insights into the sustainability performance of our product portfolio."

Achim Hupperts, VP Sustainability Royal DSM

The 11 Sustainable Impact Drivers of the renewed methodology

By first looking at the performance of each product individually, we have better data availability, can better identify steering levers to further improve our portfolio, and can provide an appropriate representation of the sustainable performance of our entire portfolio. If a benefit is expected to outperform the market, a full comparative life cycle analysis is required, providing additional quantitative evidence to further substantiate the assessment of the product.

Key changes from BLS to BLS+

The key changes to the updated BLS+ methodology are the following:

- A minimum performance level is established for all products linked to Product Stewardship criteria
- The assessment approach is more holistic, structured, and comprehensive, ensuring transparency of impact on People, Planet and Livelihoods
- The initial qualitative assessment is based on DSM stand-alone product performance, identifying whether the product delivers sustainability benefits and causes no significant harm, as recognized by stakeholders
- To achieve the Outperforming category, a full comparative life cycle is required in addition to the qualitative base assessment, providing additional quantitative evidence

Moving from BLS to BLS+

To effectively steer the portfolio, we identified the need to differentiate performance levels across the portfolio. The ou the new assessment places a product into one of three perf categories: 'Outperforming', 'Performing' or 'In Transition'.

There will be a changeover period during which all existing assessments based on the former BLS methodology will be updated to the new BLS+ methodology. As part of the changeover, all products with valid assessments and which were identified as BLS based on a comparative:

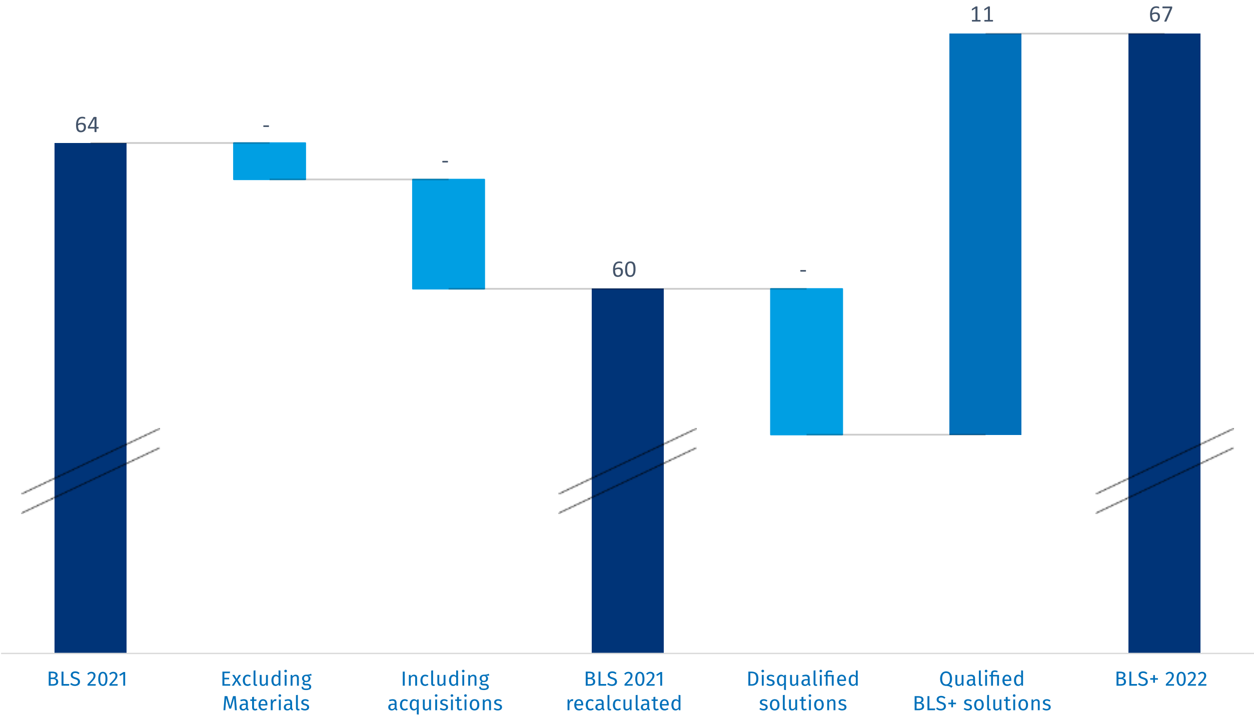
- Life cycle analysis will be classified as Outperforming
- Expert opinion will be classified as Performing

The three performance categories will be used for internal steering and target-setting; however, external disclosure will be on the BLS+ indicator, combining Performing and Outperforming. The BLS+ indicator represents the third-party net sales related to the sum of the products that are defined as Outperforming and Performing, as a ratio of total third-party net sales.

In addition to reclassifying the assessments that were valid under the old methodology, we will also apply the new methodology to the remainder of the unassessed portfolio. This may lead to products qualifying under the new BLS+ indicator which were not qualified under the previous BLS indicator – products that deliver a clear health or environmental footprint benefit, recognized by stakeholders in the value chain, yet where that benefit is considered on a par with a key competitor.

BLS+ 2022 Performance review

BLS to BLS+ conversion sales bridge



The 2022 reporting for BLS+ excludes Materials, as the updated methodology was presented after the announcements of the intention to divest the Materials businesses. This gives a more representative picture of our performance today and in the future. The performance of the Materials businesses was on average slightly higher than the total DSM performance. Furthermore, the 2022 performance includes acquisitions in line with our non-financial reporting policy, which has a significant impact on the indicator. These actions were also performed on the 2021 BLS indicator to define a baseline for the conversion to the BLS+ indicator in 2022.

For 2022, we performed a high-level review of the existing BLS assessments to ensure the validity of our conclusions, which resulted in some disqualifications, and we put a significant effort in further evaluation of the portfolio according to the BLS+ methodology. These new assessments had an impact of 11% on the overall portfolio performance.

Food System Commitments

The world is facing multiple interconnected global food system challenges that impact the health of people and planet, and the livelihoods of the people who produce our food.

In order to achieve the Sustainable Development Goals and the Paris Agreement, the world needs to transform its food systems. We are determined to apply our science-based solutions to contribute to significantly reducing the environmental impact of food production, improve health impacts through improved nutrition and create a fairer food industry, joining forces with governments, NGOs, academics, and knowledge institutes.

In 2021, we published a series of commitments that outline our dedication to transforming food production and consumption. These align with our business priorities, which deliver the environmental, social and health impacts we create. We will deliver on these commitments by working closely with our value chain partners, including our customers and suppliers.

For more information on how we measure our Food Systems Commitments, see the Non-financial reporting policy.

Health for People

642 million

Help close the micronutrient gap of 800 million vulnerable people by 2030

In 2022, we provided nutritional solutions that reach 642 million vulnerable people, many of whom are mothers and children with especial nutritional needs. These nutritional solutions currently entail the market output of a selection of our nutrition portfolio such as fortification for staple foods, public health supplements and emergency foods, with the reach measured by means of the use of standard formulations and dosage regimes.

This year, we have made our solutions more widely accessible, working together with our partners including the World Food Program, UNICEF and World Vision.

321 million

Support the immunity of half a billion people by 2030

In 2022, our products helped support the immune systems of 321 million people. We measure this figure via our sales of vitamin C and D solutions into multivitamin and straight supplements. The inclusion rate of vitamins is based on the composition of consumer products, and the annual use of supplements by consumers is based on market research.

This year, we further promoted the role of micronutrients for a well-functioning immune system and the vital role of health and well-being. We provided support to an article in the journal Vaccines titled “Micronutrients to Support Vaccine Immunogenicity and Efficacy”, as well as a global ‘Immunity Report 2.0’ campaign that focused on key consumer-immunity trends and solutions to support customers.

Health for Planet

20.5% Dairy
20% Swine
6.8% Poultry

Enable double-digit on-farm livestock emission reduction by 2030

We deliver solutions that enable our animal protein farmer customers in various animal protein value chains to achieve emission reduction. In 2022, we enabled:

- A 20.5% reduction in greenhouse gas emissions in dairy production (target: 20% in 2030)
- A 20.0% reduction in ammonia emissions from swine farming (target: 30% in 2030)
- A 6.8% reduction in phosphorus emissions from poultry farming (target: 30% in 2030)

The percentage of emission reduction potential per kg of animal protein product is calculated on the verified lifecycle-assessment-based reduction performance of the feed additive solutions on the market.

In 2022, we further invested in cutting edge technologies such as Bovaer®, our methane inhibitor solution for ruminants. Bovaer® achieved EU approval in February 2022, and we began construction to scale up production of Bovaer® with the official groundbreaking ceremony in November at our location in Dalry (Scotland). For swine we are further investing in technologies such as feed enzymes and eubiotics, including VevoVitall® and Digestarom®.

62 million

Reach 150 million people with nutritious, delicious, sustainably produced plant-based foods by 2030

In 2022, we reached 62 million people with solutions for nutritious, delicious, sustainably produced plant-based protein foods such as meat, dairy and fish alternatives. We calculated the number of people's lives reached by reference to our market output and known recipes and market consumption data for plant-based meat and dairy alternatives.

In December, we launched the Vertis plant proteins portfolio of solutions, which will enable us to expand our impact and further develop our collaboration with key customers in the meat and dairy foods segments.

Healthy Livelihoods

>60,000 smallholder farmers

Support the livelihoods of 500,000 smallholder farmers by 2030

Through our Africa Improved Foods (AIF) joint venture, and working together with our partners, we reach at least 60,000 smallholder farmers in Rwanda and Sub-Saharan Africa. AIF engages with small holder farmers directly, and via traders and farming cooperatives, as well as by working with our partners including World Vision to maintain and improve farmer livelihoods. We are working on solutions to further improve the documentation of the full scale of our impact, with an eye to local conditions and the differing business context and practices. Furthermore, we are developing new business activities in greater Africa, Latin America and South East Asia where farmer engagement, training and improved livelihoods are core to the business model. We will assess the impact of these activities as they mature.

Basic Commitments

Food system commitment 6: Deforestation-free in our primary supply chains by 2030

In 2022, 67% of our relevant sourced volume was assessed as deforestation-free. This relates to our Tier 1 supply chain for our deforestation-risk crops: palm-derivative products, sugarcane, and direct soy and corn products. We assess 'deforestation-free' through certification schemes such as RSPO (Roundtable on Sustainable Palm Oil) and Bonsucro, making the next steps toward deforestation-free primary supply chains.

Food system commitment 7: Good workforce nutrition for all employees by 2030

As a company focused on supporting good health through nutrition, we ensure access to good nutritional information and increased access to healthy nutrition for all our employees. In 2022 we launched the 'Let's Chat Nutrition' program, with 3 global webinars reaching DSM employees globally, creating further awareness of what a healthy diet involves, how to make healthy choices and how nutrition needs change throughout the lifespan. In 2022, we provided access to food via canteens as well as food in vending machines for 69% of our workforce. In 2023, an approach to define the 'healthy' dimension of food will be documented, and we will assess the access to healthy food with this definition.

Report by the Managing Board

Purpose

We have distinguished ourselves for more than a decade by embracing sustainability and providing value for all stakeholders across the three dimensions of People, Planet and Profit. Our purpose is fully anchored in our long-term purpose-led, performance-driven strategy as we strive to contribute to a brighter world with our science-based solutions.

Creating brighter lives for all

As a global leader in the science behind better health and nutrition, we have the opportunity, capability, and therefore the responsibility to apply our resources and expertise where they can have the greatest impact. We use our bright science to deliver positive transformations at scale and to create brighter lives for all.

We aspire to create value for all our stakeholders — customers, employees, shareholders, and society at large — and to build a strong legacy and a brighter future for generations to come.

We strive to contribute to a brighter world with our science-based solutions

Acting on our purpose

We make change happen in three ways:

- *Improve:* We improve our own operations with the aim of continually reducing their impact on people and planet. We optimize this by continually raising safety standards, promoting health and well-being in our workforce, improving resilience, reducing our environmental footprint, and unlocking more value from finite resources
- *Enable:* We enable our customers and partners to have a positive impact by developing solutions that help them to deliver healthier and more sustainable outcomes for the planet and society
- *Advocate:* We advocate in our wider business ecosystem for systemic change, advocating for the future we believe in and fully accepting our responsibilities as a corporate member of society

We are convinced that every company has a responsibility to deliver value for all stakeholders — not just employees, customers, and shareholders, but also the communities in which it operates as well as the wider world. We feel this responsibility, and therefore take an integrated approach whereby we work to reduce our negative impact and maximize our positive impact through the implementation of a range of internal and external initiatives. These include:

- Delivering against science-based targets in line with keeping global warming to no more than 1.5°C, providing a firm foundation for DSM to achieve net-zero across our operations and value chains by 2050 if not sooner
- Applying our competences and resources to address urgent societal and environmental challenges, including quantifiable commitments linked to food production and consumption where we can make the greatest impact

An overview of these initiatives can be found in Planet and throughout this Report. Examples of our purpose-led solutions are provided in Animal Nutrition & Health, Health, Nutrition & Care and Food & Beverage.

Our purpose is championed at every level across our company, including our Executive Committee which sets DSM's overall strategy and direction.

DSM Executive Committee

DSM Executive Committee (clockwise from top left): Philip Eykerman, Andre Bos, Helen Mets (left DSM in December 2022), Ivo Lansbergen, Patricia Malarkey, Luca Rosetto, Cristina Monteiro, Patrick Niels, Dimitri de Vreeze and Geraldine Matchett.

Strategy

Health, Nutrition & Bioscience

Throughout 2022, we made rapid progress on DSM's strategic journey toward becoming a company focused on **Health, Nutrition & Bioscience**, using our resources and capabilities to address the urgent societal and environmental consequences associated with how the world currently produces and consumes food.

Consequently, and in parallel, we completed a review of strategic options for our two Materials businesses and reached sale agreements whereby they will each be core to the respective growth ambitions of new owners. For more detail, see the section on Materials. During the same period, we announced our intention to enter into a **merger of equals with Firmenich**, the world's largest privately-owned fragrance and taste company. This new chapter in our history is introduced in the Co-CEO letter.

Our evolution as a **purpose-led, science-based company** remains anchored in developing customer-centric, market-ready quality solutions. At the same time, we continue to prudently manage costs and drive operational excellence to support further growth.

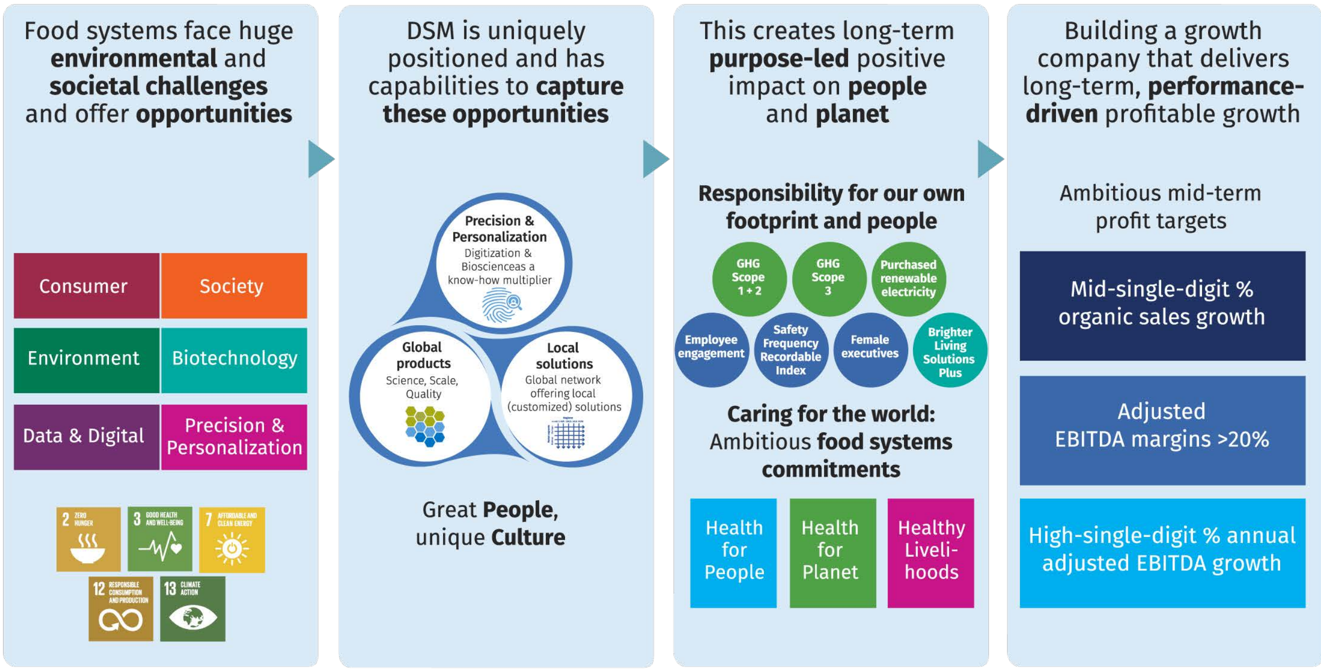
Following changes in 2021, our Health, Nutrition & Bioscience organization is now structured into three distinct end-market-focused **Business Groups**:

- Animal Nutrition & Health
- Health, Nutrition & Care
- Food & Beverage

Each business has clear opportunities to benefit the health of people and the health of the planet which, by addressing major societal and environmental challenges, underpin our **exciting future potential**. Each business is also closely aligned with its respective customers and, through the integration of dedicated research and development teams, is fully equipped to rapidly develop impactful, science-based innovations. We carefully consider complementary acquisitions when they can further strengthen our capabilities or expand our customer offering in line with our long-term strategy.

By improving the impact of our own operations, enabling health and nutrition solutions for our customers, and advocating for making global food systems sustainable, we positively contribute to achieving the **United Nations Sustainable Development Goals** while at the same time improving our financial performance. By delivering on all aspects of our People, Planet and Profit ambitions, we seek to provide value for all our stakeholders.

Our Strategy



The world's food systems as business drivers

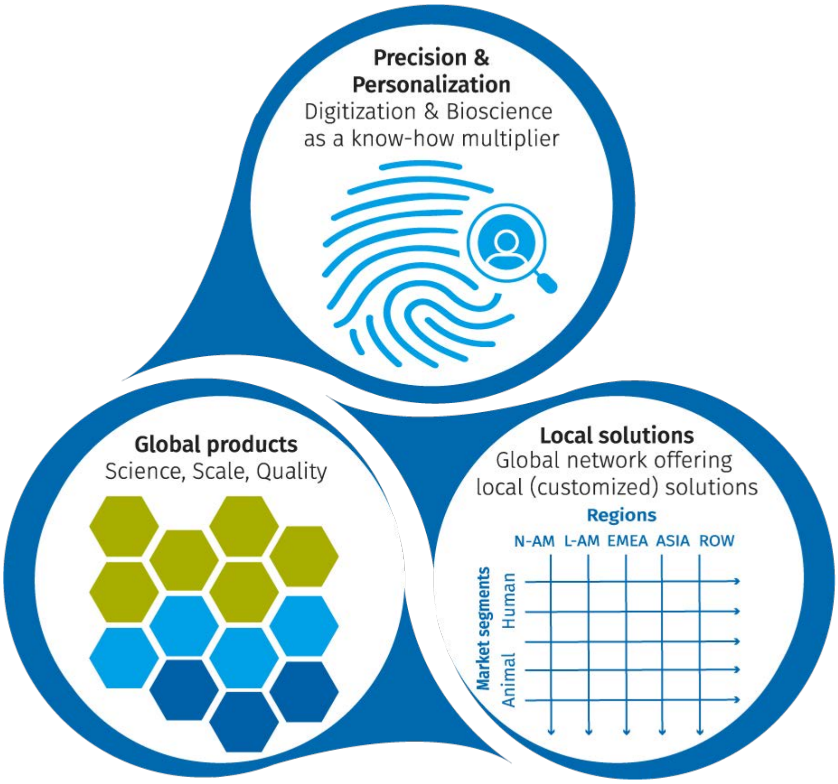
The **global population** surpassed 8 billion in 2022 and is projected to reach 9.7 billion by 2050. Simultaneously, demand for healthier, balanced, and more nutrient-rich diets is rising — driven not only by the growth in the number of people but also by changing public awareness of the connection with health and subsequent consumer expectations.

At the same time, the Intergovernmental Panel on Climate Change (IPCC) Report of 2021 warned that our world is rapidly approaching critical and irreversible tipping points. While food production remains one of the largest contributors to environmental degradation, climate change is already creating considerable challenges worldwide. **Multiple systemic and interconnected challenges** are impacting the health and well-being of people, animals, and the planet.

Advances in bioscience and digital technology offer **realistic scalable solutions** to mitigate and even tackle these challenges while creating new markets and innovation opportunities. With our strong combination of scientific competences and our growing portfolio of nutrition and health solutions, we are ideally positioned to capture these opportunities and create value for people and the planet as well as our business.

Our business model for growth

Our Health, Nutrition & Bioscience strategy is derived from our **'global products, local solutions'** business model and complemented by our growing competences in the rapidly emerging area of **'precision & personalization'**.



We develop global products based on shared scientific foundations, in particular our biotechnology and chemistry expertise, which are then produced at the quality and scale enabled by our internationally diversified manufacturing network. Our growing portfolio includes vitamins, nutritional lipids, carotenoids, minerals, eubiotics, enzymes and yeasts, as well as texturants, flavors and cultures, that have important human and animal nutritional benefits.

Our end-market focus allows us to better understand local needs such that we can deliver relevant solutions for our customers. In turn, this approach opens up additional innovation possibilities. With our significant worldwide premix footprint, together with increasing competences in analytics and diagnostics that enable tailored formulations and delivery systems, we are able to develop customized local solutions for our customers wherever they are.

Through this well-established business model, we have built distinct business groups that benefit from shared capabilities as part of a profitable growth company. Developments in data science and bioscience are creating exciting additional opportunities to address challenges in health and nutrition. Rapid advances in fields such as computational biology, gene technology and Artificial Intelligence (AI) are transforming our ability to better understand and influence the interplay between health, nutrition, and the environment in both human and animal biology, even at an individual level.

We are swiftly developing an additional dimension to our future growth: precision & personalization. Drawing on our emerging capabilities, which were complemented in 2022 by our acquisition of animal nutrition technology company Prodap, we seek to create digital solutions that make the invisible, more visible and deliver unprecedented levels of specificity. Leveraging our reputation, science-based competences, and worldwide customer base, we seek to create digital solutions that deliver more targeted and therefore more effective health solutions as well as measurable sustainability benefits.

Our focus in Science and Innovation

Science and innovation are fundamental to our future growth and a crucial means by which we will support the sustainable transformation of global food systems, the need to mitigate and adapt to climate change, and to overcome resource scarcity through bio-based nature-positive solutions. Building on more than 150 years of expertise, DSM today is a global leader in bioscience, and our innovations address major societal challenges as we reach billions of people around the world.

Innovation is what transforms our 'Bright Science' into 'Brighter Living'. Supported by our global network of advanced biotechnology and chemistry centers, we aim to develop breakthrough innovations with proven benefits by leveraging our understanding of health and nutrition for both people and animals.

Our long-term success requires us to be able to serve our customers with innovation that is grounded in market insights and enabled by digital technology as well as best-in-class production and launch capabilities. In order to achieve this, we regard innovation as an enterprise-wide endeavor in which those who invent, make and sell have a shared responsibility.

We deploy our science and innovation capabilities via shared and business-dedicated teams that reflect the end-market orientations of our Health, Nutrition & Bioscience businesses. With priority-setting and resource allocation done by those closest to the customer, we ensure our teams are connected to those customers' needs and have full alignment from ideation to commercialization.

Through cross-business teams, we develop and scale process innovations that benefit the competitiveness of all our businesses. Applying biodata and translational science, with the use of advanced digital technologies such as big data, deep learning and modeling as well as lab automation, strengthens our entire organization further by helping accelerate innovation and providing objective evidence of the efficacy of new solutions.

Our ongoing investment in science and innovation ensures that we have the right combination of skills, technologies, and partners to meet specific unmet market needs. At the end of 2022, we had 75 laboratories spread across 12 countries and over 1,300 scientists, including professors and academic associates around the globe, all working together to drive the progress of our Health, Nutrition & Bioscience businesses.

To reinforce our worldwide position as a leader in bioscience and create greater value for DSM and society at large, we continued to align our science and innovation organization with the changing needs of the market as well as with the increasing speed of technological and scientific advances in the world. By encouraging an environment which supports both the short-term needs of our businesses today and the longer-term requirements for breakthrough advances in science, we maximize our potential to make a positive difference for People, Planet and Profit.

Purpose-led, performance-driven innovation

We focus on four overarching growth themes that address major global societal, environmental and technological trends which in turn inform our innovation platforms. These themes – Pathways, Proteins, Prevention and Precision – and the resulting platforms help us to deliver a business-anchored pipeline of innovations that are aligned with our future strategic needs and support our growth ambitions.

- Pathways: Using our base strength in biotechnology and chemistry to manufacture ingredients with better effectiveness, efficiency, or a better environmental footprint — for example, Veramaris® algal-based lipids provide a more sustainable fish oil alternative with multiple applications including aquaculture and dietary supplements
- Proteins: Solutions that reduce the footprint of animal protein production and meet the growing demand for meat, fish, and dairy alternatives — for example our feed additive Bovaer®, which significantly reduces methane emissions from cattle, or plant-based specialty proteins such as CanolaPRO®
- Prevention: Using our rich portfolio of active ingredients to proactively optimize health and immunity – for example, as we learn more about the gut microbiome of people and animals, we see potential in developing solutions such as our first precision biotic, Symphiome®, which modulates specific metabolic pathways to benefit the health of poultry animals and the environment
- Precision: Digitally enabled new business models can identify the precise nutrition needed to maximize health outcomes for people and animals – for example our Verax™ platform digitizes animal health and nutrition monitoring and nutrition including early disease diagnosis and diet formulation optimization

Each growth theme is also connected to a technology platform that develops disruptive technologies to a level of readiness required for implementation in a business context. A balanced mix is maintained between serving the shorter-term innovation needs of customers today and developing disruptive concepts.

Our resulting pipeline of innovation underpins our future growth as well as our sustainability ambitions.

R&D expenditure

Innovation sales – defined as products and applications that have been introduced during the previous five years — have improved our profitability, delivering higher margins than the average of our running business. We continuously invest in innovation in view of the overall balance of our product portfolio and product life cycles.

	2022	2021
R&D expenditure in € million (continuing operations)	345	315
R&D expenditure as % of net sales (continuing operations)	4.1	4.3
Staff employed in R&D activities (continuing operations)	1,226	1,162

Scientific collaboration

Our **open and collaborative approach** increases our scientific scope and helps us make joint scientific contributions to address significant scientific societal and environmental challenges. We participate in more than 70 public-private partnerships (PPPs) that are relevant to our innovation growth themes.

Our employees collaborate with more than **100 organizations worldwide** including academic institutions and other R&D partners such as the European Union scientific research initiative Horizon Europe, Iowa State University in North America, and Maastricht University in the Netherlands.

External venturing

The **DSM Venturing unit** provides investment, coaching, and support for startups that have the potential to transform health and nutrition through bioscience and digital technology, as well as through new business models. We made 6 new investments in 2022, 14 follow-on investments, and successfully realized the value of several of our investments through various liquidity events. We also generated several leads for collaboration with businesses at DSM. By the end of the year, our portfolio included 38 startups (2021: 38). For more information, see the DSM Venturing website.

Internal venture-building

We build and scale innovative ventures within DSM by means of a **venture-capital approach** with dedicated entrepreneurial teams, simple startup-style board governance, and value inflection driven milestone-based funding rounds. An example of this approach is the creation and development of Hologram Sciences, Inc. This venture incorporates our activities in personalized nutrition in the US within the framework of our Health, Nutrition & Care business, and has launched brands such as d.velop™, designed to optimize vitamin-D immunity, and Phenology™, offering holistic support including the physical, mental, and emotional impacts for the perimenopause and menopause experience. Hologram Sciences combines proven science with the latest technology to create health diagnostics, digital coaching and personalized nutrition solutions that help people optimize their health and well-being.

IP & Licensing

Our group of qualified IP professionals protect DSM's innovations by securing **patents and trademarks** worldwide. This group also includes certified licensing professionals who offer expertise for intellectual property-intensive deals across all of DSM's businesses, including joint development agreements, technology acquisitions and sales, and in-, out- and cross-licensing deals. DSM filed 165 patents across our Health, Nutrition & Bioscience activities in 2022 (2021: 179). This reflects our continued focus on innovation projects with the highest potential for business impact.

Our focus in Animal Nutrition & Health

Our Animal Nutrition & Health business is one of the world's largest suppliers of animal feed additives, seeking to accomplish a robust and achievable transformation that will make livestock farming worldwide radically more sustainable.

By drawing upon the latest science and technology, we aim to reduce the ecological footprint of animal protein production even as consumer demand worldwide increases. We support the entire livestock value chain to address growing environmental and economic challenges by applying our global network of manufacturing facilities and research and development expertise. With a broad portfolio of specialty products and services, we work towards the United Nations Sustainable Development Goals 2 (Zero Hunger), 3 (Good Health and Well-Being), 12 (Responsible Consumption and Production), 13 (Climate Action), and 14 (Life Below Water).

Our growing range of solutions includes essential products such as vitamins, minerals and carotenoids that help improve animal health and farming efficiency, supporting the livelihoods of farmers while keeping vital protein affordable for consumers. Groundbreaking innovations, including the application of novel enzymes, microbes and eubiotics, further contribute to reducing food loss or reducing emissions from livestock to alleviate the pressure on the planet's finite natural resources on land and in the seas. We continue to build specialist competences for a wide variety of animal species, as well as invest in our direct business-to-farmer and overall go-to-market capabilities.

Advances in digital technology are underpinning our emerging precision services, where we use sophisticated data analysis and diagnostic tools to measure and pinpoint specific health and environmental opportunities for improvement at the farm level such that we can offer bespoke customer solutions. In this way we aim to make the invisible, more visible, further improving the welfare of animals, as well as the profitability and sustainability of farming.

Our focus in Health, Nutrition & Care

As a leading end-to-end provider of specialty nutritional, personal care and biomedical solutions, our Health, Nutrition & Care business aims to help keep the world’s growing population healthy through all of life’s stages.

Building upon our deep scientific competences, we are focused on improving the immune, gut, brain and skin health of people, as well as orthopedic and cardiovascular solutions. In doing so, we tackle major societal challenges that range from preventing malnutrition to supporting an aging population and safeguarding people against environmental threats like air pollution and skin cancer. Through our broad and growing portfolio of clinical-science-backed solutions, we address the United Nations Sustainable Development Goals 2 (Zero Hunger), 3 (Good Health and Well-Being) and 12 (Responsible Consumption and Production).

As a consequence of the COVID-19 pandemic, consumers worldwide are increasingly aware of the crucial role of nutrition in supporting immunity. This is driving innovation as we develop solutions including vitamins, nutraceuticals and probiotics to meet demand. The pandemic has simultaneously accelerated consumers’ use of digital technology to proactively seek information and make purchasing decisions in order to take preventative health measures.

As a fully integrated provider, we enable our customers to concentrate entirely on the branding and commercialization of their products. This approach also creates opportunities for our own direct-to-consumer business, i-Health, and for our personalized nutrition venture Hologram Sciences, Inc., which adds advanced diagnostics and lifestyle advice to provide pioneering holistic customized solutions.

As part of our long-term commitment to improve the health of people everywhere, we continue to champion efforts to increase the availability of micronutrient-rich food among the world’s most vulnerable communities through partnerships such as with the United Nations World Food Programme, UNICEF and World Vision, as well as our joint venture Africa Improved Foods.

Our focus in Food & Beverage

In Food & Beverage, we develop sustainable solutions at the intersection of taste, texture, and health, supporting the availability of diets that are healthy for people as well as the planet without compromising on taste.

As a leading global supplier of food ingredients, including yeasts, enzymes, cultures, bio-preservatives, hydrocolloids, specialty proteins, and sugar alternatives, we help our customers satisfy the unique tastes and nutritional needs of consumers while simultaneously reducing demands on the planet's finite resources and the industry's environmental footprint. By making diets healthier and more sustainable, and giving increasing numbers of people access to affordable, quality food, we address the United Nations Sustainable Development Goals 2 (Zero Hunger), 3 (Good Health and Well-Being) and 12 (Responsible Consumption and Production).

We apply more than 150 years of bioscience and fermentation expertise alongside a unique and extensive portfolio of solutions and deep application knowhow to provide a fully integrated offering. By anticipating and rapidly adapting to evolving consumer needs and expectations, such as the growing interest in natural and clean label products or flexitarianism, we help our customers develop and deliver on-trend, differentiating products fast.

Powered by close customer proximity and the ability to deliver products that are fully tailored to specific local market requirements, we strive to ensure customers and consumers do not need to choose between food that is delicious, nutritious, or sustainable. They can enjoy it all.

Delivering purpose-led, positive impact

At DSM, sustainability is not only our core value and a key responsibility; it is also a key business driver that is fully engrained in our purpose, strategy, business, and operations. Our approach for bringing about positive change is to improve, enable and advocate.

Responsibility for our own footprint and care for our people

Core to our strategy as a purpose-led company is our commitment to creating brighter lives for all. This guides how we think about our impact on the world, the communities around us, and our own people. Over the course of recent years, we have developed, and acted upon, an ambitious set of increasingly high goals.

With regards to minimizing our environmental footprint, we routinely evaluate what DSM can do to go further, faster. This has led us to regularly increase our targets as we cut emissions, transition to renewable electricity, and improve the energy efficiency of our operations worldwide. The independent assessment of the Science Based Targets initiative provides validation that our plans are in line with the latest climate science and in limiting global warming to no more than 1.5°C.

Concurrently, we have long-held ambitions for further improving employee engagement, safety, and diversity, in recognition of our respect for, and responsibility toward, our colleagues around the globe. We routinely assess our progress and set new higher targets to drive our progress.

	GHG emissions reduction Scope 1 + 2 (Absolute)	GHG emissions reduction Scope 3 (Intensity)	Purchased renewable electricity	Employee engagement favorable score	Safety frequency recordable index	Female executives
Ambitions	59% by 2030 (vs 2016)	28% by 2030 (vs 2016)	100% by 2030	>76% by 2022	<0.20 by 2027	30% by 2025

For more details on our initiatives and progress, see People and Planet.

Creating a positive impact for society

Through investment in our bioscience-based innovations, extensive partnerships, and vocal advocacy activities, we aim to help deliver change to ensure **accessible, affordable, healthy nutrition** for all within planetary boundaries. Recognizing the urgent societal and ecological challenges specifically linked to how the world produces and consumes food, we have also set a series of quantifiable commitments in areas where we believe we can best apply our expertise to make the greatest positive impact more widely in society.

Sustainable portfolio steering

To better support our customers in delivering sustainable and healthy solutions, we have updated our methodology for steering the development of our portfolio of solutions that allows for greater comparability, supports reporting against new and future requirements of regulating authorities, and creates transparency on our contribution towards achieving the United Nations Sustainable Development Goals. The products and services that we consider to be delivering a sustainability benefit, while doing no significant harm to people or planet, are identified and designated as being **Brighter Living Solutions Plus** (BLS+). More information on our BLS+ methodology can be found in Sustainable Portfolio Steering.

Food System Commitments

DSM was one of the first companies in the sector to make our societal impact explicit through a set of measurable commitments and our actions support the **United Nations Sustainable Development Goals** 2 (Zero Hunger), 3 (Good Health and Well-Being), 12 (Sustainable Consumption and Production), and 13 (Climate Action). Details of our progress can be found in Food System Commitments.

Delivering performance-driven profitable growth

Generating profitable growth enables us to have a greater positive impact on the world and to deliver value for all stakeholders. The **key driver of our growth**, beyond the underlying trends of the areas in which we operate, is the continued expansion of our offering to customers. By harnessing our innovation expertise and emerging bioscience and digital technology, and complemented through acquisition, we develop new business models and solutions that increase our customer intimacy and improve their and our own productivity and efficiency.

In this way we aim to deliver ambitious **mid-term profit targets**:

- Mid-single digit % organic sales growth
- An above 20% adjusted EBITDA margin
- High-single digit % adjusted EBITDA growth

Our **cash allocation policy** has a clear order of priority:

- Disciplined capital expenditure for organic growth: approximately 6.5% of annual sales
- A stable, preferably rising dividend
- Disciplined M&A
- In the absence of value-creating M&A, capital to be returned to shareholders

We are committed to maintaining a **strong investment-grade credit rating**. DSM's policy is to have a stable, preferably rising, dividend, targeting an average payout of 40–50% of adjusted earnings.

Our strategy helps us make the right **capital allocation choices** including the selection of acquisition targets and the development of our Health, Nutrition & Bioscience portfolio, for the benefit of all stakeholders.

Case studies

Improving feed efficiency: innovative feed enzymes for affordable and sustainable animal protein

Demand for animal protein continues to rise as the world's population grows. The World Resources Institute predicts that this demand will reach 445 million tons of animal protein per year by 2050, to meet the needs of a projected population of 9.7 billion. According to the UN Food and Agriculture Organization (FAO), this means approximately 70% growth compared to today.

This growth in animal production places tremendous pressure on the world's natural resources. The animal protein sector, which currently accounts for 14.5% of human-derived greenhouse gas (GHG) emissions globally, must become more efficient, use less land, and reduce its environmental footprint if it is to play its role in achieving net zero GHG emissions by 2050 while meeting the animal protein requirements of a growing global population.

At the same time, it is essential to keep a tight control over production costs so as to ensure that producers can operate at a profit while animal protein remains affordable. Feed costs reached an all-time high in 2022, and these price increases were compounded by growing pressures on harvests caused by the impact of climate change. In view of the fact that feed costs constitute some 60% to 70% of total animal production, livestock farmers are finding it increasingly challenging to maintain a balance between the demands of cost efficiency and the requirements for sustainable farming.

Feed enzymes are an established and evolving technology that offers a measurable means to achieve a balance between affordable and sustainable animal protein production. These feed additives improve feed ingredient digestibility, thereby substantially reducing the amount of feed needed to meet the world's growing demand for animal protein. Feed enzymes also enable the greater use of alternative, local feed ingredients and by-products, thereby reducing our reliance on soy and other major crops.

The dilemma of rising feed costs

Recent imbalances in the supply and demand of commodities essential for livestock production have driven up the prices of corn, wheat and soybean, which are the main constituents of livestock diets. Poor harvests, as well as strong demand from the animal production sector, have reduced the available level of stocks of grain raw materials in the past two to three years, while demand has remained high. Market prices for soy, corn and wheat more than doubled in consequence between January 2021 and March 2022. This already accelerating trend was exacerbated by Russia's invasion of Ukraine in February of 2022, which had the effect of driving up raw material prices to levels not seen in the past 10 years.

Since March 2022, prices of grains and oils have remained at an unprecedentedly high level. Recent global harvests of soy, corn and wheat have disappointed expectations, with the notable exception of soy production in Brazil, keeping the stock-to-use ratio (i.e., the balance between supply and demand) very low. Thus, it is broadly expected that prices will stay on a 'high plateau' throughout 2023 and beyond. Furthermore, the quality and availability of grains will remain a challenge.

The current pressures on the production of feed raw materials have also led the animal production industry to adapt the composition of animal diets to deliver essential levels of energy and efficiency, using more alternative raw materials and/or by-products (e.g., dried distillers' grains with solubles, sunflower, canola, barley, sorghum, and meat and bone meal). While the use of alternative raw materials and/or by-products is desirable from a cost perspective, it also creates certain nutritional challenges that need to be addressed.

Another key feed ingredient is rock phosphate – a finite resource, and essential for animal health. Rock phosphate experienced a more than 50% price increase during 2022, and may be subject to further sharp increases over the next five years, caused by the combination of high demand and low availability.

All the above-mentioned factors are putting the animal production industry under severe pressure to manage its feed costs, protect its profitability, and help provide a sustainable income for farmers.

Feed enzymes offer a potential solution here. They help improve animal performance when used in combination with existing diets. Feed enzymes such as carbohydrases and proteases can facilitate body weight gain of between 1% and 7%, while at the same time improving feed conversion ratio (FCR, a measure of an animal's efficiency to convert feed into increased body mass) by 1%. In summary, a farmer needs less feed for the same output, which reduces not only overall feed costs but also the environmental footprint.

Making Efficient Use of Natural Resources Video

Feed enzymes for feed optimization

There are various categories of feed enzymes designed to reduce feed costs. Phytase, for example, helps optimize phosphorous nutrition by degrading phytic acid. Phytic acid is the principal form of storage for phosphorus in plant seeds. Optimizing its degradation by the use of feed enzymes means that less rock phosphate needs to be added to animal diets. Carbohydrases help optimize energy release from raw materials of plant origin and increase the availability of this energy to the metabolism. Protein is an expensive feed nutrient, and feed protease can improve its digestibility.

Feed enzymes also play a critical role in degrading anti-nutritional factors such as phytic acid, trypsin (a digestive enzyme that breaks down proteins in the small intestine) inhibitors and non-starch polysaccharides.

Our **feed optimization portfolio** is unique in the feed enzymes market, offering the broadest range of feed enzyme solutions across species, as well as the latest cutting-edge technologies. In 2022, we launched our new generation phytase, HiPhorius®, taking the parameters of available phosphorus release to new levels. This followed our 2021 release of ProAct 360™, the first and only second-generation feed protease, with improved speed and efficacy. Finally, we also offer the broadest range of carbohydrase products, with RONOZYME®WX, RONOZYMET® MultiGrain, RONOZYME® HiStarch and RONOZYME® VP. Some of these products have unique enzymatic activities that can extract nutrients from every feed raw material of plant origin, helping nutritionists to optimize the inclusion of these materials in the feed.

This cutting-edge range of enzymatic solutions can be combined to leverage the individual features of each product, delivering very attractive cost savings and a return on investment ranging from 1:3 to 1:15, depending on dietary composition and the enzyme technology used.

Stronger together with Pecuario CMI

CMI is a family-owned company that has been generating job opportunities and promoting economic development across Central America since 1920. Operating in 15 countries today, CMI offers high-quality products and services through its two Business Groups, Foods and Capital. The CMI business portfolio is highly varied, and includes wheat flour mills; pasta, cracker and cookie manufacturing; poultry and swine production, processed meats and various types of sausages; nutritional animal production and pet foods; and restaurants featuring the Pollo Campero brand.

"The use of DSM enzymes in our operations allowed us to significantly reduce feed costs without compromising animal performance. It also contributed to reducing the environmental footprint, contributing to our sustainability goals with a positive impact on individuals, families and communities."

Sergio Sevilla, Chief Operating Officer Pecuario CMI

Our impact

Our transformational enzymatic solutions are the product of an **industry-leading partnership with Novozymes**, the world leader in biosolutions. For more than two decades, the DSM-Novozymes Alliance has potentiated our respective strengths in animal nutrition and enzymatic technology. We have united our unique capabilities by means of a common mindset, a cutting-edge science platform, and effective ways of collaboration, to create an innovation powerhouse for animal nutrition.

Through the DSM-Novozymes Alliance, we offer customers our combined expertise in enzyme development and animal nutrition and health, allowing them to succeed in their business by raising **healthy and high-performing animals** in a sustainable way.

Overall, we estimate that the use of feed enzymes technology by the animal production industry has the potential to deliver annual **cost savings** in excess of €5 billion, across monogastric species (i.e., animals with a single-compartmented stomach, such as poultry and pigs). Moreover, our feed enzymes also support more sustainable animal production by facilitating more efficient use of natural resources while reducing emissions of nitrogen, phosphorous and CO_2eq and improving the welfare of farm animals by increasing the bioavailability of the full nutritional and caloric content of reformulated diets.

RONOZYME® HiPhos and HiPhorius® **phytase technologies** enable the reduction or even elimination of the use of rock phosphate in animal diets, turning the phytate naturally present in feed raw materials of plant origin into available phosphorous and myo-inositol, thus reducing feed costs and at the same time reducing phosphorus loss into the environment.

RONOZYME® ProAct & ProAct 360™ **protease technologies** optimize the digestibility of the available protein in the feed, permitting lower inclusion levels of soy products, reducing feed costs and reducing nitrogen losses into the environment.

Our **carbohydrase solutions** (RONOZYME® WX, RONOZYME® MultiGrain, RONOZYME® HiStarch and RONOZYME® VP) enable optimization of the energy available in the feed, allowing the inclusion of lower proportions of grain, oils and fats and more use of local alternative raw materials. Incorporating these carbohydrases in the diet reduces feed costs while at the same time delivering an improved environmental footprint.

A recent feed formulation exercise by DSM revealed that **further feed cost reductions** are also possible. For example, the use of a combination of RONOZYME® ProAct, RONOZYME® HiPhos (2000 FYT/kg) and RONOZYME® Multigrain generated a cost reduction of 4–6% compared with a formulation based on 1,000 phytase units (FYT) per kilogram of RONOZYME® HiPhos with only a mineral matrix applied.

How we support the SDGs

Our innovative enzyme solutions for feed optimization enable more nutritional value to be obtained from the diet while supporting animal health and well-being and reducing the environmental impact of livestock farming. They thus contribute to the achievement of four of the SDGs.

SDG 2 - End hunger, achieve food security and improved nutrition and promote sustainable agriculture
Our feed optimization enzyme solutions enable the animal production industry to make more efficient use of natural resources by unlocking the nutrient potential of feed raw material. They support the sustainable production of valuable animal protein by permitting reduced reliance on crops such as soy and corn, as well as greater use of alternative, local feed ingredients and by-products.

SDG 3 - Ensure healthy lives and promote well-being for all at all ages
By enabling the production of sustainable and affordable protein from healthy animals, our feed optimization enzyme solutions contribute to the availability of healthy diets that promote well-being.

SDG 12 - Ensure sustainable consumption and production patterns
Our feed optimization enzyme solutions encourage sustainable consumption and production patterns by reducing reliance on crops such as soy and corn for animal diets and facilitating the increased use of alternative, local feed ingredients and by-products.

SDG 13 - Take urgent action to combat climate change and its impacts
Our feed optimization enzyme solutions help reduce emissions of nitrogen, phosphorous and CO_2eq emissions into the environment by enabling the use of lower-protein diets and improving the digestibility of protein, as well as by reducing reliance on finite reserves of mineral phosphates.

Harnessing algae for healthier people and planet with *life's®OMEGA*

The omega-3 long chain polyunsaturated fatty acids DHA and EPA are an important part of the human diet. These nutritional lipids play a key role in supporting growth and development, as well as overall health and well-being throughout life. Extensive studies attest their benefits for, among other things, cardiovascular health, cognitive function, visual health and immune function.

DHA and EPA can only be accessed via the diet: neither humans nor any other animals can synthesize them in the body. They are therefore primarily sourced from cold-water fatty fish – such as salmon, mackerel, tuna, herring, and sardines – which in turn derive them from the algae that they naturally consume. Simply put, cold-water fatty fish harvest DHA and EPA created by algae in their bodies. The world's population reached 8 billion in 2022; two years previously, a study had estimated that less than 20% of the then 7.8 billion people on the planet were consuming the recommended 250 mg/day of these nutritional lipids. High volumes of omega-3s are therefore required to support the health of this rapidly growing global population. Meeting this need from wild-caught fish, however, would place unsustainable pressure on the oceans, whose fish stocks cannot replenish themselves fast enough to keep pace with demand.

Ocean ecosystems in danger

Sea the difference video

Our oceans are the largest ecosystem on Earth and perform essential ecological functions. They are responsible for generating approximately 50% of the oxygen in the atmosphere and are also the world's largest store of carbon. They are vital to the existence of all species on the planet, and for human beings provide nutrition, medicines, minerals and renewable energy resources.

Among the highly beneficial nutrients provided by the oceans are omega-3 fatty acids. Traditionally, these are extracted from wild-caught fish to make fish oil. However, with the increase of the world's population and challenges such as overfishing and bycatch, plastic pollution, climate change, and coastline overpopulation, ocean food chains are being disrupted, resulting in irreparable damage to vital marine ecosystems.

Obtaining naturally occurring nutrients such as omega-3 fatty acids from marine resources will only increase the already unsustainable pressure on wild-caught fish stocks. Aquaculture as an alternative to open sea fishing does not solve this pressure as farmed fish also need to consume omega-3s to support their own health, and this has traditionally been provided in the form fish oil derived from wild-caught cold-water fatty fish. There is an urgent need to find a sustainable solution to protect the world's oceans while at the same time helping to keep the world's population healthy through adequate provision of omega-3s.

Although the health benefits of omega-3 fatty acids have been extensively demonstrated, current consumption of these vital nutrients by humans lags behind recommended requirements. This shortfall can be attributed to a number of factors, including:

- Lack of consumer awareness as to the health benefits of omega-3s
- Growing awareness of the impact of omega-3 consumption on marine ecosystems
- Lack of vegetarian or plant-based options to omega-3s The off-putting fishy smell and taste traditionally associated with omega-3s sourced from fish
- Our response at DSM has been to Lack of consumer awareness as to the health benefits of omega-3s
- Growing awareness of the impact of omega-3 consumption on marine ecosystems

Lack of vegetarian or plant-based options to omega-3s , an innovative form of omega-3 that addresses the needs of a new generation of health-conscious and environmentally-conscious consumers.

Sustainably cultivated omega-3 for a growing world

life's®OMEGA are omega-3 fatty acids fermented from natural algae that are not produced by genetic modification. This is done by means of a controlled proprietary indoor process, with multiple production locations ensuring reliability of supply. *life's®OMEGA* is a pure and potent form of EPA and DHA in a single source. Our proprietary process permits full quality control and traceability, with no organic pollutants and no allergens.

Our enhanced *life's®OMEGA* portfolio provides an exciting innovation opportunity for brands that are looking to meet trending consumer health needs and create accessible products with purpose.

Stronger together with Chong Kun Dang HealthCare

Chong Kun Dang HealthCare (CKDHC) is Korea's leading healthcare company and the country's number 1 dietary supplement provider. CKDHC's dietary supplement portfolio includes the leading omega-3 brand PROMEGA. In 2022, this portfolio was expanded by the launch of a new product, Algae rTG Omega-3 ('rTG' stands for re-esterified triglyceride, the most potent, absorbable and fast-acting form of omega-3) containing DSM's *life's®OMEGA* Ultra TG.

"Our partnership with DSM made possible the launch of our new algal-based omega-3 supplement, Algae rTG Omega-3. This world-first offering addresses the needs of sustainability-conscious consumers by protecting precious natural resources and supporting the development of sustainable ocean ecosystems."

Hogon Kim, President Chong Kun Dang HealthCare

Our impact

With *life's®OMEGA*, we demonstrate our strong commitment to protect the oceans and our responsibility to offer innovative solutions with the potential to benefit the health of billions without influencing marine life and our planet's ecosystems. *life's®OMEGA* fulfils the new generation of consumers' requirements for essential nutrition and serves the global population's growing need for plant-based alternatives to animal-source foods and nutrients.

How we support the SDGs

Our *life's®OMEGA* portfolio supports the attainment of UN Sustainable Development Goals 3, 12 and 14.

SDG 3 - Ensure healthy lives and promote well-being for all at all ages
Offering all the clinically proven benefits of omega-3s, *life's®OMEGA* addresses the needs of a new generation of consumers who are seeking ways to achieve holistic health and well-being without damaging the planet.

SDG 12 – Ensure sustainable consumption and production patterns
life's®OMEGA is fermented from natural, non-GMO algae by a proprietary indoor process, ensuring reliability of supply and full scalability of production to meet our customers' needs. *life's®OMEGA* has a lower carbon footprint that omega-3s sourced from fish oil, thus helping protect the environment.

SDG 14 – Conserve and sustainably use the oceans, seas and marine resources for sustainable development
life's®OMEGA is extracted from algae cultivated in indoor fermenters and therefore does not adversely impact marine resources. It relieves oceans of the pressure of overfishing and bycatch and is a sustainable solution that respects biodiversity and helps protect the oceans.

Health benefits in a bottle: how consumers are embracing functional beverages

The crucial role of nutrition in supporting well-being was thrown into sharp perspective during the COVID-19 pandemic, fueling worldwide interest in the health benefits of adequate nutrition. Many health-conscious consumers have been adopting a more proactive approach to their diets, recognizing fortified foods and drinks as a valuable complement to a healthy, balanced diet. Recent research shows that fortified foods, including functional beverages, can make a significant contribution to immune health, providing a complementary way to obtain the full range of vitamins, minerals, probiotics and other key nutrients necessary to maintain an effective immune system.

The quest for proven health benefits

As a direct result of the COVID-19 pandemic, research shows that 66% of global consumers are actively looking to improve their physical and cognitive health, along with their dietary habits. Furthermore, this post-pandemic study indicates that 42% say they are seeking out functional and/or fortified products more frequently than in the past. Many are drawn to functional foods and beverages that offer proven benefits for immunity, heart health, digestive health, mental health, and energy levels.

Positive nutrition can help supplement existing diets and prevent potential nutrient shortages. It comes as no surprise, then, that in Europe alone, nearly 1,000 products with an immunity claim were launched in 2021, with fortified fruit juice and drinking yogurt occupying the top two categories. Today's wellness-conscious consumers are seeking better-for-you (BFY) beverages that go beyond satisfying thirst, helping them reach their holistic health goals.

This accelerating global trend presents beverage manufacturers with challenges as well as opportunities. They need to develop products that have proven health benefits and at the same time offer attractive taste and sensory qualities. And they need to get these innovative new offerings to market as quickly and cost-efficiently as possible.

Our solutions

Good nutrition is essential for good health. We provide an extensive range of nutritional solutions to help protect and improve the well-being of consumers worldwide. We work closely with beverage manufacturers to improve and fortify their products in an appealing way. Our aim is to meet evolving consumer demands for functional beverages that possess validated health benefits while still offering an enjoyable consumption experience.

Our experts develop custom nutrient premix blends based on more than 1,400 high-quality ingredients, including vitamins, minerals, amino acids, carotenoids, nutraceuticals, specialty proteins, sweeteners, prebiotics, probiotics, fibers and hydrocolloids. The development of our solutions for sport drinks, fortified waters and drinkable dairy beverages is supported by experts who ensure production efficiency and quality, while other specialists secure product differentiation by means of proven front-of-pack health claims. We also provide regulatory expertise, market insights and brand support to help position each customer product for success.

At DSM, formulating healthier products means going beyond, for example, removing sugar and salt: it is about delivering an appealing product with a nutrition profile that provides a health benefit that resonates with consumer expectations. We leverage our nutritional science and advocacy capabilities to support consumers in their health journeys by providing the nutrient-rich product concepts they seek. Below are some examples of our suite of innovative solutions.

Our '#StayStrong Immunity Drink concept'

Our #StayStrong concept for promoting immune function is an example of how we support producers and consumers alike. Developed in two formats – one a lactose-free milk drink and the other an oat-based drink – the #StayStrong Immunity Drink is fortified with vitamins A and D. The dairy-based concept also contains added vitamin E and probiotics, while the plant-based option contains added vitamin E and *life'sDHA®* omega-3. The concept demonstrates how we can create immunity solutions that offer taste, texture, and health in one convenient product.

Our ginger and turmeric 'Resilience Drink concept'

This drink concept helps the body and mind cope with external and internal stress factors by the inclusion of ingredients that help strengthen resilience and immune defense. Our Resilience Drink immunity shot contains ginger, turmeric, selenium and zinc, all of which possess powerful anti-inflammatory properties and protect cells from oxidative stress. The incorporation of vitamin B_6, B_5 and zinc supports psychological and cognitive functions and improves mental performance. The inclusion of vitamin C, B_6 and B_{12} helps combat tiredness and fatigue.

Our aronia and acerola 'Energy Boost Drink concept'

This concept was designed to help consumers boost immunity and energy for their daily tasks, delivering added health benefits for immunity, energy and mental performance. Our Energy Boost Drink concept contains red berries high in polyphenols that stimulate the immune system. The inclusion of vitamin C, B_3, B_6 and B_{12} plus iron further supports the normal functioning of the immune system. Mental performance is supported by the incorporation of blueberry polyphenols, which increase cerebrovascular blood flow and improve memory function, along with ginseng, vitamin B_5 and zinc. Ginseng and vitamin B_5, together with vitamins C, B_6 and B_{12}, also contribute to normal energy-yielding metabolism and to the reduction of tiredness and fatigue.

Stronger together with Eckes-Granini

Eckes-Granini is the leading supplier of fruit juices and fruit beverages in Europe. This family-owned business based in Nieder-Olm (Germany) has pursued a consistent course of international expansion since the early 1990s. Together with strong national and regional juice and fruit beverage brands such as the natural vitamin C brand *hohesC*, the internationally renowned premium brands Granini and Pago represent the foundation of the Eckes-Granini Group. Operating with fully owned subsidiaries and strategic partners, primarily in Europe, Eckes-Granini today generates annual sales of €873 million with a total of 1,708 employees.

“People are increasingly aspiring to embrace a healthy lifestyle. A balanced diet is a crucial element in this. With innovative recipes, scientific research and nutritional education, we help consumers to enjoy a healthy diet. DSM is a competent partner that provides ideal solutions to develop those healthy fruit juices and shots.”

Dr. Volker Herdegen, Manager Research & Innovation Eckes-Granini

Our impact

We have an unparalleled portfolio of micronutrients and extensive expertise in connecting nutritional needs with the right nutrient. We possess the ability to identify worldwide nutritional challenges and to address these with locally appropriate beverage propositions. On top of these capabilities, we have a deep understanding of local regulatory requirements and a continuous focus on sustainability. We are therefore well placed to support the needs of food and beverage manufacturers and the expectations of increasingly health-conscious consumers around the world.

- Across Germany, Austria, France, Hungary, Spain, Italy and Scandinavia, premium multivitamin juice products and fortified vitamin waters are available containing our vitamin premixes and beta-carotene solutions
- In the UK, fortified juices are sold with our premix B_3 and B_6 solutions and the front-of-pack claim to ‘Help Keep You Focused’
- In California (USA), supermarket shelves are stocked with fortified juices containing our Blend for Immunity Shot with vitamins B_3, B_6, B_9, B_{12}
- In the Middle East and Africa, we fortify juices free of added sugar with our Quali® vitamins A, C and E
- In Algeria, our premixes feature in newly launched energy waters
- In China, consumers can purchase sports drinks containing our vitamin E solutions

How we support the SDGs

Our portfolio of nutritional ingredients essential for good health covers a wide range of products, thereby helping to ensure healthy lives and promote well-being.

SDG 3 – Ensure healthy lives and promote well-being for all at all ages
Our health benefit solutions for sports drinks, for example, energize the body, supporting muscle function, endurance and recovery, as well as heart, mind, eye and joint health. We also offer health essentials for women and men that more generally support energy and endurance, weight management, and heart, mind, eye and joint health.

Stakeholders

Our purpose can only be realized by working with our stakeholders. Through empowering our employees, engaging with our customers and suppliers, and with the support of our investors, we will create a stronger legacy and a brighter future for generations to come. We discuss topics that are relevant to our operations and our impact on society regularly with our stakeholders. These conversations shape how we define and execute our strategy, including risk management, materiality, and new business opportunities.

Employees

Our people are our most important asset, and our employees represent more than 110 nationalities[1], working at more than 250 sites and offices in 55 countries worldwide. The safety, health and well-being of our people is our highest priority and we aspire to provide an incident- and injury-free working environment for everyone, including our contractors. In 2022, we took the next steps in implementing hybrid working practices while realizing our People & Organization Strategy. We also expanded our focus area on human rights, engagement, and inclusion and diversity with the inclusion of 'equity'. For information on how we engage with our employees, see People.

Customers

Our customers are key stakeholders. They drive our business, and through our collaborations we enable solutions that help solve some of the world's biggest problems. For information on our business and how we engage with our customers, see Animal Nutrition & Health, Health, Nutrition & Care, and Food & Beverage. For information on our approach on product quality, see People.

Investors

Capital providers play a significant role in the success and prosperity of our company. They support us in our pursuit of a long-term-oriented strategy which aims to continually create value for shareholders while offering a low-risk environment for debt holders. For more information on how we communicate with investors, see Investors and elsewhere in this Report.

Suppliers

Our supply chain consists of more than 34,600 suppliers. Our suppliers play an essential role in developing our business, and we work closely with them through our Sustainable Procurement Program, comprising our supplier development and evaluation program, our scope 2 program, our scope 3 program and the procurement of renewable fuels. For more information on how we work with our suppliers, see Suppliers.

Society

We engage with society at multiple levels — from local community initiatives to collaborations with universities and research institutes. We work with NGOs and civil society toward solutions for societal issues, and advocate on both the governmental and the societal level on important issues relating to the Sustainable Development Goals and the Paris Agreement. We also engage in philanthropic and sponsorship activities comprising the in-kind contributions of our employees' time and expertise, as well as the annual donation of approximately €5 million. As outlined in our Code of Business Conduct, we do not make political donations. For more information on how we engage with these stakeholders, see Society.

1 All data presented in Stakeholders are subject to the Non-financial reporting policy.

How we create value for our stakeholders

Our Value Creation model illustrates our long-term value creation and is based on the Value Creation and Capitals concepts of the **Integrated Reporting <IR> framework** and gives an overview of how we create value for our stakeholders based on six capital inputs: Human capital, Societal & relationship capital, Natural capital, Financial capital, Intellectual capital and Manufactured capital. We cluster these six capitals into **People, Planet and Profit.**

We transform our capital inputs into value and positive impact through taking advantage of the opportunities and minimizing the risks around the relevant megatrends in our business. A key part of our strategy, aside from our financial targets, is to continuously strengthen our commitment to sustainability. Through our business model, business strategy and purpose, we aim to have a positive impact for People, Planet and Profit, and deliver our share toward the Sustainable Development Goals (SDGs).

More information on our **Value Creation model** and the definitions of the six capitals, are provided in Explanation of some concepts and ratios.

Capital Inputs[2]

People	Planet	Profit
Our employees represent more than 110 nationalities in 55 countries. We engage with our stakeholders and partners to achieve our Purpose.	We consume raw materials (including renewable and recyclable materials), energy from renewable and non-renewable sources and water.	We employ shareholder equity and borrowings to invest in partnerships and innovation. We purchase goods and services that are used in our manufacturing assets.
20,682	**19.5**	**€10,743**
Employees	Primary energy use (PJ)	Shareholders' equity (million)
31:69	**26**	**€3,064**
Gender ratio (f:m)	Water withdrawal (non-once-through cooling, x million m^3)	Borrowings (million)
Inputs: - Employees - Training & development - Stakeholder engagement & Public-private partnerships - Philanthropy & sponsorship	Inputs: - Raw materials (including bio-based and recycled-based materials) - Energy (including renewable sources) - Water	Inputs: - Shareholders' equity - Borrowings - Partnerships - Scientific environment and academic infrastructure - Purchased goods & services - Manufacturing footprint

Our Business Model

We are a **purpose-led, performance-driven organization** developing innovative solutions to address the urgent societal and environmental challenges linked to the way the world produces and consumes food. Our Business Groups are the main building-blocks of the company's organization. They have integral long-term and short-term responsibility for business and have at their disposal all functions that are crucial to their business success. Our Business Groups receive enabling services from various global support and corporate functions and are supported by the regional organizations. Our **Brighter Living Solutions Plus** — solutions that create sustainable value for our stakeholders — account for 67% of our net sales

2 All data presented in the People and Planet columns are subject to the Non-financial reporting policy.

Percentage of net sales by end-use market (continuing operations)

17%
Food & Beverage

8%
Dietary Supplements

6%
Early Life Nutrition

8%
Personal Care

45%
Animal Nutrition

5%
Medical Pharma

11%
Other

Value Outcomes[3]

People

The safety of our employees is our highest priority. Our investments in training and career development provide value for employees and stakeholders. We aspire to pay a living wage to all our employees. Our products support improved nutrition and a more sustainable food system.

0.28

Frequency Index recordables

77%

Employee engagement (excluding Engineering Materials)

Outcomes:

- Safety & health
- Brighter Living Solutions Plus
- Engaged workforce
- Skills & employability
- Employee benefits
- Improved nutrition

Planet

We work to reduce our environmental footprint and support the reduction of the footprints of our value chain partners. Our products enable the transition to a more circular economy and contain safer ingredients and materials than alternative products.

11.0

Scope 1 + 2 + 3 emissions (million tons CO_2eq)

78%

Purchased renewable electricity

Outcomes:

- Reduced environmental footprint
- Brighter Living Solutions Plus
- Enabling the transition to a more circular economy
- Safer ingredients & materials

Profit

We aim to deliver a strong financial performance, enabling us to re-invest in our asset base, fund our purpose-driven innovations, pay stable (preferably rising) dividends and provide good returns to our bondholders. Our tax policy follows both the letter and spirit of the law.

€1,395

Adjusted EBITDA from continuing operations (million)

€310

Adjusted net operating free cash flow from continuing operations (million)

Outcomes:

- Financial performance (Adjusted EBITDA and Adjusted net operating free cash flow)
- Interest payments, capital gains / losses and return on investment
- Total Shareholder Return, including dividend
- Contribution to civil society via wages, taxes and social security including pensions
- Contribution to business success for customers and suppliers

3 All data presented in the People and Planet columns are subject to the Non-financial reporting policy.

Impact and SDGs

People

- Better fed and healthier individuals and communities
- More prosperous and resilient employees for our company and in our value chain

Planet

- More sustainable use of resources, for our company and in our value chain
- Products that contribute to safer, healthier working and living environments

Profit

- We are purpose-led, performance-driven through science-based sustainable solutions
- Sustainable returns to investors
- Positive contributions to economic growth in the countries and markets in which we operate

Materiality

In order to assess Material topics that are both of interest to society and have impact on our businesses, we annually update our Materiality analysis. In 2022, we conducted a **full Materiality analysis** due to the divestment of our Protective Materials business and the announcement of the divestment of our Engineering Materials business. We also took this opportunity to focus on the business perspectives of Materiality. The matrix is based on the 'double materiality' concept, addressing both the impact of the company on the topic and the impact of the topic on the company. The outcome of the analysis informs us which topics should be reported on in this report and is in accordance with the GRI Standards.

Our update in 2022 used the Materiality matrix 2021, Corporate Risk Assessment 2021 and the European Sustainability Reporting Standards (ESRS) consultation drafts as its point of departure. A long list of material topics was defined using **desk research** into third-party publications, peer analysis, interviews with DSM senior managers, and internal documentation. Further interviews with internal and external (investor, policy maker and business council) stakeholders were conducted to generate a short list. Workshops were held at Business Group level, resulting in Business Group Materiality Matrices. These matrices were combined with company-level information to create a draft Materiality matrix. This was reviewed and validated jointly with the Corporate Risk Assessment by the Executive Committee, and finally approved by the Managing Board.

Changes in 2022

In 2022, the DSM Materiality matrix was developed from **business-led perspectives**. This resulted in a redistribution of sub-topics and changes to topic names to reflect the perspectives of our individual businesses. Two topics were deleted ('Responsible Sourcing' and 'Sustainable Innovation') as these were considered to be solutions or approaches that help us manage many of the material topics, rather than separate material topics. Three topics were added: 'Community relations', 'Food loss & waste', and 'Resilience to economic & political volatility'.

For more information on materiality, see Management approach for material topics.

Materiality matrix 2022

Collaborative platforms and networks

We collaborate with like-minded organizations through platforms and networks that contribute to our purpose of creating brighter lives for all. These collaborations are chosen to amplify and accelerate our advocacy efforts in support of a transition to more sustainable economic models on topics that fit with our strategy. Collaborative platforms and networks such as these can help formulate new solutions and measurement and performance methods, as well as roadmaps for business contributions toward achieving the Sustainable Development Goals (SDGs). In this section, we describe some of the most significant initiatives.

Cross-cutting initiatives

World Economic Forum (WEF)

We are a strategic partner of WEF. We actively participated in both its virtual and in-person events throughout 2022, including the Annual Meeting in May. In 2022, our Co-CEO Dimitri de Vreeze represented DSM in the International Business Council (IBC). He also remained a member of the Steering Committee of the Chemical Governors. Our Co-CEO, Geraldine Matchett, remained a member of the Steering Committee of the Consumer Governors and the Food Security Stewards. Both spoke at various virtual events of the Forum.

We actively contributed to several initiatives in 2022, including the Alliance of CEO Climate Leaders, the CEO Action Group for the European Green Deal, the Food Innovation Hub Europe, and we participated in a number of meetings with public figures organized by WEF.

The SDG Tent

With the return of the Annual Meeting in May 2022, which had not been held in 2021 due to the COVID-19 pandemic, we once again joined forces with partners including Salesforce, Procter & Gamble, Rabobank and Yara for the SDG Tent, a venue for discussing business engagement for achieving the SDGs. Several successful events were hosted in the SDG Tent on topics such as food systems, climate action, circular economy and sustainable consumer choices.

World Business Council for Sustainable Development (WBCSD)

We are a member of WBCSD and participate in various working groups and coalitions. Ms. Matchett is a member of WBCSD's Executive Committee and is a Commissioner in WBCSD's Business Commission to Tackle Inequality (BCTI).

Food & Agriculture Pathway

Our Vice President Sustainability is a Board Member of the Food & Agriculture Pathway and a founding member of the Food Reform for Sustainability and Health (FReSH) project, with the aim to reorient food systems in support of improved population health on a healthy planet. In 2022, the WBCSD and nine leading member companies, including ourselves, published the paper 'Food Affordability', which outlined the roles that the food industry can play in providing affordable, nutritious food that supports healthy and sustainable diets. The paper mentions our good practices of fortified staples. Toward the end of the year, a series of 'Processed Food Dialogues' was organized by WBCSD with industry, NGO and academic stakeholders to discuss the role of the processing of food in providing sustainable and nutritious food while reducing food waste.

In 2022, we also took part in developing the Taskforce on Climate-related Financial Disclosures (TCFD) Climate Scenario Tool for Food, Agriculture and Forest Products providing a set of sector-relevant transition scenarios. We also helped launch an initiative entitled "Putting food on the table at COP27 and beyond" to mobilize action across public and private sectors.

Redefining Value

Redefining Value is WBCSD's program supporting external disclosure and decision-making. In 2022, we participated in several workstreams, including the CFO Network. We supported a number of WBCSD consultations on topics including the International Sustainability Standards Board (ISSB) exposure drafts and the Impact weighted accounts consultation. We endorsed the joint statement developed by WBCSD, PRI (Principles for Responsible Investment) and IFAC (International Federation of Accountants) calling for increased alignment between standard-setters and supporting a global baseline for reporting sustainability-related information.

The European Chemical Industry Council (Cefic)

Cefic represents the voice of large, medium and small chemical companies across Europe. Mr. de Vreeze represented us until October 2022 in Cefic's Executive Committee and Board and chaired Cefic's Sustainability Forum, through which he focused on the acceleration of Cefic's sustainability journeys. In 2022, we actively contributed to various workstreams of the Sustainability Forum, focusing amongst others on the development of indicators driving and monitoring the industry's progress towards the SDGs in general and the EU Green Deal in particular and on developing guiding design principles for innovation that is safe and sustainable by design. Our experts are also member of various other internal Cefic groups and, for example, actively contributed to shaping Cefic's view on the EU Sustainable Finance strategy.

Accounting for Sustainability (A4S)

A4S brings together leading CFOs to help embed the management of environmental and societal issues into business processes and strategy, particularly through the finance function. Ms. Matchett is a founding member of A4S and supports these objectives. In 2022, we participated in several virtual events and meetings, and we provided senior finance leaders with the opportunity to participate in the A4S Academy, a program which enables senior finance leaders to broaden their perspective on sustainability, the impact it has on business, and how companies can contribute.

Dutch Sustainable Growth Coalition (DSGC)

The DSGC is a CEO-led coalition of eight Dutch multinational corporations which aims to drive sustainable growth business models that combine economic profitability with environmental and social progress. The coalition of CEO's uses their leadership for the development toward a future-proof world and sustainable growth. The DSGC stimulates activities and international cooperation, in value chains and between sectors, that contribute to the achievement of the SDGs. Every year the DSGC organises a meeting with the Dutch cabinet. In 2022, this meeting focussed on the energy transition, circular economy and international corporate responsibility. Moreover, the DSGC organised knowledge exchange sessions between company experts around, for example, innovation and technology. DSGC is supported by VNO-NCW and facilitated by Accenture.

Planet initiatives

Carbon Pricing Leadership Coalition (CPLC)

We continue to drive carbon pricing and share our experiences on the topic through the Carbon Pricing Leadership Coalition. The CPLC's long-term objective is for **effective carbon pricing** to be applied throughout the global economy. In addition to facilitating leadership dialogues, the CPLC and its partner organizations are also mobilizing business support to put an internal price on carbon. We apply an internal carbon price of €100 per ton of CO_2eq.

RE100

Our engagement with RE100, the world's leading campaign to scale up the **corporate sourcing of renewable power**, continued throughout 2022. In addition to peer exchange to advance the uptake of renewable electricity in China, we participated in several learning events, conferences and advocacy opportunities in Europe, the US and China.

We Mean Business Coalition

We Mean Business activates hundreds of companies and investors to commit to **low-carbon initiatives**. In 2022, we worked on several advocacy and communications activities in the context of COP27 that reiterated the private sector's determination for concrete steps and called on governments to urgently match their ambition and policies to limit global temperature rise to 1.5°C above pre-industrial levels, and demonstrate the private sector's support for these efforts, along with the enabling solutions developed to date.

Global Center and Commission on Adaptation (GCA)

We continued our partnership with the GCA, particularly by lending our expertise in **food security**, and helping smallholder farmers manage risks and climate shocks through Africa Improved Foods (AIF), but also by mobilizing the private sector to adopt an integrated strategy to address climate adaptation alongside climate mitigation efforts.

Business for Nature

Business for Nature is a global coalition that brings together business organizations, conservation organizations and companies to demonstrate and amplify a **business voice on nature**, calling for governments to adopt policies to reverse nature loss in this decade. We supported Business for Nature's 'Make it Mandatory' campaign in the leadup to Biodiversity COP 15, joining more than 330 businesses and financial institutions. We signed the COP 15 Business Statement calling on Heads of State to 'Make It Mandatory' and require all large businesses and financial institutions to assess and disclose their impacts and dependencies on nature by 2030.

Science Based Targets Network (SBTN)

We joined the Science Based Targets Network's Corporate Engagement program in 2020. SBTN builds on the momentum of the Science-Based Targets initiative to develop methods for companies to set **science-based targets for nature**, addressing all of Earth's systems, including biodiversity, ocean, land, and freshwater. In 2022, we provided input to their draft guidance for setting science-based targets for water, which is expected to be launched in early 2023.

Taskforce for Nature-Related Financial Disclosures (TNFD)

The TNFD aims to develop and deliver a **risk management and disclosure framework** for organizations to report and act on evolving nature-related risks with the aim of supporting a shift in global financial flows away from nature-negative outcomes and toward nature-positive outcomes. As a TNFD Forum member, we joined over 750 organizations to support the mission of the TNFD and to consult on the development of the framework.

Champions 12.3

Ms. Matchett is a member of Champions 12.3, a coalition of executives from governments, businesses, international organizations, research institutions, farmer groups, and civil society dedicated to inspiring ambition, mobilizing action, and accelerating progress toward **achieving SDG Target 12.3** by 2030. An important and promising angle addresses climate action through value chain collaboration.

People initiatives

UN World Food Programme (WFP)

The DSM-WFP partnership 'Improving Nutrition, Improving Lives', in place since 2007, aims to improve the nutritional value of the food that WFP distributes and reach 35 million people annually with nutritionally improved products through this partnership. During more than 15 years of partnership, both organizations have helped fight nutritional deficiencies which stunt growth, hinder development, and threaten the lives of one in two people globally, greatly limiting their potential.

In 2022, the partnership was extended for another three years, building on its successes to date. We offer WFP our technical and scientific expertise in nutrition, quality assurance and marketing, as well as financial assistance, to improve the availability and affordability of fortified, nutritious foods for people in need.

In Bangladesh, for example, the partnership has supported more than 70 small and medium-sized enterprises (SMEs) in building their capacity to produce fortified rice that looks, cooks, and tastes like ordinary rice, but crucially includes essential vitamins and minerals that help curb micronutrient deficiencies. This initiative has directly benefited local food producers and processors and has resulted in more than 8 million people in the country now having access to fortified rice through social safety nets. In addition, DSM and WFP are working together to drive the transformation of food systems, supporting local food companies and value chains in developing countries to deliver more affordable, fortified, nutritious food options to communities in need.

Through the rice fortification and retail projects of WFP Country Offices (COs) under the partnership, WFP and national stakeholders leveraged existing platforms to reach an estimated 10.5 million indirect beneficiaries with fortified rice and Social Behavior Change and Communication (SBCC) campaigns. Furthermore, through the partnership, approximately 200 retailers and millers received technical support and 400,000 school-age children benefited from fortified rice as a result of DSM's donation of fortified rice kernels (FRK) to WFP COs.

UNICEF

Since 2013, UNICEF, DSM, and Sight and Life have partnered to improve nutrition for women and children. Built on multiple pillars, the partnership aims to expand the scientific evidence base and proof of viability of targeted nutritional interventions, to increase awareness of the importance of good nutrition, and to make nutritious food products accessible to those who need them most.

Creating enabling environment and scaling up micronutrient powder uptake

Through this partnership, UNICEF leverages DSM's core business assets to support the Government of Nigeria in scaling up access to micronutrient powders to improve children's diets, while mobilizing commitment from the business sector to tackle malnutrition. In Nigeria, our aim is to increase access to vital nutrients during the critical first 1,000 days of life in order to support optimal physical and cognitive development. We also want to focus on the implementation research of micronutrient powder (MNP) programming and use it as a proof concept for future MNP/MMS (multiple micronutrient supplement) interventions in countries in Africa as well as other regions. To date, we have reached three million children aged 6–23 months suffering from malnutrition and have supported the Government of Nigeria in realizing its vision of scaling up the program nationally from five to ten states. The program has also added MMS for pregnant and lactating women and integrated MNP guidelines into the national standards in Nigeria.

The Social Movement on Nutrition program

In India, we have created the platform ImpAct4Nutrition (I4N) to engage private sector for workforce nutrition and create a social movement around nutrition literacy in support of the National Nutrition Mission (*POSHAN Abhiyaan*). As of November 2022, I4N has more than 260 pledged corporate partners and through them the platform has been able to reach more than 2.6 million employees by using the ACE (Assets, CSR and Employees engagement) card for Nutrition. I4N is committed to transforming the workforce landscape for socially responsible businesses, implementing roadmaps for employee engagement programs, nutrition literacy for employees and communities, and corporate social responsibility (CSR) programs with enhanced CSR spends on nutrition.

In 2022, I4N conducted 37 digital nutrition learning sessions with its pledged partners and reached more than 46,000 people. The *POSHAN* Talks Series, a key medium to chronicle important conversations about the nutrition space as successfully hosted with industry leaders. Sixteen *POSHAN* talks, 10 *POSHAN* stories, and a *POSHAN* podcast were created, documenting private sector initiatives, challenges, and best practices for nutrition.

Scaling up maternal and child health interventions among vulnerable population groups in Mexico
In 2022, the partnership extended to Latin America. Together, the partners enabled an understanding of the **Multiple Micronutrient Supplements (MMS) landscape** in Mexico to ensure there is alignment with other actors and avoid overlap in efforts around demand generation and the regulatory environment for impactful intervention and strengthening of the health-care system. The goal of the project is to help improve maternal and child health and nutrition through scaling up maternal and child health interventions among vulnerable population groups in Mexico. The strategy was implemented in 2022 in three priority states supported by UNICEF: Yucatan, Chiapas and Chihuahua. By 2024, the partners aim to ensure MMS supplementation in at least seven priority states.

World Vision International
Our partnership with World Vision and Sight and Life, with the slogan of **'Joining Forces for Last-Mile Nutrition'**, aims to bring prosperity and good nutrition to the most vulnerable communities in the Global South. Leveraging the unique capabilities and know-how of each partner, we design and implement sustainable market-based solutions that bridge the gap between public and private efforts for improving nutrition and fostering local economic development. For example, in 2022 the partners worked on solutions for maize in Rwanda, eggs in Indonesia and Ethiopia, distribution channels in Brazil, and MMS in the Philippines.

The maize value chain in Rwanda
In Rwanda, the partners enable transformation of the **local maize value chain**, ensuring a more efficient, inclusive and sustainable supply chain. Partners work with and enable smallholder farmers through training and provision of market access, while working on improving the quality of, and access to, raw materials for Africa Improved Foods (AIF) in Rwanda. After positive results of the initial pilot, the partners are now collaborating for scale-up.

The EGGciting project
The EGGciting project in Indonesia was completed successfully in 2022. It focused on **eggs as an important source of nutrition** and worked to increase the availability, accessibility, and consumption of eggs at the household level in Sulawesi (Indonesia). Partners addressed bottlenecks in the supply chain and improved the quality of feed, while stimulating demand for improved nutrition among consumers through the use of social marketing that stimulated the consumption of eggs as a nutritious product. As a result, the consumption of eggs at a household level nearly tripled, from 9% to 26%, among the targeted beneficiaries. Elements of the program are being integrated into ongoing World Vision programs, ensuring long-term, sustainable impact.

Building on the success of the EGGciting Indonesia project, the partners brought the EGGciting model to three regions in Ethiopia: Boset, Shasheme and Bui. The program focuses on **training smallholder farmers** in poultry farm operation and feed management for improved nutrition, safety, quality, sustainability, and livelihoods. Simultaneously, the program aims to increase the accessibility to eggs and the understanding of their nutritional value, especially for women and children.

Social distribution of nutrition in Brazil
In Brazil, market research to support the **social distribution of nutritional products** was initiated in 2019. This pilot continued throughout 2021 and is projected to transform the distribution of micronutrient-enriched products in Brazil by incubating last-mile-nutrition female entrepreneurs to serve populations living in vulnerable communities through a door-to-door business model, operating in Fortaleza. In 2022, a partnership was formed with a local distributor, Omnilife, which produces and sells nutritional and cosmetic products. A group of 400 women received nutrition and entrepreneurship training.

MMS in the Philippines
In the Philippines, the partners launched a new program focusing on the MMS value chain for pregnant and lactating women in the municipalities of Tacloban, Bulan, Pio Duran and Pasacao. The program builds on the momentum behind MMS after its inclusion in WHO's essential medicine list. It aims to **increase the availability and access to MMS**, ensure adequate demand and use, and further encourage policy reform to include MMS. The pilot design is being co-created by partners, including the local government, and implementation is set to begin in 2023.

Africa Improved Foods (AIF)

AIF is an African social enterprise that produces fortified foods made mainly from maize and soybean sourced from smallholder farmers in the region. These products include mineral- and vitamin-rich porridges and help meet the nutritional needs of vulnerable population groups such as pregnant and breastfeeding mothers, older infants, and young children. AIF addresses the food challenges facing Africa by building resilient food systems through sourcing, manufacturing, and selling nutritious, affordable, and accessible products. AIF was launched in 2016 in Rwanda as a public-private partnership between the Government of Rwanda and a consortium comprising DSM, the Dutch Development Bank (FMO), DFID Impact Acceleration Facility managed by CDC Group plc (CDC), and the International Finance Corporation (IFC), the private-sector arm of the World Bank Group.

A study performed by the University of Chicago in 2018 showed that AIF delivers true value, improving the livelihoods of smallholder farmers, employees and their families, improving food safety, reducing malnutrition and contributing to broader development. Since the launch of AIF, we have reached 1.6 million consumers, contributing more than USD 900 million in discounted net incremental benefits to the African economy.

AIF's Kigali factory contributes to the local and regional economy

AIF's mission is to produce high-quality nutritious foods from local ingredients. Working with smallholder farmers in Rwanda and across the region, AIF improves their productivity and product quality, and are scaling this further with partners. AIF is focused on developing robust value chains that address the challenges of climate change and employment creation in the African food value chain.

AIF's Kigali factory employs over 470 skilled workers with well-paid jobs. Regional procurement of goods and services (such as transportation) has led to indirect economic development across East Africa. Reaching more than 1.6 million consumers daily, AIF has proven that this model can be profitable while contributing to SDG 1 (No Poverty), SDG 2 (Zero Hunger) and SDG 13 (Climate Action).

Positive results in 2022 despite the pandemic

AIF's revenue grew to almost USD 62 million in 2022, as the need for humanitarian nutritious food supply remained high. Africa Improved Foods was awarded the best large enterprise product of the year in the East African Community (EAC) for its Nootri Toto product. This product is specifically designed and fortified with vitamins, minerals, proteins and calcium to complement the diet of infants above six months, providing them with the required nutrients to support their strong growth and development. The year also marked the beginning of AIF's new ambitious growth strategy, with groundwork in Ethiopia (in partnership with Unilever Ethiopia) and Kenya to accelerate and further scale up AIF's impact.

MANDI

In 2022, we continued to expand MANDI (Making A Nutritional Difference to India), a socio-commercial consumer products business delivering local nutrition and home fortification solutions that are affordable and convenient. The range of home fortification products involved, branded as NuShakti™, includes solutions for staples such as rice and wheat flour, as well as fruit-flavored fortified beverage powders, vitamin-enriched candies and mineral-enriched protein health food drinks for children – all of which have a base immunity benefit.

Partners in Food Solutions (PFS)

PFS works to increase the growth and competitiveness of food companies in Africa. These aims are achieved by inspiring business leaders and linking highly skilled corporate volunteers from a consortium of leading companies including DSM, Cargill, General Mills, Hershey, Bühler, Ardent Mills, and J.M. Smucker Company with promising entrepreneurs and other influencers in the food ecosystem. The seven corporate partners have empowered hundreds of entrepreneurs to work toward stronger, more resilient food value chains across the African continent.

In 2022, DSM employees contributed more than 1,400 volunteer hours working with 60 African customer organizations across 10 countries. By sharing expertise, the volunteers were able to assist local entrepreneurs in growing their businesses and supporting a supplier base of more than 100,000 farmers. In total, 67 DSM volunteers supported 84 service offerings to clients, of which 25 customer organizations are owned or managed by women.

Scaling Up Nutrition (SUN)

The SUN Business Network (SBN) — co-hosted by the Global Alliance for Improved Nutrition (GAIN) and WFP — is the private-sector branch of the SUN Movement. It aims to support businesses in growing the role they play in nutrition and to support SUN countries in developing national business engagement strategies. The SBN is established in 18 countries and supports the development of new networks in 26 countries. These include almost 1,400 companies, mostly small and medium-sized enterprises. The global membership platform currently has 25 members. Our Honorary Chairman Mr. Feike Sijbesma is a member of the Lead Group of the SUN Movement and Co-Chair of the Advisory Group of the Network.

As an SBN global member, we support the implementation of SBN principles, notably around workforce nutrition commitments; overweight, obesity and diet-related non-communicable diseases; and the delivery of technical assistance to national SBNs and their members. We advocate for business to take a leading role in these important issues and collaborate with SBN for stronger business accountability on nutrition and for the adoption of SMART nutrition pledges by business (UN Food System Summit, Nutrition for Growth Summit).

Sight and Life

The year 2022 marked 35 years of Sight and Life (SAL) as global leader in the nutrition world, using science to change the way nutrition is delivered to people who need it most, specifically women and children. Originally founded by Roche in 1984, Sight and Life was exclusively funded by DSM from 2003 until 2015, when it was established as an independent Swiss foundation. This occasion was marked by the publication of a special edition of Sight and Life Magazine, which received a lot of traction from the global community. In June 2022, SAL launched a new strategy in response to the growing problem of hunger and malnutrition. The strategy builds on SAL's proven track record and sets out an expanded ambitious scope of work that will see SAL translating science to solutions, validating sustainable local (social) business solutions and supporting their scale-up.

The year also saw SAL roll out the implementation phase of the Nutrition in City Ecosystems (NICE) project, a Swiss consortium formed in partnership with the Swiss Tropical and Public Health Institute, ETH Zürich, and Syngenta Foundation and supported by the Swiss Agency for Development and Cooperation. NICE aims to increase long-term access to and demand for nutritious foods produced via local and agroecological systems in Bangladesh, Kenya and Rwanda.

Two more ambitious programs were launched by SAL this year: Product Innovation for Nutrition (funded by CIFF and ECF) and an Egg hub in Ethiopia in partnership with SNV (funded by CIFF). The PIN program is an innovative approach that helps build local value chains for nutritious products. In collaboration with Harvard Business School, the project also supports 400 entrepreneurs in emerging economies in applying business models to develop and scale nutrition innovations. It builds on SAL's successful partnership in Bangladesh with SMC and GAIN, which resulted in the sale of 20 million MMS tablets to pregnant women over the course of 1.5 years. The Egg hub also builds on the successful Egg hub model set up by SAL in Malawi, which tripled the income of smallholder farmers, while providing three times more affordable eggs in rural Malawi for malnourished children and women.

SAL continues to produce new publications, podcasts and events focused on key themes including multiple micronutrient supplementation, adolescent nutrition, food system change, alternative proteins and precision nutrition. This year also saw the first 'Partnering for Impact' networking event for Swiss stakeholders, organized with the aim of increasing collaboration between diverse actors across the food chain.

Catalyst

We remain an active supporter of Catalyst's mission to improve workplaces for women. Our Honorary Chairman, Mr. Feike Sijbesma, continued his role on the Board of Directors and Ms. Matchett her role on the European Advisory Board.

In 2022, our sponsorship of Catalyst's work on Women and The Future of Work (a long-term, research-led program focused on ensuring equity in future employability) continued. Our support in 2022 included participation in regular expert group meetings, during which we provided input to shape Catalyst's research practices and products, such as the knowledge burst 'Bringing Humanity to a Digital World'. In addition, we contributed to, and benefited from, regional best-practice sessions, for example, 'Creating Successful Inclusive Hybrid Workplaces', the outcomes of which validate and influence the design of DSM's Hybrid Working practices.

Valuable 500

The Valuable 500 is a global NGO dedicated to unlocking the social and economic value of people living with disabilities across the world. We continued our partnership in 2022, with a focus on **raising awareness of disability inclusion** and identifying opportunities to improve accessibility in the workplace. DSM's Valuable ERG lead, Geo 't Hart, was nominated to represent DSM at a Valuable 500 Future Leaders program for people with disabilities, ''Generation Valuable'', with mentorship from Ms. Matchett. This program has dual aims: to create a cadre of leaders with disabilities while also raising awareness of disability inclusion at top levels within organizations.

Workplace Pride

Workplace Pride is a non-profit foundation dedicated to **improving the lives of Lesbian, Gay, Bisexual, Transgender, Intersex and Queer people in the workplace**. Since becoming a member in 2020, DSM has applied Workplace Pride's global benchmarking tool, which provides a data-led approach for evaluating and identifying opportunities to improve inclusion for our LGBTQ+ colleagues and partners who form the basis of our global goals and programs. In 2022, we publicly shared our commitment to LGBTQ+ inclusion with the signing by Ms. Matchett of the Declaration of Amsterdam.

One Young World (OYW)

The One Young World Summit gathers 2,000 **young leaders** from more than 190 countries and all sectors, empowering them to make lasting connections to generate positive change for sustainable development. In 2022, our 11th OYW delegation comprised 26 colleagues representing all our businesses and regions, along with four scholars active in the areas of our Food System Commitments. This delegation attended the Manchester Summit in September 2022, which had been delayed and relocated due to the pandemic.

Working on business development and internal engagement

The community of more than 120 OYW alumni manages different **business development and internal engagement projects for sustainability**. Projects implemented by previous delegations include a Personal Carbon Footprint Calculator, a learning and development game called 'The DSM Sustainable City™', a project on Sustainable Packaging, and the Tomato Project (a development project for fortified tomato sauce). The 2022 delegation worked on projects relating to increasing the impact of the DSM scholars' program, a platform to boost knowledge-sharing; an internal exchange program to increase development of employees; STEM outreach to local communities; and a Diversity, Equity, and Inclusion live chat.

External recognitions

We are proud when our efforts receive positive recognition from others. Below is a selection of some awards and recognitions that we received from NGOs and trade organizations, customers, suppliers and academia in 2022:

- The **Austrian Ministry of Labor and Economy** awarded DSM Austria the State Prize for Innovation for our work on neutralizing mycotoxins
- The UK Government's **Department for International Trade** awarded DSM the 2022 Investment Award for 'most Sustainable Investment by a Dutch company into the UK', in recognition of our plans to scale up production for Bovaer®, supported by the Scottish Government
- **Eurotier**, the world's leading trade fair for livestock management, presented a Silver Innovation Award for Bovaer® in recognition of its contribution to making animal protein more sustainable
- In Brazil, **Globo Rural Magazine** ranked DSM as the Best Company in Animal Nutrition, recognizing the company's work on reducing greenhouse-gas emissions
- The **Ringier Awards** recognize innovations that advance China's Food & Beverage industry. This year, four of DSM's products received a Ringier Award: Purifine® LM, Maxavor® Fish YE, Delvo® Plant and β-carotene
- The **China Sustainability Tribune** recognized DSM with the Golden Key Excellence Award for our ready-to-eat dysphagia food solutions
- **Union County College** honored DSM North America as their Corporate Partner of the year. DSM has been a partner of Union Country College for a number of years

ESG Ratings and Benchmarks

Sustainability is at the heart of our business. It is our core value: we see it as a key responsibility and an important business driver. This is reflected by our inclusion in several Environmental, Social, Governance (ESG) Benchmarks and Ratings, many of which rate us a (sector) leader.

Given the large number of prevailing ESG benchmarks, participating in each and every one of them is not feasible for any company, so we annually review and prioritize our participation. We are in favor of further consolidation and standardization of the ESG benchmarks, as we believe this will encourage more companies to participate than is currently the case.

Our annual review of the ESG benchmarks in which to participate is based on the following criteria:

- Recognition and use by our stakeholders, including our investors
- Transparency of methodology
- Primary reliance on publicly accessible information
- Avoidance of additional administrative work
- Provision of sufficient feedback to participating companies to enable them to make meaningful year-on-year improvements

Our priorities in 2022, and the outcomes, are listed below:

- For our climate strategy, and water governance and strategy in 2022, we were assessed as double A by CDP
- We hold a Platinum CSR Rating from EcoVadis. The Platinum rating places us in the top 1% of companies assessed in our industry
- We continued to be a constituent of the FTSE4Good Index. We have been listed on this index since 2004
- We maintained a low-risk rating from ISS QualityScore throughout the year, including lowest risk (1 out of 10) in Governance. ISS ESG reconfirmed DSM as ‘Prime’ according to its rating methodology. Our rating of B- puts us in the top decile relative to our industry group
- MSCI’s rating of DSM was unchanged at ‘AAA’. The report highlighted our strong strategy to address carbon emissions. It also noted our focus on energy-efficient operations and our leadership in governance practices
- We were assessed by Sustainalytics as being at low risk of experiencing material financial impacts from ESG factors, ranking in the 4th percentile in our industry
- We were again listed in the Vigeo Eiris Benelux, Europe, Eurozone and World indices. Vigeo Eiris is now part of Moody’s ESG Solution

People

At a glance

- 0.28 Frequency Index of Recordable Injuries, compared to 0.22 in 2021
- 77% Employee Engagement Index, compared to 76%[1] in 2021
- 26% female executives, compared to 23% in 2021
- 31:69 female:male ratio
- 79% Inclusion Index, compared to 77%[1] in 2021

Supporting our people through a year of change

In 2022, our people around the globe experienced a year of considerable change. As well as being affected by external developments – including the ongoing COVID-19 pandemic and economic challenges such as rising inflation and living costs – our organization continued its **strategic journey toward becoming a leader in Health, Nutrition & Bioscience**. To actively inform and engage with people about this journey and our announcement of the intended merger of equals with Firmenich, many townhall meetings, connects and communication campaigns were launched. These provided people with a place to raise their questions, connect and explore what makes us DSM. Meanwhile, we also worked to develop, among other things, the resilience and change management skills of our people, kept track of the emotions people experienced and made plans to support our people in the future.

Throughout the year, we also supported the **health and well-being of our people** through a range of campaigns and initiatives, from nutrition and immunity support to mental health webinars. We also took important steps in implementing effective and inclusive hybrid working practices during the year, which will make our organization more flexible and resilient for the future. By aiming for a 50:50 balance between office and remote work, we hope to provide our office-based employees with the flexibility to focus on individual work where needed, while also facilitating the right opportunities for personal development, strong collaborations, and closer relationships. For our employees based in plants or labs, we also continued to explore options for flexibility based on the requirements of specific roles.

Delivering on our People & Organization (P&O) strategy

Throughout the year, we supported our people during a year of change while working to realize our P&O strategy, which was launched at the end of 2020. This strategy comprises **four pillars**:

- Creating a flotilla-style organization
- Empowering our people
- Resetting the context for leadership
- Creating a contemporary workplace

In 2021, we added **a new area of focus** with our Inclusion & Diversity strategy, which covers human rights, engagement, and inclusion and diversity. In 2022, we included 'equity' as a further component of this part of our strategy.

Aligning our People approach with the Materiality matrix

Our approach to People aligns with several **material topics**:

- Occupational health, safety & well-being (see Safety and Health & well-being)
- Product quality & safety (see Quality)
- Human rights (see Human rights)
- Talent attraction, development & retention (see Empowering our people and Resetting the context for leadership)
- Employee diversity & inclusion (see Diversity, equity & inclusion)

1 As the divestment of DSM Engineering Materials was announced prior to the launch of the EES, people working for DSM Engineering Materials completed a different questionnaire. The scores cannot be aggregated in the total, therefore EES and associated metrics are reported excluding Engineering Materials. The 2021 Employee Engagement scores excluding Engineering Materials were: Employee Engagement Index 77% and Inclusion Index 77%.

Activating our Health, Nutrition & Bioscience organization

Building on our 2021 efforts to reshape our company into three new Business Groups – Animal Nutrition & Health, Health, Nutrition & Care, and Food & Beverage – we implemented our **updated organizational design** in 2022. Our new set-up allows us to get closer to our customers in the industries we serve and develop innovative solutions at greater speed. This is supported by the establishment of a central science organization and embedded innovation teams, providing scientific capabilities and R&D power across all three Business Groups. The new organizational set-up is described in more detail in Strategy.

In our corporate and support functions, the **new operating model and principles** designed in 2021 were implemented during the course of 2022. Supported by a series of transformation workshops, our corporate functions improved their functional excellence, creating a support model that underpins our business ambitions and adds value to all customers and other external stakeholders. For example, in P&O, our new organizational design enables a more fluid way of working, an improved employee experience, and better development opportunities for employees.

In line with our ambitions to become a company focused on Health, Nutrition & Bioscience, we also supported our people in our **Protective Materials and Engineering Materials businesses**. We communicated transparently, for example, about the path ahead for both businesses under their new ownership, via townhall meetings and walk-in sessions, and organized leadership events and team connects. We also developed the capabilities of our people managers and employees to manage this next stage in their professional lives, via training and LinkedIn learning paths.

Safety, Quality, and Health & Well-being

The safety and health & well-being of our employees remains our top priority. As we journey toward becoming a company focused on Health, Nutrition & Bioscience, quality has been accorded the same degree of scrutiny as safety. Volatility in the world around us resulted in additional challenges, making this priority more important than ever. In 2022, as we took next steps in implementing hybrid working, we continued to provide safe and healthy workplaces for our people – whether in our offices, laboratories, plants, or homes.

Global developments in 2022 had a profound impact on our people throughout the year, from higher levels of personal uncertainty to increased professional workloads and pressures. These challenges were compounded by higher turnover rates and difficulties in hiring new employees. In turbulent times like these, we maintain a **continuous focus on the safety, health, and well-being of our employees**. The attention for safety & health focuses on three areas to ensure that they are embedded across our organization.

	Aspiration	2022	2021
Occupational safety[1]			
Frequency Index REC-all	< 0.20 in 2027	0.28	0.22
Frequency Index LWC-own		0.11	0.12
Process safety			
PSI Rate-all	< 0.15 in 2024	0.18	0.23
Occupational health			
Health rate-all	< 0.07 in 2024	0.09[2]	-
Health cases-all		25	23

1 All data presented in People are subject to the Non-financial reporting policy.
2 The year 2022 was the first year of reporting the Occupational health incident rate.

Safety

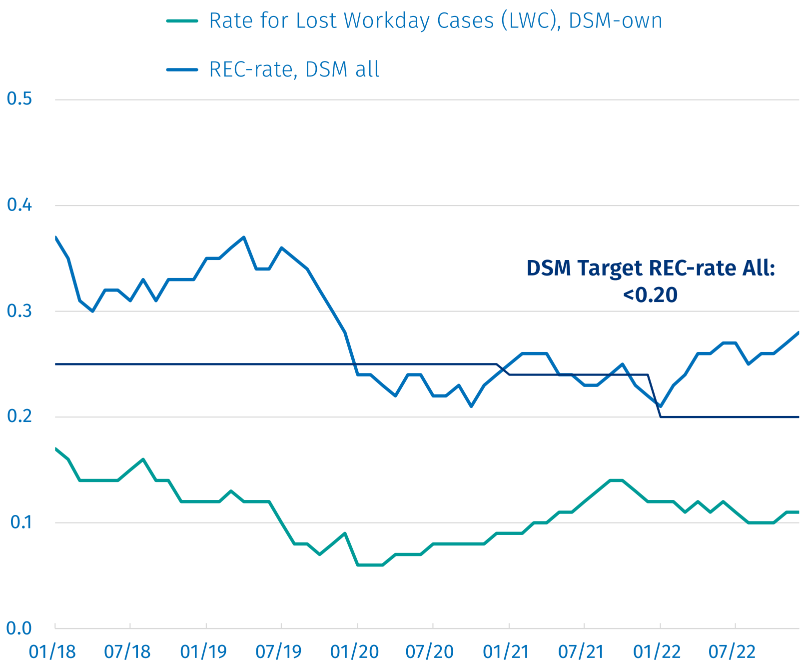
Occupational safety

Occupational safety is the **safety of our employees and contractors** in the workplace. In our 2021 DSM Responsible Care Plan update, we strengthened our Occupational Safety Frequency Index REC target, aiming for a rate of <0.20 in 2027. This is the next step in our ambition to make our company fully incident- and injury-free.

In 2022, however, we saw a deterioration of our **Safety performance**, resulting in an increase of the Occupational Safety Frequency Index REC from 0.22 to 0.28. This level is above our 2021 target level of 0.24 and far from where we aim to be. The increase was mainly caused by a rise in awareness-related incidents such as slips and trips. To understand and counter the strong rise in these incidents, company-wide initiatives and discussions took place in many different leadership teams focusing on the mindset of our people. We aim to ensure that, despite so much happening both within and beyond DSM, our colleagues are fully focused on good safety practices at all times. At our recently acquired sites – where the frequency and severity of incidents played a part in our higher overall incident rate – dedicated integration programs are underway to improve safety standards and culture.

Frequency Index of Recordable Injuries

12-month moving average



Key initiatives driving success

In 2022, we focused on **improving safety** at those sites with the highest number of recordable incidents in 2021, with these sites reducing their number of injuries by 40%. In addition, we rolled out several global learning activities to our colleagues in operations to help avoid reoccurring (severe) incidents. With our peer-to-peer review initiatives, we have shown we can identify possible gaps at an early stage to prevent incidents in the future. By integrating our safety and health resources globally, we also gave better support to our sites on their journey to becoming incident-free.

Contractor safety

To keep our contractors safe, we employ the same strategies as for our own organization, with a **focus on learning** from past incidents and on the robust implementation of our **Life-Saving Rules**. The Frequency Index of All Recordable Contractor Injuries increased to 0.47 in 2022 (versus 0.41 in 2021). This trend is comparable to the total frequency index (see above).

Focusing on safety with passion and care

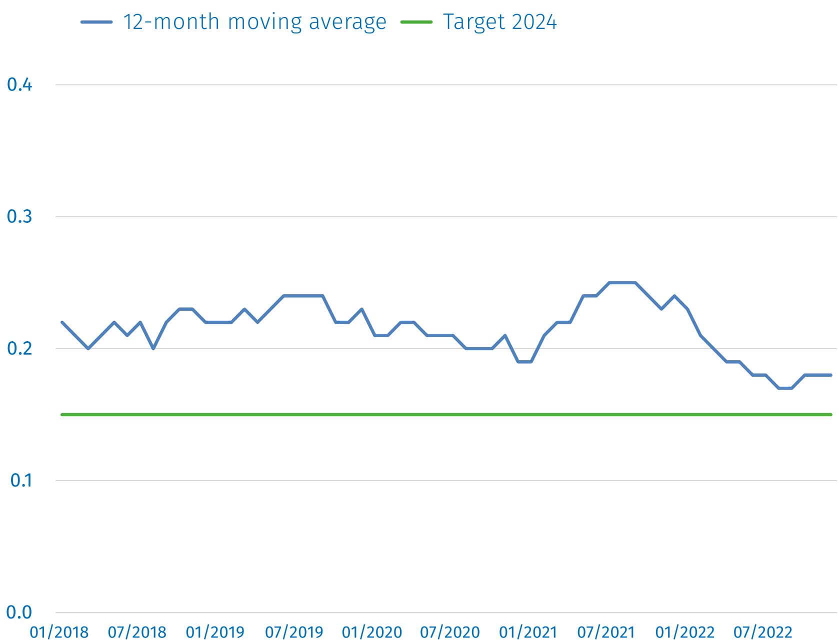
In line with our aspiration to become fully incident- and injury-free, we will continue to promote an engaging and disciplined safety culture by means of focused improvement programs, such as through the roll-out of a Behavior-Based Safety program (Safestart®) at our production sites and a new program focused on integrating well-being and safety.

Process safety

Process safety refers to the safe operational design of our facilities. In 2022, our Process Safety Incident rate decreased from 0.23 to 0.18, putting us on track to reach our target of <0.15 in 2024.

As with occupational safety, we focused on the sites that had the highest number of process safety recordable incidents in 2021 and reduced their number with 45%. A pareto analysis was made of the root causes of loss of primary containment and for the most occurring root causes a self-assessment tool was developed to steer site improvements. Furthermore, the continuing activities around our behavior-based programs and integration improvement programs for recent acquisitions contributed to this improvement.

Frequency Index of Process Safety Incidents



In addition to the above, we continued to follow up on process safety incidents to capture lessons learned that will help us avoid reoccurrences at other sites, as well as at recently acquired sites. We started a project to integrate all process safety information within a single Process Safety Management system to improve quality and consistency. We continued to monitor and manage the process safety life cycle, including promoting a ‘right-first-time’ approach and evaluating effectiveness. We also continued to strengthen the development of regional and local competences. Together with our Behavior-Based Safety programs and our Life-Saving Rules, these activities made a significant contribution to preventing incidents.

Quality

Quality has been accorded the **same degree of scrutiny as safety**, as we continue our strategic journey toward becoming a leader in Health, Nutrition & Bioscience. Our products that find applications in health and nutrition reach millions of consumers. For example, a single kilogram of vitamin A can fortify tons of infant formula used by thousands of babies and infants, or hundreds of tons of animal feed used in the egg industry. As a consequence, the impact of our products, and consequently the impact of their quality, is critical to the safety of our end-consumers.

Embedding quality in our organization

We focus on three areas to ensure that quality is embedded across our organization. As a first step, we run quality risk assessments to identity and eliminate quality risks. Secondly, based on our risk assessments, we implement cross-company **quality standards**, with a focus on continuous improvement of our technical standards, and the deployment of technical solutions where needed. Finally, we have the objective to have a quality **learning organization** in which we share feedback and alert each other about incidents and near misses and undertake a through follow-up. We aim to embed the right **mindset and behavior**, ensuring that our colleagues understand why our quality requirements and procedures are important.

It is the responsibility of our employees to ensure that quality is embedded in how we serve our customers. **Trainings** on relevant quality standards are made available to all employees and are mandatory for target groups, to we embed the right mindset and behaviors in our organization. In addition, we have a mandatory training on Root cause analysis for our quality experts so that these are performed in a standardized way that is comparable to our approach within SHE (Safety, Health and Environment). Through standardized root cause analysis, we bring our expertise to the next level and ensure that the conclusions from an incident are translated into the right and impactful corrective actions. Through this, we build a learning organization on quality.

Customer centricity and quality

Customer centricity and our approach to customer complaints and quality incidents is central to ensuring that our products deliver the **quality that is expected by our customers and end-consumers**. We implement a structured process around complaints and incidents to ensure agility and customer focus. This includes setting internal targets levels on customer complaint ratios and complaint response times. Performance and related learnings from complaints are regularly shared and discussed from the shop floor to the Executive Committee and Supervisory Board level.

Health & Well-being

Occupational health and industrial hygiene

Occupational health and industrial hygiene activities aim to **prevent health issues** caused by prolonged or repeated exposure to potential health hazards, such as chemical, noise or biological hazards, or ergonomic risk.

In 2022, in addition to reporting on the number of occupational health incidents, we also started reporting the incident rate with a corresponding **target level**. Our target is to reduce the occupational health incident rate to <0.07 by 2024. In 2022, we recorded an incident rate of 0.09, corresponding to 25 total cases. Workplace health hazards had more of an impact on the number of health incidents in 2022 than in previous years due to changes in our portfolio via acquisitions and divestments.

Over the past few years, most of the recorded cases have been related to **ergonomic risk factors.** To address this, we are implementing a dedicated program that tackles both the behavioral and the technological aspects of ergonomics. A pilot in 2022 proved successful and the program will be rolled out globally.

Besides ergonomics, we continued to minimize potential **exposures to health hazards** by focusing on standardization and best practices. The internal Health Risk Assessment tool was updated in 2022 to reflect advances in risk assessment practices and is being rolled out globally. Likewise, the internal standard on noise has been updated, setting new requirements for the prevention of occupational hearing loss via more stringent measuring conditions and protection requirements. Through the DSM Responsible Care Program, we aim to ensure regional access to global data and industrial hygiene professionals, build leadership awareness of occupational health issues, and enhance the related reporting infrastructure.

Employee health and well-being

As a Health, Nutrition & Bioscience company, we continuously invest in the **health and well-being of our workforce**. Our strategy equips and empowers our employees to take care of their health and well-being in a sustainable way.

Well-being worldwide

On a global level, we focused on two key areas in 2022: creating optimal **hybrid working conditions** and promoting approaches and tools to improve employees' **mental and physical health**. As part of our continued adoption of hybrid working practices, for instance, we invested in ensuring good ergonomic conditions for our colleagues at our sites and at home. As well as providing appropriate equipment, we also focused on education and training. Meanwhile, we implemented a program to improve nutrition for our workforce at our sites and launched an education initiative for employees worldwide, which included changes to menus at some of our on-site canteens.

Besides this, we completed the year-long pilot of our Vitality program – part of **#BoostYourImmunity** – in the Netherlands in 2022. With COVID-19 having emphasized the importance of immunity and vitality for everyone, we conducted a joint pilot together with Zilveren Kruis (our health insurer in the Netherlands) and Just2Bfit, for our employees. The pilot aimed to improve their immunity and vitality through healthy lifestyles, nutritional training and dietary supplements. Furthermore, it examined the effects of sustainable, healthy behavioral changes on general well-being and motivation, blood vitamin levels, and absence rates.

Over 12 months, a group of volunteers from our locations in the Netherlands received weekly healthy lifestyle training on exercise, mindset, nutrition and recovery, completed regular online questionnaires on lifestyle and immunity, took periodic blood tests, received daily nutritional supplements, and took part in online and telephone monitoring. External analysis confirmed that the Vitality program motivated employees to follow a sustainable, healthy lifestyle. Furthermore, the results suggested that the dietary supplements increased participants' vitamin D levels by an average of 41% between the start and the end of the pilot. The beneficial effect on absence rates that was found in the pilot group is still being investigated. As part of our culture of health at work, we will roll out this Vitality program worldwide and will continue to research its effects.

Local actions give targeted support

As well as global initiatives, we put in place a wide range of **regional health and well-being programs** to support our people. In China, for instance, we remained focused on supporting DSM employees through COVID-19 lockdowns, thanks to initiatives including grocery package deliveries and engaging online activities. Employees in India attended expert-led health talks on post-COVID nutrition, women's health and more, and across the Asia-Pacific region, a mobile app helped colleagues expand their life skills and realize personal and professional goals through quizzes, guided exercises, articles, and direct expert advice. In North and Latin America, we engaged in activities to improve the physical, emotional and financial well-being of our people and their families through workshops, talk sessions and guided exercises.

In many DSM locations in Europe, we supported employees in **balancing their mental and physical well-being**. In Switzerland, we held a series of mental health seminars, while colleagues in the UK benefited from free fruit supplies and a free flu vaccination. In France, a 'Let's have a healthy summer' campaign was organized, and dozens of employees took part in a blood drive to help the wider community. Around the world, DSM's Employee Assistance Program continued, providing a 24/7 emotional and psychological support service for employees and their family members, and in October 2022, webinars on 'Maximizing Your Resilience' offered all DSM employees the chance to build this important trait.

Since the onset of war in Ukraine in February 2022, we also maintained a strong focus on **supporting the health and safety of our seven DSM colleagues in Ukraine**, their families, and our colleagues who have loved ones in the region. Our local leadership has been aided by our Global Response Team in its efforts, which include relocation support. In neighboring Poland, our humanitarian actions include support for the families of our Ukrainian colleagues; the offer of Polish language lessons, psychological support, and medical services; and assistance for family members looking for new employment. Beyond supporting our DSM colleagues, we also implemented a dedicated employee donation scheme with our partners at the World Food Programme (WFP) to provide food-based assistance to the people in Ukraine and refugees in neighboring countries.

Employee survey results show the value of these initiatives: employee support was the second most frequently mentioned response to the question of what factors contribute most positively to people's experience at DSM. The mental and physical care provided during the COVID-19 pandemic, the support offered during times of bereavement, and the warm welcome given to new joiners were among the highlights mentioned by respondents.

Delivering on our P&O strategy

In 2022, we continued to execute our People & Organization (P&O) strategy, launched at the end of 2020. In alignment with our wider business ambitions, the P&O strategy helps to guide the focus of our P&O function, define our priorities when investing in our people, and steer the company toward a better employee experience.

	Aspiration	2022	2021
Engagement Index[1,2]	>75% by 2021	77%	76%
Participation Rate		89%	92%
Training			
Training hours per employee[3]		8	8

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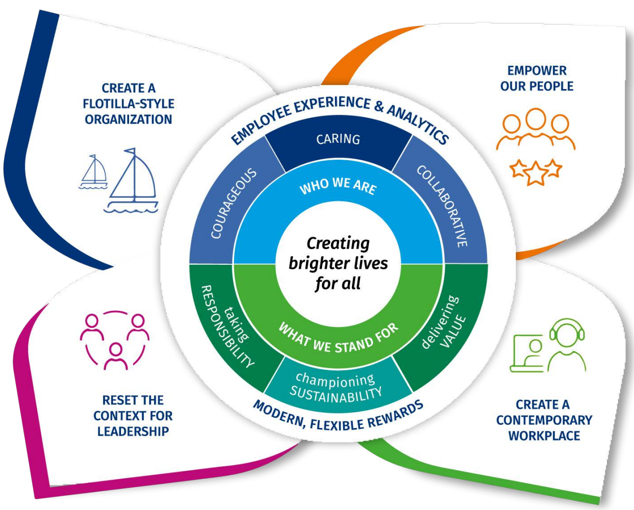
3 Training hours includes developmental-focused trainings and our values trainings. It excludes compliance-related trainings.

As depicted below, our P&O strategy has four focus areas, which aim to enhance our approach to organization, people, workplace, and leadership. These areas are enabled by the right rewards and employee analytics and listening practices.



Creating a flotilla-style organization

In 2022, we further embedded our flotilla-style organization, in which critical direction comes from the center, surrounded by agile units that are empowered to achieve our common goals. Starting in January 2022, we activated a new operating model for our global corporate and support functions. Across these corporate functions, we have adopted an agile, incremental way of operating, with a rapid prototyping approach that enables us to develop fit-for-purpose digital solutions more quickly. Within P&O, we implemented a learning journey on agile ways of working to ensure we could support the rest of the organization with this core competence. We believe that embracing a flotilla-style approach and integrating agile ways of working will help us to drive efficiency and impact, enabling us to respond more effectively to external forces.

Empowering our people

With our world changing and our business transforming itself, we aim for DSM to provide an empowering work environment that encourages all our colleagues to take ownership of their performance and development. We recognize that everyone's journey is different, and we support people in making a sustainable individual impact, no matter their role. Our user-centric tools and solutions enable colleagues to customize their learning path within the DSM framework and business context, as well as allowing individuals and teams to take charge of their professional development and growth, while performing at their best.

In June 2022, we launched MyCareer Marketplace to DSM employees worldwide. This online platform, which is also available as a mobile app, gives our people control over their career development. It allows colleagues to learn, share their professional achievements, identify and develop skills to support their career goals, find job and project opportunities and mentors, and drive their professional growth. MyCareer Marketplace also supports mobility within DSM. Between June and December, more than 30% of relevant DSM employees used the tool.

Our Annual Performance Management cycle continued, with approximately 15,000 employees taking part during the year. All other employees participated in performance discussions on paper or by means of local systems. We simplified the performance management process in 2022 to give managers and employees more time to discuss their performance and development needs – supporting our focus on developing our people now and for the future. We also started to move toward a Continuous Dialogue approach that ensures our people have regular opportunities to receive feedback, reflect on their development and aspirations, and set new goals.

This was also the first full year of our 'Learn Together, Grow Together' initiative, which was launched in late 2021 to inspire, support, and guide our people in shaping their personalized learning journeys. Founded on four pillars – Own it, Find your fun, Try something new, and Share what works – this campaign aims to make learning accessible, attractive, and fun. By tapping into employees' motivation to develop skills that interest them, Learn Together, Grow Together increases their learning agility – a critical skill in fast-paced environments. This initiative also contributes to embedding our learning culture throughout DSM and empowering our people to take ownership of their growth. Eight months after its launch in 2022, 51% of all our employees had visited the new Learn Together, Grow Together learning platform a total of 150,000 times. This frequency is already a greater proportion than had ever visited our previous learning platform. Next to this, the number of employees that spend time (recurring) in the Bright Learning platform was 42% higher compared to 2021. As we believe in sustainable learning, we plan to plant trees in ratio to the number of hours our employees spend learning. In 2023, we will plant 6,770 trees across the globe to recognize the time our people spent on digital learning in 2022.

Resetting the context for leadership

Our Culture Compass – established in late 2020 – continues to underpin our approach to leadership and the employee experience. In 2022, global research company Gartner developed a case study on the Culture Compass, sharing this as a best-practice model for other companies. Throughout the year, we continued to integrate the Culture Compass into the employee experience:

- Onboarding: We developed a Culture Compass Virtual Experience for all employees onboarding remotely and delivered a 'Culture and DEI' session for new trainees in our Group digital Services (GdS) team. In Switzerland, we also embedded culture into onboarding processes via our 'Leading through Culture' workshop for new People Managers
- Recognition: To strengthen DSM's recognition program, in alignment with the Delivering Value element of the Culture Compass, the Total Rewards team piloted a recognition platform, Brilliant, in Brazil and Singapore. The outcome will be assessed through a recognition survey in the first quarter of 2023

Finally, P&O launched the Evolve Toolkit for People Managers. This Toolkit consists of resources to help our leaders strengthen their teams' resilience and performance, such as digital team exercises and templates, team development sessions, facilitation of team dialogs, and masterclasses. Fourteen virtual masterclasses were conducted (seven Evolve Ready and seven Igniting Team Performance), in which 184 colleagues participated. It received a rating of 4.44 out of 5 on participants' ability to apply their learnings to their role at DSM. In the coming months, we will measure the effectiveness of this toolkit, and determine follow-up actions accordingly. To support the resilience of all DSM employees, we also hosted 10 Maximizing Your Resilience webinars, in which 171 employees participated. Participants gave the question "I would recommend this webinar to a colleague/friend" a 4.5 out of 5.

Creating a contemporary workplace

In 2022, we took the next step in our hybrid working strategy, working toward a 50:50 balance between remote and office work for all office-based employees. For employees based in plants or labs, we continue to explore options for flexibility. The intention is that this balance will enable colleagues to work flexibly and efficiently on individual tasks where needed, while also facilitating collaboration, closer relationships, larger networks, and increased development opportunities through in-person connections. Like many businesses around the world, we have found that some employees are hesitant to return to the office, which is why we introduced creative initiatives to promote the value of in-office working, such as the trial of 'Teams-less Tuesdays' toward the end of the year. Through this initiative, we aim to keep Tuesdays free of large online meetings, thereby encouraging employees to use Tuesdays for face-to-face collaboration or on-site initiatives and to consider alternatives to online meetings more generally. In 2023, we will evaluate this initiative and take appropriate follow-up actions.

Tools and resources such as our Digital Guides, the TeamPact app, and Mapiq continue to support employees in taking an innovative, tailored approach to team working. By suggesting alternatives to Teams meetings, helping to plan face-to-face interactions through the Mapiq app, and taking employees' working preferences into account through TeamPact, these resources make it easier for teams to work in the way that best suits their situation.

Our regions also implemented various hybrid working initiatives throughout 2022. These included an integrated hybrid working program in Latin America, events to celebrate returning to the office and hybrid-based plans for office spaces in India and Asia-Pacific, and hybrid-focused DSM TV episodes in the Netherlands.

Modern, flexible rewards

Flexible rewards can enable our P&O strategic drivers by taking into account the diverse needs of our people and businesses. To make these rewards programs as effective as possible, insights into employees' needs and perspectives are essential.

In 2022, we planned to undertake a broad compensation and benefits survey. This survey was postponed due to other priorities, however we did increase our understanding of employees' views on our rewards offerings in two ways. First, in April, a P&O survey provided a first indicator that we need to make our short-term incentives and other rewards more motivating and more widely available. Second, people often mentioned that they would like to talk about compensation and benefits with us in the open-text comments of our 2022 Employee Engagement Survey (EES). In 2023, we plan to further explore this topic and determine appropriate follow-up.

We also piloted our recognition program in Singapore and Brazil in the second half of 2022, after finalizing the underlying Recognition Guideline in 2021. In early 2023, we will validate the pilot results.

We expanded our offering of flexible benefits programs in 2022. In July, DSM Brazil launched its Bright Benefits program, which allows employees to select from a 'menu' of flexible benefits alongside certain fixed benefits. Bright Benefits was well received by employees at all levels of the organization. In feedback from the Employee Engagement Survey, colleagues highlighted the attractiveness of the benefits offered and how the choices help meet their personal needs. We already run similar programs in countries such as the Netherlands and the US, and in the coming years, we hope to offer flexible benefits to employees in more regions, in order to further strengthen our employee value proposition.

Employee experience and analytics

In 2021, we designed our Employee Experience Vision, which outlines our ambitions to create an environment in which our employees feel taken care of, engaged, empowered, able to deliver, and able to grow. To better meet the needs of our business and realize this Vision, we implemented the new P&O operating model in 2022 that was designed in 2021. This included the launch of a P&O service desk as a new contact channel for our employees and the design of simpler and more transparent P&O processes across the board. We also continued to develop our employee experience capabilities with hands-on training sessions, intensive coaching, a supporting playbook, and other materials. Meanwhile, we began measuring employee experience across P&O. This resulted in an increased focus on well-being for both P&O and the company more widely, and we integrated well-being questions into all our global listening initiatives. Finally, we introduced an easier-to-use platform for managing core P&O activities in Switzerland. In the coming years, we plan to roll out this platform to other DSM countries.

We continue to work toward becoming an insights-driven P&O function, where all P&O colleagues can access the information they need to make robust decisions. To this end, we implemented a more accessible and intuitive insights platform in March 2022. This platform provides the entire P&O community with a single access point for our People data, a step-up from our previous set-up of six unconnected dashboards. Across P&O, 30% of colleagues are now using it on a regular basis. We plan to integrate this platform further with the Finance function by making FTE and cost-center data available on the platform.

Furthermore, we have increased our efforts to develop a 'data culture' and build a new set of data literacy capabilities to upskill our functions. These efforts have included training, working groups, and the establishment of a dedicated data community. Together, these initiatives have enabled a shift in focus from 'data crunching' to data analysis and insight collection, with everyone in our P&O function now equipped to generate insightful reports themselves. We plan to further embed this shift in the coming years.

Employee listening

Listening to our people enables us to understand their needs, pain points, and motivations, and therefore to shape a positive employee experience. In 2022, we established a new employee listening strategy that aims to:

- Focus on measuring what is purpose-led, performance-driven, and evidence-based
- Simplify and streamline our listening initiatives, balancing global standardization and local needs
- Optimize the use and integration of data sources and analysis
- Design our listening initiatives with action in mind

To support this vision, we redesigned our Pulse Surveys and Employee Engagement Survey to align with our strategic objectives and continuously measure critical dimensions such as well-being, work engagement, and psychological safety, alongside other topics relevant to our transformation to a flotilla-style organization (such as priority-setting, adaptability, and customer focus). In comparison to our census-based annual Employee Engagement Survey, which provides us with a detailed understanding of how our people are experiencing fundamental topics, our sample-based quarterly pulse checks help us to gather employee feedback more regularly and take targeted actions more quickly. By analyzing our open-text data in a more structured way, we also improved our ability to act on what our people are telling us, as we were able to identify more accurately what is on people's minds and what they think we should improve.

The annual Employee Engagement Survey, sent out to all our employees, remains a key source of employee feedback. The results provide insights into employees' views on topics such as preferred work locations and well-being. Despite the considerable changes and challenges experienced in 2022, our overall DSM scores in the Employee Engagement Survey remained largely the same, with no drop in any dimension scores compared to our 2021 scores on a like-for-like basis.[2] This includes our Employee Engagement score, which scored similar to last year (77%) and our response rate (89%). To

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ensure the most accurate comparison of our business to last year, scores of 2021 excluding Engineering Materials will be reported in the remainder of this chapter.

In 2022, we measured a new topic called work engagement. Work engagement refers to people's passion about their job and is thereby different from employee engagement which refers to the commitment, pride, advocacy, and satisfaction people feel towards the company. With a favorability score of 80%, we found that people are passionate about their work.

Our top three sub-category scores relate to the finding that our employees believe that DSM is a safe place to work (93%), consider health and safety a top priority (92%), and find their work meaningful (86%). The scores for both inclusion (79%) and managers (78%) rose slightly compared to 2021, by 2 p.p. and 1 p.p. respectively. Encouragingly, the gender gap on employee engagement between male and female executives in 2021 (men scoring almost 9 p.p. higher than women) was almost entirely closed (1 p.p.) in 2022.

At the same time, our results also brought to the forefront some improvement areas – with well-being scores being at the lower end, with an average score of (70%). Based on these insights, our focus areas for 2023 and beyond are to build further momentum on inclusion across DSM and support the well-being and ability to regularly re-energize among all our employees.

Through advanced text analytics on the comments of the Employee Engagement Survey, we also examined the emotions expressed in people's comments and identified 48 topics, such as workload, innovation, and compensation and benefits. This is an improvement versus 2021, where we only identified 17 topics and whether the sentiment was positive, neutral or negative. Based on our 2022 analysis, we learned that the level of complexity and bureaucracy across our systems and structures, a fear of failure when innovating, and the pressure of being part of an overstretched workforce are areas for improvement. These insights will help us to further prioritize when redesigning our processes and structure in 2023 to boost simplicity, innovation, and agility.

To ensure improvement conversations take place at all levels, our leadership teams across the globe will continue to discuss the results, explore root causes behind low scores and prioritize targeted actions in 2023. In parallel, we support our people managers with a toolbox containing tips, trainings, and templates to engage in a conversation with their team about the results and determine meaningful follow-up actions.

Diversity, Equity & Inclusion

In 2022, we continued working to ensure that all our people feel included and cared for. Fostering and maintaining a diverse, equitable, and inclusive workplace is key to helping our employees offer their best, most authentic contribution, and is a prerequisite for achieving our ambitions and accelerating our strategic transformation. In 2022, we added 'equity' to our previously established Inclusion and Diversity strategy, which is now referred to as our Diversity, Equity, and Inclusion (DE&I) strategy. Our DE&I strategy focuses on four existing initiatives: Human rights, Living wage, Pay parity, and Hybrid working. We also accelerated progress on our five diversity pillars – Gender; Race, Ethnicity & National Identity (REN); LGBTQ+; Disability; and Generations – through continued efforts on our three focus areas: recruitment, development, and inclusion.

	Aspiration	2022	2021
Inclusion index[1 2]		79%	77%
Internationalization & diversity			
Female executives	30% by 2025	26%	23%
Under-represented nationalities	40% by 2025	29%	31%

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A regional approach to DE&I

Each pillar is key to an inclusive workplace and contains commitments that we strive to achieve by 2025. Since inclusion is experienced in specific contexts, and at different maturity levels around our global workplaces, we have adopted a local ownership approach. In April 2022, we organized a series of regional DE&I commitments workshops, where all the regions were invited to create their DE&I roadmap to contribute to our global commitments. The regional roadmaps include goals and ambitions per pillar to support workplace inclusivity, such as the period leave policy that has been implemented in India and new benefits for our LGBTQ+ employees that have been implemented in North America. The global DE&I network meets quarterly to review progress on these commitments, discuss challenges, and share best practices.

Our new DE&I hub

In August 2022, we set up a new online employee DE&I hub where all employees can learn more about our 2025 commitments through a range of educational resources and practical toolkits, such as guidelines on tips for inclusive language for policy development. Through the DE&I hub, employees can join Employee Resource Groups and networks and become co-creators of our DE&I journey.

DE&I governance framework

DSM's governance framework for DE&I ensures ownership and steering by the executive and senior leadership, with operational responsibility shared between the business and regions. For example, our DE&I commitments were agreed upon by DSM's Inclusion & Diversity (I&D) Council and jointly owned by our Executive Committee and Regional Presidents.

In 2022, we consolidated our DE&I governance, with our Co-CEOs chairing the I&D Council and each Executive Committee member sponsoring one of the five diversity pillars. The direction of our DE&I strategy, along with our commitments, was discussed and agreed upon by the Executive Committee. Our I&D Council, which helps to shape our DE&I strategy and drives program activation, comprises Regional Presidents, business leaders, employee resource group leads, and DE&I regional leads. Additionally, each region has nominated a focal point of contact for DE&I to support the global DE&I team in implementing programs and initiatives.

Our DE&I focus areas

Our global DE&I team undertook a wide range of initiatives within our focus areas of recruitment, development, and inclusion, in close collaboration with regional teams and Employee Resource Groups. These initiatives aim to diversify our current and future talent pools, improve development opportunities for underrepresented groups, and ensure a psychologically safe and inclusive working environment where all our colleagues can be their authentic selves. Ultimately, we are committed to providing workplaces where a diverse range of colleagues feel comfortable to contribute and can truly thrive regardless of their background or characteristics. In 2022, we continued to invest in creating such a culture, launching a new inclusion program, which is available on demand for all teams. Our efforts are reflected in the increase of our Employee Engagement Survey inclusion score (+2 p.p.), which is even more evident in regions such as the Netherlands (+4 p.p.) and Switzerland (+3 p.p.).

A strong DE&I network

Our DE&I network has continued to expand through Employee Resource Groups and regional DE&I teams. This network's initiatives and events continue to contribute to positive increases in inclusion scores. Examples of such initiatives include:

- Global workshops and webinars on our five DE&I pillars: Gender, REN, Generations, Disability, and LGBTQ+
- Signing the Declaration of Amsterdam, underlining our commitment to making DSM even more LGBTQ+ friendly
- Launch of 'Hot Site', an online sign language accessibility tool, in Latin America
- DE&I Week events in all regions, with activities focused on our five DE&I pillars
- Wo&Men's development program, a program designed to facilitate career development for our female (and male) talents
- Mentoring program for women in operations and supply chain
- Pride Month, with a variety of LGBTQ+ awareness sessions around the world
- Black History Month in the US

Our performance on our global diversity targets

Our DE&I commitments for 2022–2025 are:

- 30% of our executives to be female
- 40% of our executives to be from currently underrepresented nationalities
- Global business and functional leadership teams to be at least 30% diverse in gender and nationality

In addition, and in line with our broader commitments to the five DE&I pillars, the regions take ownership of progress via local programs, following our overall focus on recruitment, development, and inclusion.

In 2022, we realized a 3 p.p. increase (from 23% in 2021 to 26%) in the percentage of female executives, reflecting changes implemented in our talent acquisition, recruitment, and learning and development processes. A substantial increase and accomplishment we can be very proud of. In addition to this, our Employee Engagement Survey results show promising trends. Specifically, female executives feel more involved in decision making processes (+10 p.p.), have more development conversations with managers (+17 p.p.) and are more satisfied with their career opportunities at DSM (+6 p.p.) compared to last year. As a result, the gap between male and female executive scores has diminished in some areas and disappeared in others.

Our percentage of executives from under-represented nationalities slightly dropped from 30% to 29%. These outcomes show that we are making steady progress toward our 2025 targets for female executives (30%), but slower-than-desired progress toward our 2025 targets for underrepresented groups (40%) at executive levels. Several factors influenced this outcome, including the continued competition for high-profile candidates in a buoyant labor market and the fact that many of our key executive roles are based in Europe.

We conducted regional DE&I surveys in China and Asia-Pacific in 2022 to gather further insights into the composition of our workforce. This offered employees the opportunity to self-identify on demographics we cannot track globally and provided baseline data for identifying priority areas that need support from DSM policies or Employee Resource Groups. This diversity data is collected and managed following all data privacy and GDPR guidelines, securing employees' anonymity.

Based on these results and local factors, those regions have adapted their DE&I roadmaps and are implementing programs such as improving access to employment for people with disabilities, ensuring equality in policies and benefits for LGBTQ+ colleagues, and awareness and education initiatives.

Human rights

We strongly believe that it is our duty to respect internationally recognized human rights, including the rights of people along our entire value chain. Human rights are integral to our purpose-led and performance-driven strategy. We believe that the basic rights and freedoms to which all people are entitled should be understood, respected, and promoted by all companies as the cornerstone of responsible business.

	2022	2021
Gender pay gap (in favor of women)[1 2]	6%	7%
Living wage		
Employees below lower-bound	0%	0%
Employees below higher-bound	0%	< 0.1%

1 All data presented in People are subject to the Non-financial reporting policy.
2 Percentage excludes Pentapharm (Switzerland and Brazil), Jiangshan, Twilmij and Erber.

Respecting human rights means that we follow international guidelines and implement the United Nations Guiding Principles (UNGPs). We execute audits to monitor whether our codes and policies are followed within our own operations, as well as use Human Rights Impact Assessments (HRIAs) on our own operations. This allows us to keep defining our salient human rights areas and provide feedback on how we can further improve our efforts. We have elaborated on this in our human rights policy, available on our company website, including our process on human rights due diligence. Grievances relating to human rights are addressed according to the Code of Business Conduct and our whistleblower procedure, DSM Alert.

In 2022, we continued to implement our due diligence structurally as part of our human rights approach. Our salient issues are child labor, health and safety, living wage, forced labor, migrant workers, harassment, land acquisition and resettlement, human rights defenders, and freedom of expression and rights issues from industrial agriculture. DSM is continuously looking for ways to address and assess the impact of our operations. In 2022, we engaged with a strategic supplier to assess our potential human rights impact in the fish oil value chain, and to develop an action plan as needed. This engagement will continue in 2023, and the results of the assessment will be known in 2023. The results will also be used for future guidance towards implementing the UNGPs.

Throughout 2022, we undertook an in-depth analysis of our internal risk management procedures to identify gaps between existing and necessary management of human rights risks. In particular, our supplier due diligence was reviewed as part of our sustainable procurement practices. The results have been prioritized and will be further implemented throughout 2023. DSM joined the UN Global Compact Business and Human Rights Accelerator Program that will start in early 2023. The Business & Human Rights Accelerator is a six-month program that will further support DSM to move from commitment to action on human rights and labor rights. Through identifying salient human rights impacts, establishing an ongoing due diligence process and developing an actionable plan, the Business & Human Rights Accelerator will empower DSM to further advance our human rights journey.

We recognize that other human rights may become greater priorities over time, and we will regularly review our focus areas.

Fair remuneration

DSM is committed to the principle of **equal opportunities for all employees**, which includes providing our employees with a living wage. We align our calculations with the Anker methodology (Anker and Anker 2017). We also aim to reward our employees for their overall contributions to the company, setting equal pay for men and women doing similar work that requires equivalent qualifications and skills. Our Fair Remuneration Statement, available on our company website, elaborates on our position.

Gender pay gap and equal pay

We continue to use the GRI 405-2 topic disclosure as guidance for calculating our **gender pay gap**. Our 2022 results showed a gender pay gap of 6% in favor of women, (female:male pay ratio of 106:100), a narrowing of the gap by 1 p.p. compared to 2021. This is mainly due to changes in the average salary of both genders, particularly in North America where we say the gap decrease by 2 p.p., and headcount fluctuations in the six regions.

This ratio is based on validated employee base pay data for locations where we have significant operations and covers approximately 63% of our global employee base. These locations include Brazil, China, India, the Netherlands, Switzerland, and the US, excluding our operations in Pentapharm (Switzerland and Brazil), Twilmij (Netherlands) and Hydrocolloids (China). The pay gap can primarily be attributed to a higher proportion of male employees in lower-level positions, and it does not necessarily indicate whether we pay men and women equally for doing similar work. While we strive to complete an analysis on equal pay, a more holistic approach on employee data governance is required first. This is an area we plan to further advance on in 2023.

Living wage

We are committed to paying a living wage to all our employees, based on **WageIndicator's benchmark methodology**. When analyzing our wage levels, we started with our locations where we have significant operations as defined above. In 2022, we added six countries to the living wage reporting scope. The six countries are: Canada, Costa Rica, Malaysia, South Africa, Egypt and UK. With the addition of these countries 68% of the total DSM workforce is covered. Of the workforce in scope, we include all employees in the calculation that have been in active service for more than 1 year with the exception of apprentices and interns.

We aim to further expand the number of countries included over the coming years. In 2022, we assessed wage levels against WageIndicator's typical family, with higher-bound (our target level) and lower-bound (for comparative purposes) living wage figures. We apply the following definitions from WageIndicator's methodology:

- The typical family is defined as two adults with a number of children derived from the national fertility rate
- The employment rate is defined as one adult working full time, while the employment rate of the other adult is derived from the national employment rate
- The higher-bound living wage figure uses prices (for housing, food, and other indispensable goods or services) at the 50th percentile (where 50% of people report higher prices), while the lower-bound figure uses prices at the 25th percentile (where 75% of people report higher prices)

Based on our assessment, no employees were paid below the typical family with higher-bound (and consequently, lower-bound) living wage figures.

Additional employee information

The following information is provided according to GRI 2-7 and GRI 2-8.

Employees

Employees by gender

	Female	Male	Not disclosed	Unknown[1]	Total
Total Headcount	6,129	13,362	22	1,169	20,682
Permanent / temporary	6,108 / 21	13,323 / 39	22 / 0	1,169	20,682
Full time / part-time	5,191 / 938	12,884 / 478	19 / 3	1,169	20,682

1 For indexes based on age, nationalities, gender, inflow and outflow, the companies that are not integrated into the HR systems (approximately 5% of the total workforce) are not taken into account.

Employees by region

	Netherlands	Switzerland	Rest of Europe	North America	Latin America	China	Rest of Asia	Rest of the world	Total
Total Headcount	2,642	2,232	4,211	2,618	2,302	4,591	1,742	344	20,682
Permanent	2,642	2,216	4,097	2,519	2,302	3,591	1,742	344	19,453
Temporary	0	16	44	0	0	0	0	0	60
Unknown	0	0	70	99	0	1,000	0	0	1,169
Full time	1,970	2,000	3,748	2,601	2,300	4,567	1,738	339	19,263
Part time	672	232	463	17	2	24	4	5	1,419

Contingent employees

Contingent employees are employees that are not on the DSM payroll but are paid via invoice, such as contractors. In 2022, DSM employed on average 1,291 contingent employees per month.

Planet

At a glance

- 35%[1] absolute reduction of scope 1 + 2 greenhouse gas emissions versus baseline 2016
- ~26% structural improvement of scope 1 + 2 greenhouse gas emissions versus baseline 2016
- 17% scope 3 greenhouse gas emissions intensity improvement versus baseline 2016
- 78% purchased electricity from renewable resources
- -0.4% energy efficiency improvement, year-on-year
- 7.2% water efficiency improvement in water-stressed sites versus 2020

We take our global environmental responsibilities very seriously. These extend beyond our own operations to include those of our suppliers, customers and end-users. We fulfill our environmental responsibilities through our Brighter Living Solutions Plus (BLS+) portfolio, our Safety, Health & Environmental (SHE) policy, and our position on issues such as product stewardship and biodiversity. We focus on:

- *Improving* our own environmental footprint, as well as the value chains we operate in
- *Enabling* our customers to do the same through innovative products and solutions
- *Advocating* action on key environmental topics

At the end of 2022, our operations network spanned more than 110 commercial production facilities in 41 countries. Our operational approach is guided by the DSM Responsible Care Plan, described below, and supports the Sustainable Development Goals (SDGs), especially SDG 7 (Affordable and Clean Energy), SDG 12 (Responsible Consumption and Production) and SDG 13 (Climate Action). Our Planet reporting addresses our performance on several material topics identified in our Materiality matrix:

- Climate change mitigation
- Climate adaptation
- Raw materials & circularity, and Pollution & waste management, addressed in Waste & circularity
- Nature & biodiversity
- Water stewardship
- Product quality & safety, addressed in Product stewardship

Progress against our DSM Responsible Care Plan

We made good progress on our environmental ambitions, as defined in our DSM Responsible Care Plan (DRCP). The DRCP defines our ambitions, targets and actions in the Planet-related fields of environmental footprint, value chain sustainability and climate adaptation. Our new 2022–2024 DRCP fully aligns with our updated strategy and reflects the industry's standards and expectations. Key topics remain climate and safety, with other principal areas of focus being product stewardship, industrial hygiene, employee health & well-being, water and waste and biodiversity.

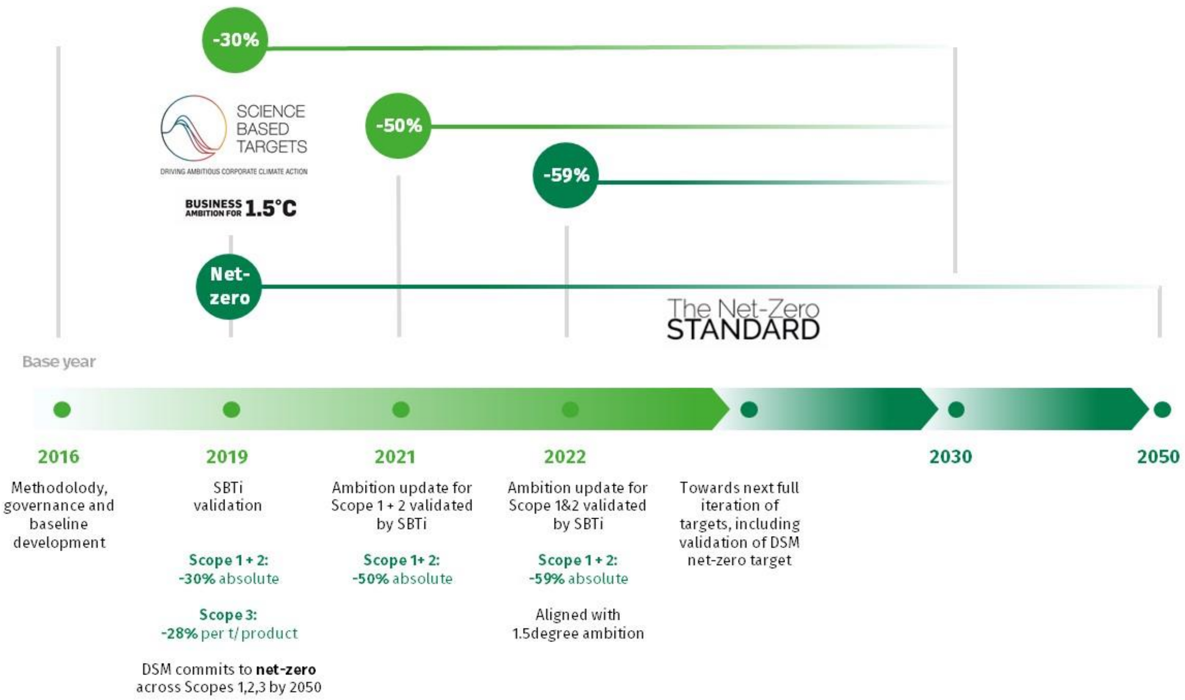
Our key targets are our Science Based Targets

The key targets in the DRCP are our Science Based Targets (SBT), which represent our contribution to climate change mitigation. In 2022, we again increased our ambition level based on our strong performance on greenhouse gas (GHG) emissions reductions and to reflect the latest scientific insights from the Intergovernmental Panel on Climate Change (IPCC). Our SBT are an absolute reduction of GHG emissions from our operations (scope 1 + 2) by 59% (increased in 2022 from previous ambition of 50%) and a value chain (scope 3) intensity reduction of 28%, both by 2030 versus our 2016 baseline. These are also the foundation for our net-zero-by-2050 commitment. The independent Science Based Targets initiative (SBTi) reviewed and approved our targets and our plans to achieve them first in early 2019 and again for our

1 All data presented in Planet are subject to the Non-financial reporting policy.

step-ups in ambition in 2021 and 2022. Our scope 1 + 2 target has been determined to be in line with the latest climate science and in limiting global warming to 1.5°C.

Evolving our GHG targets to reflect the latest science



Our **scope 1 + 2 target** is supported by a renewable electricity target (100% of purchased electricity to be sourced from renewables by 2030, increased in 2022 from our previous ambition level of 75%) and our annual average energy efficiency improvement of at least 1% until 2030. A scope 1 + 2 reduction program drives progress, with multiple activities and projects year-on-year. The scope 3 target is supported by the CO2REDUCE supplier engagement program.

Besides mitigating climate change, we are also working on **climate adaptation**. In 2020–2021, we conducted physical risk assessments on our top 30 sites to improve the resilience of our assets against potential physical impacts of climate change. In 2022, we established and piloted a process in our Business Groups to identify and assess the potential impacts of the different speeds of transition to a net-zero world. We will expand and continue this work iteratively in the coming years. More information on our risk assessment is provided in Risk management.

Our other **company targets** are driving improvements in the areas of water, waste, other emissions and substances of concern. We will continue to implement the various water improvement plans that we identified during the water risk assessments in the past years. We commit to reduce our water intake in water-stressed areas. Furthermore, we continue to enhance our insights and capabilities to steer more circularity through waste reuse/recycling and we are further developing action plans for selected products containing substances of concern, with the aim to set a target in 2023. We regularly review progress on our plans and update our targets accordingly. Our target-setting process is underpinned by the plans and measures needed for their realization.

In 2022, we made good progress on the **key objectives of the DRCP** as reported elsewhere in this section. Additional information about our Planet performance is provided in the five-year summary – Sustainability tables, our Value creation model and Stakeholder engagement.

MAIN TARGETS

59%	28%	100%	67%	<0.20
GHG Scope 1 + 2	**GHG Scope 3**	**Renewable Electricity**	**Brighter Living Solutions Plus**	**Safety**
Absolute reduction by 2030 vs 2016	Intensity reduction by 2030 vs 2016	From purchased sources by 2030		Frequency Index of Recordable incidents by 2027

SUB-TARGETS

>1%	10%	> 0%	50%	0.15	<0.07	TBD*
Energy	**Water**	**Waste**	**Waste**	**Safety**	**Safety**	**Product Stewardship**
Average annual energy efficiency improvement (EEI)	Intake efficiency improvement water-stressed areas by 2030 vs 2020	Total process-related waste efficiency improvement	Landfill reduction in 2030 vs. 2020	Process safety incident rate by 2024	Occupational health incident rate by 2024	*In 2023, set a reduction target for Substances of Concern

Climate change mitigation

In 2015, the Paris Agreement first established a common ambition to take urgent action on GHG emissions to limit average temperature increases to well below 2°C. Later in 2018, the Intergovernmental Panel on Climate Change (IPCC) provided a clear and compelling case to redouble efforts to limit warming to 1.5°C. Our fair share of this ambition requires our emissions to reach net-zero by 2050 at the latest with a rapid acceleration of the rate of our emission reductions over the coming decade. These are specified in our net-zero commitment and Science Based Targets (SBT).

	Aspiration	2022	2021
Greenhouse gas scope 1 + 2 (market-based)[1]			
Absolute reduction (SBT) versus 2016	59% by 2030[2]	35%	27%
Estimated structural improvement versus 2016		approx. 26%	approx. 23%
Scope 1 + 2 emissions (million tons CO_2eq)		1.05	1.21
Recalculated baseline (2016, in million tons CO_2eq)		1.62	1.66
Greenhouse gas scope 3			
Intensity reduction (SBT versus 2016)	28% by 2030	17%	8%
Scope 3 emissions (million tons CO_2eq)		9.9	11.7
Energy			
Purchased electricity from renewable sources	100% by 2030	78%	72%
Energy efficiency improvement year-on-year	> 1%	-0.4%	6.0%
Primary energy use (PJ)		19.5	21.4
Final consumed energy (PJ)		17.4	18.8

1 All data presented in Planet are subject to the Non-financial reporting policy.
2 Target level strengthened in 2022 from 50% by 2030.

Aligning our climate approach with science

Meeting our long-term ambition to reach **net-zero GHG emissions** aligned with climate science will require us to structurally reduce emissions across our operations and value chains by at least 90% in absolute terms by 2050, if not sooner. To neutralize any residual emissions, we will also eventually deploy permanent carbon removals. These removals will need to meet the highest quality criteria and social and environmental safeguards. Our Science Based Targets are the intermediate step to achieve this goal, supported by our ambitions regarding renewable electricity and energy efficiency, and by working intensively with our key suppliers through our CO2REDUCE program. This requires transforming our operations and value chains.

We are working with **long-term innovation roadmaps** that will bring us as close to zero emissions as possible in the coming decades. This includes investments in a portfolio of solutions that can help our customers to do the same while reducing our emissions through process, solutions and materials developments. Net-zero roadmaps are developed simultaneously for key products, as well as deployment plans for key technologies that can be applied in process redesign for multiple products. At the same time, we are exploring highest impact instruments for additional contributions to accelerate global net-zero transition beyond our own value chain such as high-quality carbon credits or increasing the avoided emissions for our customers. These contributions are not claimed against our own emissions. Our net-zero activities are guided by the SBTi NetZero Standard and Business Ambition for 1.5°C commitment framework.

“We regularly evaluate how we can go further and faster on our route to net-zero. In 2022, we again updated our scope 1 + 2 GHG reduction targets, and I’m proud that the Science Based Targets initiative has validated DSM’s ambition level of a 59% reduction by 2030 as 1.5°C aligned.”

Dimitri de Vreeze, Co-CEO, Royal DSM

Business measures supporting our climate approach

In support of our ambition to **substantially reduce our carbon footprint**, we have introduced key measures which we apply to all growth projects. Since 2019, business growth projects must either be GHG-neutral or else be compensated for within the same site/business. In addition, to encourage investments in low-carbon and carbon-free technologies, we use an internal carbon price (ICP) of €100/t CO_2eq in the valuations of key investment projects. This increases the visibility of, and encourages accountability for, the impact of carbon emissions on the business.

Ownership of climate actions is at Executive Committee level

The **DSM climate agenda and transition plan** brings together our key climate actions addressing the three pillars of *improve*, *enable* and *advocate*. The progress of the agenda, including the implementation of the Taskforce on Climate-related Financial Disclosures (TCFD) recommendations, the GHG reduction program, our portfolio developments and efforts to advocate accelerated transition with partners, are managed and actively reviewed by the Executive Committee several times a year under various workstreams. Our climate change strategy received an A rating from CDP in 2022.

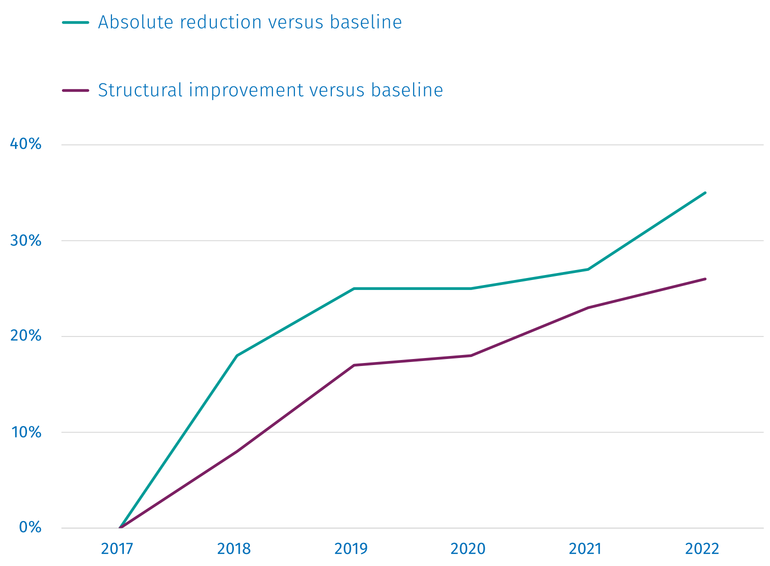
CDP DISCLOSURE INSIGHT ACTION
A LIST 2022
CLIMATE WATER

Scope 1 + 2 GHG emissions

On track with our scope 1 + 2 target

We are well on track to deliver our increased ambition of an **absolute reduction** of 59% by 2030. Our scope 1 + 2 market-based GHG emissions improved by 35% (compared to 27% in 2021) versus our recalculated 2016 baseline. The estimated structural improvement is ~26%. Total scope 1 + 2 emissions were 1.05 million tons of CO_2eq in 2022, a decrease of nearly 150 kt CO_2eq compared to 2021. Our GHG efficiency (year-on-year) improved by 5.1% in 2022.

Scope 1 + 2 reductions versus recalculated baseline

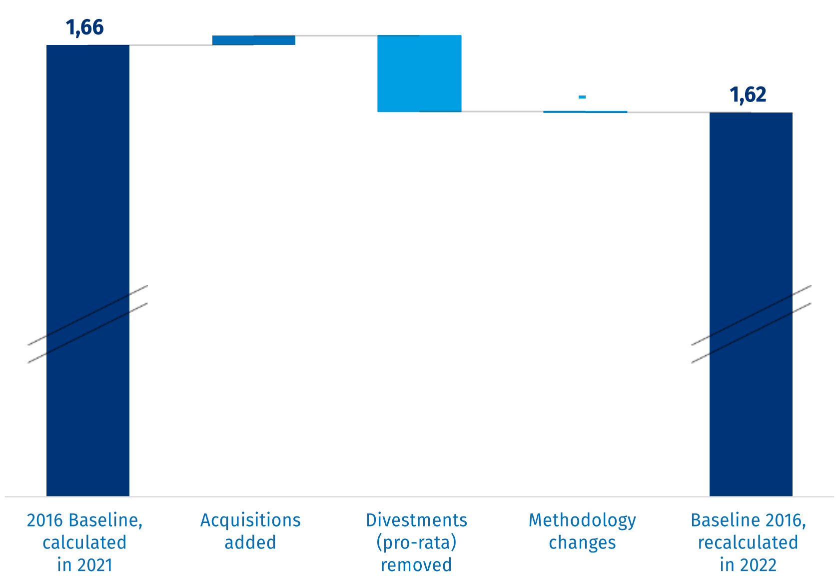


Recalculating our baseline in 2021

Our baseline GHG emissions figure was recalculated to 1.62 million tons of CO_2eq. This adjustment is due to the inclusion of 22 acquired sites in our reporting scope in the period 2017–2022, the divestment in 2021 of Resins and Functional Materials and associated businesses, the divestment of DSM Protective Materials in 2022 (pro-rata), and the impact of methodology changes. Five newly built sites were also added to the reporting scope; however, as they were constructed after 2016, they have no impact on the baseline.

2016 GHG Baseline recalculation

In thousand tons CO_2eq



Our GHG reduction program

In order to achieve the targeted absolute GHG reduction by 2030, we continued our dedicated program to help our key locations implement an **appropriate energy transition**, as well as energy efficiency measures. We use performance diagnostics as well as self-assessments that are carried out at key sites to identify GHG emission reduction opportunities. The learnings from these sites are shared across all sites to enable further roll-out of improvement projects.

Our **greenhouse gas (GHG) emission reductions** are driven by a rigorous energy transition program, comprising the following elements:

- Reduction of total energy consumption through energy efficiency improvement measures
- Energy transition to increased use of energy from renewable sources, comprising both purchased and self-generated renewable electricity, and renewable fuel and heat
- Driving smart electrification, combined with energy efficiency improvements that enables a shift to the use of electricity from renewable sources instead of burning fossil fuels

Projects finalized in 2021 **began delivering full benefits** in 2022, further reducing 2022 emissions by approximately 20 kt CO_2eq. These projects are of various natures: improving energy efficiency in steam generation and distribution, cooling and compressed air utilities, installing solar panels, minimizing heat losses through heat integration and heat pumps or, for instance, reducing energy required for water separation by using membranes. These projects often also deliver additional benefits such as cost and/or water savings.

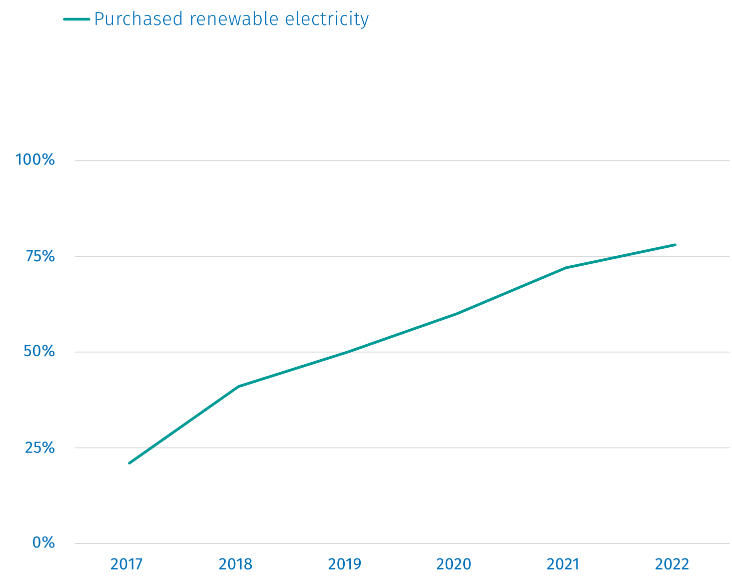
Among the **more than 40 projects** executed in 2021 to save energy, significant improvements were realized in Jiangshan (Jiangsu province, China) with the implementation of new technology for product concentration, the internal recycling of solvent, investments in chiller improvements and many other operational improvements leading to more than 10 kt CO_2eq savings. On top of the projects in 2021, we also saw operational improvements leading to greenhouse gas emissions reduction, especially at one of our recently acquired sites. In 2022, we also saw the benefits of our first efforts in 2021 to bring two digital solutions helping our sites better optimize equipment energy use and reduce energy losses: Energywise, our energy dashboard (applying, for example, model predictive analysis) allowing sites to steer the energy consumption of key assets, and steam trap monitoring technology, which allows us to identify in real time leaking or malfunctioning steam traps, thus enabling faster repair and maintenance.

In 2022, we again **strengthened our efforts** with even more energy-saving projects compared to 2021. Among the most noticeable projects were a new membrane project in Jiangshan (Jiangsu province, China) saving more than 10 kt CO_2eq; the implementation of a high efficiency, state-of-the art cooling system in Xinhuo (Shanghai province, China), applying – head of local legislation – low global warming potential (GWP) refrigerants; and the further deployment of the above-mentioned digital technologies in Seclin (France), Village-Neuf (France) and Belvidere (New Jersey, USA) for Energywise, and Sisseln (Switzerland), Dalry (UK), Village-Neuf (France) and Kingstree (South Carolina, USA) for steam trap monitoring.

Renewable energy

We are a proud member of the **Climate Group's RE100**, comprising leading companies that have committed to 100% electricity from renewable sources at the earliest possible opportunity. In 2022, we increased our purchased renewable electricity target to 100% by 2030 at the latest.

Purchased renewable electricity



In 2022, we once again made significant steps toward achieving our purchased renewable electricity target. The percentage of purchased electricity from renewable sources increased globally from 72% in 2021 to 78% in 2022, achieving our previous target eight years ahead of schedule and putting us firmly on track toward our new target level. The progress in renewable electricity is mainly due to a step-up in China.

Progress on purchased renewable electricity in China

For 2022, we concluded several renewable electricity contracts in China, increasing the share of electricity from renewable sources to 32% from 16% in 2021. This includes the sites Jiangyin, Jiangshan, Yantai, Yimante and Wuxi. In addition, we concluded purchasing agreements to provide renewable electricity for 2023 that will further increase the share of electricity from renewable sources.

Purchased renewable electricity in Europe and North America

For our operations in Europe, we maintained 100% renewable electricity through existing agreements combined with pre-production guarantees of origin (GOs) and production of electricity from a Power Purchase Agreement (PPA) in Spain. The wind park of the latter PPA commenced operations in late 2021, while the solar assets are currently under construction. Furthermore, a new hydro agreement for 2022 was concluded in Switzerland to replace a contract that terminated at the end of 2021.

In the US, we have three PPAs in place. The first is already operational and produces electricity from wind, while the assets for the other two are yet to be built and will provide solar-powered electricity. The production from the first agreement combined with pre-production renewable energy certificates (RECs) from the two other agreements means we had 100% of purchased electricity from renewable sources in the US and Canada in 2022.

Renewable electricity in the rest of the world

Besides Europe, North America and China, almost 90% of our purchased electricity in Brazil is from renewable sources, and we have several local renewable electricity contracts at smaller sites around the world. The amount of purchased non-renewable electricity in the rest of the world represents less than 5% of our total purchased electricity.

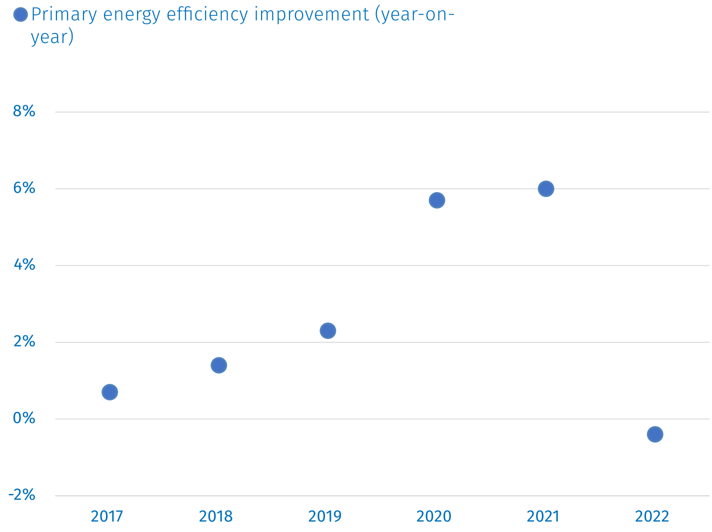
Working on the decarbonization of heat

We continued making progress to reduce the use of fossil fuels in the production of steam and heat using low-carbon and biomass heat sources. Besides the already concluded biomass cogeneration project in Sisseln (Switzerland) and the purchase of steam from local biomass residues in Chifeng (Inner Mongolia, China), our vitamin E production site Yimante (Hubei province, China) has significantly reduced its consumption of coal-based steam by purchasing by-product heat from a neighboring company. By concluding this contract with Nengtai, DSM Yimante was able to realize an absolute reduction of 7.5 kt CO_2eq versus 2021 (2022 was the first full year of contracted heat). Other sites continue to work on various initiatives to decarbonize their operations. The search for low-carbon heat solutions is becoming more prominent in our GHG reduction program: we are working to optimize the use of waste streams and are actively screening the market for opportunities to collaborate with external partners.

Energy efficiency improvement

Our **energy efficiency** (on primary energy) was slightly negative versus 2021 (-0.4% year-on-year), below our target of an average annual improvement of 1%. This is mainly due to negative production volume and product mix influences at several important sites, compensating the executed energy-saving projects in 2022. Next to that, we see an effect of several shifts from fuel to electricity, negatively impacting the primary energy (due to a lower generating efficiency of purchased electricity compared to on-site generation of electricity from fuel). This is reflected in a more positive energy efficiency improvement of consumed energy of 0.8% from 2021 to 2022.

Energy efficiency[2]



Scope 3 GHG emissions

Our scope 3 emissions

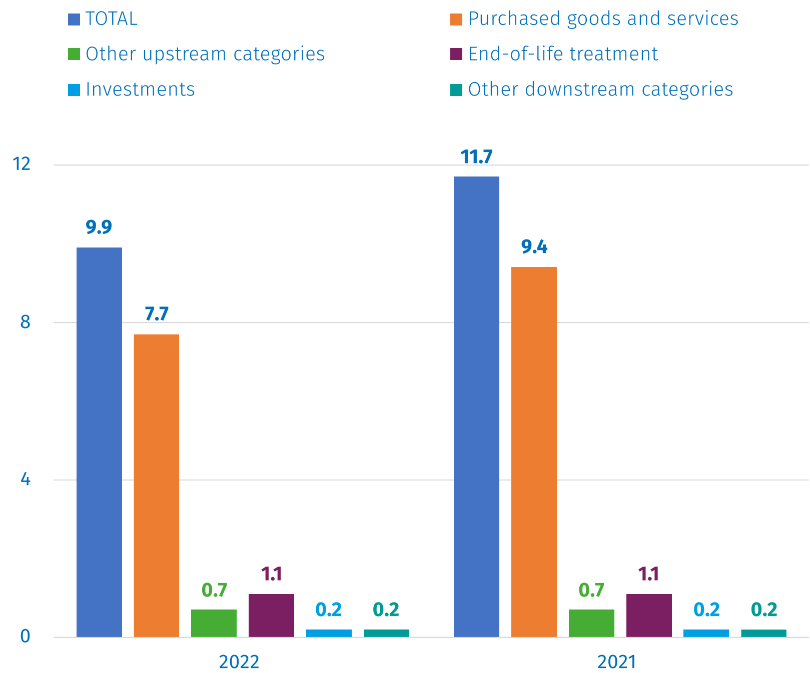
Our **absolute scope 3 GHG emissions** amounted to 9.9 million tons of CO_2eq in 2022, which is a significant decrease compared to emissions in 2021. The decrease is primarily driven by lower sourced volumes compared to 2021 and an improved carbon footprint for Niacin in Animal Nutrition & Health. In the Materials cluster, we saw main contributions from DSM Engineering Materials, benefiting from higher volumes of caprolactam from our supplier Fibrant/HighSun, which offers a greatly improved carbon footprint. As a result, the Scope 3 GHG intensity improved 17% versus our 2016 baseline.

2 All data presented in Planet are subject to the Non-financial reporting policy.

Other scope 3 categories reported comparable figures in 2022 compared to 2021.

Scope 3 GHG emissions[1]

in CO_2eq, million tons



1 Due to rounding, the numbers presented above may not add up to the total scope 3 emissions.

Engaging with our suppliers through our CO2REDUCE program

In 2022, the supplier engagement program CO2REDUCE continued to build on supplier emissions reduction action plans and progressed as planned, with a key focus on the main contributors to the emissions related to our Nutrition products. Company-wide scope 3 emissions reduction roadmaps are being developed through our cross-functional teams, and in 2022 we identified the first wave of our products where additional reduction initiatives may be possible by applying a value chain approach. These will be further validated in 2023. Collaboration with key suppliers for key contributing raw materials continues and reduction action plans are being further developed. We continued to explore new opportunities for scope 3 emissions reductions through multiple supplier emissions plans.

Calculation and tracking of our scope 3 emissions developed further in 2022. Digitalization of the reporting and improved insight into the value chain emission factors enable further transparency and better program steering. The reported emissions reflect the latest insights and are based on an increased share of supplier-specific emissions, instead of using industry average figures.

In 2022, we continued to actively share our experiences from the CO2REDUCE program in peer-group platforms such as Together for Sustainability. These platforms aim to define best practices in supplier engagement and scope 3 calculations within the industry, while also serving as an inspiration to improve the program further. At the time of writing, the CDP Supplier Engagement Ratings for 2022 had not been published.

Avoided emissions, supporting our customers with their emissions targets

Our products can enable our customers to transition to a low-carbon economy through an inherently lower carbon footprint, or by helping our customers and end-users reduce their own emissions. The latter are referred to as 'Avoided emissions' — emissions-related environmental benefits that occur downstream in the use phase of our products. While avoided emissions do not count toward our own Science Based Targets or net-zero target, they result in reduced emissions for others in our value chain.

The rapid **reduction of methane emissions** from energy, agriculture, and waste is increasingly recognized as the most effective near-term climate mitigation measure, to limit global warming to 1.5˚C. In 2022, 150 countries signed up to the Global Methane Pledge, a collective effort launched at COP26 in 2021, to reduce global methane emissions at least 30% from 2020 levels by 2030.

Customers for our animal nutrition business have increasing **commitments for emission reduction**, for example, through the Global Dairy Platform and Global Roundtable for Sustainable Beef and the Science Based Targets Initiative. Our innovative solution Bovaer® is a feed additive that reduces enteric methane emissions, by suppressing the enzyme that combines the metabolic hydrogen and carbon dioxide generated by cows from digesting tough, fibrous food.

According to the latest meta-analysis based on 14 independent studies, **Bovaer®** can save about one ton CO_2eq per dairy cow every year. Bovaer® is authorized and available for sale in over 45 countries, including the EU/EEA, Australia, Brazil, Chile, Argentina, Mexico, Pakistan, Thailand, Switzerland, and Turkey. Our on-farm trials and up-scaling pilots cover already more than 15 countries and are published in more than 50 peer-reviewed scientific studies. Through these trials alone, Bovaer® has already saved more than 20 kt CO_2eq.

In November 2022, we reached another milestone, with the groundbreaking of the new **large-scale production facility** for Bovaer® in Dalry, Scotland. This plant will scale up the methane reduction impacts Bovaer® can realize.

Climate adaptation

The warming climate is already severely impacting people and the environment, with consequences ranging from health hazards to disruptions in water, food, and energy supplies, to damage and loss caused by floods, droughts, and other extreme and erratic weather events. The consequences of climate change will only intensify over the next few decades due to the current and near-term emissions, even if the world achieves the Paris Agreement goal of limiting the global average temperature increase to 1.5°C.

As a complement to our efforts on **climate change mitigation** – reducing and stabilizing greenhouse gas emissions to combat the cause of the problem – we also deploy an integrated strategy of climate adaptation measures. These measures reduce the vulnerability of our assets and value chains to emerging climate-related physical risks and prepare us for a changing business environment.

Following a similar approach to our activities contributing to climate mitigation, our **climate adaptation agenda** is organized to:

- *Improve* our resilience and future-proof our business
- *Enable* societies to adapt better to the adverse effects of climate change, particularly in the context of food systems
- *Advocate* adaptation action, as well as better collaboration and sharing of information on climate risk between actors in society

Our **physical climate risk assessment** process involved mapping our top 30 sites for five emerging hazards and long-term impacts, using three climate scenarios and three-time horizons. In 2022, we started to expand this work to our key supply chains. We also established and piloted a process for our Business Groups to identify and assess the potential impacts of the different speeds of transition to a net-zero world using the three scenarios used in the physical risk assessment. This work will expand and continue iteratively in the coming years. More information on our climate risk assessments is provided in Risk management.

Waste & circularity

We are committed to securing the future availability of natural resources and unlocking more value from the limited resources we have. We monitor and improve our own operational impact through resource efficiency improvements, enabling our customers to deliver sustainable and circular solutions, and advocating the transition to a circular, bio-based economy.

	Aspiration	2022	2021
Renewable & secondary raw materials[1]			
Renewable raw materials (% of spend)		15%	15%
Waste			
Total process-related waste efficiency improvement	> 0%	3.0%	7.5%
Absolute landfill reduction versus 2020[2]	-50% by 2030	44%	-
Waste recycled		91%	86%
Non-hazardous process-related waste (kt)		110	109
Hazardous process-related waste (kt)		73	86

1 All data presented in Planet are subject to the Non-financial reporting policy.
2 First year of reporting. No comparative figure is available.

Following the exponential increase in material consumption over the past fifty years, humanity has reached a point at which the Earth's limited resources can no longer meet the growing demand. Earth Overshoot Day was on 28 July 2022, marking the date when humanity has used all the biological resources that planet can regenerate for the entire year. As our global economy is only 8.6% circular, it is necessary to move away from linear production and consumption systems and work together to build sustainable food and production systems. Bridging the gap to a circular economy will support the health of the global population of tomorrow and improve livelihoods and the natural environment. A circular economy for food mimics natural systems of regeneration so that waste is treated instead as a valuable feedstock for another cycle.

We enable our customers to transition toward a circular and bio-based economy by focusing on the following drivers:

- Reduce the use of critical resources throughout the value chain
- Replace scarce, hazardous, and potentially harmful resources with safe and renewable alternatives
- Extend the lifetime of products by means of improved durability or shelf-life
- Recover waste streams by viewing waste as a resource

Renewable & secondary raw materials

We are accelerating our efforts to replace finite fossil resources with renewable (bio-based) raw materials, as well as secondary (recycled) materials. Replacing finite resources with alternative renewable resources can also have environmental co-benefits, such as reducing the carbon footprint of our solutions.

Our progress on renewable & secondary raw materials

The renewable raw materials we use include waste from agriculture, yeasts and enzymes, carbohydrates and natural oils, and acids. In 2022, the share of our spend on renewable raw materials remained stable at approximately 15%. Overall volumes of renewable raw materials decreased, in line with production volumes.

Development of bio-based alternative to anti-aging ingredient

To meet the growing consumer demand for more sustainable ingredients, the personal care value chain is continuously looking to increase its share of renewable and bio-based materials in its product portfolio. By substituting a fossil-fuel-based solvent with a plant-based solvent derived from coconut and/or palm kernel oil and a natural antioxidant from soybean oil, we were able to increase the natural content of a retinol product from 0% to more than 50%.

Successful implementation of bio-based canthaxanthin

The demand for canthaxanthin, a natural carotenoid used to make food healthier and more attractive, is growing every year. To meet this increasing demand and reduce impact on our environment, we have been exploring biotech-based production through fermentation. This new route to manufacture **bio-based canthaxanthin** is expected to start up at production scale in early 2023 and offers a significantly lower carbon footprint compared to the mainstream product available in the market.

More information on how we approach **sustainable biomass** is available in our position paper on Sustainable Biomass on the company website.

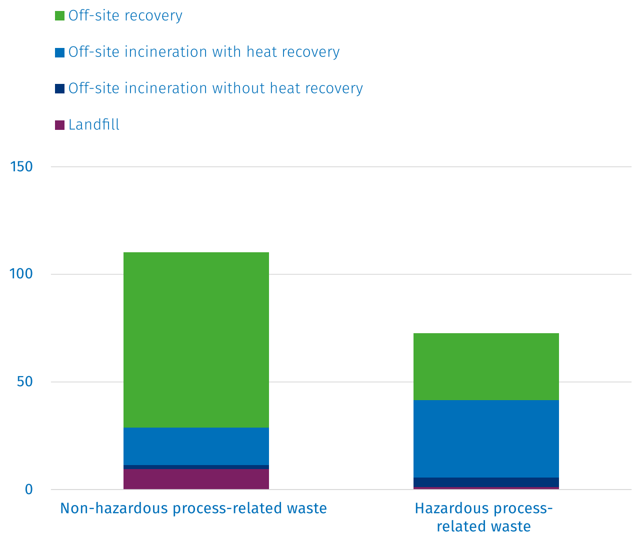
Waste

Our **waste management approach** consists of a continuous improvement cycle concerning our total process-related waste and driving more circular ways of waste treatment. Progress is steered as part of dedicated site improvements programs. We pay careful attention to meeting local waste management legislation.

As of 2022, we aim to improve our **linear waste management** further with a new target of 50% absolute landfill reduction by 2030 versus 2020. In 2022, we made significant progress in reducing our absolute landfilled waste. Our main manufacturing sites implemented reduction activities, resulting in a landfill reduction of 44% in 2022. The main routes to reduce landfilling and improve circularity is to turn waste into useful products, such as repurposing it as organic or mineral fertilizer. Such solutions were developed for example in Piura (Peru), Dalry (UK), Pecem (Brazil) and Kingstree (South Carolina, USA). In addition, our Premix activities in the US started a program by reducing waste at source through operational improvements as well as through developing new outlets for by-products. As a result of our landfill reduction efforts and other operational improvements, our total waste recycled increased to 91% of process-related waste in 2022, a step-up compared to 2021 (86%).

Waste breakdown by type and destination

in thousand tons



In 2022, our **process-related waste efficiency** improved. The was mainly due to a large improvement versus 2021 at one of our recently acquired sites. There was also a significant reduction in 2022 in hazardous waste, which was mainly due to business fluctuations on the larger sites.

Our **hazardous waste** mainly consists of mixed chemicals and solvents. We follow the waste hierarchy to divert hazardous waste from landfill, we minimize hazardous landfill as part of our SHE requirements, and 92% of our hazardous waste is already recovered off-site or incinerated with heat recovery. Less than 2% of our hazardous process-related waste is landfilled, due to specific regulatory constraints and countries with limited alternative means of disposal.

Nature & biodiversity

Like every business in the world, we both impact and depend on nature and biodiversity. The healthy functioning of the world's atmosphere, oceans and freshwater systems supplies us with oxygen, food, clean air and water, along with a host of other ecosystem services. It also helps mitigate the effects of climate change by absorbing carbon. We acknowledge our role to protect and restore nature and biodiversity, and fully support the ambitions of the UN Convention on Biological Diversity.

	2022	2021
Protected Areas[1]		
Sites in or adjacent to protected areas	34%	28%
Sites in registered protected areas	2%	2%[2]
Volatile Organic Compounds (VOC, x 1,000 tons)	4.6	4.1

1 All data presented in Planet are subject to the Non-financial reporting policy.

2 Percentage restated based on additional validation performed with the IBAT tool.

Biodiversity

Biodiversity loss is driven by human activity. According to the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) Global Assessment, one million of the eight million animal and plant species are now threatened with extinction. We address our impacts on biodiversity and natural ecosystems across the value chain through our DSM Responsible Care Plan, tackling the main drivers of loss, especially through our GHG emissions reduction, water stewardship and waste management programs, as well as through our commitment on deforestation-free supply chains for our primary raw materials.

Monitoring biodiversity across our value chain

At DSM, we assess and **monitor areas of high biodiversity** around our sites. In 2022, 34% of all our production sites in scope were in or adjacent to protected areas or areas of high biodiversity. The increase is due to acquisitions that were added to the reporting scope.

DSM is committed to protecting biodiversity, with **conservation and restoration actions** encouraged and initiated at the local site level. In 2022, sites all around the world celebrated Earth Day by organizing awareness raising activities such as clean ups, or planting trees and other local fauna and flowers for pollinators in or around sites. Our site in Belvidere (New Jersey, USA) engaged with the National Audubon Society, an American NGO dedicated to the conservation of birds and their habitats, to conserve a native area in front of the facility.

To address biodiversity risks in our supply chain, we strive to **responsibly source** high-risk raw materials through recognized certification schemes, where available. These raw materials include palm oil derivatives, wood-based materials, fish oils and sugar. We have committed to a deforestation-free primary supply chain by 2030 at the latest. This commitment relates to our Tier 1 supply chain for deforestation-risk crops: sugarcane, direct soy- and corn-based products, and palm-oil derivatives. More information on how we work with the sourcing of these raw materials can be found in Food System Commitments, our Sustainable Biomass position paper and in our statement on the responsible management of forest resources on the company website.

In 2022, we continued to evaluate our impacts on biodiversity along our value chain to help identify risks and opportunities using our Brighter Living Solutions Plus (BLS+) program. As a member of the **Science Based Targets Network's Corporate Engagement Program**, we provided feedback to the Network on their upcoming guidance for setting science-based water targets.

Supporting our customers on biodiversity

We *enable* our customers to develop **more sustainable products** through BLS+. For example, the use of DSM feed additives such as phytases helps to increase the digestibility of phosphorus, reducing the amount of phosphorus released into the environment and the subsequent damage that happens through eutrophication, which causes loss of biodiversity in freshwater ecosystems. Another example is our Veramaris® natural algal oil: 1 ton of Veramaris®[3] saves 60 tons of wild fish from having to be caught to produce salmon feed, protecting marine biodiversity in our oceans. Similarly, DSM's *life's®OMEGA*, the first and only commercially available plant-based omega-3, ideal as a vegetarian and vegan alternative, delivers the benefits of EPA and DHA omega-3 fatty acids in a single, quality source and is derived from marine microalgae, which reduces pressure on global fish stocks.

Taking a position on biodiversity

Lastly, we *advocate* for the **protection and restoration of biodiversity** worldwide. The year 2022 was an important year for biodiversity internationally with the second meeting of the COP15 on Biodiversity taking place in December, in Montreal, Canada. We lent our support by signing Business For Nature's COP15 Business Statement calling on heads of state to 'Make It Mandatory' for all large businesses and financial institutions to assess and disclose their impacts and dependencies on nature by 2030. As a supporter of transparency and disclosure, we continued our engagement on the development of nature-related guidances and frameworks for target-setting and disclosure, with the Science Based Targets Network and as a member of the Taskforce on Nature-related Financial Disclosures Forum. We also continued our membership in One Planet Business for Biodiversity (OP2B), which aims to scale up regenerative agriculture and restore ecosystems to prevent further biodiversity loss through collective member actions.

For more information, see our **position paper** on Biodiversity on the company website.

Other emissions to air

Our reporting on 'Other emissions to air' focuses on **volatile organic compounds** (VOCs), as these are the most significant emissions in this area. We continue to report our nitrous oxide (NO_x) and sulfur dioxide (SO_2) emissions in the five-year summary – sustainability tables and via the company website. However, these emissions are not material due to improvement actions executed in the past.

We continue to work on our VOC emissions

Our objective is to continuously reduce our VOC emissions. In 2022, our **VOC efficiency improvement** was slightly lower than in 2021. This is mainly due to negative production volume and product mix influences at several important sites, compensating the executed improvements in 2022. An example is the improvement program at our location in Mairinque (Brazil), where studies were initiated in 2021 and implemented in 2022 to better quantify and understand the mechanism of ethanol formation during fermentation. This understanding allowed us to optimize the fermentation process parameters and enabled us to test more breakthrough solutions.

Our **absolute VOC emissions** increased from 4.1 kt to 4.6 kt in 2022 versus 2021. This is mainly due to a production increase at our Yimante site (Hubei province, China). VOC optimization measures for this site are being investigated.

3 Veramaris® is a trademark owned by Veramaris V.O.F, a joint venture between DSM and Evonik.

Water stewardship

Fresh water is a finite natural resource that needs to be used and managed in a responsible and sustainable way. Water stress is becoming increasingly important to the world, accelerated by climate-related extreme weather, and impacting biodiversity. Our operations rely on stable supplies of high-quality freshwater for utilities and production. Our goal is to ensure its use without disturbing the local balances.

	Aspiration	2022	2021
Water Use (million m^3)[1]			
Water withdrawal in water-stressed areas[2]		10.6	10.9
Water withdrawal for non-OTC		26	26
Consumptive Use		5.5	5.3
Sustainable water management			
Water withdrawal efficiency improvement	> 0%	-7.0%[3]	8.0%
Water withdrawal efficiency improvement – water-stress sites versus 2020	10% by 2030	7.2%	7.8%
Emissions to water			
Chemical Oxygen Demand (COD, kt)		1.9	2.0

1 All data presented in Planet are subject to the Non-financial reporting policy.

2 Water stress is defined as the ratio of total water withdrawals to available renewable surface and groundwater supplies. We perform water risk screening using WRI Aqueduct Tool and WWF Water Risk Filter to identify water stress sites, which are sites located in an area with >40% water stress currently or in 2030.

3 The decreased efficiency is due to providing additional water management services at one large site (executed for a neighboring company) leading to a significant increase in water withdrawal, combined with lower production volumes.

Commitments, policy and governance

DSM is a signatory of the CEO Water Mandate, a UN Global Compact initiative to advance water stewardship and drive progress on SDG 6 (Clean Water and Sanitation). We commit to measuring, monitoring and reporting relevant performance indicators for water. We disclose our progress via the CDP Water Security questionnaire. In 2022, our CDP Water Security rating was an A, in recognition of our ongoing efforts in sustainable water management.

Water security is an integral part of our risk mitigation and environmental impact reduction strategies. Our water policy is part of our SHE policy and specifies the goal, governance and management standards on water management.

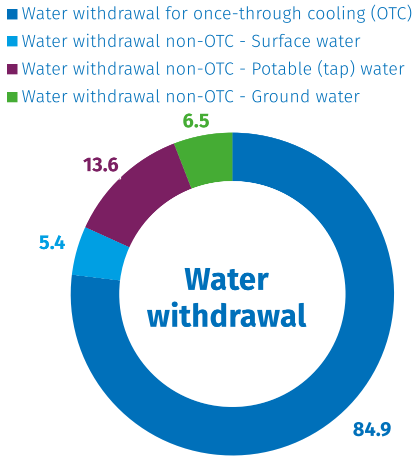
Impacts and dependencies

Water is not a primary ingredient in our products. Our primary water use is in utility systems, as a process medium and for cleaning purposes. Water is also used in our upstream supply chain, for agriculture-related as well as industrial raw materials.

A large proportion of our total water withdrawal (approximately 75%) is used for once-through cooling (OTC) purposes in low water-stress areas. The risk exposure and environmental impact of OTC are limited. The other 25% of our water withdrawal is for non-OTC purposes: this is the focus of our key performance indicators and targets on water. According to our water risk screening in 2022, 40% of our non-OTC withdrawal is from a current water-stressed area, or a water-stressed area in 2030.

Water withdrawal

in million m³



Water-related targets

We strive to continuously improve **water withdrawal efficiency** for our production facilities. In early 2021, we announced a context-based water reduction target to improve water withdrawal efficiency in water-stressed areas by 10% by 2030 versus 2020. We started a water reduction program covering 22 sites in an existing or future water-stressed area. Several large sites in water-stressed areas improved their site-level water balance in 2022, through better leakage detection and prevention.

Our **overall water efficiency** versus 2021 was negatively influenced by providing additional water management services on one large site (executed for a neighboring company), leading to a significant increase in water withdrawal. This was combined with lower production volumes, resulting in a lower water efficiency in 2022 compared to 2021.

Some sites also executed **water reduction projects**, often in close collaboration with energy reduction projects. For example, in our Chifeng site (Inner Mongolia province, China), improvements were made to optimize the site cooling water system, allowing both GHG savings and more than 40,000 m^3 water saving, improving site resilience to increasing water stress. Unfortunately, the executed water efficiency projects were compensated by negative production volume and product mix influences at several important sites in 2022, resulting in a slightly lower water efficiency improvement than in 2021.

For effluent management, our sites set site-specific **pollution reduction targets**, based on business context and current and future regulatory requirements. For example, our site in Lalden (Switzerland) significantly reduced its use of acetic acid, thereby reducing the quantity of COD in effluents.

Risk management

All sites with water withdrawal materiality and sites in water-stressed areas are required to conduct a **site-level water risk assessment** (WRA). The frequency of the assessment is specified in DSM's water management standard. In 2022, we reached a WRA coverage of 96%, evaluating 5 sites newly identified to be in a water-stressed area based on the 2021 water risk screening.

Water quality remains the most important water-related risk, often related to enabling business growth or increasingly stringent regulatory requirements. For identified high risks, the site defines short-term measures to address the immediate issue(s) and/or long-term measures including technical projects to reduce pollutant level at source or upgrades of the wastewater treatment facility. For example, we are executing a capacity expansion project for the wastewater treatment plant (WWTP) in Village-Neuf (France), including upgrades to add additional treatment steps.

In our value chain, we monitor the **water impact** of our largest suppliers through value chain engagement programs such as Together for Sustainability (TfS) and the Ecovadis water specific questions.

Product stewardship

Product stewardship manages and minimizes the environmental, safety and health impacts of substances in our products in line with international regulations from raw materials selection, production process, during use, until end of life. It is about knowing the substances we use and produce, being able to explain why we use them, taking the appropriate risk control measures, and sharing this information with relevant and interested stakeholders. We apply a risk-based approach, using safer alternatives whenever feasible, and always when required.

Substances of concern

DSM defines substances of concern as substances that either fulfill a certain regulatory hazard criteria (e.g., carcinogenic) or are listed by recognized organizations for their (potential) serious health or environmental risk which are not directly visible via the product. This includes substances which are classified for their proven carcinogenic potential or that are persistent, bio-accumulative and toxic.

In our Brighter Living Solutions Plus (BLS+) program, product stewardship is a minimum requirement. The presence of substances of concern in products is assessed and only accepted in case of strictly regulated situations or use under strictly controlled exposure conditions. Without fulfilling these criteria, a product cannot be classified as BLS+.

Regulatory developments

Product stewardship is about sustainable business and ensuring compliance with the various global chemical legislations is a foundational element of that.

In the European Union, business awaits a challenging regulatory agenda as result of the Chemical Strategy for Sustainability, published in October 2020 as part of the European Green Deal. The first major change is the expansion of the rules for classification and labelling of substances and mixtures. The coming years, DSM will reassess all its substances and products and update product labels and customer documentation (e.g., safety datasheets) where needed. The revision of REACH is the next item of legislation with potentially major impact that will follow. We closely monitor these regulatory developments and assess the impact on our product portfolio. In principle we support the starting points of the Chemical Strategy for Sustainability and as part of our advocacy efforts, we continue to engage in European discussions to drive reasonable actions and timelines. Furthermore, we share our experiences to shape the concept of 'safe and sustainable by design'.

Chemical legislation is expanding rapidly outside the European Union as well. In 2022, first registrations were made in Turkey, Republic of Korea (South Korea), and the United Kingdom as part of the introduction of new chemical legislative frameworks in these countries.

Product stewardship roadmap 2021–2024

In a world characterized by increasing interest in the health of people, animals, and the planet, product stewardship contributes to the value proposition of our business. Awareness of the importance of product stewardship is growing.

Since the beginning of 2022, our businesses have been supported by a single integrated product stewardship organization to anticipate the rapidly increasing product stewardship challenges across the globe. Together with the different businesses the team works on the long-term product stewardship strategy for DSM and implements the product stewardship roadmap 2021–2024, which focusses on the following five themes:

- Further increase the awareness of product stewardship across the organization
- Improve our master data management
- Improve our use of digital tools
- Further embed 'safe and sustainable by design' principles
- Adjust our governance when needed

For more information on product stewardship, see the company website.

Profit

At a glance

- +15% Sales from continuing operations versus 2021, with organic sales +8% in Health, Nutrition & Bioscience
- +1% Adjusted EBITDA from continuing operations versus 2021, with Health, Nutrition & Bioscience +2%
- €310 million Adjusted net operating free cash flow from continuing operations, -50% versus 2021
- €555 million Adjusted Net profit from continuing operations, -3% versus 2021

Overall financial results

Strategy

DSM's purpose-led, performance-driven strategy has sustainability and innovation as key growth drivers of our long-term focused plan, underpinned by ambitious targets across People, Planet and Profit. More about the strategy of DSM is in the Strategy section of this report.

In September 2021, we announced the acceleration of our strategic journey with a reorientation of our Health, Nutrition & Bioscience activities into three market-focused businesses: Animal Nutrition & Health, Health, Nutrition & Care, and Food & Beverage. This structure, which came into effect on 1 January 2022, enables us to leverage our strong combination of scientific competences and growing portfolio of nutrition and health solutions. At the same time, it allows us to harness the latest advancements in digital technology and bioscience, to address the significant environmental and societal challenges associated with the global food system.

We simultaneously announced a review of strategic options for our Materials businesses and, on 20 April 2022, confirmed we had reached an agreement to sell DSM Protective Materials to Avient Corporation for an enterprise value of €1.45 billion. The transaction was successfully completed on 1 September 2022.

On 31 May 2022, we announced that we also had reached an agreement to sell DSM Engineering Materials to Advent International and LANXESS for an enterprise value of €3.85 billion. DSM expects to receive about €3.5 billion net in cash following closing, after transaction costs and capital gains tax. Completion of the transaction, which is subject to customary conditions and approvals, is expected in the first half of 2023.

On the same day, DSM and Firmenich jointly announced that we had entered into a business combination agreement for a merger of equals to establish the leading creation and innovation partner in nutrition, beauty and well-being. All related information can be found at www.creator-innovator.com.

Financial results

This section includes an overview of the key financial metrics of the company in respect of the performance of its continuing operations in 2022 and 2021, except where otherwise indicated.

Health, Nutrition & Bioscience was confronted with an increasingly inflationary environment during the year, exacerbated by ongoing supply chain volatility. The increases in the cost of energy and raw materials were partially offset by multiple price increases.

Demand in the markets in which DSM operates remained resilient overall. Sales volumes were solid considering tough prior year comparison (+8%), especially in Animal Nutrition & Health.

Health, Nutrition & Bioscience reported +2% Adjusted EBITDA, with +7% contribution from M&A and foreign exchange effects. The underlying performance was the result of the price-cost gap, with limited operational leverage contribution from volume growth (+1%). Lower vitamin prices impacted the results negatively from September 2022.

The business recorded an Adjusted EBITDA margin of 17.9%, with around half of the 260bps decline coming from the price-cost gap and the remainder from the dilutive mathematical effect (higher sales and therefore relatively lower margin percentage) of the price increases and foreign exchange effects.

Income statement and key data

x € million	2022	2021	Change
Continuing operations			
Net sales	8,390	7,269	15%
Adjusted EBITDA	1,395	1,379	1%
EBITDA	1,304	1,288	1%
Adjusted operating profit	767	808	-5%
Operating profit	682	711	-4%
Adjusted net profit	555	583	-5%
APM adjustments	(80)	247	-132%
Net profit from continuing operations	475	830	-43%
Adjusted net operating free cash flow	310	626	-50%
ROCE (in %)	7.3	8.7	
Adjusted EBITDA margin (in %)	16.6	19.0	
Total group			
Net profit for the year	1,715	1,680	2%
Net profit available to equity holders of Koninklijke DSM N.V.	1,700	1,676	1%
Adjusted net operating free cash flow	425	941	-55%

Net sales and Adjusted EBITDA

At €8,390 million, **net sales** from continuing operations in 2022 were 15% higher than in 2021 (€7,269 million). **Organic growth** in 2022 was 7%. **Volume** in 2022 was similar to 2021, while price/mix had a 7% positive effect on growth compared to 2021. **Exchange rate fluctuations** had a positive impact of 7%, and **acquisitions** contributed another 1% to sales.

High-growth economies together currently represent 47% of our sales (49% when Africa is included), which is the same as in 2021. The share of sales in these economies as a proportion of our total sales gives us a well-balanced global footprint.

The **Adjusted EBITDA** (Adjusted operating profit before depreciation and amortization) from continuing operations increased by 1%, or €16 million, from €1,379 million in 2021 to €1,395 million in 2022. Adjusted EBIT (Adjusted operating profit) from continuing operations decreased from €808 million in 2021 to €767 million in 2022, down 5%. This is mainly caused by higher amortization and depreciation costs, largely due to the recent acquisitions.

	Net sales			Adjusted EBITDA		
x € million	2022	2021	% change	2022	2021	% change
Animal Nutrition & Health	3,788	3,347	13%	546		
Health, Nutrition & Care	2,939	2,516	17%	676		
Food & Beverage	1,546	1,256	23%	266		
Other	46	47	-2%	2		
Total HNB	**8,319**	**7,166**	**16%**	**1,490**	**1,467**	**2%**
Corporate Activities	71	103	-31%	(95)	(88)	8%
DSM, continuing operations	**8,390**	**7,269**	**15%**	**1,395**	**1,379**	**1%**

Net profit

Adjusted net profit from continuing operations of €555 million was down by 5% versus 2021. Net profit available to equity holders of DSM increased by €24 million to €1,700 million. This increase was mainly a result of the net book profit of €1,018 million on the sale of Protective Materials (in comparison with 2021, where we had the net book profit of €570 million on the sale of Resins & Functional Materials and the net book profit of €303 million on the sale of DSM's share in AOC). Expressed per ordinary share, net earnings from continuing operations amounted to €2.64 in 2022 (2021: €4.76). This decrease was mainly caused by the net book profit on the sale of DSM's share in AOC in 2021.

Financial income and expense decreased by €12 million year on year to a net expense of €88 million. This was mainly caused by the impact of the accounting for renewable energy contracts.

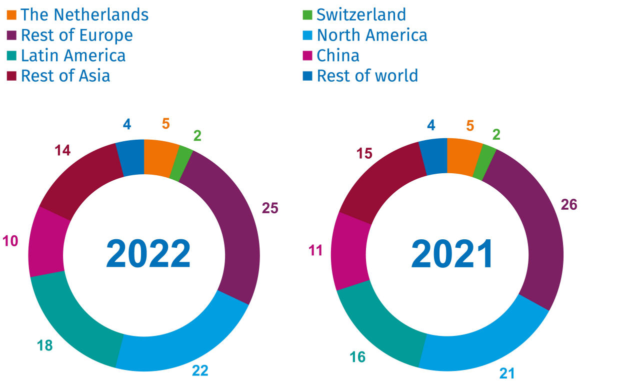
The **total effective tax rate** over taxable result 2022 for continuing operations was 21.0% (2021: 20.1%). This was mainly caused by the geographical spread and changes in tax rates. Excluding APM adjustments this was a decrease from 20.9% to 20.2%.

Adjustments made in arriving at DSM's Alternative performance measures (APM adjustments)

Total **APM adjustments** from continuing operations for the full year amounted to a loss of €80 million (2021: a profit of €247 million), consisting of a loss in EBITDA of €91 million (including restructuring costs of €87 million and acquisition/divestment/integration costs of €4 million), reversals of impairments of -€6 million, financial expenses of €8 million, a related tax impact of -€15 million, and a loss of €2 million relating to associates and joint ventures.

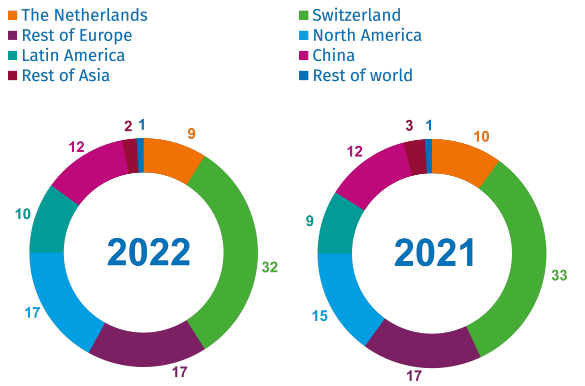
Net sales by destination

in %



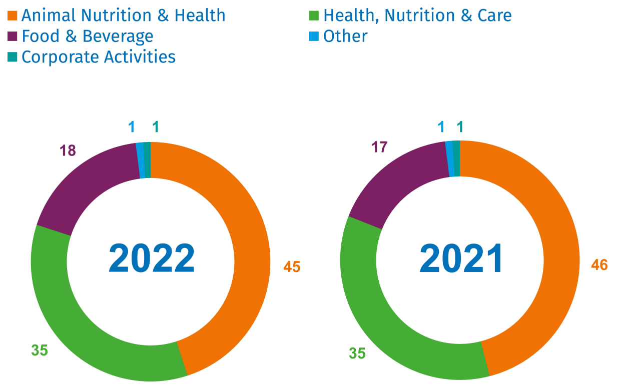
Net sales by origin

in %



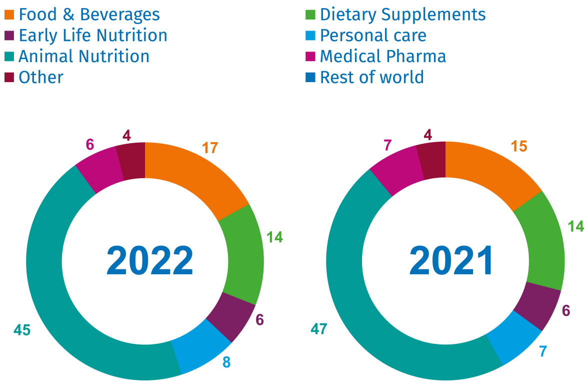
Net sales by business segment

in %



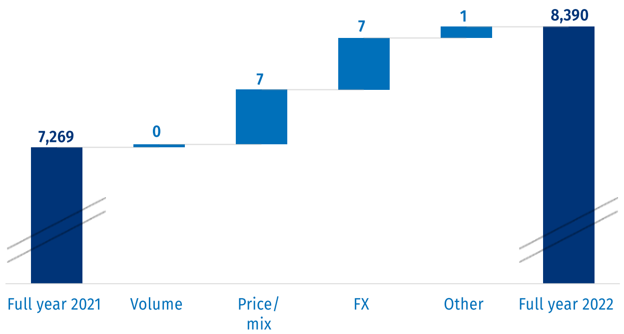
Net sales by end-use market

in %



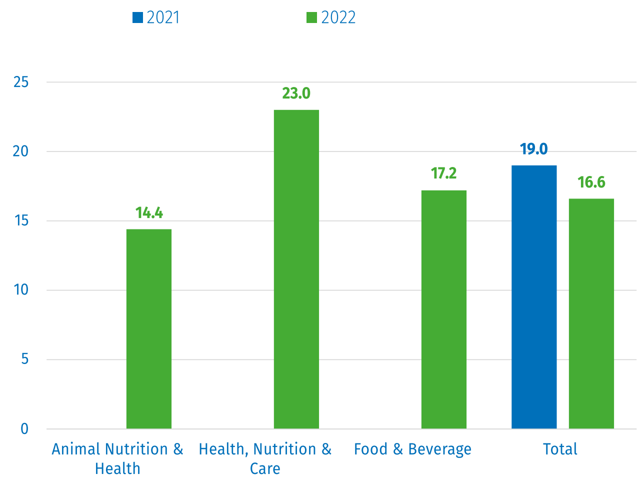
Net sales bridge 2022

x € million



Adjusted EBITDA margin

in %



Cash flow statement

x € million	2022[1]	2021[1]
Cash and cash equivalents at 1 January	1,561	871
Cash provided by operating activities	965	1,427
Cash from / (used in) investing activities	876	208
Cash from / (used in) financing activities	(645)	(984)
Effect of exchange differences	(2)	39
Cash and cash equivalents at 31 December	2,755	1,561

1 The cash flow statement includes an analysis of all cash flows, including those related to discontinued operations.

Cash provided by operating activities of €965 million mainly consists of the EBITDA for the year (€2,646 million), excluding the net book profit on the sale of Protective Materials of €1,018 million (recognized under investing activities) and the change in working capital of -€497 million. Overall, the full-year operating cash flow decreased by €462 million, mainly due to the higher working capital, partly caused by the high inflation in 2022 (see also Consolidated financial statements).

The **cash from investing activities** consisted mainly of the proceeds from the divestments (€1,366 million, mainly from the divestments of Protective Materials), partly offset by capital expenditures (-€644 million).

The **cash used in financing activities** included the dividend paid (-€345 million) and the repurchase of shares (-€210 million).

For the **full cash flow statement**, see the primary statement in the Consolidated financial statements.

Balance sheet

The **balance sheet total** (total assets) reached €17.4 billion at year-end (2021: €16.0 billion). Equity increased by €1,448 million, which was attributable to the net profit of €1,715 million, the exchange rate impact on foreign operations of €245 million, offset partly by the dividend payments of -€459 million and the repurchase of shares of -€210 million. Equity as a percentage of total assets increased from 59% to 62%.

Compared to year-end 2021, **net debt** decreased by €932 million to €87 million, mainly due to the divestment of Protective Materials. The **gearing** at year-end was 0.8%, which was considerably lower than the gearing of 9.7% at year-end 2021.

Capital expenditure on intangible assets and property, plant and equipment amounted to €636 million for continuing operations in 2022 (€644 million on a cash basis). Including new leases the additions to intangible assets and property, plant and equipment was €658 million, which was roughly the same as the level of amortization, depreciation and impairments.

Total working capital from continuing operations amounted to €1,992 million compared to €1,551 million at year-end 2021. This represents 23.8% as a percentage of annualized fourth-quarter 2022 sales (2021: 20.1%). Cash-wise, the operating working capital (OWC) from continuing operations increased €414 million compared to last year, which is mainly attributable to inflation and higher inventory. The OWC percentage increased from 26.1% at year-end 2021 to 29.0% of annualized sales at year-end 2022.

Cash and cash equivalents came to €2,755 million at the end of the year; including current investments, this amounted to €2,880 million (2021: €2,050 million). Besides the regular cash flow elements, this increase was mainly due to divestment of the Protective Materials business (€1,363 million), offset partly by the repurchase of shares (-€210 million) and the paid dividend (-€345 million).

Balance sheet profile

	2022		2021	
	x € million	in %	x € million	in %
Intangible assets	5,147	30	5,309	33
Property, plant and equipment	3,576	21	3,964	25
Other non-current assets	552	3	617	4
Cash and cash equivalents	2,755	16	1,561	10
Other current assets	5,373	30	4,569	28
Total assets	**17,403**	**100**	**16,020**	**100**
Equity	10,845	62	9,397	59
Provisions	124	1	164	1
Other non-current liabilities	3,904	22	4,097	25
Other current liabilities	2,530	15	2,362	15
Total equity and liabilities	**17,403**	**100**	**16,020**	**100**

"DSM delivered a solid performance in 2022 against a background of continued global supply chain challenges and significantly higher energy and raw materials costs, consolidating the strong growth of 2021. Pricing actions to counter higher costs supported top-line growth, however with a price-cost gap impacting near-term margins, especially in Animal Nutrition & Health."

Geraldine Matchett, Co-CEO, Royal DSM

Outlook 2023

Given the proposed merger process is advanced, it is intended that DSM-Firmenich will provide an outlook for 2023 once DSM and Firmenich have been consolidated and the combined business plan is approved.

Key business figures at a glance

With effect from January 2022, our activities are grouped in three operating segments: Animal Nutrition & Health (ANH), Health, Nutrition & Care (HNC) and Food & Beverage (F&B). We report separately on Corporate Activities. Results presented in this section (and elsewhere in this Report) relate to consolidated activities only (therefore non-consolidated partnerships are excluded).

Net sales

x € million	2022	2021
Animal Nutrition & Health	3,788	3,347
Health, Nutrition & Care	2,939	2,516
Food & Beverage	1,546	1,256
Other	46	47
Total HNB	8,319	7,166
Corporate Activities	71	103
Total continuing operations	8,390	7,269
Discontinued operations	2,090	2,199
Total	10,480	9,468

Adjusted EBITDA

x € million	2022	2021
Animal Nutrition & Health	546	
Health, Nutrition & Care	676	
Food & Beverage	266	
Other	2	
Total HNB	1,490	1,467
Corporate Activities	(95)	(88)
Total continuing operations	1,395	1,379
Discontinued operations	330	463
Total	1,725	1,842

Adjusted EBITDA margin

in %	2022	2021
Animal Nutrition & Health	14.4	
Health, Nutrition & Care	23.0	
Food & Beverage	17.2	
Total HNB	17.9	20.5
Total continuing operations	16.6	19.0
Discontinued operations	15.8	21.1
Total	16.5	19.5

Capital expenditure

x € million	2022	2021
HNB	511	476
Corporate Activities	61	67
Total continuing operations	572	543
Discontinued operations	64	71
Total, accounting based	636	614
Non-cash items	8	(44)
Total, cash-based	644	570
In % of net sales	6.0	6.0

Adjusted operating profit (EBIT)

x € million	2022	2021
Animal Nutrition & Health	351	
Health, Nutrition & Care	428	
Food & Beverage	136	
Other	1	
Total HNB	916	951
Corporate Activities	(149)	(143)
Total continuing operations	767	808
Discontinued operations	304	359
Total	1,071	1,167

Capital employed at 31 December

x € million	2022	2021
HNB	10,639	10,011
Corporate Activities	21	3
Total continuing operations	10,660	10,014
Discontinued operations	813	1,005
Total	11,473	11,019

ROCE

in %	2022	2021
HNB	8.7	10.3
Total continuing operations	7.3	8.7
Discontinued operations	31.1	34.1
Total	9.3	11.1

R&D expenditure (including associated IP expenditure)

	x € million		as % of net sales	
	2022	2021	2022	2021
Total continuing operations	345	315	4.1	4.3

Workforce at 31 December

Headcount	2022	2021
Continuing operations	18,731	18,402
Discontinued operations	1,951	2,956
Total	20,682	21,358

Review of business

Animal Nutrition & Health

At a glance

- €3,788 Net sales versus €3,347 in 2021 (in millions)
- €546 Adjusted EBITDA (in millions)

Highlights 2022

- Extended approval for marketing Bovaer®, building on first-ever EU authorization of a feed additive with environmental benefits
- Entered into a strategic alliance with Elanco Animal Health Incorporated to maximize opportunities for Bovaer® in the US market and, subject to regulatory approval
- Began construction of a new manufacturing facility for Bovaer® at our site in Dalry (Scotland)
- Acquired Prodap, a Brazilian animal nutrition and technology company, representing another step forward in our Precision journey and allowing farmers to make their sustainability performance visible and actionable
- Received International Organization for Standardization (ISO) Standard lifecycle assessment assurance for our intelligent sustainability service Sustell™
- Received FDA approval of FUMzyme®, the first US mycotoxin-degrading ingredient for poultry

About Animal Nutrition & Health

For many years, Animal Nutrition & Health has supplied the feed value chain with products and solutions that are fundamental to the health and well-being of animals, the profitability of farmers, and the safeguarding of our environment. A pioneer since the earliest days of feed additives, we apply cutting-edge science to provide a portfolio of innovative and sustainable nutritional solutions that runs from vitamins through carotenoids to unique mycotoxin risk management solutions, feed safety diagnostic solutions, gut heath technologies, and feed efficiency solutions. We have also recently developed a new strand to our business, our Precision Services offering, which uses independent data analysis and diagnostics to pinpoint animal health issues together with environmental footprint, on a completely bespoke basis.

Following the successful acquisition of the Erber Group in 2020, Animal Nutrition & Health operated with effect from 1 January 2022 as an expanded and fully integrated organization. The result of the integration of Biomin is a business with the capacity and capabilities to lead globally in facilitating sustainable animal protein production. This reconfigured business has an unparalleled network of more than 55 premix and additives plants and a unique portfolio of highest-quality core vitamins, premixes, carotenoids, (feed) enzymes, microbes and eubiotics to address the challenges facing the animal farming community today. With scientific centers of excellence in Switzerland and Austria, and worldwide R&D capabilities and technical expertise, Animal Nutrition & Health combines global thought leadership with the advantages of local knowledge and connections.

We are committed to leading an achievable worldwide transformation in sustainable animal protein production as part of our 'We Make It Possible' initiative. Our aim is to make animal farming more sustainable by reducing its associated greenhouse gas (GHG) and other emissions and their negative effect on the environment and biodiversity. At the same time, we strive to ensure that farmers can earn a decent living and that people have access to affordable animal proteins. Further information on our Animal Nutrition & Health strategy and how we make animal farming more sustainable can be found in Strategy.

Trends in Animal, Nutrition & Health

Our Animal Nutrition & Health business addresses significant trends that influence the health of people and of the planet by **two principal areas of engagement**: enabling the sustainable production of animal protein and protecting food security.

Enabling the sustainable production of animal protein

Animal-based proteins are highly nutritious and form a key part of a balanced, healthy diet. Their consumption is also central to many cultures, and animal-source foods and other animal-source products play an important socio-economic role in those cultures. However, livestock production comes at a cost. This cost is increasingly evident. **Rising demand for animal protein** is driving up greenhouse gas (GHG) emissions and piling pressure on natural resources. In some cases, this pressure has already transgressed accepted planetary boundaries, including the Earth's tolerance thresholds in terms of GHG emissions, biochemical flows, water quality and quantity, land use, and biodiversity.

The agrifood sector is one of the major contributors to **global GHG emissions**, and almost a third of wild fisheries are overexploited. The sustainability of animal protein production is now front and center in the minds of many, with widespread calls for change from the value chain, policy makers and associated stakeholders.

The world's population is projected to reach 9.7 billion by 2050. At the same time, demand for healthier, balanced, and more nutrient-dense diets is increasing — driven not only by the growth of the world's population but also by changing health awareness and consumer expectations. The possibilities created by a growing range of plant-based alternatives to protein will go some way to filling this gap, although for many in the world these are less accessible and affordable than animal proteins. Demand for animal-source foods is therefore still expected to grow as many populations need to raise their animal protein intake to attain a level of balanced, healthy nutrition. **Enabling sustainable animal production** is therefore of paramount importance.

Our solutions

We strongly believe in, and advocate, a **radical transformation of animal farming** and food systems to ensure a sustainable future. We are convinced that the livestock industry can transform itself from within to deliver solutions to the challenges facing society and the animal protein industry.

We are well positioned to play a key role in this transformation. That is why in Animal Nutrition & Health, we focus on the following **six sustainability platforms** to support our customers, the livestock value chain and other stakeholders to address the environmental challenges facing our planet:

- Improving the lifetime performance of farm animals
- Making efficient use of natural resources
- Reducing emissions from livestock
- Helping tackle antimicrobial resistance
- Reducing our reliance on marine resources
- Improving the nutritional quality of meat, milk, fish and eggs while reducing food loss and waste

To tackle these challenges, we have an **extensive portfolio** structured into Essential Products and Performance Solutions complemented by Precision Services.

Our **Essential Products** provide our customers with the highest-quality core vitamins, premixes and carotenoids that are essential for life and crucial to an animal's healthy development, all delivered in the most flexible and tailored way.

Covering enzymes, microbes and eubiotics, our **Performance Solutions** combat mycotoxins and tackle antimicrobial resistance. They also optimize gut health, feed conversion and feed efficiency, thereby reducing emissions from livestock. As a result, fewer natural resources, such as land and water, are needed for the production of animal protein.

Through our **Precision Services**, meanwhile, we support our clients with data analysis to measure animal health and environmental footprint on farm level and feed safety. Greater precision in animal farming is key to a more sustainable and profitable future. Our Precision Services use the latest data analytics and diagnostics to improve animal health, lifetime performance, resource use and environmental footprint, while mitigating risks and unlocking more value.

In addition to our Essential Products and Performance Solutions, we are also successfully rolling out our methane-reducing feed additive for ruminants, **Bovaer®** and further extending our capabilities in precision nutrition, building on the foundations of our globally recognized OVN Optimum Vitamin Nutrition® concept.

Protecting food security

The war in Ukraine significantly disrupted the supply of grain and corn during 2022, resulting in sharp **increases in both food and feed prices** worldwide. In the world of animal farming, these increases have complex repercussions for livestock farmers and feed manufacturers alike, placing yet more pressure on already slim operating margins. They also have the effect of driving up meat prices, thereby making animal-source foods less accessible for many people in the world who are already struggling to afford a balanced diet. With feed price inflation a continuing problem for the entire animal production sector, our extensive portfolio of feed solutions can deliver value to hard-pressed farmers by ensuring the safety of feed raw materials and also enabling the extraction of more value from both traditional and alternative sources.

Combating mycotoxin contamination

Mycotoxin contamination presents a further threat to already compromised animal feed stocks. Mycotoxins are toxic compounds that are naturally produced by certain types of molds (fungi). Molds that can produce mycotoxins grow on numerous foodstuffs such as cereals, dried fruits, nuts and spices. Even in low concentrations, mycotoxins can have major health and performance outcomes for animals, negatively impacting their growth and weakening their immune systems.

To maximize the **long-term availability of healthy protein**, our society needs to make every grain of feed count – and we are currently some way from realizing that ambition. Last year, in the US alone, an estimated USD 5 billion was lost due to mycotoxin-contaminated corn. Mycotoxins are very much a global problem, however: a recent DSM study found that mycotoxin contamination is particularly acute in many developing grain-growing regions, including the Middle East, North Africa and Southern Africa. These findings are especially concerning in view of the current prices of corn and soy.

The biotransformation of mycotoxins

Climate change adds an extra layer of complexity to the problem. Droughts, floods and other extreme weather events create conditions favorable for the proliferation of mycotoxin-producing fungi, and farmers will increasingly need effective mycotoxin risk management solutions to safeguard feed supplies.

The **biotransformation of mycotoxins** — a process that renders them biologically harmless – can make affected food safe for livestock to eat, minimizing waste. At Animal Nutrition & Health, we have ascertained that enzymes that deactivate mycotoxins are more effective than traditional binders, which simply bind to mycotoxins and prevent them from being absorbed through the gut into the bloodstream. Traditional binders (absorbents and clays) have the additional disadvantage of absorbing not just mycotoxins but also other ingredients in the diet and rendering these unavailable for digestion. By contrast, Mycofix® – the world's most advanced and innovative mycotoxin management solution – uses a combination of unique technologies to provide the most complete protection against mycotoxins. We are the only player in the animal value chain to possess this technology.

More information on our solutions for sustainable animal farming can be found in the case study in this Report.

"Against a challenging economic background, we showed resilience in 2022 and continued to drive the sustainability transition for the animal production industry."

Ivo Lansbergen, President Animal Nutrition & Health Royal DSM

Performance 2022

The year 2022 saw the unwinding of the exceptional 10% **volume growth** of 2021 that had been driven by COVID-19-related supply chain disruptions. With a modest decline for the full year, the **resulting average rate of growth** over the past three-year period of around 4.5% is in line with DSM's long-term growth rate. As farmers continue to focus on optimizing feed efficiency yields, DSM's performance solutions, such as enzymes, gut health solutions and mycotoxins, showed good growth.

Continuous pricing actions were taken through the year to mitigate rising cost inflation. Overall, the business realized a 7% price increase for the year, albeit with a continued price-cost gap as energy and raw materials cost inflation accelerated. Lower vitamin prices impacted pricing as from September.

Demand for animal protein overall remained resilient. Poultry and eggs performed well, while pork improved in the course of the year, helped by the normalization of the swine market in China. Ruminants and aquaculture saw more challenging conditions, owing to their relatively high price points against weakening consumer purchasing power.

The business realised an **Adjusted EBITDA** of €546 million with a full-year Adjusted EBITDA margin of 14.4%, which includes a dilutive mathematical effect from rising prices (higher sales and therefore relatively a lower margin percentage) and foreign exchange effects. Margins in the fourth quarter were further negatively impacted by lower vitamin prices and inventory reduction actions.

x € million	2022
Net sales from continuing operations	3,788
Adjusted EBITDA	546
Adjusted operating profit	351
Adjusted EBITDA margin (in %)	14.4

The year in focus

Poultry production performed well overall despite multiple challenges

The poultry industry continued to face **multiple challenges** in 2022 with increased feed costs driven by raw material cost and shipping challenges, on top of COVID-19 and inflationary pressures. Production volumes rose in the US due to increased market demands. Meanwhile, production in China did not recover as expected due to the pressure placed on margins by feed costs and stringent COVID-19 lock down measures. Margins in Brazil and EMEA, however, were favorable due to increased exports and stabilization of broiler meat prices, respectively.

We launched our **'Protect, Perform, Promote' campaign** in 2022, showcasing the benefits of our feed enzyme solutions for saving on feed costs, our mycotoxin risk management solutions for improving raw material quality, and our eubiotics solutions for protecting bird health. We also launched an updated edition of our OVN Optimum Vitamin Nutrition® Guidelines 2022 for Poultry, while the launch of our Verax™ precision service created collaborative opportunities with the world's two largest broiler producers, in the area of helping to predict performance challenges.

Championing sustainability in egg production

Egg consumption increased in 2022, reflecting the fact that eggs are a relatively cheap protein option in times of high meat prices, and our **business in this sector performed well** overall. Increased feed costs, COVID-19, inflationary pressures, and avian influenza challenged margins, although egg prices increased in the US and EMEA. Our 'Protect, Perform, Promote' campaign outlined how to make egg production more sustainable by lowering emissions. Our intelligent sustainability service Sustell™ was introduced by Cal-Maine Foods and CP, two of the world's largest egg producers, to quantify ammonia and phosphorus emissions.

We established ourselves as a **sustainability thought leader** in the industry through our role as a founding sponsor of the Vision 365 campaign. A new international initiative launched by the International Egg Commission (IEC), Vision 365 initiative involves a 10-year plan to accelerate global average egg consumption to 365 eggs per person, per year.

Pick-up in pork sector during challenging year

The beginning of the year 2022 was challenging for pork, with producers in the world's main markets, China and Europe, losing significant money per head of pig, especially as **demand for pork** was impacted by COVID-19 lockdowns in China, causing lower out-of-home consumption. Business conditions improved in the year, helped by the normalization of the swine market in China. Pork prices saw an increase as of the third quarter but rising energy prices and softening pork prices affected profitability in Europe and led to a reduction in sow numbers in many key countries including France, Germany and Poland.

African swine fever (ASF) continued to be problematic in China and parts of Asia and disrupted markets in other parts of the world too. It led to a ban on pig exports from Germany, consequently depressing prices in Europe, and posed a constant threat to markets such as Brazil and North America. As a result, VevoWin® experienced considerable growth in North America as a viral mitigant strategy against porcine reproductive and respiratory syndrome (PRRS) and the threat of ASF. The power of the VevoVitall® brand as the cornerstone of piglet gut health programs was demonstrated very effectively, with customers continuing to support this proven solution in the face of significant price rises by sticking with the product.

This year saw the launch of **two dedicated swine campaigns,** 'Shaping the Future of Piglet Care' and 'Sow Protection You can Trust', as well as our updated new OVN Optimum Vitamin Nutrition® Guidelines 2022 for Swine. These campaigns created a strong narrative for our customers, outlining how we can support them with our comprehensive portfolio of solutions and services, helping them to reduce reliance on antibiotics and therapeutic zinc oxide in their piglets and improve sow retention by mitigating the risk of mycotoxins.

Challenging conditions in beef sector

The **global beef market** faced increasingly challenging conditions in 2022 due to the relatively high price of beef and the weakening of consumer purchasing power during the year.

Brazil saw export volumes fading during the year combined with a weak domestic demand driven by inflation, among other factors, which started to put pressure on live cattle prices during the second half of the year. The prices of beef and milk that farmers could charge fell, while at the same time production costs rose due to the effects of global inflation and the war in Ukraine. Brazilian beef production saw a decline in 2022. In the US, beef production grew slightly in 2022, while cattle prices performed positively. In **China**, beef consumption and imports continued to increase, although at a slower pace, benefiting Brazilian exports. In Europe, by contrast, beef production and consumption have both gradually declined over the past decade.

In **dairy**, we updated our portfolio in 2022, including more products with Performance Solutions and exchanged the vitamin D_3 content in some of our products for Hy·D®. Our pure and proprietary vitamin D_3 metabolite, Hy·D® enables more efficient uptake of calcium from the diet, leading to improved skeletal health and performance in dairy cows. We also launched Mycofix® Risk Management solutions in the dairy and feedlot markets for improving raw material quality and combating high raw material costs.

Continued commercialization of Bovaer®

Bovaer® is our **novel methane inhibitor solution** for ruminants and is currently authorized and available for sale in more than 45 countries, including the EU/EEA, Argentina, Australia, Brazil, Chile, Pakistan, Switzerland, Turkey and Uruguay. Across the globe, we continued to work with partners from the beef and dairy value chain in 2022 to introduce Bovaer® into the market. These activities included large-scale programs to gain further practical on-farm experience.

In the EU, Bovaer® received **landmark market approval** at the start of the year, confirming its capacity to reduce methane emissions and its safety for animals, consumers and the environment. This positive momentum continued during the year, with numerous pilots being established with organizations such as FrieslandCampina, the world's largest dairy co-operative.

In April, we entered into a **strategic alliance with Elanco**, a leading animal health company, granting it exclusive licensing rights to develop, manufacture and commercialize Bovaer® in the US. This enabled us to maximize the opportunity for Bovaer® in the US market. Elanco assumed responsibility for the US approval process, commercialization strategy and product supply, as well as supporting DSM supply in markets outside the US.

In November, we began construction of a **new manufacturing facility** at our site in Dalry (Scotland). The plant will significantly increase global production of Bovaer®, with first production expected in 2025. In an official groundbreaking ceremony, attended by the First Minister of Scotland, Nicola Sturgeon, and our Co-CEO Dimitri de Vreeze, we marked the next step in our plan to use Bovaer® to reduce global methane emissions and contribute to worldwide methane reduction targets.

Further development of sustainable aquaculture solutions

Aquaculture saw somewhat challenging conditions, as **inflationary pressures** caused a cool-down in major import markets including the US and the EU in the second half of the year. Feed millers also faced unprecedented price pressures, primarily as a result of increased raw material and energy costs.

To support our customers, we focused strongly on our enzyme portfolio for optimizing feed costs and launched a **'Protect your profits' campaign**. We also positioned mycotoxin risk management as a feed insurance policy that combats the increasing risk of inferior-quality grains entering the feed chain. The 2020 acquisition of Biomin was central to the development of our 'Shrimp Robustness' program, making DSM a one-stop-shop for aquaculture solutions. In 2022, we also launched revised OVN Optimum Vitamin Nutrition® Guidelines 2022 for Aquaculture to maintain our leadership position in the vitamin and premix space.

Significant increase in sales of Veramaris® algal-based omega-3

Despite the challenging economic environment in 2022, our algal-based omega-3 Veramaris® enjoyed **significant growth**, particularly in the second half of the year. Veramaris, our 50:50 partnership with Evonik, saw a strong upswing in demand for sustainable algae-derived omega-3 for salmon farming, while also benefiting from increased interest for applications in pet food and human nutrition.

Observing increasing interest in our sustainable omega-3 proposition, we **further expanded** in all geographies and species, expanding our presence in warm water fish, shrimp, salmonids and pets. Output at our Veramaris facility in Blair (Nebraska, USA) ramped up, with yield and potency improvements. We also witnessed a strong response to our Optimum Omega Nutrition (OON) guidelines, a thought leadership protocol prepared by Veramaris experts to help fish farmers meet the appropriate omega-3 requirements and improve product quality while lowering the negative marine impact of farmed shrimp, salmon and other marine species.

Sustell™ launched for aquaculture

Sustell™, our **intelligent sustainability service** that supports precision animal farming, introduced its digitally-enabled farm-level solutions offering to the aquaculture industry. Sustell™ can help producers meet the increasing need to demonstrate that they have accurate, reliable and transparent methods to measure and credibly reduce the environmental footprint of farmed animal protein, thereby assisting the aquaculture industry in its efforts to protect marine biodiversity.

Vitamin E production by Yimante

Having reached our targeted utilization rate by the end of 2021, our vitamin E plant in China, Yimante (owned 75/25 with Nenter) operated **fully as planned** in 2022.

ISO standard lifecycle assessment assurance for Sustell™

Our Animal Nutrition & Health business brings together digital tooling, consultancy services, and innovative farm-level products in the form of our **Verax™** animal health management system and our **Sustell™** sustainability service, as well as our risk management solutions. In 2022, we received International Organisation Standard (ISO) assurance from accredited third-party certification body DNV for our intelligent sustainability service Sustell™.

Next step in Precision Services with acquisition of Prodap

In September, we completed the acquisition of Prodap, Brazil's **leading animal nutrition and technology company**. Prodap combines technology offerings, consulting services, and customized nutritional solutions to drive efficiency and sustainability in animal farming. Harnessing the power of Prodap's digital solutions allows us to take another step forward in our Precision journey, enabling smarter nutritional decision-making thanks to Artificial Intelligence and other tools. Prodap also complements our deep knowledge of animal nutrition and our advisory capabilities with its extensive consultancy capabilities, facilitating an even higher level of customer experience.

Mycotoxins

Mycotoxins naturally contaminate feed crops, posing threats to farm animal health and decreasing the sustainability of food production. The threat of mycotoxin contamination to livestock globally remained high, as documented in the DSM Mycotoxin Survey data of feed and crop samples. The disruption of some raw commodity markets due to the conflict in Ukraine led many feed and animal protein producers to include lower quality or alternative ingredients into livestock feed, raising the risk of livestock exposure to mycotoxins, while high feed prices reinforced the economic rationale for animal protein producers to apply mycotoxin deactivators.

In 2022, we extended the availability of our market-leading mycotoxin deactivators by securing **US FDA approval** of our fumonisins esterase for poultry and swine. As a result, FUMzyme®, the only purified enzyme that detoxifies fumonisins, became the first product ever approved for mycotoxin degradation in the US.

In recognition of the scientific merit of our commercial mycotoxin degradation capabilities, DSM was awarded the **Austrian State Prize for Innovation** 2022 for our ZENzyme® technology. ZENzyme® is the only purified enzyme that degrades zearalenone, a mycotoxin associated with health and reproductive challenges in livestock, fast, specifically and irreversibly into non-toxic and non-estrogenic metabolites, thereby protecting farm animals and helping to ensure sustainable, profitable food production.

Commitment to enable double-digit on-farm livestock emission reductions

Food systems and the climate crisis are intrinsically linked. Our strategic Food System Commitments therefore contain a commitment to enable a double-digit on-farm reduction of livestock emissions by 2030.

Putting our customers at the heart of our business

A worldwide transformation of our industry to bring about sustainable animal protein production will only be possible through the active involvement of the customers we serve. We therefore **put our customers at the center** of everything we do. Our goal is to make doing business with DSM easy and enjoyable. We create touchpoints that deliver a unique customer experience, aiming to encourage DSM brand preference and loyalty among our customer base.

We measure **customer loyalty and satisfaction** through the Net Promoter Score (NPS) methodology, which captures the 'voice' of the customer on a two-yearly basis. This gives us valuable insights into how best to continuously improve our product and service offering.

In November 2022, we ran the **NPS survey** among our customers. For the first time, we here report the response among customers of Animal Nutrition & Health only; in previous Integrated Annual Reports, an overall score for DSM as a whole was published. The NPS for Animal Nutrition & Health decreased slightly from 67 to 62 in 2022, among a survey group 34% larger than in 2020. With high scores for product quality, technical service, reliability and customer care, this is a much stronger result than our performance in 2018 (51) and 2016 (56) and is consistent with a generally positive trend over the past six years.

Innovation and R&D

Following the successful 2021 launch of Sustell™, the first of our Precision Services, we continue to focus on the development of a digital farm ecosystem that taps into the farm-level data stream. To maintain its contribution to meeting the nutrition requirements of the world's rapidly growing population, animal farming must become more efficient and sustainable while at the same time enabling higher levels of animal welfare and constituting a profitable endeavor for farming families and communities worldwide. Precision animal farming facilitates more efficient use of resources, reduces environmental impact, improves animal welfare management, and enhances farm-level operations. By leveraging precision farming technologies, the industry can gain deeper and broader insights into the opportunities and challenges it faces and can steer toward more accurate interventions.

In building our Precision Services, we are exploring and developing technologies such as artificial intelligence and deep learning systems that help to correlate the animal and environmental input into the ecosystem with the corresponding output with a view to maximizing health, nutrition and environmental value creation. Our Precision Services open up new horizons in farm-level transparency and data management, supporting areas of challenge and opportunity for farming operations.

In 2022, we accelerated the customer adoption of our Precision Nutrition platform, Verax™. The product of a partnership with Flagship Pioneering (MA, USA), Verax™ is a decision-making tool that enables data-driven optimization of nutrition in order to improve the health, performance and environmental footprint of livestock. It uses algorithms, blood biomarkers, data from trials, and scientific papers to provide nutritional recommendations on how to prevent diseases and optimize nutrition in poultry, swine and ruminants.

Our rich and diverse portfolio of innovation requires our research centers to develop state-of-the-art capabilities. In addition to developing the expertise of our people, we also invested on next-generation omics with new mass spectrometers and advanced *in silico* and *in vitro* modeling in our Research Centers in Tulln (Austria) and Bazhou (Hebei province, China). Additional investments were made in digitalization of our trial facilities for animals and environmental data collection. While those investments put DSM at the forefront of a digital-enabled science and microbiome technologies, they also expand our portfolio of services while translating the science into tangible outcomes in health, nutrition and sustainability for livestock producers.

Partnerships and joint ventures

We have many partnerships that support and accelerate innovation in Animal Nutrition & Health, for example:

- The world-leading Feed Enzymes Alliance of DSM and Novozymes, a partnership that leverages the complementary competences and technologies of our two companies to deliver game-changing innovation in feed enzyme solutions
- Veramaris, our 50:50 joint venture with Evonik, which produces an algal oil rich in the omega-3 fatty acids EPA and DHA for the aquaculture and pet food sectors without making use of wild-caught fish
- Our 75:25 partnership Yimante (Hubei province, China), with Nenter, which gives us a strong position in vitamin E, a key ingredient in our animal nutrition premix solutions
- Our new strategic alliance with Elanco Animal Health Incorporated to maximize opportunities for Bovaer® in the US market

Health, Nutrition & Care

At a glance

- €2,939 Net sales versus €2,516 in 2021 (in millions)
- €676 Adjusted EBITDA (in millions)

Highlights 2022

- Implemented sustainable packaging for micronutrient powders with 80% less aluminum
- Creation of ‘Health of the Gut’ platform, to meet increasing consumer demands for better gut health
- Launch of ampli-D® – our advanced and potent form of vitamin D for the dietary supplement market – in Latin America, with ANVISA approval
- Obtained additional regulatory approvals for human milk oligosaccharides (HMOs) in several countries and also expanded our customer portfolio
- Continuing positive consumer response our i-Health products in the US and China due to growing interest in self-care and immunity

About Health, Nutrition & Care

Health, Nutrition & Care provides solutions for the early life nutrition, dietary supplement, pharmaceutical, medical nutrition, personal care and aroma, and biomedical materials markets. We also serve the nutrition improvement sector, providing affordable and accessible food & beverage fortification solutions for some of the world’s most vulnerable populations. We serve these industries with:

- A portfolio of high-quality products covering vitamins, nutritional lipids, minerals, carotenoids, nutraceuticals, digestive enzymes, probiotics and prebiotics (including human milk oligosaccharides, HMOs), active pharmaceutical ingredients (APIs), and sunscreen filters, as well as a range of biomedical solutions
- A suite of customized solutions (premix, Market-Ready Solutions, and personalized nutrition)
- A range of expert services (e.g., regulatory affairs and formulation expertise, along with customized solutions)

Trends in Health, Nutrition & Care

Our Health, Nutrition & Care business addresses significant trends that influence the health of people and of the planet. We do this by leveraging the potential of personalized nutrition and improving the nutritional value of essential foods.

Heightened relevance of personalized nutrition

The turbulent economic conditions of 2022 impacted consumers around the world, influencing purchasing behaviors as consumers sought to reconcile their health and wellness aspirations with curtailed domestic budgets. According to a 2022 report, 72% of global consumers were concerned about rising living costs in their country of residence, while a similar proportion (63%) sought to reduce their spend on food and drink. Despite the constraints on domestic spending, the unsettled conditions that marked 2022 further strengthened consumer awareness of the link between nutrition and health that had been highlighted so clearly during the COVID-19 pandemic. Furthermore, 46% of consumers worldwide said that they intended to improve their mental well-being over the coming 12 months, while 41% stated that they aspired to enhance their energy levels. Immune health was identified by 66% of consumers as the top health area they wished to address in the coming year, with digestive health in second place (with 56%) and heart health in third (with 53%).

Crucially, 64% of consumers described their approach to health as proactive, and an only slightly lesser proportion (57%) said that they paid increased attention to high-quality, trusted ingredients when purchasing food and drink. In short, the majority of consumers want to feel that they are in control of their nutritional intake and to feel informed about the ingredients contained in the products they purchase.

In this context, the demand for **personalized nutrition** — science-based, data-driven nutritional solutions tailored to consumers' specific health goals and needs – is greater than ever. It allows individuals to make dietary choices tailored to their specific needs, reducing their susceptibility to a wide range of non-communicable diseases and at the same time helping to lower healthcare costs.

Our solutions

Our portfolio of nutritional ingredients covers an extensive spectrum of **products essential for good nutrition**, including food enzymes, nutritional lipids, carotenoids, cultures, human milk oligosaccharides (HMOs) and hydrocolloids. As a global pioneer in the industrial production of vitamins, we cover the entire range of critical micronutrients, offering innovative, science-based nutritional solutions to support health and well-being.

From insights to the final product, we draw on our **cutting-edge science** and **robust global partnerships** to offer our customers end-to-end support from product concept development to product launch. Our Market-Ready Solutions offer fast-tracked innovation that can be personalized for any consumer group.

Intensified demand for nutrition improvement

One of our Food System Commitments is to **close the micronutrient gap** of 800 million vulnerable people by 2030. The turbulent economic conditions that marked 2022 heightened the significance of this commitment. According to the UN World Food Programme, in 2022 more than 3 billion people worldwide could not afford a healthy diet, while 2 billion were affected by one of more forms of micronutrient deficiency, including 32 million pregnant or lactating women. Supplementation of the diet through the fortification of foods with essential nutrients – nutrition improvement – has a vital role to play in addressing this urgent need.

Our solutions

As one of the world's leading manufacturers of vitamins, nutritional ingredients and **food fortification technologies**, we develop and deliver better nutrition for people deficient in essential nutrients. We provide a range of nutrient-rich foods ranging from micronutrient powders to fortified rice while working in partnership with humanitarian organizations, food companies and social enterprises to reach broad populations at scale.

In 2022, a report by The Lancet Global Health concluded that the decades-old estimate that 2 billion people worldwide suffer from **micronutrient deficiencies** is a major underestimate. The Lancet reported additionally that one in two pre-school aged children and two out of three women of reproductive age worldwide suffer from at least one micronutrient deficiency. In the words of the Centers for Disease Control and Prevention (CDC), the consequences of micronutrient deficiencies include "serious birth defects, undeveloped cognitive ability, and reduced productivity. Severe micronutrient malnutrition contributes to maternal and infant deaths and childhood blindness."

Against this background, our essential **micronutrients (vitamins and minerals)** are now fortifying the diets of almost 650 million people every year. Vitamins and other micronutrients, such as nutritional lipids, are highly sensitive to changes in temperature and humidity. Micronutrient powders therefore need protection against these external influences if they are to remain stable prior to usage and to be fully bioavailable when added to foods and beverages.

After years of research, we have successfully developed a **packaging solution** that fully protects our micronutrient powders and – crucially – is more sustainable than the original version. The product used to consist of 30 aluminum sachets or 'stick packs' (the primary packaging), packed into one non-reusable aluminum pouch (the secondary packaging). Our more sustainable solution was achieved in collaboration with our long-standing partners SAES Coated Films, Novamont and Gualapack. Like the original version of the product, it comprises both primary and secondary packaging. However, the new primary packaging is a fully compostable stick pack which is made from more than 65% bio-based material and has a proven absence of ecotoxic effects. The new secondary packaging, meanwhile, now takes the form of a re-usable aluminum pouch with a seal. Overall, the combined solution (both primary and secondary packaging) contains 80% less aluminum than before.

The fact that the secondary packaging is now re-usable and re-sealable helps to **reduce waste and pollution**. Highly resistant, it can also be safely reused to protect staple foods such as rice and flour from insects, contamination, humidity, and spoilage – which can all be significant issues in low- and middle-income countries. Tested under challenging heat and humidity conditions, the packaging solution gave the same level of protection to the vitamins and minerals present in the micronutrient powders as the industry standard.

More information on our solutions for Health, Nutrition & Care can be found in this case study.

"The turbulent conditions of 2022 created new opportunities for our Health, Nutrition & Care portfolio and further underlined the need for our capabilities in nutrition improvement."

Philip Eykerman, President Health, Nutrition & Care Royal DSM

Performance 2022

The business had a good year, with **strong organic sales growth** of 9%, driven by strong price momentum through the year (+7%).

The **dietary supplements** market was soft predominantly in North America, as demand for immunity-boosting supplements moderated from the elevated levels seen during the COVID-19 pandemic. At the same time, demand for other dietary supplements for gut health and women's health products (i-Health) remained resilient. **Pharma** and **Medical Nutrition** performed well, while **Biomedical** had a very strong performance.

Early Life Nutrition saw a good recovery after a soft 2021 with good interest in its human-milk oligosaccharide (HMO) products, buoyed by expectations of further regulatory approvals around the world.

Personal Care & Aroma delivered strong growth, driven by high demand for skin, sun and hair care as well as fine fragrances owing to greater international mobility and high demand for bio-based aroma ingredients.

Health, Nutrition & Care delivered €676 million **Adjusted EBITDA** with a full-year Adjusted EBITDA margin of 23%, which includes a dilutive mathematical effect from rising prices (higher sales and therefore relatively a lower margin percentage) and foreign exchange effects.

x € million	2022
Net sales from continuing operations	2,939
Adjusted EBITDA	676
Adjusted operating profit	428
Adjusted EBITDA margin (in %)	23.0

The year in focus

Continued growth in pharmaceutical sector

Our activities in the pharmaceutical sector saw **continued growth** in 2022, supported by an increasing number of medicinal registrations of over-the-counter and prescription drug products. We supported our customers' growth and geographical expansion plans by efficiently assisting their regulatory filings in all major geographies, by applying alternative business models, and by expanding our portfolio offering and innovation platform – for example, by the addition of capabilities to support early-phase development of cannabinoid-based drug therapies.

Continued growth in medical nutrition sector

The medical nutrition sector **continued to perform well** in 2022, driven mainly by the growing proportion of the elderly in the world's population and the accompanying rise in chronic diseases. Demand for new health care solutions remains high, as does awareness of the value of nutrition in the medical treatment of patients of all ages, and of the elderly in particular. Our expertise in developing science-based, condition-specific concepts, our customized premix capabilities, and our expert services – from concept to market access – helped our customers to serve the most vulnerable population groups.

Market-Ready Solutions

In 2022, our Market-Ready Solution (MRS) capabilities and strong customer relationships facilitated **strong uptake of ampli-D®** – a calcifediol-based form of vitamin D supplement that acts three times faster than normal vitamin D. Consumers are increasingly looking for holistic solutions that deliver proven health benefits including stress management, improved sleep quality, and healthy gut functionality. To maintain the momentum in the uptake of vitamin D and at the same time provide effective differentiation to customers in a commoditized space, we launched ampli-D® – our advanced and potent form of vitamin D for the dietary supplement market – in Latin America, with ANVISA approval.

The year 2022 also saw the creation of our **'Health from the gut' platform**, which was designed to meet growing consumer demand for better gut health. Our 'Health from the Gut' offering, which will be commercially launched in 2023, will offer scientifically proven health benefits coupled with easy application and novel product formats. Based on a holistic approach to the human microbiome, it will deliver clinically proven, multi-ingredient products featuring our industry-leading brands, including our next-generation Humiome™ pre-, pro- and postbiotics, GlyCare™ Human Milk Oligosaccharides (HMOs), Tolerase® digestive enzymes, Quali® vitamins, and more.

Change in demand pattern for dietary supplements

The **softening of demand** for dietary supplements, which occurred mainly in North America and reflected the fall in demand for immunity-boosting supplements in the wake of the COVID-19 pandemic, was **offset by resilient demand** for other dietary supplements for gut health and for women's health products (i-Health).

'Sea the Difference' with *life's™OMEGA*

We launched our **'Sea the Difference' global campaign**, designed to drive awareness of our *life's™OMEGA* portfolio, made up of 100% algal-sourced nutritional lipids, as an alternative to fish oil. *life's™OMEGA* provides consumers with a sustainable solution for obtaining omega-3s that does not intervene in our marine ecosystem.

Beyond this, we enabled our customers to get new products to market faster with our **premix and Market-Ready Solutions**, which are strongly supported by our end-to-end service model. Finally, we solidified our position as a leader in the dietary supplements space by working with key opinion leaders and developing new immunity campaigns that capture the latest science and consumer trends.

Good recovery for early life nutrition

The early life nutrition segment saw a **good recovery** after a soft 2021. Low birthrates persisted in China, offset by an up-tick in the US and parts of Europe. The industry also faced an unforeseen development involving infant formula shortages in the US. This led US manufacturers to source supplies from all over the world, presenting opportunities that we were able to capture.

Human milk oligosaccharides (HMOs) saw **good customer interest**, buoyed by expectations of further regulatory approvals around the world. We continued to make progress by obtaining additional regulatory approvals in several countries and by expanding our customer portfolio. We also strengthened our leading position in lipids by demonstrating to our customers the importance of algal-sourced versus marine-sourced microbial lipids and by demonstrating our capabilities in developing innovative maternal nutrition solutions.

Further progress in nutrition improvement

Leveraging our partnerships in the public and private sectors, we continued our efforts to create and implement **affordable, aspirational and accessible** nutritional solutions to improve the quality of life of those most in need. As part of our strategic Food System Commitments, we undertook to enable by 2030 the closure of the micronutrient gap for 800 million vulnerable people worldwide, who suffer from micronutrient deficiencies. Fortified staples, Ready to Use Therapeutic Foods, Micronutrient Powders for children and Multiple Micronutrient Supplements for pregnant women have a key role to play in this initiative. For more information, see our Food System Commitments.

Innovative new offerings from Hologram Sciences

Launched in 2021, our **personalized nutrition pioneer** Hologram Sciences, Inc. combines proven science, powerful technology and the promotion of habit-building to create personalized nutrition solutions designed to help consumers optimize their health and well-being.

The company's first concept, **d.velop™**, a **personalized vitamin D solution** that is absorbed by the body three times faster than alternative vitamin D formulations, was launched in 2021. This innovation has since helped 97% of customers who tested with suboptimal vitamin D levels to see an increase in levels of this essential vitamin. Hologram Sciences signed its first license for the d.velop™ brand in 2022, expanding its global reach via an agreement with Maeil Dairies Co. Ltd., a company based in South Korea and principally engaged in the manufacture and distribution of dairy products.

In 2022, Hologram Sciences entered into its first **strategic partnership with Momentous**, a leading provider of human performance products, to provide digital, diagnostic, and personalized supplement solutions.

Hologram Sciences launched a **new consumer brand, Phenology™**, which offers advanced at-home diagnostics, hormone tracking and custom insights for women in the menopause. Users can follow a targeted wellness program with appropriate supplements and science-backed, naturally powerful health and beauty essentials. Users can also access one-on-one coaching and expert advice to unlock timely relief throughout their menopause journey.

Growth in i-Health

Our i-Health products continued to see positive consumer response in the US and China thanks to increased interest in self-care, immunity, and overall health and wellness. Our **Women's Health portfolio**, including the AZO® and Estroven® brands, delivered growth due to impactful new communication campaigns and new product launches including AZO® Women's Dual Protection Probiotics, AZO® D-Mannose, and Estroven® Complete. The AZO® brand was also launched in China, with promising early results. Recent customer surveys and in-depth consumer interviews were conducted in the US and China to better understand women's journeys through the various stages of their lives and offer insight into the symptoms and conditions associated with intimate and hormonal health. The information from this research is helping us to identify the critical factors that inhibit women from taking action in respect of their intimate and hormonal health. It informs our product innovation pipelines as well as our communication activities aimed at addressing those barriers.

Our **Culturelle® probiotic range** saw continuous strong consumer interest, driven by the introduction of larger pack sizes and new innovative Culturelle® products covering consumer needs in Women's Health, Kids' Immunity, and Kids' Gummies. The brand was also recently launched in Brazil, where it started to gain traction despite the challenging market conditions caused by the COVID-19 pandemic. We leverage a variety of digital data, including ratings, reviews and social listening, to ascertain trends and inform a fast-follower strategy for new ingredients (for example, boric acid, which is used to help treat yeast infections of the vagina, and *ashwagandha*, a herb used in the traditional medicine of India and best known for its anti-anxiety and stress-relieving effects) as well as vaginal health diagnostics.

We also introduced an innovation in the gummy product market, incorporating our lutein-based, vision-health product, FloraGLO® into a new Culturelle® gummy product for children, combining for the first time vision health with probiotics and vitamins to support immunity, digestion and vision.

Biomedical

In 2022, our Biomedical business delivered very strong performance as it successfully transitioned from its original home within the former DSM Innovation Center to a new one within Health, Nutrition & Care. The upturn was driven mostly by increased volumes of elective surgical procedures, which had been suppressed by the effects the COVID-19 pandemic and which reverted to pre-pandemic levels during 2022. Our running business grew, stimulated by the launch of various new customer products containing our materials, with this growth being particularly strong in China.

Our international growth in 2022 gave rise to a number of transformational commercial agreements, especially in the global orthopedic and cardiovascular markets. Our industry-leading medical coatings platform technology enabled one of our key strategic partners to successfully compete in this market, generating significant growth in our coatings revenue. Our polyethylene materials platform also allowed another of our global strategic cardiovascular partners to successfully launch a next-generation structural heart device in Europe. One of our pharmaceutical and drug delivery partners, Svelte Medical, received FDA approval to commercialize the SLENDER IDS™ fixed-wire and DIRECT RX™ rapid-exchange drug-eluting stent (DES) system for the treatment of coronary artery disease in the US. This DES system is enhanced by DISCREET bioresorbable coating technology based on our proprietary TheraPEA™ polyesteramide (PEA) bioresorbable polymer. Within our natural biomaterials portfolio, we successfully introduced our technologies into Latin America, expanding our global presence and bringing our healing technologies into strategic markets such as orthopedics and dental. Lastly, innovations within our polyurethanes portfolio generated strong customer interest in 2022, leading to commitments on the part of multiple partners to utilize our polyurethanes in human clinical trials for next-generation continuous glucose-monitoring devices in the field of diabetes management.

Strong growth in Personal Care & Aroma

Building on a record sales year in 2021, Personal Care & Aroma delivered strong growth, driven by high demand for skin, sun and hair care as well as fine fragrances. This demand was attributable to greater international mobility in the wake of the COVID-19 pandemic, along with high demand for bio-based aroma ingredients.

These strong sales results are attributable to the effective execution of our strategy, which offers proven, high-performance, cosmetic ingredients as part of broader customer solutions, complemented by our suite of services and sustainable practices. These solutions encompass, for example, trend-informed market concepts, such as our 'microbiome-friendly' range or our practical UV protection solutions. We continuously work to improve the social and environmental impact of our products and in 2022 partnered with the US Skin Cancer Foundation, joining them on their roadshow to raise awareness of sun safety and the benefits of using sunscreens. We were able to support our customers in their sustainability journey by providing information on the environmental and social footprint, traceability and identity (including naturality index) of our key ingredients, along with any applicable eco-certifications based on life cycle analysis (LCA).

Sustainability

Sustainability is an increasingly critical issue for our customers. In 2022, we integrated sustainability fully into our strategy, started to create better tools to give full transparency and insight about sustainability benefits at product level, and developed a more efficient and effective process for dealing with customer requests in this area. We engaged in more than 20 strategic dialogues with customers on the topic of sustainability.

Innovation and R&D

Innovation in Health, Nutrition & Care enjoyed good momentum in 2022, driven by four factors.

The first was the very strong continued performance of our Personal Care & Aroma business unit across aroma, photoprotection and personal care ingredients. Our Biomedical business also performed well, while our innovation ingredients such as lutein and ampli-D®, helped deliver a strong performance by our B2C and Personalized Nutrition businesses, i-Health and Hologram Sciences. Finally, innovation performed well in both the pharma segment and the Early Life Nutrition segment.

Innovation in Nutrition focuses on establishing novel, science-based health solutions in the market such as human milk oligosaccharides (HMOs), algal nutritional lipids, cannabidiol (CBD) and ampli-D®, our proprietary and advanced form of vitamin D. Drawing on cutting-edge science and the latest consumer insights, we deploy our innovation capabilities to create a more comprehensive offering for customers in the form of our premix capabilities and Market-Ready Solutions.

In Personal Care and Aroma, our consistent growth in 2022 stemmed from our effective substantiation of new product claims and our regulatory efforts in support of existing products, especially for the Skin Care market, in combination with the launch of a new range of UV filters. The garnering of global awards at trade shows for our product innovations testified to the successful deployment of our scientific capabilities. Awards were received for PEPHA®-TIGHT CB, our biotechnology innovation that harnesses the many benefits of lab-grown algae for healthy looking skin, and for Quali®-B, our biotech-based pink vitamin B_{12} for sensitive and fatigued skin, produced by non-GMO bacterial fermentation.

Our Biomedical business drives innovations to address important needs in healthcare and personal care by harnessing the innovation potential of sustainable science. Our customer-centric innovation activity in this segment focuses on launching new solutions, based on our IP-protected priority materials technology platforms: Polyethylenes, Collagen, Polyurethanes, and Coatings & Drug Delivery.

Partnerships and joint ventures

We have many partnerships that support and accelerate innovation in Health, Nutrition & Care, for example:

- Working with Panaceutics, Inc. and Wellmetrix, LLC in the personalized nutrition area, combining the competences of these two companies with our world-class nutrition science, products and solutions. We aim to be the partner of choice for dietary supplements as well as food & beverage brand owners that wish to offer personalized and healthy nutrition
- Our partnerships with the World Food Programme (WFP), UNICEF and World Vision to combat hunger and malnutrition

Food & Beverage

At a glance

- €1,546 Net sales versus €1,256 in 2021 (in millions)
- €266 Adjusted EBITDA (in millions)

Highlights 2022

- Strong sales growth, with good contributions from all business segments
- Continued momentum in plant-based dairy, meat and fish alternatives, leveraging full range of capabilities and portfolio, including First Choice Ingredients and Vestkorn, and launch of Vertis™ CanolaPRO®
- Core dairy business continues to perform, with a notable increase in the number of plant-based dairy alternative products
- Increasing market traction for palatability and texture solutions alongside micronutrient offering in Pet Food
- Increasing interest in beverages that deliver proven health benefits, leveraging full range of nutritional solutions, texture portfolio and regulatory expertise

About Food & Beverage

At the start of the year, we introduced our new integrated Food & Beverage operating structure, which unified the former Food Specialties, Hydrocolloids and elements of the Nutritional Products Business Groups into a single, focused Business Group. This strategic decision allowed us to bring together our full range of ingredients, expertise and sustainable solutions that improve taste, texture and health into a one-stop-shop 'powerhouse' organization serving producers of consumer packaged goods.

With this unified approach, Food & Beverage supports its customers to innovate, improve and grow with stand-out food and beverage products across dairy (fresh dairy, cheese and plant-based); bakery, cereals and bars; savory foods; beverages and brewing; confectionery and fruit; plant-based meat and fish alternatives; and in petfood. Our ingredients and solutions are widely used to create a broad range of food products, from grocery favorites such as cereals, yogurt, cheese and soups to specialized products. These include gluten-free bread and beer, plant-based meat and dairy alternatives, lactose-free milk and dairy products, sports and performance nutrition, and sugar-reduced foods and beverages.

We have more than 150 years' experience in biosciences and fermentation, and draw additionally on DSM's portfolio of solutions for taste, texture and health. We help food and beverage manufacturers better support the health of people and planet, lowering the environmental impact of food production while also boosting the nutritional value of their products.

Trends in Food & Beverage

The global food system faces a number of interconnected challenges. We need to be able to provide sufficient, high-quality and affordable food and beverage products to feed a growing global population, while at the same time alleviating pressure on the world's finite natural resources. Our food and beverage choices need to be produced and consumed more sustainably. The way that dietary choices impact health and personal well-being is coming into sharper focus every day, and we face the paradox of over-consumption in some parts of our societies and deprivation in others, with some populations struggling to access even a basic diet. Coming on top of the drive to reduce salt, sugar and trans-fats, the COVID-19 pandemic has further accelerated consumer demand for functional foods and ingredients that offer health benefits. Functional foods and drinks need to be delicious and appealing; consumer acceptance and brand preference starts with great taste, texture, and a pleasing appearance.

Meanwhile, producers must anticipate and respond to **fast-evolving consumer trends** in order to stay relevant and differentiate themselves successfully. They increasingly look for partners to help them speed new product development cycles and get to market faster and more effectively. At the same time, business imperatives – including the need to reduce their operational footprint and also manage the volatility of input costs – means that food producers seek to boost production and resource efficiencies and to lower their energy use.

Growing demand for plant-based alternatives

Interest in more **plant-forward diets and plant-based choices** alongside animal-sourced foods continues to grow around the world, with an estimated 30% of consumers in major markets identifying as flexitarian. However not all consumers of plant-based products are satisfied with the options on the market, which some perceive as falling short in terms of taste, texture, or health benefits. As consumer and societal expectations rapidly become more sophisticated and demanding, the industry is challenged to step up its game in turn to optimally capture the plant-based opportunity. And with producers aiming to convince consumers to convert their curiosity more consistently into repeat behavior, the race is on to develop next-generation plant-based products and experiences. Whether striving for more nature-like analogs, or differentiating by means of distinctive new formats and applications, producers of meat, fish and dairy alternatives know that they need to stand out on the shelf and on the plate.

Our solutions

We provide a **uniquely broad range** of ingredients, expertise, and solutions for plant-based products. For meat- and fish-alternative applications, this starts with the plant proteins themselves, which we offer through our Vertis™ portfolio, unveiled during 2022. This features Vertis™ CanolaPRO®, our innovative, high-quality canola protein isolate; plant protein concentrates; and textured vegetable proteins (TVP) based on peas and faba beans, which came into the DSM portfolio with the acquisition of Vestkorn Milling in 2021. It also includes the world's only TVP that contains all nine essential amino acids, has unique textural benefits, and is soy-free, dairy-free, and gluten-free. Together with our scientific capabilities, application expertise, and innovation competence, as well as a broad range of taste, texture, and nutrition and health solutions, the Vertis™ plant protein portfolio enables us to lead the market as an end-to-end partner for the creation of plant-based food and beverages that deliver a positive impact for products, people and the planet.

Our offering also encompasses ingredients, expertise, and solutions for dairy alternatives, including plant-based drinks, the most mature segment of the plant-based market, and cheese alternatives, one of the newer application areas. Within dairy alternatives, oat drinks are far and away the fastest-growing segment of the alt milk market. Our **enzymatic solutions** help producers carefully tailor taste and texture in their oat beverages, at the same time reducing throughput times and boosting efficiencies, while texturizing hydrocolloids such as gellan help deliver a homogenous, smooth-tasting product. The industry is also making strides in innovating in cheese alternatives, where compelling texture and mouthfeel are just as important as authentic dairy taste. In this segment, we are making full use of the excellent synergies with the First Choice Ingredients portfolio to help producers improve the quality of their offerings.

There is growing understanding that plant-based products must compete on nutritional value and perceived health appeal as well as on taste and texture. With our deep knowledge of nutrition science and our nutritional premix capabilities, backed up by expert understanding of regulatory requirements around the globe, we are well positioned to assist plant-based producers to **close nutrient gaps with traditional options** and to differentiate on-shelf with substantive front-of-pack claims.

Growing demand for functional foods and drinks

Consumers worldwide are adopting a more proactive approach to their diets in support of their **health and well-being aspirations**. On the one hand they are looking to cut down on their intake of salt, sugar, saturated fats, and other less preferred ingredients such as artificial colors, flavors, and additives (supported by 'food minus' and clean-label claims such as 'free from', 'low', or 'no added'). On the other hand, they are seeking foods and ingredients associated with health benefits, including fortified and enriched products (which can be differentiated with 'food plus' claims such as 'good source of' and 'high in') as well as specific concepts in support of immunity, cognitive function, eye health, sports recovery, and energy, to name but a few. Functional foods and drinks are therefore increasingly becoming a complimentary solution for consumers as part of a healthy, balanced diet. Nevertheless, health-conscious consumers still face several hurdles. Thirty-three percent of consumers say they find the taste of healthy food bland and boring, while 26% say a lack of time means they often turn to convenience foods. Skepticism over health claims on labeling is also a turn-off for consumers, who want functional products they can trust to fulfil a variety of claims about active ingredients and benefits.

Our solutions

As the **world's largest manufacturer of micronutrients**, we have the expertise in bioscience and nutritional science to help our customers navigate the complex world of vitamins, minerals, nutritional lipids, and probiotics, as well as plant proteins. This includes leveraging our application and (re)formulation know-how and advising on production considerations (such as when and how to add ingredients and ensure they remain stable throughout their shelf-life), as well as our regulatory expertise, with strategies for successful front-of-pack claims across product categories and geographies. Combined with our taste and texture capabilities, we can help our customers' brands ensure that the healthy choices they offer are also great-tasting choices that will have consumers coming back for more.

More information on our **health benefit solutions** for Food & Beverage can be found in this case study.

"With DSM, our customers get more than a supplier. They get a purpose-led partner that understands their business needs and will help them innovate, improve and grow. The result is delicious food and beverage products that are good for people and good for the planet too."

Patrick Niels, President Food & Beverage Royal DSM

Growing demand for sustainable food production

The third key trend that is impacting the food and beverage industry – from purchasing through new product development all the way to the board room – is associated with efficiencies, resilience and truly **sustainable operations**. Recent macroeconomic volatility has exacerbated food industry players' need to look for new ways to help mitigate inflationary forces, shorten and diversify supply chains, and support margins, all the while continuing to deliver the food & beverage industry's essential service: providing the food and drink on which we all rely. At the same time, our industry faces the imperative to chart a clear course to net-zero while protecting biodiversity and radically reducing food loss and waste throughout the value chain, all the while nourishing a growing global population. Consumers are making conscious efforts to choose more sustainable food and beverage brands. According to a recent survey, nearly six in 10 US consumers say it is important that the foods they buy are produced in an environmentally sustainable way.

Our solutions

With every grain of wheat, drop of milk, liter of vegetable oil, and joule of energy at a premium, the need to **maximize process and resource efficiencies** across the production, distribution, and consumption of foods and beverages has never been so clear. Our ingredients, expertise and solutions help maximize production and process efficiencies such as yield or throughput time, helping to simultaneously manage unit costs and carbon footprint. An excellent example is presented by our fast-acting lactase enzymes, which allow dairies to accelerate throughput and therefore reduce cooling time, saving energy and costs. Business resilience and business results can also be boosted by means of improved resource efficiencies, as well as by having the flexibility to diversify to new raw materials and input streams – as long as the quality of the finished product remains undiminished. Our baking enzymes and application expertise help bakeries adjust their ingredients and recipes without sacrificing the quality consumers expect in the final product. Meanwhile our bioprotective and antioxidant solutions help prolong dairy shelf life and reduce food loss and waste.

Performance 2022

Food & Beverage had a good year with **strong organic sales growth** of +10%. Pricing initiatives (+7%) could only partly offset inflation, leaving the business with a price-cost gap throughout the year. **Volume growth** of 3% was a good performance, taking into account high single-digit growth in previous year. **Dairy, Baking and Beverages** performed well. **Savory** was solid, while **Hydrocolloids** delivered a very strong performance. **Pet food** performed well, with increased interest in palatability offering and texture alongside nutritional functionality.

First Choice Ingredients, consolidated since October 2021, which develops clean-label fermented dairy and dairy-based flavor for various applications in savory as well as dairy, performed well in its full first year as a part of DSM, delivering €82 million sales.

The business delivered an **Adjusted EBITDA** of €266 million with a full-year Adjusted EBITDA margin of 17.2%, which includes a dilutive mathematical effect of the price increases (higher sales and therefore relatively a lower margin percentage) and foreign exchange effects.

x € million	2022
Net sales from continuing operations	1,546
Adjusted EBITDA	266
Adjusted operating profit	136
Adjusted EBITDA margin (in %)	17.2

The year in focus

Fresh dairy, cheese and plant-based dairy alternatives

Our **business in dairy performed well** in 2022. Continued interest in health and well-being remains a driver for growth in fresh dairy worldwide, with milk and fermented products recognized as a valuable source of quality – and enjoyable – nutrition. Lactose-free options continue to gain favor, with our recent research indicating that 40% of global consumers expect to purchase more lactose-free products in the next 3–5 years. Dairy drinks are also seen as an attractive category for products fortified with vitamins, probiotics and protein, with health benefits tailored to appeal to the needs of different age groups. In 2022, we introduced Delvo®ONE, our first portfolio of all-in-one cultures for fermented milk, created using a pioneering AI collaboration platform. The Delvo®ONE portfolio includes five different culture combinations all offering taste, texture and health benefits – and all with built-in bioprotection. A first of its kind, the platform improves the accuracy and speed of dairy producers' new product development by reducing trial complexity during the culture selection process.

The **plant-based dairy space** continues to develop dynamically across all formats, with a notable increase in the number of cheese-alternative products hitting supermarket shelves. In 2022, we launched a new portfolio of solutions to help plant-based cheese producers deliver more authentic and compelling dairy taste and texture experiences in cream cheese, sliced and grated applications, leveraging the strong synergies with First Choice Ingredient's leading capabilities in this area. In alternative drinks, oat drinks continue to outpace other starch sources, and we introduced a new one-step enzymatic solution to help oat drink producers simplify and speed up their production process.

Baking and brewing

Bakers, millers and bakery manufacturers have had to contend with unprecedented volatility impacting supply chains, raw material availability and energy costs. There has been commensurate interest in our enzymatic solutions to help reformulate recipes to reflect new raw material inputs or to reduce reliance on price-volatile ingredients such as emulsifiers and wheat gluten, while maintaining the end-product quality and characteristics that consumers demand. In support of this trend, we **broadened our portfolio** in 2022 with the launch of Panamore® Xtense, a label-friendly lipase which is a more sustainable alternative to the common emulsifier DATEM. Moreover, our freshness solutions were in strong demand throughout the year, and our business in the baking sector performed well as a whole.

Our activities serving the brewing sector likewise **performed well**. The brewing sector continues to seek a reduced environmental footprint, using more diversified supply chains with a greater proportion of locally available raw materials, as well as driving production efficiency improvements and, crucially in the current environment, doing everything possible to drive down energy costs. Our enzymatic solutions help brewers to boost efficiencies and lower cooling time and costs, while helping to satisfy fast-changing consumer demand for new beverage experiences.

Savory and meat and fish alternatives

Demand for our savory taste ingredients remained robust, buoyed among other things by continued growth in plant-based meat and fish alternatives and delivering a solid performance for us over the course of the year. As options for plant-based meat and fish alternatives become more mainstream, there is an increasing awareness that producers will need to continually improve their offerings to keep savvy consumers satisfied. This starts with great taste and texture, and we further expanded our market reach with our comprehensive portfolio of integrated solutions, leveraging our full range of capabilities in taste, texture and health. Our **online Fortifull™ tool** helps manufacturers to analyze their products' nutritional profiles and optimize their recipes. Furthermore, our **vegan EPA and DHA omega-3** fatty acids were approved for use in the EU during the year, allowing manufacturers to further increase the nutritional value of their plant-based alternatives – without impacting the marine ecosystem.

The **First Choice Ingredients** business continued to progress well in its first full year in DSM, with its dairy and dairy-like flavors and concentrates enjoying robust demand across application segments.

We further expanded our plant-based offering through a new solution combining **Maxavor®** vegan fish flavours with our nutritional lipids ***life's™OMEGA***, our vegan EPA and DHA omega-3 fatty acids capability. The product combines taste and fortification for the fast-growing fish alternative segment, allowing manufacturers to further increase the nutritional value of their plant-based alternatives without impacting the marine ecosystem.

Our **savory taste and flavor solutions** based on our yeast extract and process flavor technology platforms continued to enjoy good demand despite a challenging operating environment.

Pet food

Pet foods are subject to many of the same trends that shape the human food and beverage industry – not least because it is the same consumers who make the purchasing decisions on behalf of their beloved companion animals. We **performed well** in this segment, with increased interest in our palatability and texture capabilities alongside our nutritional ingredients.

Beverages & More

Our premix capabilities and the depth of our understanding of nutritional science, combined with our breadth of portfolio, application expertise and consumer and market insights, allow us to bring value to our customers that goes beyond our ingredients alone. Increasing consumer interest in health benefits in categories such as energy drinks, for example in support of mental as well as physical energy and performance, offers customers exciting headroom for growth, and we saw **continued strong traction** in this space.

Building a strong portfolio of plant proteins

The acquisition of **Vestkorn Milling** in December 2021 provided DSM with an established presence in the market for plant proteins, increasing our relevance as an end-to-end partner for the creation of plant-based food and beverages that create a positive impact for products, people and the planet. We took a number of actions to further strengthen this strategic presence during 2022, including introducing a differentiating positioning for our complete plant protein portfolio under the Vertis™ brand.

We launched **Vertis™ CanolaPRO®**, our high-quality canola protein isolate – a complete protein containing all nine essential amino acids required for good health, and free from major allergens. This milestone follows more than 10 years of research and development at DSM to unlock the healthy protein from the canola seed and produce it at scale for the food industry. Furthermore, we introduced a world-first solution in the form of Vertis™ Textured Pea Canola Proteins, the world's only textured vegetable protein that contains sufficient levels of all nine essential amino acids to be a complete protein, has unique textural and functional benefits and is soy-free, gluten-free and dairy-free. Vertis™ Textured Pea

Canola Protein will help producers create even more realistic and nutritionally appealing meat alternatives or plant-forward applications.

Sales of Vertis™ plant proteins will contribute to DSM's **commitment** to reach 150 million people with its ingredients and solutions for nutritious, delicious, and sustainable plant-based food and beverages by 2030. This forms part of our Food System Commitments.

Further growth for fermentative Stevia

Avansya, our 50:50 joint venture with Cargill for fermentative Stevia, continued to build its sugar reduction business with the sustainably produced **EVERSWEET® Stevia sweetener**. Numerous reduced- and zero-sugar consumer end-products incorporating EVERSWEET® were successfully launched by customers across our target segments, as new product development continued to bounce back after the COVID-19 pandemic amid increased consumer interest in healthier foods and beverages. EVERSWEET® received further approvals for use in additional markets worldwide, with registrations in the EU and elsewhere also underway.

Strong demand for hydrocolloids

Hydrocolloids are thickeners and stabilizers that dissolve, disperse or swell in water to provide a broad range of important functionalities and physical attributes including gelling, texture, mouthfeel, viscosity and suspension. Our hydrocolloids are primarily delivered in the form of plant-extracted pectin and fermentation-derived bio-gums, notably gellan. Both are used as gelling and stabilizing agents in a variety of foods and beverages. We saw **strong demand for our hydrocolloids** in 2022, resulting in a very strong performance for this business, with many new important wins in biogums among key food & beverage customers as part of our total solution. Beyond the food & beverage sector, our hydrocolloids continued to enjoy demand in new and sustainable applications such as vegetarian soft-gel capsules. Finally, particular interest in pectin was evident in markets outside China, accelerated by the 'one-stop-shop' approach made possible by our focused Food & Beverage 'powerhouse' set-up.

Innovation and R&D

Capturing new scientific and business opportunities relies increasingly on the effective deployment of **advanced digital technologies**. In 2022, we continued to step up our investments in the digital transformation of our science and innovation capabilities, accelerating our digital journey with a clear focus on FAIR data management – the management of data in accordance with the principles of findability, accessibility, interoperability, and reusability. This approach ensures that the data generated from our R&D activities is easily accessible and can be shared across different teams and departments.

In 2022, we embarked on a joint research program entitled **'AI for Biosciences'** ('AI4b.io') with Delft University of Technology (TU Delft). AI4b.io aims at long-term innovation in AI with the aim of accelerating the development of bio-based products and optimizing bio-based production technologies. This involves exploring and implementing advanced AI technologies including full factory scheduling (the production management process whereby raw materials, intermediates and production capacity are efficiently allocated to meet demand); digital twin (virtual modelling) operations; autonomous laboratories, known as self-driving labs, for the development of microbial strains for natural products; and advanced microbiome research for the application of supplements to support human and animal health.

We built on the breakthrough creation of **AlphaFold**, a cutting-edge AI technology launched by DeepMind in 2022 that can predict the 3-D structure of every known protein. This capacity is crucial for understanding the mechanisms of human health and nutrition. The application of AlphaFold is enhancing our understanding of our own enzyme products and informing the development of innovative product formulations, facilitating the creation of new microbial strains, and permitting new processes that are both faster and more sustainable.

We launched **Delvo®ONE**, our first portfolio of all-in-one cultures for fermented milk, created through the use of our pioneering AI Culture Co-Creation Platform. Delvo®ONE's full-service portfolio comprises five cultures offering taste, texture and health benefits, all with built in bioprotection. Combining our industry-leading expertise with machine learning, the new platform enables us to collaborate with yogurt manufacturers on the development of unique solutions that deliver on multiple product targets at the same time.

We announced a multi-year license and collaboration agreement with LabTwin GmbH, creators of the leading voice-powered digital lab assistant technology of the same name. LabTwin is designed to enable real-time data capture and will be applied in several of our Science & Innovation laboratories around the world. Introduced to speed up innovation cycles both for ourselves and for our customers, LabTwin offers a 'Siri'-like experience in the lab, with many options for further advancing our lab operations – from guiding our scientists through laboratory protocols to interacting with labware and storing data and observations in a smart, hands-free way.

In 2022, we also successfully initiated a Translational Sciences program, bridging real-world evidence (RWE) and laboratory research on multiple fronts to include the use of natural language processing (NLP). NLP algorithms can understand and analyze large volumes of unstructured data, such as scientific papers and research reports. These algorithms can help our researchers identify trends and patterns that would otherwise be difficult to discern. We are now leveraging natural language processing to extract insights from unstructured text data and to develop personalized nutrition recommendations using recipe builders and other tools.

Partnerships and joint ventures

We have many partnerships that support and accelerate innovation in Food & Beverage, for example:

- Avansya, our partnership with Cargill to bring sustainably produced, great-tasting, zero-calorie, cost-effective fermentation-produced sweeteners to market at scale
- Olatein, our partnership with Avril to produce the high-quality, nutritionally complete and sustainably sourced rapeseed protein isolate CanolaPRO®

Materials

About DSM Materials

As part of our strategic repositioning as a company focused on Health, Nutrition & Bioscience, in 2021 we commenced the process of selling our Materials businesses, comprising DSM Protective Materials and DSM Engineering Materials. The first step in this process involved the sale of our Resins & Functional Materials and associated businesses to the specialty materials player Covestro AG. This was completed in 2021.

DSM Protective Materials and DSM Engineering Materials produce a high-quality portfolio of specialty materials for global end-markets including electrical components and electronics, automotive, food packaging, medical, personal protection, commercial marine, and apparel. Through their advanced and sustainable solutions, these two businesses help meet demand for safer materials, greater efficiency and improved environmental performance.

Completion of sale of DSM Protective Materials

On 20 April, we reached an agreement to sell our Protective Materials business to Avient Corporation. The sale was completed on 1 September for an enterprise value of €1.45 billion.

The transaction included all of DSM's Protective Materials activities, chiefly consisting of Dyneema®, the world's strongest fiber™. The business represented €335 million of DSM's total annual net sales and €105 million of DSM's total Adjusted EBITDA for 2021. DSM posted a book profit of around €1 billion and received approximately €1.35 billion net in cash. The transaction, which is strategically attractive for all parties, creates a business with considerable growth synergies. It will benefit customers as well as employees of DSM Protective Materials as Avient helps the business deliver on its outstanding potential. Avient will continue investing in innovation and sustainable solutions, further accelerating the remarkable impact and possibilities of the business and Dyneema® brand.

Announcement of sale of DSM Engineering Materials

On 31 May, we reached an agreement to sell our Engineering Materials business to Advent International and LANXESS for an enterprise value of €3.85 billion.

DSM Engineering Materials represented €1.5 billion of DSM's total annual net sales and €334 million of DSM's total Adjusted EBITDA for 2021. DSM expects to receive about €3.5 billion net in cash following closing, after transaction costs and capital gains tax. DSM Engineering Materials will become part of a newly created joint venture, together with LANXESS's High Performance Materials business, which will be co-owned by Advent International (>60%) and LANXESS (<40%). This will create a new global specialty materials company with the focus and investment that can drive the development of customer-focused innovation, in particular for the industry's transition to bio-based and circular solutions. The transaction will create a platform for further growth for DSM Engineering Materials and its people. Completion of the transaction, which is subject to the customary conditions and approvals, is expected in the first half of 2023.

Corporate Activities

Any consolidated activities within continuing operations that are outside the three Business Groups are reported as **Corporate Activities**. These comprise operating and service activities, as well as a number of costs that cannot be allocated directly to the Business Groups. While this segment reports net sales to third parties from its service units, it normally has a negative operating result.

Corporate Activities includes various **holding companies, regional holdings and corporate overheads**. The most significant cost elements are corporate departments and the share-based compensation for the company.

Corporate Activities

x € million	2022
Net sales from continuing operations	71
Adjusted EBITDA	(95)
Adjusted operating profit	(149)

DSM Insurances

We retain a limited part of our material damage, business interruption, (product) liability and other risks via our captive insurance company. In 2022, the total retained damages were €15 million (2021: €27 million).

Corporate research

We centrally invest in a focused number of clearly defined disruptive technology platforms, managed by our Senior Science Fellows, through which we aim to create greater differentiation over the long-term. These underpin early-stage innovation projects that are co-funded with the relevant business, following the principles of co-leadership, milestone-based funding, and assumption-based working, in order to provide market-ready scientific breakthroughs in the future.

Share-based payments

Executives participate in the **Long-Term Incentive (LTI) scheme**. This links their compensation to the long-term interests of our company's stakeholders. It also provides a vehicle for the attraction and retention of suitable employees.
As shares / share units have become more prevalent in the market, we replaced stock options with shares / share units in 2017. This resulted in better alignment with the LTI vehicle already in place for the Managing Board and the Executive Committee. The use of shares / share units also targets yet closer alignment with the interests of our stakeholders. For detailed information, see Note 27 of the Consolidated financial statements.

Reporting policies

Financial and reporting policies

As a basis for, and contribution to, effective risk management and to ensure that we are able to pursue our strategies, even during periods of economic downturn, DSM aims to retain a strong balance sheet and limit our financial risks.

Our strategy has ambitious targets, as outlined in Strategy. Within the context of this strategy, we aim to maintain a strong investment grade and a strong long-term credit rating.

Most of our external funding needs are financed through long-term debt. Debt covenants are not included in the terms and conditions of outstanding bonds and financing arrangements. We aim to spread the maturity profile of outstanding bonds in order to have adequate financial flexibility.

An important element of our financial policy is the allocation of cash flow. We primarily allocate cash to investments aimed at strengthening our business positions and securing stable, and preferably rising, dividend payments to our shareholders. Remaining cash flow is used for acquisitions, targeting investments predominantly in Nutrition and in line with our strategy. Share buy-backs will be considered in the absence of value-creating M&A opportunities.

We continuously monitor and assess risks arising from currency exposures. It is our policy to hedge 100% of the currency risks resulting from sales and purchases at the moment of recognition of trade receivables and payables. Additionally, we may opt to hedge currency risks from firm commitments and forecast transactions. The currencies giving rise to these risks are primarily the US Dollar, the Swiss Franc, the Brazilian Real and the Chinese Renminbi.

We acquire businesses and enter into partnerships that add value in terms of technological or market competences. In addition, these businesses and partnerships are required to contribute to our cash earnings per share, as well as our profitability, sustainability and growth requirements. In the case of small innovative growth acquisitions, we consider their potential to contribute to these requirements in the future.

Our policies in the finance function are strongly oriented toward solidity and reliability of reporting, as well as the protection of cash flows. The finance function also plays an important partner role to the business and supports business steering.

For detailed information on our tax policies, see Taxation at DSM on the company website.

Non-financial reporting policy

Reporting policy and justification of choices made

In this Integrated Annual Report, we report for the calendar year 2022. We report on People, Planet and Profit information in such a Report on an annual basis. The previous DSM Integrated Annual Report was published on 2 March 2022. We publish our Report exclusively in a digital format. It is available as an online version and as a pdf.

In the Report by the Managing Board section, we explain our vision and policy with respect to sustainability practices and report on our activities in this field during 2022. In addition to disclosing data and developments in the categories of People, Planet and Profit, we also report on the global societal megatrends that drive our strategy, sustainability governance framework, stakeholder engagement activities, and management approach on material topics.

We are in favor of convergence in reporting standards and frameworks, moving to globally accepted non-financial reporting standards. Currently, we recognize and participate in a number of initiatives that are driving toward that goal.

We proactively seek out the views of key stakeholders on issues of material importance to the company and assess to what extent sustainability aspects become material to our company and our stakeholders. In the event that specific indicators become relevant to the company's sustainability performance, appropriate actions are taken that allow the necessary data to be collected in order to disclose progress in the future.

The basis for the non-financial reporting in the Report by the Managing Board is Book 2 of the Dutch Civil Code. Non-financial reporting requirements are further defined in the EU Non-financial Reporting Directive (2014) and the EU Corporate Sustainability Reporting Directive (in effect as of 2024), including the EU Taxonomy (partially in effect as of 2022) and the proposed EU Sustainability Reporting Standards (in effect as of 2024). It is also based on voluntary non-financial reporting guidelines such as:

Global Reporting Initiative (GRI)

DSM has reported in accordance with the GRI Standards for the period January 1, 2022 to December 31, 2022. A detailed overview of how we report according to the GRI Standards indicators, including a reference to relevant sections in this Report, is provided in the GRI Content Index. In 2022, DSM changed from the GRI Standards (2016) to the GRI Standards (2021). This change is reflected in the GRI table. DSM provides information on the Management of material topics (GRI 3-3) for its most material topics only. DSM does not provide detailed information on the Management of other topics as the company does not believe they are material enough to do so.

UN Sustainable Development Goals (SDGs)

We have also aligned our strategy with the Sustainable Development Goals (SDGs). We are familiar with the opportunities and responsibilities that the SDGs represent for our business. Based on our mapping, we believe that we contribute to all of them, and have chosen to focus on the goals which most closely align with our strategic ambitions. In this Report, we continue to include the SDGs into our reporting process, for example by mapping SDG reporting priorities in our value creation model, our material topics, and the solutions that we highlight.

The Taskforce on Climate-related Financial Disclosures

The recommendations from the Taskforce on Climate-related Financial Disclosures (TCFD) are a set of voluntary, climate-related financial disclosures for use by companies to provide information to their stakeholders. This Report contains our TCFD-relevant disclosures on Governance, Strategy, Risk Management, and Metrics and Targets. For more information on how we report against the TCFD recommendations, see Note 3 Taskforce on Climate-related Financial Disclosures (TCFD) of the Sustainability statements.

Other reporting frameworks

We align with the recommendations of the International Integrated Reporting Council <IR> Framework where possible. The intention of the <IR> Framework is to provide additional guiding principles and content elements for an integrated report.

We use this framework to present an integrated view of how the company creates value for stakeholders in People, Planet and Profit, as well as the interconnection between these three dimensions.

We map our disclosures to other standards and frameworks to support our stakeholders who are using these. You can find how our disclosures map to the Sustainability Accounting Standards Board framework and the WEF IBC metrics and disclosures in Note 4 SASB and WEF IBC mapping of the Sustainability statements.

UN Global Compact
We have been a signatory to the UN Global Compact since 2007 and commit to annually report on progress in implementing The Ten Principles of the UN Global Compact in the areas of human rights, child and forced labor, the environment and anti-corruption. Our Code of Business Conduct, our Sustainability, Human Resources, and Safety, Health and Environment (SHE) policies, and our Supplier Sustainability Program are the foundations on which we apply the standards of the Global Compact.

Selection of topics

The topics covered in this Report were selected on the basis of our materiality analysis, which assessed the relevance and impact of selected topics for our company and various stakeholders. On the basis of the principle of materiality (using the GRI Standards), we distinguish between topics whose importance warrants publication in this Report (relevant to both DSM and stakeholders), and topics whose importance warrants publication on the company website only (topics important to either DSM or stakeholders). The sustainability data in the Integrated Annual Report is qualitative as well as quantitative – the qualitative information can also contain quantitative elements. The Materiality matrix and the process by which it is created is reported on in Stakeholders, with the management approach in Note 1 Management approach for material topics of the Sustainability statements. We report on External recognition in Stakeholders.

Scope
The **People** and **Brighter Living Solutions Plus** (BLS+) data in this Report cover all entities that belong to the scope of the Consolidated financial statements. **Planet** reporting covers manufacturing units where commercial production by DSM occurs.

Acquisitions and divestments
The **People** data for newly acquired companies are reported from the first full month after the acquisition date.
The **Safety, Quality and Health & well-being (People), Environment (Planet)** and **BLS+** data for companies acquired in the:

- First half of a given year *('year x')* are included in the reporting scope of the year after acquisition *('year x+1')*
- Second half of a given year (*'year y'*) are included in the reporting scope of the year following the first full year after acquisition (*'year y+2')*

Divested companies
Planet and **BLS+** data are reported until the moment control of the company is transferred, and **People** data until the end of the month in which control of the company is transferred. As the updated BLS+ methodology was presented after the announcements of the intention to divest the Materials businesses, these businesses have been excluded from the BLS+ methodology. The date in which control of the company is transferred generally coincides with the date a divestment is closed, and control of the shares is transferred to the new owner.

People methodology
People data are collected per Business Group and consolidated at corporate level. Metrics on workforce and workforce composition, and inflow and outflow are reported based on the year-end figures. Employee engagement and the Inclusion index are measured on an annual basis. Safety and health metrics are reported on a 12-month rolling average. Divestments are included in the rolling average for the months prior to transfer of control of the company. Occupational health cases and training hours are reported on the basis of the year-end figures.

Planet methodology

Our progress on the key environmental performance indicators is collected and evaluated twice a year for all DSM sites. The data are based on these sites' own measurements and calculations, which in turn are founded on definitions, methods and procedures established at corporate level. The site managers of reporting units are responsible for the quality of the data. Data are collected using measurements and calculations in the production processes, information from external parties (e.g., on waste and external energy) and estimates based on expert knowledge.

Reporting units have direct insight into their performance compared to previous years and are required to provide justifications for any deviations above the threshold. For most parameters, the threshold is set at 10%. The year-on-year comparability of the data can be affected by changes in our portfolio as well as by improvements to measurement and recording systems at the various sites. Whenever impact is relevant, this is stated in the Report. Details for the regions, as well as the methodology and calculations, are published on the company website, together with an explanation of the definitions used.

Sustainable Portfolio Steering / Brighter Living Solutions Plus (BLS+)

DSM applies a Sustainable Portfolio Steering methodology to identify, and further develop sustainable, innovative solutions that deliver sustainability benefits within the value chain, whilst having no recognized, measurable, urgent negative performance signals.

BLS+ methodology

Those products that clearly create sustainable value for our stakeholders are identified as BLS+, and are assessed by a standardized, holistic product assessment across 11 impact drivers related to social and environmental impacts.

BLS+ are products, services and technologies that, considered over their life cycle, offer a benefit recognized by key stakeholders, underpinned with substantiating evidence, whilst having no urgent negative signals. Three performance levels are defined, where the product is:

- 'Outperforming', with better comparative performance to the mainstream reference solution within the market
- 'Performing', by providing recognized benefits within the market
- 'In Transition', to identify products that either do not meet the DSM minimum requirements, or where an urgent negative signal has been identified, or products that have not yet been assessed

In addition to the regular product sustainability assessment, any 'Outperforming' classification must be substantiated with a full comparative life cycle assessment versus the Mainstream Reference Solution (MRS).

A sustainability benefit is a positive performance on one of the 11 impact drivers. Do no significant harm means that the product has no urgent, negative signals. These signals are relevant negative performance impacts in any of the 11 impact drivers, which are expected to manifest within the next 3 years. Applying the Sustainable Portfolio Steering methodology requires judgment or assumptions by management, in particular within the processes related to PSA, LCA and the selection of MRS.

Mainstream Reference Solution (MRS)

The MRS is the product or service with which the DSM solution is compared and is determined based on the marketing strategy. It is the competing dominant solution in the same application. It can be either a similar solution from another supplier or a solution using an alternative technology to fulfil the same function, or, if the solution and its application are new to the market, or the marketing strategy is focused on market growth, the solution should be compared with the benchmark situation without using the solution.

Product Category Sustainability Review

As part of the Sustainable Portfolio Steering methodology, we conduct an annual 'Product Category Sustainability Review' for all product categories. This review identifies the validity of environmental and social impact differentiators and risks for each of our product categories and confirms the mainstream reference solution where applicable. The Product Sustainability Assessments (PSA) to support the qualification for BLS+ are required to be made by internal Life Cycle

Assessment (LCA) or sustainability experts and are critically reviewed using the four-eyes principle by at least one competent independent reviewer.

BLS+ reporting

The BLS+ indicator represents the third-party net sales related to the sum of the products that are defined as Outperforming and Performing, as a ratio of total third-party net sales. The percentage of BLS+ is reported twice per year within the business portfolio. The financial data are validated by the finance function, consolidated by the Corporate Sustainability department as the DSM BLS+ KPI, and reviewed by Group Control & Accounting.

All legacy products under the former BLS methodology will be reevaluated during a change-over period. In the intervening period, these products will be classified as Outperforming (where an LCA is available) or Performing (where an expert opinion is available). These products are not screened for negative urgent signals.

Food System Commitments

The Food System Commitments are a set of measurable commitments that make the company's societal impact explicit. The commitments are aimed at addressing urgent societal and environmental challenges linked to how the world produces and consumes food. The Commitments are grouped into the areas: Health for People, Health for Planet, Healthy Livelihoods.

Health for People

- Help close the micronutrient gap of 800 million vulnerable people by 2030
- Support the immunity of half a billion people by 2030

Health for Planet

- Enable double-digit on-farm livestock emission reduction by 2030
- Reach 150 million people with nutritious, delicious, sustainably produced plant-based foods by 2030

Healthy Livelihoods

- Support the livelihoods of 500,000 smallholder farmers by 2030

Our Basic Commitments are Deforestation-free in our primary supply chains by 2030 and Good workforce nutrition for all employees by 2030.

The impact of the commitments is based on scientific or other third-party evidence demonstrating a link between the products and services provided by DSM to its customers and the substantiated societal impact of the commitment. The calculation of the level of impact is based on estimates and assumptions. The required level of supporting evidence for estimates and assumptions is assessed using a risk-based approach, looking at objectivity, sensitivity, and the underlying basis of the estimate. The assessment and supporting evidence for the estimates and assumptions are documented and are updated annually.

More information on the Food Systems Commitments can be found on the company website.

Corporate governance and risk management

Corporate governance

Koninklijke DSM N.V. (Royal DSM) is a **company limited by shares** listed on Euronext Amsterdam. It is managed by a Managing Board together with an Executive Committee and an independent Supervisory Board. Members of the Managing Board and the Supervisory Board are appointed (and, if necessary, dismissed) by the General Meeting of Shareholders.

The company is **governed by Dutch law** and by its Articles of Association, which can be consulted on the company website. The General Meeting of Shareholders decides on any amendment to the Articles of Association by an absolute majority of the votes cast. A decision to amend the Articles of Association may only be taken at the proposal of the Managing Board, subject to the approval of the Supervisory Board.

At DSM, we fully inform our **stakeholders** about our corporate objectives, the way our company is managed, and our company's performance. In doing so, we aim to pursue an open dialogue with our shareholders and other stakeholders.

Our company has an **organizational structure** built around Business Groups that are empowered to perform all short- and long-term business functions. In this, they are assisted by support and corporate functions, as well as by regional organizations.

Managing Board and Executive Committee

The Executive Committee was installed to enable faster strategic alignment and operational execution by increasing our focus on the development of our business, innovation and people.

The **Executive Committee** comprises the Managing Board members as well as eight senior executives with responsibility respectively for Animal Nutrition & Health (Ivo Lansbergen), Health, Nutrition & Care (Philip Eykerman), Food & Beverage (Patrick Niels), Materials, Strategy & Digital (Helen Mets, until 1 December 2022), Science (Patricia Malarkey), People & Organization (Cristina Monteiro), Operations (Luca Rosetto), Global Products & Strategic Alliances (André Bos). Upon Helen Mets leaving the company, the Co-CEOs took over her responsibilities. The senior executives serving on the Executive Committee are appointed by the Co-CEOs after consultation with the Supervisory Board. The Executive Committee focuses on topics such as our company's overall strategy and direction, review of business results, functional and regional strategies, budget-setting, and people and organization. The statutory responsibilities of the Managing Board remain unchanged.

The **Managing Board** is ultimately responsible for our company's strategy, portfolio management, the deployment of human capital and financial capital resources, the risk management system, financial performance, and performance in the area of sustainability. The Managing Board is thus also accountable to the Supervisory Board for our strategy and management. The Executive Committee attends the Supervisory Board meetings in full for topics such as safety, quality and financials and individually in connection with the topics for which they are personally responsible. The full Executive Committee also attends the annual site visit of the Supervisory Board.

The Managing Board consists of two or more members, to be determined by the Supervisory Board. The Managing Board currently consists of Co-CEOs Geraldine Matchett and Dimitri de Vreeze; more details can be found in Supervisory Board and Managing Board Royal DSM. Since the introduction of the **Dutch Corporate Governance Code** in 2004, members of the Managing Board have been appointed for a period of four years.

The members of the Managing Board are collectively responsible for the **management of DSM**. In addition to this collective responsibility, Managing Board members have individual responsibility for certain tasks, businesses, functional areas and regions. The distribution of these tasks is published on the company website.

The **remuneration** of Managing Board members is determined by the Supervisory Board based on the remuneration policy approved by the General Meeting of Shareholders. The remuneration policy for the Managing Board can be found on the company website.

The functioning of and decision-making within the Managing Board and the Executive Committee are governed by the **Regulations** of the Managing Board, which are in accordance with the Dutch Corporate Governance Code and can be found on the company website.

In 2022, the Managing Board and Executive Committee held **31 formal meetings.** Half of these meetings were held face to face and the other half were held virtually. No Managing Board member had to be excused from meetings during the year. Four times in 2022 an Executive Committee member was excused for personal reasons. In all cases, the Executive Committee members gave advance input in writing or via other members. The Executive Committee and Managing Board take the time for an evaluation at the end of every meeting. This evaluation can be about topics that have been discussed during that meeting, but may also reflect on meeting dynamics and individual or collective performance. Where possible, the Executive Committee also takes the opportunity to organize informal moments such as a collective dinner at the end of a full-day meeting. Once a year, the Executive Committee and Managing Board take the time to get together and discuss their performance as a team.

Supervisory Board

The Supervisory Board comprises at least five members. Its current **composition** can be found in Supervisory Board and Managing Board Royal DSM. Supervisory Board members are **appointed** for a period of four years, after which they may be reappointed for a further four years. A Supervisory Board member may subsequently be reappointed for a period of two years, and this appointment may be extended by at most two years. For reappointments after an eight-year period, reasons must be provided in the report by the Supervisory Board.

All **current members** of the Supervisory Board are **independent** in accordance with the Dutch Corporate Governance Code. The **remuneration** of Supervisory Board members is determined by the General Meeting of Shareholders. The functioning of and decision-making within the Supervisory Board are governed by the Regulations of the Supervisory Board, which are in accordance with the Dutch Corporate Governance Code and can be found on the company website.

The Supervisory Board supervises the **policy** pursued by the Managing Board, the Managing Board's **performance** of its managerial duties, and the company's general course of affairs, taking the interests of all the company's stakeholders into account. When the Executive Committee was established, the Supervisory Board also took on responsibility for ensuring that the **checks and balances** that are part of the two-tier system are still given due consideration, paying specific attention to the dynamics between Managing Board and Executive Committee. The Supervisory Board is enabled to do so through the information provided by the Managing Board.

The **annual financial statements** are approved by the Supervisory Board and then submitted to the Annual General Meeting of Shareholders (AGM) for adoption, accompanied by an explanation from the Supervisory Board as to how it carried out its supervisory duties during the year under review.

In line with the Dutch Corporate Governance Code, the Supervisory Board has established from among its members an Audit Committee, a Nomination Committee, a Remuneration Committee, and a Sustainability Committee.

The task of these **committees** is to prepare the decision-making of the Supervisory Board. These committees are governed by charters drawn up in line with the Dutch Corporate Governance Code. They can be found on the company website.

Diversity

At DSM, we strongly value diversity, and we endeavor to reflect this in our Board memberships. The Supervisory Board has formulated diversity policies for the Supervisory Board, the Managing Board and the Executive Committee. These policies seek a balanced composition of the respective body, taking into account gender, age, knowledge, experience, and nationality / cultural background. In addition, for the composition of the Supervisory Board, the tenure structure is taken into consideration.

In terms of gender diversity, we aim for at least 30% of the positions in our Supervisory Board, Managing Board and Executive Committee to be held by women and at least 30% by men — percentages which reflect Dutch legislation. To ensure a balanced composition in terms of nationality / cultural background, our aim is to have not more than 50% of the members of our Supervisory Board or Executive Committee drawn from a single nationality. While a diverse composition in terms of nationality / cultural background is also taken into account in the composition of the Managing Board, no quantitative target is set here, given the relatively small number of Managing Board members.

Our diversity policies are implemented by applying them to nominations for (re)appointments of Supervisory Board and Managing Board members as well as to appointments of Executive Committee members.

At the 2022 Annual General Meeting Eileen Kennedy, an American national, was reappointed as member of the Supervisory Board. This was on the basis of her broad and in-depth nutrition knowledge and her qualities as Supervisory Board member as demonstrated during her past period as member of DSM's Supervisory Board. With the reappointment of Eileen Kennedy, the Supervisory Board maintains a strong profile in the areas of DSM's Health, Nutrition & Bioscience business, R&D and sustainability.

Also, at the 2022 Annual General Meeting Geraldine Matchett, a British, French and Swiss national, was reappointed as member of the Managing Board on the basis of her qualities as all-round and international CFO, as well as from her extensive experience with external stakeholders during her second tenure as a Managing Board member.

Both our Supervisory Board and our Managing Board were well balanced in 2022 in terms of gender, each comprising 50% women, which is in line with Dutch legislation and with the company's own diversity policy. The gender diversity levels within our Supervisory Board and our Executive Committee exceed our target for at least 30% of these positions to be held by women and at least 30% by men. The percentage of women in DSM's Executive Committee was 40% until 1 December 2022 and 33.3% thereafter. Furthermore, the composition of both our Supervisory Board and our Executive Committee is in line with our target of having not more than 50% of the members drawn from a single nationality.

General Meeting of Shareholders

The main powers of the General Meeting of Shareholders relate to:

- The appointment, suspension and dismissal of members of the Managing Board and the Supervisory Board
- Approval of the remuneration policy of the Managing Board
- Approval of the remuneration of the Supervisory Board
- The adoption of the annual financial statements and declaration of dividends on ordinary shares
- Release from liability of the members of the Managing Board and the Supervisory Board
- Issuance of shares or rights to shares, restriction or exclusion of pre-emptive rights of shareholders and repurchase or cancellation of shares
- Amendments to the Articles of Association
- Decisions of the Managing Board that would entail a significant change to the identity or character of DSM or its business

The Annual General Meeting (AGM) is held within six months of the end of the financial year in order to discuss and, if applicable, adopt the Integrated Annual Report, the annual accounts, any appointments of members of the Managing Board and the Supervisory Board, and any of the other topics mentioned above.

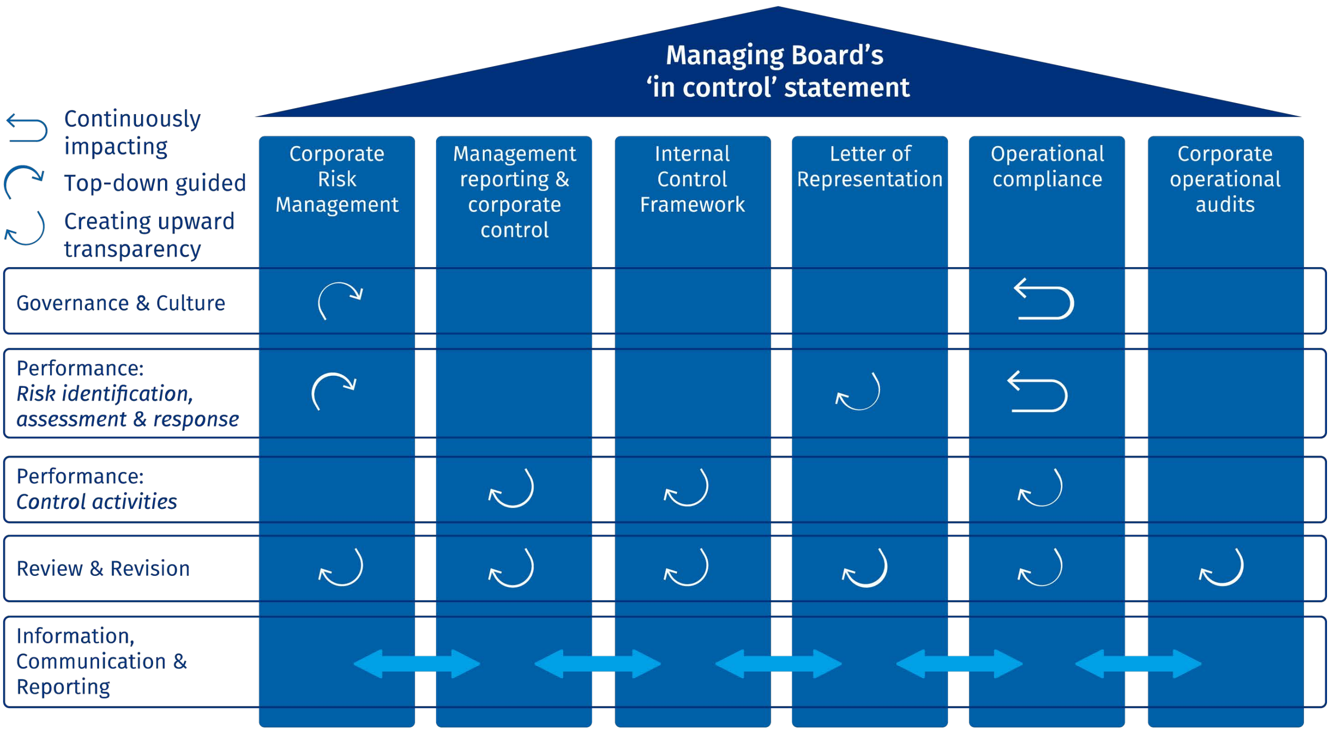
The AGM and, if necessary, other General Meetings of Shareholders are called by the Managing Board or the Supervisory Board. The **agenda and explanatory notes** are published on the company website.

According to the **Articles of Association**, shareholders who, individually or jointly, represent at least 1% of the issued capital have the right to request the Managing Board or the Supervisory Board to put items on the agenda. Such requests must be received in writing by the Chair of the Managing Board or the Chair of the Supervisory Board at least 60 days before the date of the General Meeting of Shareholders.

The AGM was held on 10 May 2022. In view of the COVID-19 measures, the AGM was held both at the corporate headquarters in Heerlen (Netherlands), and virtually. Shareholders attending the meeting, both virtually and in person, were given the opportunity to ask questions upfront and during the meeting. All questions were addressed during the AGM. The agenda was essentially similar to that of previous years. Additional topics were the reappointment to the Managing Board of Geraldine Matchett and the reappointment to the Supervisory Board of Eileen Kennedy. All topics were adopted by the General Meeting of Shareholders.

Control effectiveness and continuity assumption

The Statements of the Managing Board conform with the Dutch Corporate Governance Code best practice 1.4.3 on 'Board Statements'.



Control effectiveness and continuity assumption

At DSM, we visualize our **control environment** as a 'house' that includes the internal control process areas with control measures related to strategic, operational, financial, compliance and reputational risks. The elements of COSO (the Committee of Sponsoring Organizations of the Treadway Commission) provide a framework for structuring company activities that are carried out to ensure that the control environment is adequately structured. Finally, to make sure that full use is made of learning opportunities, monitoring activities include the sharing of findings and experiences as well as the application of control measures across the supporting pillars.

Our structure for **managing risks** is based on a three-lines model (see also Risk management). Line management within the units acts as the first line. Group Risk Management acts as the second line together with other departments such as DSM SHE & Security, assessing the effectiveness of risk management and internal control at both unit and corporate level.

Corporate Operational Audit (COA) acts as the third line. The scope and frequency of COA audits is determined by ranking the auditable units according to the scale of their risk exposure, using a set of defined characteristics.

COA assesses the operation of risk management framework of the units by performing risk-based audits. These audits review the key processes and activities for the specific units. By means of these audits, COA closes the risk management cycle and provides additional assurance to the Managing Board as to the effectiveness of the design and operation of the risk management and internal control systems.

COA reports its audit results to the Managing Board and Executive Committee twice a year. COA also shares an overview with the Audit Committee of the Supervisory Board and communicates the executive summary of each audit report to Geraldine Matchett in her capacity as CFO and Co-CEO and to Dimitri de Vreeze in his capacity as Co-CEO.

In 2022, COA carried out 50 audits. Thanks to the improved COVID-19 situation, COA was able to conduct almost half of the audits on site in 2022, which increased the assurance level. In general, audit findings are considered opportunities for improvement as part of a healthy learning culture. In virtually all of the audited areas (e.g., Operations, IT, Finance, Cybersecurity, Safety, Health & Environment (SHE), Quality and Commercial), the expected DSM standard was achieved. In the rare event of insufficient follow-up on a finding, the Director of COA escalated that finding to the Co-CEOs.

Dutch Corporate Governance Code

DSM supports the Dutch Corporate Governance Code amended in 2016 and adopted by the company with effect from the financial year 2017. We ensure our continued compliance with the Dutch Corporate Governance Code. The Dutch Corporate Governance Code can be found on www.mccg.nl.

In line with the notion underlying the Dutch Corporate Governance Code we follow a multi-stakeholder approach. Our stakeholders are those groups and individuals who, directly or indirectly, influence — or are influenced by — the attainment of the company's objectives. The Managing Board and Supervisory Board have the responsibility for weighing up the interests of all stakeholders.

Long-term value creation is embedded in both our company's purpose-led, performance-driven strategy and our company culture: Our purpose is to create brighter lives for all. Sustainability is central to how we fulfill that mission, and to achieve this, we consider People, Planet and Profit in all we do. We apply our company strategy to focus our resources and capabilities to address the urgent societal and environmental challenges linked to the way the world produces and consumes food. More information on how long-term value creation is fundamental to our strategy and culture can be found in Strategy and People, as well as in How we create value for our stakeholders in Our approach to the Sustainable Development Goals.

Any proposed substantial change to our corporate governance structure and compliance with the Dutch Corporate Governance Code should be submitted to the General Meeting of Shareholders for discussion under a separate agenda item.

All documents related to the implementation of the Dutch Corporate Governance Code at DSM can be found in the Corporate Governance section of the company website.

Governance framework

Organizational & operating model

Our Business Groups are the main building-blocks of the company's organization. They have integral long-term and short-term responsibility for business and have at their disposal all functions that are crucial to their business success. As the company's primary organizational and entrepreneurial building blocks, our Business Groups focus on the following primary business driven functions: Science, Operations, Sourcing, Supply Chain and Global Products & Strategic Alliances.

With effect from 1 January 2022, we have transformed ourselves into a Health, Nutrition & Bioscience company with three Business Groups – Animal Nutrition & Health, Health, Nutrition & Care and Food & Beverage – each with clear opportunities to benefit the health of people and the health of the planet, underpinning our growth plans. Our Health, Nutrition & Bioscience strategy is underpinned by our 'global products, local solutions' business model and complemented by our growing competences in the rapidly emerging area of precision and personalization. Innovation has been integrated much more closely with our end-market orientation in Health, Nutrition & Bioscience. In order to ensure sufficient independence regarding financial management, the CFO has no Business Groups reporting to her, as has always been the case.

Our Business Groups receive enabling services from various global support and corporate functions, and are supported by the regional organizations. This set-up enables us to create a global, high-performing organization focused on meeting its targets and achieving its ambitions. The support functions and functional excellence departments are paid for their services by the users — the Business Groups and, to a lesser extent, other DSM units. Corporate departments are paid from a corporate budget.

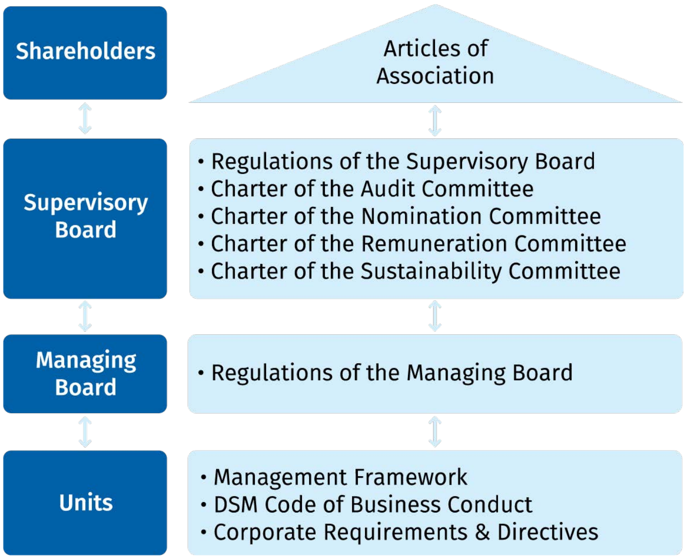
Support and corporate functions provide those services that can be delivered more efficiently (in terms of total cost of ownership) by leveraging them across the company, thus capturing benefits of scale and delivering higher quality at lower cost, rather than having them arranged in each Business Group separately. There are support and corporate functions in the areas of Finance, People & Organization, Global Business Services, Digital, Strategy, M&A, Communications & Branding, Corporate Audit & Compliance, Legal, Risk, Investor Relations and Sustainability. Each support function reports to a Managing Board member or a member of the Executive Committee.

Within support functions, centers of expertise provide specialist support, while shared service centers provide standard transactional support. Business partnering is the concept that acts as the interface between the Business Groups and the support functions. Business partners consequently have a second reporting line in the business. In order to ensure that the functional policies sufficiently reflect regional requirements, the support functions work closely with the regional organizations and integrate their advice.

Functional excellence departments are mandated by the Managing Board to help the businesses achieve excellence in their respective fields. They cover the areas of Operational Excellence and Safety, Health and Environment. Functional excellence departments support our businesses in improving their performance. They also provide guidance in setting aspiration levels and targets.

Governance framework

The following figure depicts our company's overall **governance framework** and the most important governance elements and regulations at each level.



The Managing Board and Executive Committee adhere to the **Regulations** of the Managing Board. In addition, DSM has a **Management Framework** in place which implies, among other things, that the units adhere to the DSM Code of Business Conduct and applicable corporate policies and requirements.

The company's strategic direction and objectives are set by the Managing Board. In September 2021, DSM presented the acceleration of its strategic journey, including the announcement of its new Food System Commitments, for more detail, see Strategy and Food System Commitments.

The **units** conduct their business within the boundaries of the Management Framework. This implies, among other things, that they:

- Comply with the DSM Code of Business Conduct, Corporate Requirements and Directives
- Establish the strategy, objectives and operational targets of their business in line with the corporate strategy, investigate various scenarios and related risk profiles, and report on the achievement of these objectives and targets
- Implement a risk management framework, which includes taking accountability for the identified risks and related mitigation through annually signing the Letter of Representation
- Implement company-wide standards for support functions (systems, processes, vendors, etc.)
- Implement annual functional improvement plans

Independent audits for all operational units are conducted by the **Corporate Operational Audit (COA)** department. The Director of COA reports to the CFO and has access to the Managing Board, the external auditor and the Audit Committee of the Supervisory Board. Furthermore, the Director of COA acts as the compliance officer regarding inside information and is also the secretary of the Disclosure Committee. The Director of COA additionally chairs the DSM Alert Committee, which is responsible for our whistleblower policy, systems and processes.

Chaired by the CFO, the **Disclosure Committee** ensures the timely and accurate disclosure of share-price-sensitive information related to the company and is responsible for the implementation of company rules on the holding and execution of transactions in the company's financial instruments, among other things.

A third committee at corporate level is the **Fraud Committee**, which was installed to ensure structural follow-up of fraud cases with the aim of reducing fraud exposure. Relevant corporate functions participate in the Fraud Committee, which is chaired by the Group Controller.

Sustainability Governance Framework

Managing Board

Sustainability falls under the responsibility of the Managing Board. Specific actions in our **climate action agenda** are owned by members of the Managing Board and Executive Committee. In 2022, our Co-CEOs oversaw Sustainability as a key **responsibility and company value** as well as a driver of business growth. They Co-Chair our Inclusion & Diversity Council, and jointly oversee our strategic partnership with the World Economic Forum. Both our Co-CEOs are engaged in our climate advocacy efforts.

In 2022, our Co-CEO Dimitri de Vreeze was responsible for **Safety, Health and Environment** (SHE) and supervised our **Sustainable Procurement Program** and the sourcing of electricity from renewable sources in his responsibility for the Sourcing function. He managed our engagement with organizations with a primary focus relating to **climate**. Within the climate agenda, he was responsible for the upgrading of our methodology for measuring the impact of our product portfolio, for our climate advocacy efforts, and for reviewing our **emissions reduction targets**.

Our Co-CEO Geraldine Matchett oversaw our engagement with organizations with a primary focus relating to **nutrition and food system transformation**. She was responsible for integrating sustainability into **financial decision-making**. She also oversaw our efforts and commitment toward the Taskforce on Climate-related Financial Disclosures (TCFD) recommendations. Within the climate agenda, she was responsible for integrating climate risks into our **risk management process**, TCFD, **carbon pricing** and developing our engagement with **climate-focused investors**.

Supervisory Board

Our Supervisory Board has its own **Sustainability Committee** to oversee progress against targets and to report on the embedding of sustainability across the organization. For more details, see Supervisory Board Report.

External Sustainability Advisory Board

Comprising a diverse international group of thought leaders, DSM's **Sustainability Advisory Board** acts as a sparring partner for the Managing Board and senior executives, to help sharpen their focus on strategic issues, deepen their understanding of **external stakeholder needs**, conduct advocacy and tackle specific issues as they arise.

The Sustainability Advisory Board met twice in 2022 with the Managing Board and a number of senior executives. The first meeting was a hybrid meeting in Amsterdam and the second was a virtual meeting. Subjects included business updates, food systems and the true value of food, nature, healthy livelihoods, and our innovation roadmaps to support our net-zero transformation. During the Amsterdam meeting, this Board hosted colleagues on a panel discussion during Earth Day. This board maintains a good balance of knowledge and a diverse composition in terms of gender and nationality.

Sustainability Advisory Board

Member	Background
Robin Chase (f)	Co-founder and former CEO of Zipcar, co-founder of Veniam and the New Urban Mobility Alliance, Advisory Board Member to WRI's Ross Center for Sustainable Cities and Chair of Tucows. Serves as an informal advisor to many cities, national governments, and transport agencies on urban transportation planning and innovation. Nationality: American.

Ertharin Cousin (f)	CEO and Founder of Food Systems for the Future; Distinguished Fellow at The Chicago Council on Global Affairs; Visiting Scholar at Stanford University; Robert von Weizsäcker Fellow at the Bosch Academy; Senior Advisor at ClimateWorks Foundation; Board Member of Bayer S.A., Mondelez International Corporation, and Camelot North America; Trustee on the Rwanda-based AKADEMIYA2063 Board of Directors. She served as the twelfth Executive Director of the United Nations World Food Programme from 2012 to 2017 and as the US Ambassador for Food and Agriculture from 2009 to 2012. Nationality: American.
Paul Gilding (m)	Social entrepreneur, author and corporate strategy advisor. Fellow at the University of Cambridge Institute for Sustainability Leadership (UK). Author of *The Great Disruption* (Bloomsbury, London, 2011). Executive Director of Greenpeace International during the 1990s. Published papers at www.paulgilding.com. Nationality: Australian.
David King (m)	Emeritus Professor of Chemistry, University of Cambridge; Founder and Chair of the Centre for Climate Repair at Cambridge; Chair of the Climate Crisis Advisory Group, an Affiliate Partner of SYSTEMIQ Limited; Senior Strategy Advisor to the President of Rwanda; Founder Member of the Clean Growth Leadership Network; The British Foreign Secretary's Special Representative on Climate Change 2013–2017. Nationality: British.
Ndidi Nwuneli (f)	Social entrepreneur and Founder of LEAP Africa and African Food Changemakers, and co-founder of AACE Food Processing & Distribution Ltd. (AACE Foods). She is also co-founder and Executive Chair of Sahel Consulting Agriculture & Nutrition, which works across Africa, transforming the nutrition and agriculture landscapes via innovative ecosystem solutions. She is the author of the book *Food Entrepreneurs in Africa: Scaling Resilient Agriculture Businesses* (Routledge, 2021). Nationality: Nigerian.
Ye Qi (m)	Head of the Innovation, Policy and Entrepreneurship Thrust at Hong Kong University of Science and Technology (Guangzhou), and Cheung Kong Professor of Environmental Policy at Tsinghua University in Beijing (China). Before joining HKUST(GZ), he taught at HKUST, Tsinghua University, Beijing Normal University, and the University of California at Berkeley (USA). Nationality: American.
Rob Routs (m)	Former Member of the DSM Supervisory Board and Chairman until 2021. Degree in Chemical Engineering from the Technical University of Eindhoven and Ph.D. in Technical Sciences. Devoted the professional side of his life to the energy sector during his 37-year career with Royal Dutch Shell plc, building up a global energy sector leadership as well as operating and board experience. Served in regional manufacturing and global general manager positions, restructuring operations to enhance business operations. Led the company's sustainability efforts. Nationality: Dutch.
Feike Sijbesma (m)	Honorary Chairman of Royal DSM since March 2020, and CEO from 2007 to 2020. In 2020, he acted as the Special Corona Envoy for the Netherlands. He is Chairman of the Supervisory Board of Royal Philips, Non-Executive Board member of Unilever, and Member of the Supervisory Board of the Dutch Central Bank (DNB). He co-chairs the Global Centre on Adaptation together with Ban Ki-moon and acts as an advocate and leader for business tackling climate change. As Co-Chair of the Alliance of World Economic Forum (WEF) CEO Climate Leaders and via his membership of the Board of Trustees of the WEF, he also contributes to the expansion of Africa Improved Foods. Nationality: Dutch.

Global network

Sustainability Leadership Team

At corporate level, sustainability is steered by our Sustainability Leadership Team, a group of senior executives representing the Business Groups and contributing corporate functions, which is chaired by the Vice President Sustainability. He leads the Corporate Sustainability department and reports directly to the Co-CEOs. The Corporate Sustainability staff functions as a business-oriented center of excellence and partner on sustainability, internally and externally.

The Sustainability Leadership Team meets quarterly to monitor the progress of sustainability across the company, with particular emphasis on steering our business and innovation portfolio in relation to key drivers. Regional operational sustainability networks are in place in China, India, Latin America and North America.

Operations and SHE & Security

DSM SHE & Security has responsibility for all corporate issues related to Safety, Health and Environment (SHE) as well as Security. The Vice President DSM Safety, Health & Security reports directly to the co-CEO. SHE managers and experts in the business and in each region provide support to all our operations worldwide. Our SHE Leadership Team, which includes all Business Group SHE managers as well as all regional SHE leads, is instrumental in sharing experiences and developing best practices and communications on SHE issues.

Environmental strategy and progress are steered by the Environmental Review Team, consisting of the Executive Vice President Operations; the Chief Operating Officers of the Business Units; the Vice President Safety, Health & Security; the Vice President Operational Sustainability; and the Corporate Lead Environment/ GHG Reduction Program Director.

People and Organization

Our Inclusion & Diversity (I&D) Council steers the overall I&D strategy and drives activation of our I&D program. Co-chaired by the Co-CEOs, it comprises the Regional Presidents and Employee Resource Group leads. In addition, the five diversity pillars are sponsored by Executive Board members.

The day-to-day responsibility for Human Rights at DSM sits with our Executive Vice President People & Organization, who chairs our Human Rights Steering Committee. This committee is responsible for the strategy and framework for managing human rights issues and is comprised of senior leaders from People & Organization, Sustainability, Legal, Procurement and Operations. These departments are further represented in the human rights working group who are responsible for the day-to-day implementation of our respect for human rights.

Taskforce on Climate-related Financial Disclosures

In her capacity as CFO, Ms. Matchett has appointed a finance executive to lead the efforts needed to address the recommendations of the Taskforce on Climate-related Financial Disclosures (TCFD). Senior leaders from various disciplines such as Finance, Risk Management, Sustainability, Insurances, Operations and Sourcing worked on various initiatives in 2022 to expand physical and transition risk assessments to our business units and to our value chain, as well as continuing to embed climate-related risks into the overall risk management processes. For more information, see Note 3 Taskforce on Climate-related Financial Disclosures (TCFD) of the Sustainability statements.

External Scientific Advisory Board

In 2022, the Scientific Advisory Board met with our scientists and innovation leaders to challenge and review our scientific work across the company and give advice on trends and upcoming technologies. We extended this team of internationally recognized experts by the inclusion of two new members, Remko Boom and Jeroen Raes, strengthening the scientific knowledge on microbiome and food process engineering.

Scientific Advisory Board

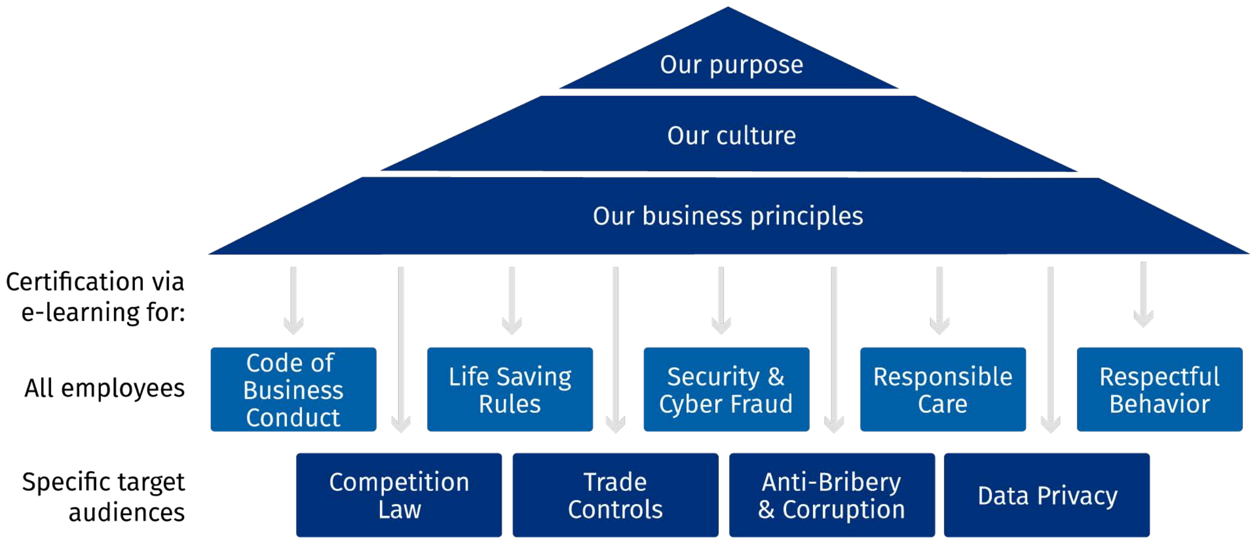
Member	Background
Remko Boom (m)	Full Professor of Food Process Engineering at the Agrotechnology and Food Sciences Group of Wageningen University (Netherlands) and Affiliated Professor at the University of Kopenhagen (Denmark). His research focuses on food structure, digestion and health, along with modeling and implementation of membrane separation for effective use of milk components. He has authored over 450 publications in the field of Agricultural Technology and Nutrition. Nationality: Dutch
Thomas Hankemeier (m)	Full Professor of Analytical BioSciences at the Leiden Academic Center for Drug Research, Leiden University (Netherlands), since 2004. As a principal investigator, he leads the Metabolomics and Analytics Center. His research focuses on the development of innovative analytical tools for metabolomics-driven systems biology in personalized health strategies. Nationality: German
Kirk Klasing (m)	Distinguished Professor of Nutritional Immunobiology at the University of California, Davis (USA). His research focuses on interactions between immunology, disease resistance, and nutritional status. Nationality: American
Jeroen Raes (m)	Full Professor at KU Leuven and Vice-Director of the Flemish Institute for Biotechnology (VIB) Center for Microbiology. He has a substantial track record in microbiome research, with expertise in bioinformatics, systems biology, clinical research and microbiology. Nationality: Belgian
Chris Voigt (m)	Daniel I.C. Wang Professor of Advanced Biotechnology in the Department of Biological Engineering at the Massachusetts Institute of Technology (MIT) (MA, USA). He works in the developing field of synthetic biology and is the Co-Director of the Synthetic Biology Center at MIT. Nationality: American

DSM Code of Business Conduct

Introduction

The DSM Code of Business Conduct (‘the Code’) serves as an umbrella for several other DSM regulations and forms the basis for our company’s **ethical business behavior**. Our purpose, our culture and our business principles are an integral part of the Code. The business principles translate our purpose into important do's and don’ts to guide our business operations and decisions in daily practice. All DSM employees are expected to follow the Code, which is available in seven languages. The full text of the Code also appears on the company website. The Managing Board holds DSM’s unit management accountable for compliance with the Code.

DSM Code of Business Conduct and values training program



Training and awareness

The **DSM values training program** contains several e-learning courses to explain the Code and a number of its business principles in more detail. These courses are aimed at raising awareness of ethical business behavior and are assigned to all employees or, in the case of certain subjects, to specific target audiences. All courses are available in at least six languages, unless indicated otherwise. When we acquire a business, integration and compliance plans are rolled out to make sure new employees are trained accordingly.

A **review team**, chaired by the Vice President Risk Management & Internal Control, monitors the internal and external developments around corporate ethics to promote and safeguard the company’s values and reputation. The review team also monitors implementation of the DSM values training program (see table Implementation of the DSM values). At year-end, most employees had completed or refreshed their training. Our learning management system also has an external portal to enable relevant contractors and other third parties to follow courses of the DSM values training program.

The DSM values training program covers the three dimensions of **People, Planet and Profit**. An overview of the courses is listed below, as well as a number of important implementation measures.

People
The **Life Saving Rules** e-learning specifies the 12 most important rules that must be followed by all our employees to prevent incidents.

The **Respectful Behavior** e-learning emphasizes the importance of inclusion and diversity, and promotes respectful behavior as well as active bystander behavior. It is meant to foster effective employee relations, communications, and non-discriminatory practices, and to prevent inappropriate behavior, including sexual harassment.

The **DSM Binding Corporate Rules for Data Privacy** prescribe mandatory **Data Privacy** training for employees who regularly work with personal data from employees and business partners. This is provided by the **General Data Protection Regulation (GDPR) overview e-learning**, which is rolled out to a large target audience including all employees working in the functions People & Organization, Marketing & Sales and Purchasing. In addition to this, concise e-learnings are in place to train all our employees on the consequences of the GDPR and the importance of prompt data breach notification.

Planet

The **Basic Course Responsible Care** addresses the elements of the Responsible Care Program: Safety, Health, and Environment; Product stewardship; Security; and Sustainability.

Profit

The e-learning course **Global Competition Law Principles and Practices** addresses the main principles of anti-trust legislation. In addition, the DSM Compliance Manual Competition Law is shared with selected employees in commercial and business roles and can be consulted online on the company's intranet. Relevant employees annually confirm their compliance with the rules via a Competition Law Compliance Statement. In this statement, they confirm that they are not aware of any violation of competition laws by DSM. For a smaller group of employees, mandatory Competition Law classroom trainings on specific topics are organized. Alleged breaches, if any, are reported to, and discussed with, Group Legal Affairs. In 2022, no breaches were reported.

The course for **Global Trade Controls** (available in English) explains the most important aspects of international trade legislation. Compliance with trade controls is embedded in our systems and processes. Company master data is screened to check customers and suppliers against embargoes and lists of sanctioned parties.

The **Anti-Bribery & Corruption** (ABC) e-learning provides training on the most important features of bribery and corrupt behavior. In addition, the DSM Compliance Manual Anti-Bribery and Corruption is shared with selected employees in commercial and business roles and can be consulted online on the company's intranet.

The DSM **Security** e-learning covers our seven Key Security Behaviors. To complete this e-learning, employees are required to read and sign off on the DSM Code of Conduct for Information Security. The **Cyber Fraud Awareness** e-learning is an additional training to increase awareness among all employees regarding prevalent types of cybercrime. Furthermore, global as well as targeted phishing tests are regularly carried out to ensure that our people stay alert.

We also have rules to prevent misuse of **inside information** on the holding of or trading in DSM financial instruments, such as shares and other securities, and where applicable the holding of or trading in financial instruments of other companies. These rules apply to all relevant employees, including the Executive Committee, the Managing Board, and the Supervisory Board.

Value chain

The business principles most relevant to our supply chain are brought together in the **Supplier Code of Conduct** and are also structured along the three dimensions of People, Planet and Profit. The Supplier Code of Conduct, available on the company website, is signed off by suppliers in framework contracts, confirming their commitment to sustainability, among other things.

For our distributor and agent framework contracts, the **Anti-Bribery & Corruption Policy** is translated into terms and conditions to ensure ethical business conduct when these parties act on behalf of DSM or deal with DSM products further down the value chain.

Consequence management

We apply zero-tolerance consequence management to violations of the Code. Under our **whistleblower procedure** (DSM Alert), most (potential) violations are reported to and dealt with by local line management. Where this is not considered appropriate, complaints can directly be made to the **DSM Alert Officer**. In both cases, consequence management practices (such as official warning, temporary suspension, dismissal) are in place for substantiated violations to support compliance with the Code. The DSM Alert Officer reports to the Managing Board and also reports independently to the Audit Committee of the Supervisory Board twice a year. Any individual not employed by DSM who might wish to voice a concern regarding violations of the Code may also contact the DSM Alert Officer via the company website.

In 2022, **22 Alert cases** (reports of potential violations of the Code) were received by the DSM Alert Officer, four of which were reported by an external party. This is at a level comparable with previous years. There were three potential bribery and corruption cases, none of which were substantiated.

The table below gives an overview of all reported substantiated **violations of the Code** (including Alert cases), with a breakdown by the People, Planet and Profit dimensions and region. Proven violations result in dismissal or other forms of consequence management. In line with this policy, 53 employees were dismissed in 2022 on account of breaches of the Code, national legislation, or local company regulations. In addition, 150 employees received another form of consequence management. Compared to 2021, the number of dismissal cases slightly increased and the number of cases leading to other forms of consequence management significantly increased. The broadening of the bottom of the so-called 'incident pyramid' (significantly more minor incidents than major incidents) may be taken to indicate that the establishment of Compliance Councils in China, India and the APAC region improved our reporting process.

People

Most of the cases in the People dimension relate to violations of the Life Saving Rules. Inappropriate or disrespectful behavior that does not contribute to a psychologically safe and healthy working environment (discrimination, sexual and other kinds of harassment) is also reported in this dimension. Health and safety are priorities for the company and incident-reporting channels are well known.

Planet

There were eight violations of the Code reported in the Planet dimension in 2022. Five cases, including the four dismissals, concerned violations of our quality procedures, and the other three cases concerned violations of standard operating procedures leading to the formation of production waste and financial losses.

Profit

Most of the cases in the Profit dimension relate to fraud and business integrity, such as unauthorized absence from work.

Implementation of the DSM values training program

	2022	2021
% of targeted employees trained		
General		
Code of Business Conduct	98%	97%
People		
Life Saving Rules	96%	99%
Respectful Behavior	97%	98%
GDPR overview	95%	99%
Planet		
Basic Course Responsible Care	99%	99%
Profit		
Global Trade Controls	99%	98%
Anti-Bribery & Corruption	99%	98%
Security	98%	96%
Cyber Fraud Awareness	85%[1]	98%
DSM Annual Competition Law Statement		
% of people having signed the statement	100%	100%

Violations of the Code

	2022	2021
Number of dismissals / other cases of consequence management	53 / 150	45 / 91
Triple P breakdown		
People	36 / 114	30 / 73
Planet	4 / 4	0 / 6
Profit	13 / 32	15 / 12
Regional breakdown		
Europe & Africa	13 / 24	12 / 37
Americas	27 / 60	26 / 42
Asia–Pacific	13 / 66	7 / 12
TOTAL	**203**	**136**

Alert cases (whistleblower procedure)

	2022	2021
Number substantiated / not substantiated / under investigation	10 / 12 / 0	7 / 15 / 1[2]
Triple P breakdown		
People	8 / 8 / 0	6 / 11 / 1[2]
Planet	0 / 0 / 0	0 / 0 / 0
Profit	2 / 4 / 0	1 / 4 / 0
Regional breakdown		
Europe & Africa	4 / 3 / 0	1 / 4 / 0
Americas	4 / 6 / 0	4 / 9 / 1[2]
Asia–Pacific	2 / 3 / 0	2 / 2 / 0
TOTAL	**22**	**23**

1 Updated training, launched in the second half of 2022, was temporarily unavailable due to technical problems, preventing employees from completing this course in a timely manner.

2 The Alert case 'under investigation' in 2021 was resolved in 2022 and proved to be substantiated.

Risk management

DSM risk management framework

DSM has a well-embedded risk management framework and accompanying organization. The framework is based on COSO Enterprise Risk Management, and this section is structured accordingly (see DSM Risk Management Cycle below). For each of the five COSO components (dark blue boxes), the implementation within DSM (light blue boxes) is explained, starting with Governance & Culture (in a clockwise direction).

Governance & Culture

Risk management responsibilities

The Managing Board is accountable for the management of all risks associated with our company's strategy and business objectives. To this end, an appropriate risk management system is in place.

It is the responsibility of the Business Groups, support functions, functional excellence departments and regions within DSM (the units) to set up, operate, maintain and monitor an appropriate risk management system within their area of responsibility. We apply elements of the Three Lines Model to manage risks effectively:

- *First line:* The responsibility for identifying, assessing and managing risks, including control execution, lies with the individual units
- *Second line:* Group Risk Management (GRM) designs, implements and maintains the overall risk management framework for the company. GRM also supports the first line in risk identification, assessment and management by designing and developing standards, systems and tools. Within GRM there is an independent department testing the effectiveness of the Internal Control Framework. Besides GRM, there are also other departments acting as a second line, for instance, DSM Safety, Health and Security
- *Third line:* Corporate Operational Audit (COA) conducts independent operational audits of all units on behalf of the Managing Board

GRM and COA report directly to the CFO, and COA has direct access to the COO as well as to the Audit Committee of the Supervisory Board.

Code of Business Conduct

The DSM Code of Business Conduct comprises our purpose, our culture, and our business principles, which form the basis for risk management. Our culture is directly related to our purpose of creating brighter lives for all. All our employees receive regular training on the Code of Business Conduct and on detailed aspects of relevant business principles.

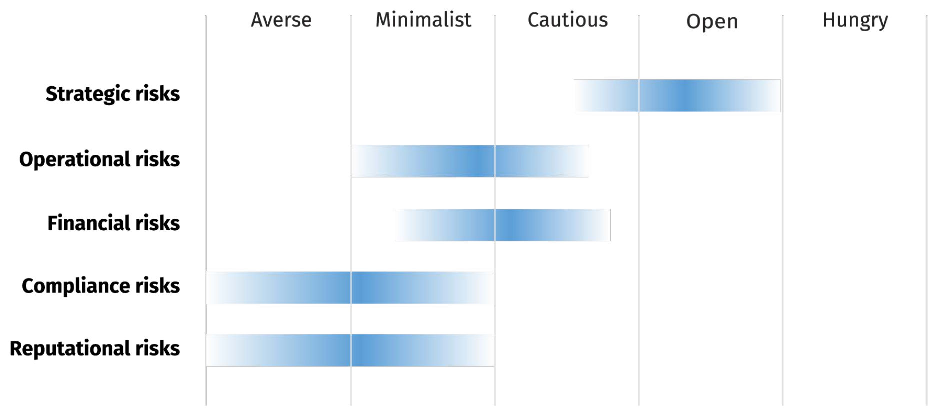
Strategy & Objective-Setting

The Managing Board supported by the Executive Committee establishes the company strategy and business objectives.

Risk appetite

The risk appetite defines the level of risk the company is prepared to take in the various risk categories, comprising strategic, operational, financial, compliance, and reputational risks. The risk appetite supports priority-setting in risk responses. The Executive Committee decides on the risk appetite, which is reviewed annually.

DSM's risk appetite



Corporate Requirements

The Corporate Requirements are our internal rules and regulations, which are defined and maintained by the support functions and GRM. In line with the Code of Business Conduct and the risk appetite, the Corporate Requirements provide:

- Risk-based guidance for managing common business and process risks ('common controls for common risks')
- Standards and practices to increase the efficiency of our main business processes and functions

The Corporate Requirements are mandatory for all units, and management is responsible for implementing these as and when applicable.

Performance

Risk management is designed to create and preserve value. Important elements are identifying, assessing and responding to risks that may impact the achievement of the business objectives of our company strategy and the execution of control activities. This part of the risk management framework focuses on practices that support the organization in making decisions.

Risk identification, assessments and response

Risk assessments are performed at various levels in the organization. We take a standard, but flexible approach to risk assessments:

- Risk assessment planning
- Preparation
- Risk identification and clustering
- Risk rating
- Evaluation and risk response

Both short-term risks (up to and including three years) and emerging risks (more than three years) in the risk categories strategic, operational, financial, compliance, and reputational are the focus of our risk assessments. A risk assessment manual and training are available to give guidance and continuously improve the effectiveness of our risk assessment process.

Corporate Risk Assessment

We periodically conduct a Corporate Risk Assessment (CRA), which is the responsibility of the Managing Board. As part of this assessment, the Executive Committee reviews and agrees on the short-term top risks as well as emerging risks. The Executive Committee also agrees on how to mitigate and monitor these.

Unit Risk Assessments

The DSM units conduct **various types of risk assessments**:

- Business Risk Assessments focus on risks that could jeopardize the attainment of our strategic goals and business objectives
- Process Risk Assessments are intended to make our processes more robust and fraud-proof
- Project Risk Assessments focus on specific projects and are updated throughout project execution to secure successful delivery of project objectives and value creation for the company

In addition to the above, **specific risk assessments** may be performed for areas such as Safety, Health, Environment, Climate, Quality and Security, including Cybersecurity.

Most risk assessments are carried out by cross-functional teams. These teams include experienced facilitators as well as experts who can challenge assumptions to help improve the quality of these risk assessments.

Control activities

Control activities are integrated in our business processes, and are executed by the first line. They are preventive or detective and may encompass a range of manual and (semi-)automated controls such as policies, procedures, authorizations, verifications and business performance reviews. We apply a standard approach for **user access management**, including privileged users, as well as **Segregation of Duties** (SoD) management. These controls also help us to avoid fraud and reputational damage, and support the Statements of the Managing Board.

The **Internal Control Framework** (ICF) aims to ensure reliable financial reporting, mitigate fraud risks and safeguard our assets. It defines the standard set of **key controls** that must be performed by the first line. The internal control department within GRM owns the ICF.

Review & Revision

Internal Control review

The **testing of the effectiveness** of the key controls as included in our Internal Control Framework (ICF) is performed by the Internal Control department within GRM. This is one of the pillars of our House of Control supporting the Statements of the Managing Board.

COA audits

COA, as the third line, conducts independent operational audits based on the mandatory guidance of 'The Institute of Internal Auditors' to **provide additional assurance** to the Managing Board that significant risks are being managed and controlled effectively, efficiently and sustainably. Some of these audits are unannounced. The scope and frequency of COA audits is set according to the ranking of the auditable units in terms of the magnitude of risk, based on a number of defined characteristics. This program is agreed by the Executive Committee and the Audit Committee of the Supervisory Board.

Enhancement of the risk management system

During 2022, the following **main improvements** were made to our risk management framework:

- Group Risk Management was extended with the expertise areas *Information Security Risk Management* and *Sustainability Risk Management*
- Several sections of our Corporate Requirements were updated:
  - An overarching privacy policy was added to the existing requirements regarding privacy and personal data processing
  - New security requirements for 'clear desk' were added for remote working, working in open offices, and working on multi-user sites
  - Risk management requirements were issued to strengthen the Internal Control Framework, among other considerations
  - Legal requirements on trade controls were adjusted
  - Procurement requirements were adjusted to reflect the repositioning of the DSM Procurement organization
  - The Research, Technology & Development and Innovation Requirements were replaced by Science & Innovation Requirements to reflect the repositioning of the Corporate Science Office organization
- The roles, responsibilities and processes to **manage Segregation of Duties (SoD) conflicts** were strengthened, supported by new tooling
- The automation level of internal controls was increased, improving the efficiency and effectiveness of the execution and testing of controls

Information, Communication & Reporting

Communication channels

We strive for an **open communication culture** and have various **channels for communicating risk information** both internally and externally. These channels enable our organization to provide relevant information for decision-making.

Risk management is an intrinsic part of doing business, so normal business discussions regularly address this topic. In addition, to ensure that specific risks receive sufficient attention, we have installed the following consultation and communication structures:

- Global Fraud Committee
- Global Issue Committee
- Cybersecurity Governance Board
- Ethics Board for People Data
- Human Rights Steering Committee
- Privacy Council
- Alert Committee
- Disclosure Committee
- Project Quality Reviews
- Risk Management Committees in the various units
- Dedicated discussions with the Executive Committee on the Corporate Risk Assessment and the outcome of the Letter of Representation process

Letter of Representation

The Letter of Representation (LoR) is a biannual process whereby DSM's units provide a comprehensive overview of incidents and risks to the Managing Board. The units report their identified short-term and emerging risks according to five categories: strategic, operational, financial, compliance, and reputational. The LoR also documents the mitigation actions defined in respect of these risks. Formal sign-off by each unit director is required. The output of the LoR process is discussed in the Executive Committee as well as the Audit Committee of the Supervisory Board. The material incidents are reported in the section What still went wrong in 202.

Top and climate-related risks

The output of the Corporate Risk Assessment process — comprising top risks and climate-related — is discussed in the Financials and auditing of the Supervisory Board and reported on below.

Our risk profile

The risk management activities as performed by the first line as well as the reviews/audits conducted by the second and third line in 2022 did not indicate any material failings in the design and effectiveness of our risk management and internal control system. This is the basis for the Statements of the Managing Board and for the risk disclosures below.

Top risks and related mitigating actions

Below, the five most important risks are listed that might prevent us from achieving the targets defined in our strategy, along with the mitigating actions we are taking to further reduce our exposure. These risks are labeled as top risks as the exposure on DSM's EBITDA is an indicative €30 million or more, or because they have a major non-financial impact such as on reputation.

Market environment

As the world around us is very volatile, there is a risk that we may not meet our strategic targets in the event that we are not able to respond fast enough or in full. The inflationary environment and the high volatility of energy prices, especially in Europe, are putting pressure on our margins. Supply chain disruptions have the potential to impact our operations if not handled well.

To address this risk, we aim to counter cost increases with pricing actions and strict spend management. Our global footprint helps us optimize our supply and demand balance, which increases our resilience. Where necessary and practicable, we make use of alternative pre-qualified suppliers in order to maintain continuity of supply. We offer solutions for our customers that help them to navigate difficult market circumstances.

Nevertheless, with increasing inflation and uncertain market developments there is a risk that sales volumes and margins could be negatively impacted.

Further mitigations

We continue to innovate and offer products and services that meet the continually evolving needs of our customers while addressing significant societal and environmental challenges.

Talents

There is a risk that we might not be able to attract, retain and develop the talents required to transform our company and deliver on our strategy. Various initiatives that are implemented as part of our P&O strategy are addressing this risk. We deploy global and local health and well-being programs to support our people. We have introduced hybrid working. By aiming for a 50:50 balance between office and remote work, we hope to provide our office-based employees with the flexibility to focus on individual work where needed, while also facilitating the right opportunities for personal development, strong collaborations, and closer relationships. In 2022, we continued to work on making sure that all our people feel included and cared for through the execution of our Diversity, Equity & Inclusion (DE&I) strategy.

We create a working environment that encourages all colleagues to take ownership of their performance and development. As part of this, we launched MyCareer Marketplace as well as the Learn Together, Grow Together initiative. We expanded our offering of flexible benefits to address the different needs of people. And, as an engaged workforce is essential, we increased our efforts to connect with our employees in different ways throughout the pandemic. We monitor employee engagement and well-being by means of various surveys.

Further mitigations

The implementation of the P&O strategy will be continued. Based on the insights from our Employee Engagement Survey, extra focus will be given to support the well-being of all our employees and their ability to regularly re-energize.

Purpose-driven growth

As we move further into new business areas – such as gut health and 'precision & personalization' — there is increased uncertainty around time-to-market and peak sales of our innovation projects, impacting our organic growth.

In 2022, we implemented our new organizational model in which we have a central, shared science organization in combination with dedicated innovation teams that are embedded in our Business Groups. This allows us to be closer to our customers and develop solutions that address market needs with greater speed.

Our innovation roadmap is focused around four overarching growth themes that address major global societal, environmental and technological trends: Pathways, Proteins, Prevention and Precision. Each theme is connected to a technology platform that develops disruptive technologies which allow us to expand our customer offerings. We use advanced digital technologies in order to accelerate innovation and provide evidence of its efficacy.

During 2022 we progressed well with several of our strategic innovations, such as our methane inhibitor solution Bovaer®, the decision-making tools Sustell™ and Verax™, our 'Health of the Gut' platform, and Vertis™ CanolaPRO®, our high-quality canola protein isolate.

Despite the progress that has been made so far and having processes in place to manage and monitor further progress of innovation projects, the contribution to organic sales growth remains a risk.

Further mitigations

We will continue to increase our investments in the digital transformation of our science and innovation capabilities such as artificial intelligence (AI), big data, deep learning and modelling. We will also extend lab automation.

Cyber threats

In an increasingly digital world, DSM is subject to cybersecurity attacks which, if successful, could lead to a loss of intellectual property, discontinuity of operations, or otherwise have a negative impact on the company.

To address this risk, we continued throughout 2022 to implement our multi-year cybersecurity programs that cover the domains of information technology, operations technology, and R&D laboratory systems. Further progress was made to integrate the three domains under an overarching framework.

Since the 'human firewall' remains critically important, we continued to raise employee awareness via e-learnings, knowledge assessments and regular phishing tests, either on a global scale or for specific target groups.

Despite our progress in this area, the risk remains due to a growing number of digital initiatives driven by our strategy and increasing external cyber threats.

Further mitigations

We will continue the various multi-year programs to increase our resilience. Further improvements are being implemented based on the learnings from a cybersecurity incident response exercise. Following the announcement of our merger of equals with Firmenich, we updated and expanded the actions taken to increase cyber awareness.

Product quality

A food safety incident might arise due to (alleged) acts or omissions of DSM, our suppliers or other value chain partners, with potentially severe consequences for the health of consumers and negative financial and reputational impact for DSM. To reduce this risk, product quality has been accorded the same scrutiny as safety. We perform special risk assessments to identify quality risks. Based on the outcomes, we define and implement quality standards. Technical solutions are deployed when needed and procedures are adapted to make processes more robust. We are working to sustainably embed the right quality mindset and behaviors in our organization and to grow as learning organization.

With the shift to new markets and new product offerings, the importance of product quality increases further. Despite quality being a core value, the risk of quality defects cannot be fully excluded.

Further mitigations

We will continue to develop and adapt our capabilities in the three focus areas: risk assessments, standards, and learning organization, mindset & behavior. We use incidents and near misses to improve by performing root cause analyses and taking corrective actions. As learning organization, we share and discuss quality incidents and near misses with a broader audience.

Climate-related risks

In 2020, we started our climate risk assessments by means of a desk study for our most material sites on physical risks that could lead to material financial impact in case of a prolonged shutdown. We mapped five emerging hazards (flooding, cyclones, wildfire, extreme heat, and water scarcity) against three IPCC climate temperature scenarios (RCP 2.6, RCP 4.5, and RCP 8.5), using three different time horizons (2020, 2030, and 2040/2050). These scenarios were supplemented with additional data.

In 2021, the results from that study were validated with the most relevant sites in order to understand our risk exposure and resilience, taking into account local circumstances and existing mitigations. The validations demonstrated that we already have mitigations in place for several of the risks identified through the desk study. Water scarcity was the most material physical climate risk identified, which needs to be actively monitored and managed. Our sites with an increased water risk profile were already in scope of our water stewardship program. For more information on our water stewardship program, see Water stewardship.

In 2022, we made progress on our assessments as follows:

- We started on-site deep dives to understand the climate risks in more detail. These have been completed for four of our material sites. For this, the RCP 4.5 scenario was used in combination with a 2040-2060 time horizon. In addition to the five hazards mentioned above, several other hazards are also considered such as storm, hail and subsidence
- We started to expand the risk assessments to our value chains. We completed a pilot to obtain first insights into potential climate risks for our key suppliers by means of a desk study
- We also completed a study to increase our understanding of physical climate risks for one of our end-markets, being the Brazilian dairy market.

In 2022, we performed transition risk assessments for our three Business Groups. Both risks and opportunities are captured through the assessments. The scope is not limited to our own operations but includes the full value chain impact on our business. Using external data sources, such as International Energy Agency - World Energy Outlook, World Bank, and sector-specific sources such as the FAIRR initiative, we built forward-looking scenarios aligned with the IPCC temperature models and time horizons used for the physical risk assessments.

The following risks were identified as having the highest impact:

Policy and legal

- As carbon pricing schemes expand, this could have a negative impact on our operating costs
- Regulations to constrain emissions-intensive activities could require us to reduce or stop manufacturing activities in certain locations
- Changes in animal farming practices following regulations to reduce emissions could impact demand for our products in the event that we are unable to adapt our product and service offerings in a timely manner

Markets

- As demand for certified, renewable energy and sustainable raw materials will increase, this might have a negative impact on their availability and price levels
- In the event that we are not able to bring innovations to the market that address the need for solutions with a verifiable, lower carbon footprint, this could impact the demand for our products
- Changing customer preferences related to climate change, e.g, dietary shifts could impact demand for some of our solutions

With our innovation portfolio and through the implementation of our GHG roadmap, we aim to mitigate those risks and by doing so capture the opportunities offered by the transition to a net-zero world.

The material risks identified through the climate risk assessments are integrated and are managed as part of our regular risk management processes.

We will continue to expand and update our physical risk assessments for our own operations as well as the rest of our value chains. With the help of external parties, we explore different approaches to assess vulnerabilities caused by climate change and to increase our resilience. Furthermore, we will update the transition risk assessments on an ongoing basis and continue to update our scenarios to reflect the latest external insights.

Other important risks

There are also more generic business risks, such as business continuity, sourcing, intellectual property, tax, changing legislation and regulations, increasing non-financial reporting requirements, and business process risks. Our risk management framework is set up to adequately monitor and respond to these risks.

For risks related to the announced merger between DSM and Firmenich, reference is made to the offering circular dated November 22, 2022.

All relevant risks are taken into account in the preparation of our financial statements.

What still went wrong in 2022

The year 2022 presented us with many challenges as well as opportunities. The ongoing effects of the COVID-19 pandemic, coupled with the impact of the Russia-Ukraine conflict, placed additional and unexpected new demands on our company and our people worldwide. At the same time, 2022 was a pivotal year in DSM's transformation with the sale of our Protective Materials business and the announcement of the sale of our Engineering Materials business, during which we focused entirely on becoming a Health, Nutrition & Bioscience company.

Despite the challenging circumstances, we applied our high standards with our usual rigor. Possible breaches of the DSM Code of Business Conduct were investigated and, if actionable infringement was found to have occurred, consequence management was applied (see DSM Code of Business Conduct for further information). Here we share the most significant incidents of 2022 across all three dimensions of People, Planet and Profit and not relating solely to breaches of the DSM Code of Business Conduct. This overview includes incidents with a financial impact as well as incidents regarding safety, health, environment, quality, security and fraud, in all of which areas we have a low risk appetite.

We have a process in place to collect information about serious and/or material incidents - as presented in this overview, using various sources including our internal Letter of Representation, and our reporting system for SHE and Security incidents as well as the quality incident reporting system.

Preventing incidents from reoccurring requires us to understand each incident to the best of our ability. When an incident occurs, our first priority is to take care of any injuries, repair any damage and for quality incidents to ensure that the product does not enter the market and reach consumers. We investigate every recordable incident using a fixed root cause analysis method and we trigger global improvement cycles, see Safety, Quality, and Health & Well-being. We adjust requirements and processes and apply consequence management as needed.

People

In the following overview, we list the incidents that occurred during 2022 and describe how we responded to them in terms of improving our performance. We do not report on the treatment of any specific injuries listed here. Our first priority is of course always to take care of any injuries to personnel.

Most serious safety incident

Incident	Our learning response
At our Yimante joint venture site (Hubei province, China), an employee fell into a hot wastewater basin and suffered severe burns.	We ran programs to improve safety awareness – including awareness of the Life Saving Rules, among both employees and contractors – as part of our continuing integration program at this site. See also People.

Incidents involving slips and trips

Incident	Our learning response
Tripping, slipping, and falling sometimes leads to serious injuries, such as muscle strains, joint sprains, and bone fractures. This happened on our sites in Grenzach (Germany), Delft (Netherlands) and Geleen (Netherlands) to three of our contractor employees.	We stepped up our efforts to promote an engaging and disciplined safety culture by means of focused improvement programs, such as the Behavior-Based Safety program (Safestart®). See also People.

Incidents during troubleshooting and maintenance

Incident	Our learning response
The resolution of process disturbances involving manual work on a machine led to serious hand injuries, including the amputation of fingers, or parts of fingers, in the case of three of our employees. These employees were working respectively at our site in Blok Dobryszyce (Poland), Tongxiang (Zhejiang province, China), and Banting (Malaysia). In all three cases, the equipment had not been properly secured beforehand as required by our Life Saving Rules.	We introduced improvements to ensure safe handling of the relevant machine in future. The learnings from these incidents were shared with all DSM sites to prevent any recurrence. This was accompanied by a renewed focus on the implementation of LOTOTO (Lock-Out, Try-Out, Tag-Out) Life Saving Rule at the three sites involved.
At our site in Grenzach (Germany), a sudden pressure peak in a hot water pipe caused a water hose to become detached from the faucet, despite being fixed by means of two hose clamps. Hot water from the pipe hit an operator who was standing nearby, causing burns to his foot.	We made improvements to the design of the hot water pipe in question. We also applied the learnings from this incident to our handling of both hot water and steam and shared these learnings with all other DSM sites.
On our site in Seclin (France), a wrench being used by an operator slipped and hit him in the face, inflicting a cut to his upper lip that required stitches.	We stepped up our efforts to promote an engaging and disciplined safety culture by means of focused improvement programs, such as the Behavior-Based Safety program (Safestart®). Safestart® trains our employees and contractors to stay out of 'the line of fire' when performing operations with tools. See also People.

Process safety incidents

We had three serious process safety incidents without serious personal injuries or environmental impact, but with material damage.

Incident	Our learning response
On our site in Grenzach (Germany), a deflagration caused by an electrostatic discharge occurred in the site's off-gas system, causing material damage.	We examined the piping material in question and ascertained that it had triggered the electrostatic discharge. The piping was immediately replaced. The learnings from this incident were shared with all DSM sites to prevent any recurrence of such an incident.
At our Yimante joint venture site (Hubei province, China), corrosion caused a distillation column to implode and leak.	We introduced improvements to ensure the reliability of equipment. This included intensifying our existing corrosion inspection program, restating the minimum acceptable thicknesses of vessels and reducing vacuum levels, where possible.

Incidents involving the handling of materials

Incident	Our learning response
Loading, unloading and manual handling of heavy materials has the potential to cause musculoskeletal injuries. Injuries of this type were sustained by four of our employees, across our sites in Kingstree (South Carolina, USA), Village-Neuf (France) (two cases), and Stadtoldendorf (Germany). On our site in Dalry (United Kingdom), an employee got his hand jammed and suffered serious abrasion to a finger while handling a roll of packaging material.	Over the past few years, most of the recorded cases of this kind have involved ergonomic risk factors. To address this issue, we are implementing a dedicated program that tackles both the behavioral and the technological aspects of ergonomics. A pilot in 2022 proved successful and is to be rolled out globally. See also People.

Human rights incidents

Incident	Our learning response
A breach of our expectations regarding international human rights standards was identified in the case of a supplier in Taiwan. The supplier was using third-party recruiters that charged fees to workers.	Following a failed probationary period to attempt to rectify the practice, we discontinued our relationship with the supplier. To ensure this will not happen again, relevant processes and controls were reviewed and updated to strengthen our position on human rights.

Quality incidents

Incident	Our learning response
We experienced several minor quality incidents, mainly in the area of microbiological contamination of products. These were all identified in good time, before material was shipped to our customers.	Considering our historical data on these kinds of incidents and the constantly improving analytical techniques for identifying microbiological contaminations, we initiated a quality improvement program. This yielded a lower number of occurrences in 2022 compared to prior years.

Security incidents

Incident	Our learning response
An employee from our site in Lagos (Nigeria) was robbed at gunpoint on the way to the office.	We investigated the incident and identified improvement actions, including increasing employee awareness regarding security risks, and especially when travelling for business purposes. For Nigeria, a visitor travel security plan is already in place, and a security plan for operations is being established.

Planet

Incident	Our learning response
At our site in Jiangshan (Jiangsu province, China), sparks from welding work ignited the plastic packing material of a cooling water tower, causing a fire.	We increased awareness of our Hot Work Life Saving Rule designed to prevent risks of fire when work such as welding is being carried out.

Profit

Incident	Our learning response
Due to major force majeure events at three of our raw material suppliers, we had serious production losses in several business areas. In addition to that, there were several other supply chain interruptions impacting our business worldwide.	To limit the impact of supply disruptions on our own operations, we increased safety stock levels of several raw materials and wherever possible qualified alternative suppliers.
On our site in Dalry (United Kingdom), we had loss of production due to a technical defect of our high-pressure steam supply.	Preventive maintenance plans and regular controls were intensified, to prevent re-occurrence.

Supervisory Board and Managing Board Royal DSM

Supervisory Board

Thomas Leysen (1960, m), Chair

First appointed: 2020. End of current term: 2024. Nationality: Belgian. Nomination Committee (Chair), Remuneration Committee (Member). Last position held: CEO of Umicore; Supervisory directorships/other positions: Non-Executive Chair of the Supervisory Board of Umicore; Chair of the Board of Directors of Mediahuis; Chair of the Belgian Corporate Governance Commission (until end 2022).

John Ramsay (1957, m), Deputy Chair

First appointed: 2017. End of current term: 2025. Nationality: British. Audit Committee (Chair), Remuneration Committee (member). Last position held: Chief Financial Officer (CFO) and interim CEO of Syngenta AG. Supervisory directorships/other positions: Non-Executive Director of RHI Magnesita N.V.; Non-Executive Director of Croda International PLC; Non-Executive Director of Babcock International PLC.

Eileen Kennedy (1947, f)

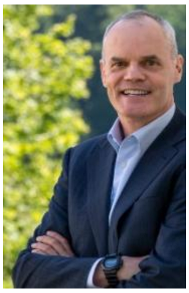
First appointed: 2012. End of current term: 2024. Nationality: American. Sustainability Committee (Chair), Nomination Committee (Member). Position: Professor of Nutrition, Friedman School of Nutrition Science and Policy at Tufts University in Boston (MA, USA); Supervisory directorships/other positions: Member of the Board of Directors of Sight and Life Foundation.

Carla Mahieu (1959, f)

First appointed: 2021. End of current term: 2025. Nationality: Dutch. Remuneration Committee (Chair), Nomination Committee (Member). Last position held: Global Head of Human Resources and Member of the Management Board of Aegon N.V.; Supervisory directorships/other positions: Non-Executive Member of the Board of VodafoneZiggo Group B.V. Netherlands; Non-Executive Member of the Board of Arcadis; Non-Executive Member of Stichting Continuïteit PostNL.

Erica Mann (1958, f)

First appointed: 2019. End of current term: 2023. Nationality: Australian. Sustainability Committee (Member), Audit Committee (Member). Last position held: Member of the Board of Management of the Bayer Group and Global President of Bayer's Consumer Health Division. Supervisory directorships/other positions: Non-Executive Member of the Board of Perrigo; Non-Executive Member of the Board of Kellogg Company; Non-Executive Member of the Board of Blackmores.



Frits Dirk van Paasschen (1961, m)

First appointed: 2017. End of current term: 2025. Nationality: Dutch and American. Remuneration Committee (Member), Sustainability Committee (Member). Last position held: CEO Starwood Hotels and Resorts. Supervisory directorships/other positions: Non-Executive Board Member of Williams Sonoma (USA); Board Member of Sonder; Board Member of Crown Proptech Acquisitions; Board member of CitizenM Hotels (NL); Board Member of JCrew Group; advisor to private equity firm TPG, advisor to Russell Reynolds; CEO and Founder of The Disruptor's Feast Advisory.

Pradeep Pant (1953, m)

First appointed: 2016. End of current term: 2024. Nationality: Singaporean. Audit Committee (Member), Nomination Committee (Member). Last position held: EVP and President APAC and EMEA of Mondelez International. Supervisory directorships/other positions: Honorary Council Member of Food Industry Asia; Non-Executive Director of Max India Ltd., MAX Life Insurance Co Ltd. (India), Antara Senior Living Ltd. (India) and NIVA BUPA Health Insurance Co. Ltd. (India); Chair of the Board of Nurasa Holding Pte Ltd and Nurasa Pte Ltd; President of Pant Consulting Pte Ltd.

Corien Wortmann-Kool (1959, f)

First appointed: 2021. End of current term: 2025. Nationality: Dutch. Audit Committee (Member), Sustainability Committee (Member). Position: Non-Executive Chair of the Board of ABP Pension Fund (until 31 December 2022). Supervisory directorships/other positions: Vice-Chair of the Supervisory Board of Aegon N.V.; Advisory Board Member of the Impact Economy Foundation; Member of the Capital Markets Advisory Board of the Dutch Financial Markets Authority.

Managing Board

Geraldine Matchett (1972, f), Co-CEO

Position: Co-CEO & CFO since February 2020; member of the Managing Board since August 2014 and CFO since December 2014. End of current term: 2026. Nationality: British, Swiss, French. Supervisory directorships/other positions held: Non-Executive Director of ABB; Board Member of FCLT Global; Executive Committee Member of the World Business Council for Sustainable Development (WBCSD); Member of the Foundation Board of IMD Business School; Board Member of Catalyst Europe; Member of A4S (Accounting 4 Sustainability) CFO Leadership Network.
e-mail: geraldine.matchett@dsm.com

Dimitri de Vreeze (1967, m), Co-CEO

Position: Co-CEO & COO since February 2020; member of the Managing Board since September 2013. End of current term: 2025. Nationality: Dutch. Supervisory directorships/other positions held: Chairman of the Supervisory Board of DSM Netherlands; member of the Supervisory Board of Sanquin (until 31 December 2022); Chairman of the Young Captain Foundation; Chair of the ALV United World College, Maastricht.
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Statements of the Managing Board

The Managing Board is responsible for the design and operation of the company's internal risk management and control systems. In discharging this responsibility, the Managing Board has made a systematic assessment of the effectiveness of the design and operation of the internal control and risk management systems.

On the basis of this report and in accordance with best practice 1.4.3 of the Dutch Corporate Governance Code of December 2016, and Article 5:25c of the Financial Supervision Act, the aforementioned assessment and the current state of affairs, to the best of its knowledge and belief, the Managing Board confirms that:

- DSM's internal risk management and control systems provide reasonable assurance that financial reporting does not contain any material inaccuracies
- There have been no material failings in the effectiveness of the internal risk management and control systems of the company
- There are no material risks or uncertainties that could reasonably be expected to have a material adverse effect on the continuity of DSM's operations in the coming 12 months
- There is a reasonable expectation that DSM will be able to continue its operations and meet its liabilities for at least 12 months, therefore it is appropriate to adopt the going concern basis in preparing the financial reporting

It should be noted that the above does not imply that these systems and procedures provide absolute assurance as to the realization of operational and strategic business objectives, or that they can prevent all misstatements, inaccuracies, errors, fraud and non-compliances with legislation, rules and regulations. Nor can they provide certainty that we will achieve our objectives.

In view of all of the above, the Managing Board confirms that, to the best of its knowledge and belief, the financial statements give a true and fair view of the assets, liabilities, financial position and profit or loss of the company, and that the management report includes a fair review of the position at the balance sheet date and the development and performance of the business during the financial year 2022, together with a description of the principal risks and uncertainties that the company faces.

Heerlen, 1 March 2023

The Managing Board
Geraldine Matchett, Co-CEO
Dimitri de Vreeze, Co-CEO

Report by the Supervisory Board

Introduction by the Chair

Dear reader,

2022 was a challenging year for the world as a whole. Conflict, including in Europe for the first time in decades, and growing concern about the state of the planet itself led to increasingly vocal and disruptive protests in many countries, polarizing opinions and intensifying the mood of pessimism in a world that was only just emerging from the shadows of a two-year-long pandemic. The resulting sharp rises in the price of energy, raw materials and other essential commodities has fueled inflation and fostered further insecurity across the planet.

In these turbulent operating conditions, DSM remained strong, focused and committed to delivering on its strategic objectives. Its diversified portfolio and comprehensive global reach afforded a measure of protection against the uncertainties into which the company's operating environment was thrown. As a whole, we can be proud of DSM's achievements in safeguarding essential supply lines and continuing to offer customers the exceptional standards of quality and reliability that they rightly expect. All three businesses saw overall continued resilient demand, but were confronted with an increasingly inflationary environment during the year, exacerbated by ongoing supply chain volatility. Multiple pricing initiatives were unable to fully offset the rate of increases in energy and raw materials costs. Sales volumes were solid, especially considering the tough comparison with the strong growth of 2021.

Even without the highly demanding macroeconomic conditions, 2022 would of course have been a momentous year for DSM. On 31 May we announced our intention to enter into a merger of equals with Firmenich, the world's largest privately owned fragrance and taste company.

We began repositioning the company to be focused on Health, Nutrition & Bioscience, serving our customers via three market-orientated businesses, from the start of 2022. At the same time, we made arrangements for divesting our Materials businesses, finding new homes where the Engineering Materials and Protective Materials operations are able to continue their successful development trajectories and deliver innovative, value-adding and market-shaping solutions to their customers. These divestments mark the end of an era for DSM and the start of an exciting new future.

A crucial contributor to that future is DSM's pipeline of innovation. The structural changes upon entering 2022 saw science and innovation more closely embedded within the Health, Nutrition & Bioscience businesses. DSM has earned a well-deserved reputation for ground-breaking scientific breakthroughs but by bringing together those who invent, make, and sell, we expect greater alignment all the way from ideation to commercialization, creating the best prospects for that R&D to make a difference in the market. It was both fascinating and exciting for us on the Supervisory Board to review the long-term innovation prospects and the potential advances that should benefit DSM, as well as all its stakeholders, in time. Firmenich shares complementary capabilities and the intended merger of equals will produce a leading creation and innovation partner in nutrition, beauty and well-being. The business combination agreement was the result of intense and detailed discussions whose aim was to create a new entity able to fully leverage the strengths of both parties. The Supervisory Board played a significant role in these negotiations, working very closely with our Co-CEOs, and is fully supportive of the transaction.

Against the background of these developments, DSM remained as committed as ever to urgent climate action, and to achieving net-zero by 2050 at the latest. The company continues to set increasingly stringent improvement targets in line with the latest climate science and with the aim of limiting global warming to no more than 1.5°C.

In view of DSM's journey to become a company focused on Health, Nutrition & Bioscience, we decided to accord quality the same degree of supervisory scrutiny as safety, with effect from 1 January 2022. The two topics therefore enjoy parity in the considerations of both the Supervisory Board and the Executive Committee, each receiving attention at alternate meetings. The safety of all employees and contractors is of course ever-present in our minds. The increase in recordable injuries in 2022 was a disappointing development and we will be carefully monitoring all aspects of safety in the workplace in 2023 with the uncompromising aim of improving safety performance in 2023.

The year 2022 was a remarkable one in the life of DSM, creating the springboard for a new chapter in a long history of successful transformations. For the Supervisory Board, 2022 might be described as a 'hybrid' year, involving as it did very welcome face-to-face meetings as well as the continuation of some meetings online. My colleagues and I enjoyed our interactions with employees throughout the year, especially in the context of our site visit to Switzerland and we are appreciative of the hard work and commitment everyone continued to demonstrate in often extremely challenging circumstances. I would also like to thank the Co-CEOs, the Executive Committee, and my colleagues on the Supervisory Board for their vision and leadership throughout 2022.

Looking forward, I am deeply honored to have been chosen to chair the Board of Directors of the future DSM-Firmenich. I am inspired by the prospect of what we will all create together: a new entity committed to innovative transformations that will benefit not only the world we live in but also generations yet to come.

Sincerely,

Thomas Leysen, Chair of the Supervisory Board

Supervisory Board Report

This Report provides further information on the way the Supervisory Board performed its duties in 2022. These include supervising the policy pursued by the Managing Board, the Managing Board's performance of its managerial duties, and the general course of affairs within our company and its businesses, as well as assisting the Managing Board with advice, either upon request or proactively. Finally, these duties also include assessing the Managing Board's performance and ensuring that their remuneration is in line with that performance and that it provides the appropriate incentives. Since the inception of an Executive Committee, the Supervisory Board has also been responsible for ensuring that the checks and balances that are part of the two-tier governance system are still taken into account, paying specific attention to the dynamics between the Managing Board and the Executive Committee.

The responsibility of supervising the policy pursued by the Managing Board includes evaluating the way the Managing Board implements DSM's strategy for long-term value creation and promotes a culture aimed at creating value. In the performance of its duties, the Managing Board and Supervisory Board act in accordance with the interests of the company and weigh up the interests of all stakeholders, in line with DSM's multi stakeholder-approach. This is all described in the sections Strategy, People and Corporate governance and risk management.

Composition of the Supervisory Board

The composition of DSM's Supervisory Board is diverse in terms of gender, nationality, background, knowledge and experience. The Board comprises four men and four women. Two members are Dutch, one American, one Dutch-American, one British, one Singaporean, one Australian and one Belgian. The Board's current members are Thomas Leysen (Chair), John Ramsay (Deputy Chair), Eileen Kennedy, Carla Mahieu, Erica Mann, Frits van Paasschen, Pradeep Pant and Corien Wortmann-Kool. For detailed information on their backgrounds, see the company website and Supervisory Board and Managing Board Royal DSM.

Following best practice 2.1.10 of the Dutch Corporate Governance Code, the Supervisory Board establishes that its members are able to act critically and independently of one another, the Managing Board and any particular interests involved. To safeguard this, the Supervisory Board is composed in such a way that all its members are independent in the meaning of best practice 2.1.8 of the Dutch Corporate Governance Code.

The targeted profile of the Supervisory Board is described on the company website under 'Supervisory Board' and is reflected in the company's regulations. The size, composition and qualities of the Supervisory Board as a whole should be in keeping with the company's size, portfolio, nature, culture, geographical spread and its status as listed company. The Supervisory Board should be diverse in its composition and possess knowledge and experience in the fields as listed under 'DSM Supervisory Board: key competences' below. Members of the Supervisory Board should represent certain qualities, among others, integrity and the ability to operate independently and critically vis-à-vis the other members and the Managing Board members. The Supervisory Board has four committees to cover key areas in greater detail: Audit, Nominations (to the Supervisory Board and Managing Board), Remuneration (of the Supervisory Board and Managing Board) and Sustainability. Information on these committees is given elsewhere in this section. The charters of the committees are published on the company website under 'Supervisory Board'.

Relationship and stakeholder management

In performing its duties, the Supervisory Board acts in accordance with the interests of the company and the business connected with it, taking into consideration the interests of the company's stakeholders. The Chair of the Supervisory Board is in regular close contact with the Co-CEOs, as is the Chair of the Audit Committee with the CFO.

Furthermore, the Supervisory Board regularly interacts with members of the Executive Committee, who regularly attend Supervisory Board meetings and participate in the yearly site visit of the Supervisory Board.

The Supervisory Board interacts with our employees on various occasions and in various contexts. The Supervisory Board regularly receives information on relevant topics from senior leaders and experts in the company during committee meetings, full Supervisory Board meetings, annual site visits, and also as part of their ongoing professional education. During its annual site visit, the Supervisory Board actively takes the opportunity to interact with employees at different levels, from shop floor to senior leadership, thus collecting valuable information and insights from various sources across the company. In May 2022, we announced our intention to enter into a merger of equals with Firmenich and become the leading creation and innovation partner in nutrition, beauty and well-being. The Supervisory Board was involved as of the start of the merger discussions and had several additional meetings to engage with the proposition and contribute to decisions on key topics such as legal structure, valuation and governance. The Supervisory Board was regularly kept up to date on the progress being made to close the transaction as well as on the preparations for integration. The Supervisory Board was also involved early in the strategic discussions leading to the announcements of the divestments of DSM's Materials businesses. Other strategic topics in which the Supervisory Board was involved were the strategic alliance in the US for Bovaer® between DSM and Elanco and the acquisition of Prodap. The Supervisory Board also performed a post-acquisition review of the CSK business and was regularly updated as to the progress made on large innovation projects dedicated to the development of products such as Bovaer®, Veramaris®[1], EVERSWEET® and CanolaPRO®.

Direct, one-to-one contact between Supervisory Board members and Managing Board and Executive Committee members generally follows naturally from topics discussed in the meetings of the Supervisory Board. These discussions draw on the expertise of individual Supervisory Board members, whose advice is sought on a wide range of specialist topics as required. Supervisory Board members also have direct contact with other employees in the course of the aforementioned site visits and specifically arranged meetings. Examples are the visits of Thomas Leysen to DSM's two sites in Poland and in Freeport (Texas, USA). Upon specific request, the full Supervisory Board reviewed the company's corporate risk assessment and the Audit and Sustainability Committee jointly reviewed the ESG reporting landscape. In addition, the Audit Committee had in-depth discussions on the financial reporting requirements of the announced merger. Pradeep Pant, who is based in Singapore, continued to be in regular contact with our senior management in Asia.

In 2022, a rhythm of alternating virtual and face-to-face meetings was set up, as well as several additional phone calls to discuss and contribute to the decisions leading to the announced merger of equals between DSM and Firmenich as well as the announced divestments of the Protective Materials business (completed on 1 September 2022) and the Engineering Materials business. The full Supervisory Board's annual site visit, together with the Executive Committee, was to DSM in Kaiseraugst (Switzerland), and was combined with a visit to DSM's site in Sisseln (Switzerland).

The Supervisory Board takes an active interest in maintaining a good understanding of our stakeholders and their positions on various topics related to the company's areas of business. This includes the perceptions of our shareholders. The Supervisory Board is informed of the position of other DSM stakeholders by the Managing Board. In addition, the Supervisory Board collects such information through its own network.

1 Veramaris® is a trademark owned by Veramaris V.O.F, a joint venture between DSM and Evonik.

DSM Supervisory Board: key data and attendance records

	Thomas Leysen (C)	John Ramsay (DC)	Eileen Kennedy	Carla Mahieu	Erica Mann	Frits van Paasschen	Pradeep Pant	Corien Wortmann-Kool
Diversity								
Year of birth	1960	1957	1947	1959	1958	1961	1953	1959
Gender	Male	Male	Female	Female	Female	Male	Male	Female
Geography	Europe	Europe	North America	Europe	Oceania	Europe / North America	Asia	Europe
Tenure								
Initial appointment	2020	2017	2012	2021	2019	2017	2016	2021
Latest reappointment	n.a.	2021	2022	n.a.	n.a.	2021	2020	n.a.
End of current term	2024	2025	2024	2025	2023	2025	2024	2025
Reappointment possible?	Y	Y	N	Y	Y	Y	Y	Y
Attendance								
Committee memberships	NomCo (C) RemCo	AC (C) RemCo	SustCo (C) NomCo	RemCo (C) NomCo	AC SustCo	RemCo SustCo	AC NomCo	AC SustCo
Attendance of SB meetings[1]	100%	100%	94%[2]	100%	89%[3]	100%	83%[4]	100%
Attendance of Committee meetings	NomCo 100% RemCo 83%[5]	AC 100% RemCo 100%	NomCo 100% SustCo 100%	RemCo 100%	AC 83%[3] SustCo 100%	RemCo 100% SustCo 100%	AC 100% NomCo 100%	AC 100% SustCo 100%

1 'Attendance' refers to the three physical Supervisory Board (SB) meetings and 15 virtual meetings held in 2022. In addition to these meetings, there were also two virtual SB meetings in 2022 for which the decision-making had been mandated by the SB to the Chair of the Board and the Chair of the Audit Committee, who both participated in these calls. Pradeep Pant and Erica Mann voted by proxy at a virtual meeting in May.

2 Eileen Kennedy missed one virtual SB in February due to internet problems caused by a storm.

3 Erica Mann missed a Supervisory Board call in February and the Supervisory Board call and Audit call in July due to other previously scheduled commitments. She gave advance input via other members.

4 Pradeep Pant missed one virtual SB meeting due to a previous scheduled commitment. Furthermore, he missed two virtual meetings for health reasons.

5 Thomas Leysen missed the virtual Remuneration Committee in April due to travelling. He gave advance input to the Chair of the Remuneration Committee.

DSM Supervisory Board: key competences

	Thomas Leysen (C)	John Ramsay (DC)	Eileen Kennedy	Carla Mahieu	Erica Mann	Frits van Paasschen	Pradeep Pant	Corien Wortmann-Kool
Competences								
General Management	x	x	x		x	x	x	
Finance/Accounting/Auditing	x	x						x
Strategy	x	x	x	x	x	x	x	x
Risk	x	x						x
Marketing & Sales	x				x	x	x	
Operations & Manufacturing	x				x			
R&D/Innovation/Technology	x		x					
Safety	x			x				
Sustainability & Environment	x		x	x		x		x
Emerging Economies		x			x	x	x	
People & Organization	x			x	x		x	
IT/Digital				x		x		
Governance/Compliance/Legal	x	x	x	x	x			x
Public Affairs	x			x	x			x
DSM's businesses	X	x	x	x	x	x	x	x

Supervision and advice

The Supervisory Board performs its duties of supervising and advising the Managing Board with respect both to **recurring standard agenda items** for Supervisory Board meetings and to specific topics that become relevant at any given point in time.

In view of DSM's journey to become a focused Health, Nutrition & Bioscience company, as of 1 January 2022 it was decided that **Quality** should be accorded the same level of attention as **Safety** in the agendas of Supervisory Board meetings, with each being discussed as the first agenda point in alternate meetings. Another prominent agenda item is an update on **business performance**, financials, treasury and investor relations topics. As part of this agenda item, the Supervisory Board tracks the company's financial performance, approves the annual Finance and Capital Expenditure Plan, is updated on capital market expectations and deliberates on any additional treasury topics as needed. In 2022, the Supervisory Board also discussed and approved the usual share buy-back programs to cover commitments under share-based compensation plans and the stock dividend. In addition, a bridge financing facility was approved to cover for the financial aspects related to the announced merger.

In line with our overall **Strategy**, the Supervisory Board was actively involved in the company's transition to a focused Health, Nutrition & Bioscience company as well as the discussions leading to the announcement of the intent to merge with Firmenich. The Supervisory Board was also involved in the discussions leading to the acquisition of Prodap, the divestment of DSM's Protective Materials business, and the announcement of the divestment of DSM's Engineering Materials business. A post-acquisition review of CSK was performed in 2022 in addition to a post-investment review of Advanced Solar, DSM's divested solar panel business. The Supervisory Board also discussed DSM's new climate targets to accelerate the route to net-zero as well as DSM's progress on its new Food System Commitments.

At the Supervisory Board's request, the company's risk assessment procedures were discussed in the full Supervisory Board meeting. The Supervisory Board also discussed the progress made on the development of Bovaer® and the strategic alliance with Elanco in this area. In addition to Bovaer®, the Supervisory Board also reviewed the full Innovation portfolio.

Site visits

Each year, the Supervisory Board takes a number of days to visit DSM sites in a particular region. This fosters interaction with employees across different areas of the company and provides Supervisory Board members with opportunities for continuing education. This year's visit was dedicated to DSM's business in Switzerland. A central theme of the visit was the Supervisory Board's interactions with our employees at all levels of the organization. The visit deepened the Supervisory Board's knowledge of DSM's vitamin A business, the biomass power plant in Sisseln and the Health, Nutrition & Care lab in Kaiseraugst, specifically in the area of sensory science, the skin microbiome and hair care.

The program began with a visit to DSM's site in Sisseln, where the Site Director welcomed the Supervisory Board and several members of the Executive Committee. The DSM Sisseln site is an important production location, development center and ideas hub within DSM. The Supervisory Board was presented with an overview of the site's vitamin E production, forward-looking technologies, such as DSM's bio-based vitamin A, and certain of the site's development projects. The visit continued with a tour of the bio-based vitamin A facility and the biomass power plant and ended with an interactive lunch with young talents from the site. In the afternoon, the Supervisory Board travelled to Kaiseraugst, where they were welcomed by the President of DSM Switzerland. In Kaiseraugst, the Supervisory Board experienced the new Innovation Campus, including a virtual reality session, followed by a townhall meeting with employees, which resulted in an open and lively discussion between Supervisory Board members and employees. The evening was spent with local senior executives to get to know each other better.

The Supervisory Board spent the next day at the office in Kaiseraugst, where they had another interactive lunch session with talents, followed by a Health, Nutrition & Care deep-dive and a lab tour. During the lab tour, several employees presented current Health, Nutrition & Care development projects in the areas of sensory science, the skin microbiome and hair care/shampoo. At the end of the day, the Swiss Food & Nutrition Valley organized a 'food market' where the Supervisory Board was able to meet up with start-ups and associated companies. During the dinner in the evening, the Supervisory Board shared its impressions with the Executive Committee members and evaluated the conversations they had had with several senior executives.

The Supervisory Board (front row, from left to right): Frits van Paasschen, Corien Wortmann-Kool, John Ramsay (Vice-Chair), Pradeep Pant and Carla Mahieu; (back row, from left to right): Eileen Kennedy, Erica Mann and Thomas Leysen (Chair).

Supervisory Board meetings and performance evaluation

In 2022, the Supervisory Board held its five regular meetings and one regular call in the presence of the Managing Board, as well as 12 additional calls also in the presence of the Managing Board and several Executive Committee members. There were also 2 Supervisory Board calls in 2022 for which the decision-making had been mandated by the Supervisory Board to the Chair of the Board and the Chair of the Audit Committee, who both attended these calls. On three dates, a member was excused due to conflicting commitments. On two other dates, a member was excused for health reasons and on one date a member could not attend due to internet problems. The additional calls were needed to discuss and approve the announcements of DSM's intentions to merge with Firmenich and divest its Protective Materials and Engineering Materials businesses. Information on attendance of Board and Committee meetings can be found in the table in this Supervisory Board Report.

The Supervisory Board also convenes in the absence of the Managing Board, which usually happens either before or after a meeting.

An evaluation of the Supervisory Board is performed once every three years by an external advisor; this was the case in 2022. In the other two years, the evaluation of the Supervisory Board is performed by means of a self-assessment consisting of a written survey, followed by in-depth, one-on-one interviews between the Chair and individual Supervisory Board members. The outcome of the evaluation was presented to, and discussed with, the Supervisory Board in December, in the absence of the Managing Board.

The Supervisory Board used an external firm that conducts multiple board evaluations and was therefore able to benchmark DSM's Supervisory Board evaluation against that of other boards. As in previous years, the overall feedback from the evaluation in 2022 was positive. Overall, and across the board, there is great satisfaction and positivity on the side of the Supervisory Board members. They adjudge the Supervisory Board to be of an appropriate size and range of diversity in terms of competences, nationalities/geographical footprint, experience and gender. The Supervisory Board fulfills its tasks and responsibilities in a professional and constructive manner. Members come well prepared for meetings and show respect for each other's contributions and points of view. The dialogue is described as open and the atmosphere is transparent and collegial. Opinions and views are regularly challenged, generating constructive debate. There is a trust in collective decision-making, an example of which is the Supervisory Board's approval of the Managing Board's decision to enter into a merger of equals with Firmenich.

Some points for improvement were noted, some of a rather practical nature and others related to content. With respect to the overall dynamics, the Supervisory Board members highly value the personal interactions and would like to further invest in more face-to-face time. An area for improvement in practical terms is the succinctness and timeliness of briefing materials. From a content perspective, the Supervisory Board would like to spend more time on education with a focus on DSM's operating context. While the Managing Board's performance is also (indirectly) assessed as part of the evaluation, this happens throughout the year as part of the discussions on succession planning in the Nomination Committee. This applies particularly when the performance appraisals of Managing Board members are discussed, as well as their performance versus their individual targets in the Remuneration Committee. The Nomination and Remuneration Committees report back on these discussions to the Supervisory Board.

Committees

The Supervisory Board has four committees to cover key areas in greater detail: Nomination, Remuneration, Sustainability and Audit. These are described in more detail below.

Board nominations

The Nomination Committee comprises Thomas Leysen (Chair), Eileen Kennedy, Pradeep Pant and Carla Mahieu. Geraldine Matchett, Dimitri de Vreeze and Cristina Monteiro, Executive Vice President People & Organization, were also involved in this Committee's discussions. The Committee met four times in 2022. The recommendations of all Nomination Committee meetings were shared with the entire Supervisory Board. This feedback included advice and recommendations regarding topics to be approved by the full Supervisory Board. The Supervisory Board also has access to all the meeting materials posted for the Nomination Committee meetings.

In 2022, discussions in this committee focused on evaluation of the Managing Board and Executive Committee as well as **succession planning** for the Managing Board, the Executive Committee, and the Supervisory Board. With respect to the Executive Committee, the discussions focused on the succession pipeline for each of the Executive Committee positions with specific attention for the Executive Committee succession in view of the announced merger between DSM and Firmenich.

As in other years, the Supervisory Board established that the composition of the Managing Board is, and will remain, diverse in nationality, gender, background, expertise and experience, and that it provides a good foundation to support all Business Groups in achieving their targets and thus delivering on the company strategy. For detailed background information on the Managing Board members, see the company website under 'Managing Board' and the Managing Board section of this Report.

Taking into account the Supervisory Board profile as laid down in the Supervisory Board regulations, the Nomination Committee continued discussions on the overall composition of the Supervisory Board and discussed **succession planning** for the Supervisory Board. In view of the announcement of the intended merger, the Nomination Committee also contributed to the discussion around the proposed members of the Board of Directors of DSM-Firmenich.

Board remuneration

The **Remuneration Committee** had six meetings in 2022. Carla Mahieu (Chair), Thomas Leysen, John Ramsay and Frits van Paasschen are members of this committee. Recommendations of the Remuneration Committee meetings were shared with the full Supervisory Board and were used to determine the final remuneration of the members of the Managing Board. The Supervisory Board also has access to all the meeting materials provided for the Remuneration Committee meetings. For more information on the remuneration policy, see the company website. For the implementation of that policy in 2022, see the Remuneration report 2022.

Discussions focused on the **performance** and the related **remuneration** of the members of the Managing Board, in respect of both company and individual performance in 2022. The performance and remuneration of the Executive Committee members were also shared with the Remuneration Committee. Geraldine Matchett, Dimitri de Vreeze and Cristina Monteiro were also partly involved in these discussions. The majority of discussion time in 2022 was spent on remuneration topics related to the Short-Term Incentive (STI) and Long-Term Incentive (LTI) scorecard. Attention was given both to the setting of targets for 2022 and to first estimates of performance against those targets, gender pay gap, and equal pay. Preparations took place for the possible amendments to the company's remuneration policy. Due to the merger announcement, the activities in this area were paused and will be taken up again once the merger has been completed.

Sustainability

The **Sustainability Committee** prepares the Supervisory Board's discussions on sustainability topics. The Sustainability Committee met four times in 2022. This Committee comprises Eileen Kennedy (Chair), Erica Mann, Frits van Paasschen and Corien Wortmann-Kool. The Chair of the Supervisory Board has a standing invitation and participated in all meetings. The recommendations of these meetings were shared and discussed with the entire Supervisory Board during its meetings with the Managing Board. The Supervisory Board has access to all the meeting materials provided for the Sustainability Committee meetings. The feedback from the Committee to the full Board included advice and recommendations regarding topics to be approved by the Supervisory Board, in particular the sustainability reporting in this Report. Taking into consideration the draft Assurance report of the independent auditor on the Sustainability Information by KPMG, the full Supervisory Board approved the reporting against these topics on 1 March 2023. The assurance report was finalized by KPMG after the approval of the Supervisory Board. The Sustainability Information complies with the Standards of the Global Reporting Initiative and our internal reporting criteria, which are included in this Report, and is also aligned with the international Integrated Reporting Council <IR> Framework where possible.

During the year, recurring topics were the **company's performance** against its People and Planet aspirations, with a focus on safety, emissions reduction, Brighter Living Solutions Plus, and Diversity, Equity & Inclusion. Through these discussions, the Sustainability Committee followed up on the progress made with the implementation of the sustainability and safety aspirations set as part of the company's strategy, as well as progress made on DSM's Food System Commitments. As ever, safety was extensively addressed, being always the first item on the agenda of the Sustainability Committee. The Sustainability Committee also zoomed in on the impact of the EU taxonomy for sustainable activities on the company and received an update on DSM's physical and transition climate risks. A deep dive was performed on DSM's Personalized Nutrition business, and the members of the Sustainability Committee received an update on DSM's position papers. The update of DSM's greenhouse gas emissions targets to align with the 1.5°C trajectory was also extensively discussed. In terms of Diversity, Equity & Inclusion, the Sustainability Committee reviewed and discussed the company's performance as well as our long-term strategic ambitions.

Financials and auditing

The activities of the Supervisory Board in the area of financials and auditing are prepared by the **Audit Committee**. The Audit Committee met six times in 2022. John Ramsay (Chair), Pradeep Pant, Erica Mann and Corien Wortmann-Kool are members of the Audit Committee. All Supervisory Board members have a standing invitation to attend Audit Committee meetings. In 2022, most of them used this for the two conference calls in which the financial developments and interim results for the first and third quarter were discussed. The Chair of the Supervisory Board participated in all meetings and calls. The highlights of all Audit Committee meetings were shared with the full Supervisory Board. This feedback included advice and recommendations regarding topics to be approved by the full Supervisory Board. In 2022, these included the approval of the 2022 COA Audit plan and the proposed reappointment of the external auditor (approved by the 2022 Annual General Meeting of Shareholders). All Supervisory Board members have access to all the meeting materials posted for the Audit Committee meetings.

Our **external auditor KPMG**, Geraldine Matchett in her capacity as CFO, and the Senior Vice President Group Controller participated in all the meetings of the Audit Committee, along with the managers responsible for internal audit, risk management and compliance. An exception was formed by the two meetings in which the financial developments and interim results for the first and third quarter were discussed. Three times a year, the Audit Committee meets with the external auditor without the Managing Board being present, and one time per year the Audit Committee meets with the internal auditor without the Managing Board being present.

The Committee had in-depth discussions of the **company's financials:** the Finance plan, the Capital Expenditure plan, dividend proposals, the financial statements, and accounting policy changes. The discussions of internal risk management and control systems covered the Internal Control Framework, compliance with recommendations and observations made by internal and external auditors, and the role and functioning of COA. This included the endorsement of COA's proposed audit plan for 2023, which was subsequently approved by the full Supervisory Board. The Corporate Risk Assessment, the company's main risks and their mitigation were this year discussed during the full Supervisory Board meeting. The Audit Committee also discussed and evaluated cases submitted under the company whistleblower policy (DSM Alert), fraud cases, ongoing litigation, tax, insurances and privacy compliance. Another recurring topic is our cybersecurity resilience, about which the Audit Committee is informed through a dashboard, as well as information on running cybersecurity programs and cybersecurity governance. In addition, the Audit Committee discussed the update of the Internal Control Framework.

Discussions were held with KPMG about the audit plan, management letter, audit report and financial statements for 2022, including managerial judgments and key accounting estimates. In its management letter, KPMG shared the outcome of its evaluation of the company's procedures and system of internal controls to the extent necessary within the scope of the audit of the financial statements. The observations of KPMG were presented along the pillars that support our in-control statement with a continued focus on the Internal Control Framework pillar (for the Statements of the Managing Board; for a visualization of our control environment, see Corporate governance). KPMG confirmed that in 2022 DSM made good progress on improving its Internal Control Framework. With respect to the upcoming increase in reporting requirements, KPMG's management letter contained constructive recommendations on reporting of non-financial information, as well as our preparations for the future organization also considering the announced intended merger of equals of DSM and Firmenich.

Finally, in 2022, the Audit Committee formally evaluated the **external auditor**, and discussed the reappointment of KPMG. The proposal to reappoint KPMG is based on the Audit Committee's own assessment of KPMG, on discussions with KPMG in the absence of management, and on the outcome of an evaluation among DSM executives.

Financial statements 2022

The Report by the Managing Board and the financial statements for 2022 were submitted by the Managing Board to the Supervisory Board, in accordance with the provisions of Article 30 of the Articles of Association, and were subsequently **approved** by the Supervisory Board on 1 March 2023. The financial statements were audited by KPMG, who issued an **unqualified opinion** (see the Independent auditor's report). The Supervisory Board established that the external auditor was independent of DSM.

The Supervisory Board will submit the 2022 financial statements to the **2023 Annual General Meeting** of Shareholders, and will propose that the shareholders adopt them and release the Managing Board from all liability in respect of its managerial activities and release the Supervisory Board from all liability in respect of its supervision of the Managing Board. The profit appropriation as proposed by the Managing Board and approved by the Supervisory Board is presented in Profit.

Remuneration report 2022

Introduction by the Chair of the Remuneration Committee

Growing concerns about climate change, international conflicts and rising energy prices, among other factors, set the tone in 2022. As a result, we faced a very challenging global operating environment, while insecurities and (especially in Europe) rising inflation put pressure on the daily lives of our employees. 2022 was also the year in which our game-changing merger of equals with Firmenich was announced. In preparation for this transformational move, the repositioning of the company to focus on Health, Nutrition & Bioscience that had been initiated in 2021 continued in 2022, in parallel with arrangements to find new homes for our Materials businesses.

Even as the world emerged from the COVID-19 pandemic, growing concerns about the planet and high inflation began to make themselves felt in the daily lives of our employees, who faced new insecurities and experienced the impact of these developments on their purchasing power. In view of this, we made special one-off payments to our employees in various countries to supplement local governmental programs aimed at reducing the impact of these developments. In addition, we paid special attention to living wages. Certified reviews against the WageIndicator's benchmark were performed, resulting in an adjustment of salaries to respective regional/local standards.

In a challenging business environment, characterized by an overstrained labor market, rising energy costs and the impact of supply chain disruptions, among other factors, DSM delivered a solid performance over the course of 2022. While sales volumes were approximately equal to 2021, pricing actions to counter higher energy and raw materials costs, resulted in higher revenues. However, the price-cost gap remained significant for parts of the business. Neither the Adjusted EBITDA target nor the Cash Flow target included in the Short-Term Incentive (STI) scheme have been achieved. Our Safety performance during 2022 was disappointing by our own high standards and likewise did not contribute to the achievement of our STI result. However, we remained on track regarding the Brighter Living Solutions Plus goal. Given the significant external and internal changes the organization underwent, we were particularly proud to see Employee Engagement remain strong with an engagement index of 77% indicating that our employees are supportive of our ongoing transformation to become a leading Health, Nutrition & Bioscience company. The vesting of the Performance Share Units (PSUs) granted in 2019 was driven by the result on the Total Shareholder Return (TSR) target and the outperformance against our sustainability goals.

In 2022, we continued our strategic journey to become a company focused on Health, Nutrition & Bioscience, better placed to deploy our resources and capabilities to address the urgent societal and environmental challenges linked to the way the world produces and consumes food. Major steps were taken in this respect. New homes were found for the Materials businesses, enabling them to maximize their full potential to drive the important industrial shift to a bio-based and circular economy. Our operating structure was simplified and streamlined to deliver on our new operating model. At the end of May, we announced our intention to enter into a merger of equals with Firmenich, the world's largest privately-owned fragrance and taste company, to form a leading creation and innovation partner in nutrition, beauty, and well-being.

In view of the upcoming merger, we decided to interrupt the project concerning the review of the Remuneration policy, as the merger will have an impact on the governance and decision-making processes regarding remuneration. A detailed benchmarking study conducted in early 2022 confirmed that DSM lags behind the market as far as the remuneration of the Managing Board is concerned. Referencing a peer group consisting of companies headquartered in Europe and comparable to DSM (pre-merger) in terms of size and complexity, we learned that the remuneration of DSM's Co-CEOs is positioned around the lower quartile of the market. An appropriate step-up would be needed to bring the remuneration close to the market median, as described in our policy.

The 2022 remuneration reported herein is fully aligned with the pursuit of DSM's strategic objectives. In addition, we continued in 2022 to remain focused on customer-centricity, large innovation projects, integrating acquired businesses, cost control, and operational excellence.

This Remuneration report provides a summary of the remuneration policy for the Managing Board of Koninklijke DSM N.V. and the Supervisory Board of Koninklijke DSM N.V. respectively, as well as an overview of the remuneration of the members of the Managing Board and the Supervisory Board in the financial year 2022. The full remuneration policy as approved by the AGM in 2019 is published on the company website. This report is prepared in accordance with the relevant parts of Section 135 Book 2 of the Dutch Civil Code.

Carla Mahieu
Chair, Remuneration Committee

Remuneration of the Managing Board of Koninklijke DSM N.V. 2022

Summary of the remuneration policy of the Managing Board of Koninklijke DSM N.V.

The remuneration policy of the Managing Board is designed to attract and retain qualified leaders who can shape our purpose-led, performance-driven strategy, engage our people and other stakeholders, and ultimately achieve results – putting customers first and delivering on our company's promises. The policy provides clear focus: improving company performance and enhancing purpose-led, long-term value creation across multiple dimensions (People: individual and societal; Planet: environmental and ecological; and Profit: economic and financial) while recognizing the interests of all our stakeholders (our customers, employees, shareholders, as well as society at large).

Remuneration is linked to company and individual performance. Based on the company's short- and long-term strategic objectives as well as our business drivers, results are measured on the basis of specified targets, balancing short- and long-term outcomes, serving the interests of all our stakeholders. To be competitive and to ensure alignment internally, Total Direct Remuneration offered by DSM approaches – from below – the median of a predefined peer group. Reward levels are benchmarked against the Dutch/European labor market peer group, while the design of various reward components is reviewed against the broader perspective of best market practices.

Labor market peer group

European industry peers:

- Clariant AG
- Covestro AG
- Evonik Industries AG
- Givaudan SA
- Johnson Matthey Plc
- LANXESS AG
- Lonza Group AG
- Solvay SA

Dutch AEX-listed peers:

- Koninklijke Ahold Delhaize N.V.
- Akzo Nobel N.V.
- ASML Holding N.V.
- Heineken N.V.
- Koninklijke KPN N.V.
- Koninklijke Philips N.V.
- Randstad N.V.
- Wolters Kluwer N.V.

The full version of the remuneration policy of the Managing Board Koninklijke DSM N.V., as approved by the 2019 AGM, is available on the company website. The following table specifies the elements of the remuneration policy, describing their purpose, design, and link to our company strategy, as well as their potential value.

Purpose	Design and link to strategy	Value
Goal The goal of DSM's remuneration policy for the Managing Board is to offer an on-target total remuneration package approaching – from below – the median of the labor market peer group.		

Purpose	Design and link to strategy	Value
Total Direct Compensation Is the basis for benchmark efforts, i.e., the reference to the labor market peer group.	Includes base salary and variable income. Variable income concerns the performance-related Short-Term Incentive (STI) and the STI deferral & matching plan, as well as the Long-Term Incentive plan (LTI). In addition, Managing Board members are entitled to certain benefits.	Value of each respective item is included hereafter.
Base salary Basic pay for doing the job.	Aims to provide a fair and competitive basis for the total pay level to attract and retain qualified leaders. Annual review based on the market movement for executives based in the Netherlands and peer companies. Regular in-depth benchmark.	Base salaries at DSM approach – from below – the median of the labor market peer group.
Short-Term Incentive (STI) Incentive aligning short-term business objectives and business drivers with strategic company objectives. Driving pay for performance.	The Supervisory Board sets goals and targets for the respective performance year and determines the extent to which these have been achieved. By ensuring that strategic objectives are properly reflected in stretching yet achievable targets, the realization of strategic business objectives is addressed. Half of the at-target STI is linked to financial objectives; the other half is tied to sustainability aspirations and individual goals.	On-target performance: 50% of annual base salary. Maximum opportunity capped at 100%. Threshold: no STI pay-out in case the target for Adjusted EBITDA is not achieved to the level of at least 75%.
STI deferral & matching Ensures that longer-term considerations are sufficiently considered in pursuing short-term objectives.	Conversion of STI into shares, with a 1:1 company match delivered in Performance Share Units (PSUs). The PSUs vest upon the realization of predefined goals (same as LTI program), observing a three-year vesting period. By linking the vesting of the PSUs to the targets of the LTI program, it is ensured that decisions regarding short-term results are aligned with long-term value creation.	Mandatory conversion: 25% of STI achieved; voluntary conversion: 0–25%, with incremental steps of 5%. Maximum number of matching PSUs to vest is equal to number of PSUs granted.
Long-Term Incentive (LTI) Focus on long-term value creation. Designed to ensure that decisions made are in the long-term interests of all stakeholders and to ensure that interests of the Managing Board and the company stakeholders are aligned.	PSUs are awarded every year, to be converted into shares upon realization of predefined targets, observing a three-year vesting period. A five-year holding period (starting at grant date) applies. Performance goals are based on company strategy, driving long-term value creation. Half of the target LTI is linked to financial goals; the other half is linked to sustainability aspirations. Performance is measured over three financial years, starting with the year of grant.	Based on face value, the at-target grant equals 100% of base salary; the number of PSUs granted equals the maximum to vest (i.e., 150% of base salary). Therefore, the maximum vesting opportunity is 100% of the number of PSUs granted.
Shareholding requirement Aligning reward to the interests of stakeholders and emphasizing confidence in performance and strategy.	Managing Board members are expected to build up a shareholding in the company; the minimum shareholding requirement must be accrued in four years. Considered are shares privately purchased and vested shares granted under DSM share-based compensation plans.	The minimum share-holding requirement is 300% of annual base salary for both Co-CEOs and 200% for other Managing Board members.
Pension and other benefits Post-retirement remuneration contributing to the competitiveness of the overall package. Together with other benefits, creates alignment with market practice.	Mandatory enrollment in basic pension plan as applicable to all DSM employees in the Netherlands (Collective Defined Contribution). In addition, a company-paid contribution to allow participation in the so-called Net Pension Plan under conditions as applicable to Netherlands-based employees (Individual Defined Contribution). Other benefits include sick pay (aligned with Netherlands-based employees) and a company car.	Pension scheme aligned with plans in place for employees in the Netherlands. Other benefits aligned with market practice.

Purpose	Design and link to strategy	Value
Goal- and target-setting Goal- and target-setting are key to drive pay for performance aligned with Company strategy and to ensure that decisions made, and results delivered, are aligned with the interests of DSM's stakeholders.	The Supervisory Board sets goals, their respective weight, and targets (i.e., metric to be achieved) for the respective performance year under the STI and LTI scheme, considering: - Company strategy - Focus on long-term value creation - Historical performance, business outlook, and circumstances and priorities - Stakeholder expectations - At target level, there is a 50:50 split between financial goals and sustainability/individual goals	Targets must be stretching yet achievable.

The company website contains an overview of the main terms and conditions of employment of both Co-CEOs.

Total remuneration of the Managing Board 2022

Introduction

Other than the positioning of the targeted Total Direct Compensation, which is at the lower quartile of the peer group, the remuneration for 2022 is aligned with the remuneration policy, and complies with EU requirements, the Dutch Corporate Governance Code and legislation.

Base salary

As at July 2022, the annual review of base salary resulted in an adjustment of 2.5%, As such, the adjustment is aligned towards the market movement for executives based in the Netherlands and peer companies.

Fixed annual base salary

in €	1 July 2022	15 February 2021
Geraldine Matchett	1,028,750	1,003,625
Dimitri de Vreeze	1,028,750	1,003,625

Goals and targets incentive programs

In September 2021, DSM announced its strategic decision to fully focus its resources and capabilities to address the urgent societal and environmental challenges linked to the way the world produces and consumes food. With a growing global population, the world is facing multiple systemic and interconnected food system challenges that impact the health and wellbeing of people, animals, and the planet. Advancements in digital technology and bioscience offer realistic scalable solutions to tackle these challenges, creating new markets and innovation opportunities. With its strong combination of scientific competences and growing portfolio of nutrition and health solutions, DSM is ideally positioned to capture these opportunities.

In view of this, during 2022 DSM simplified its operating structure and reorganized its Health, Nutrition & Bioscience activities into three Business Groups, each with clear opportunities to benefit the health of people and the health of the planet, underpinning the company's growth plans. At the time, DSM announced it was reviewing the strategic options for its Materials businesses. This resulted in the divestment of DSM Protective Materials in 2022, while the closing of the divestment of DSM Engineering Materials is approaching.

As a Health, Nutrition & Bioscience company, DSM has a purpose-led, performance-driven strategy with sustainability and innovation as key growth drivers of its long-term focused plan, underpinned by ambitious targets across People, Planet and Profit. In view of this, the company announced an acceleration in its greenhouse gas emissions reduction target (a reduction of its own emission by 59% in 2030).

Related to this, a broader set of key performance indicators (KPIs) was defined, some of which feature in our incentive programs. This relates to targets that reflect our financial performance as well KPIs reflecting our commitment to deliver on sustainability goals, since contributing to brighter lives goes hand in hand with profitable growth. The design of our Short- and Long-Term Incentive plans emphasizes the importance of building long-term growth opportunities. Targets regarding energy efficiency and greenhouse gas (GHG) emission reduction and building our portfolio of Brighter Living Solutions Plus underpin our commitment to contribute to a better world, while at the same time generating profitable growth in line with our key strategic goals (Adjusted EBITDA and Adjusted net operating free cash flow) and safeguarding employee safety and engagement (definitions are provided in the respective paragraph).

A comprehensive scenario analysis was conducted when the current Remuneration policy was prepared. The analysis confirmed that neither the structure of the incentive schemes nor the nature of the goals would result in inappropriate pay-out levels. DSM's Remuneration policy is designed in the interest of long-term value creation, as is confirmed by a range of factors, including:

- The pay mix: the target value of the LTI has twice the target value of the STI
- The mandatory re-investment of any STI achieved in LTI and the vesting of the match provided on such investments is subject to targets with a long-term horizon
- The targets set for the STI or underlying the LTI grants are consistent with DSM's longer-term strategic financial and sustainability objectives

By this means, the structure of the policy is designed to ensure that the pursuit of short-term objectives does not prevail over the delivery of long-term results.

Short-Term Incentive (STI)

This report includes the STI achievement for 2022, payable in April 2023, and based on the base salary paid in 2022. Targets were set ahead of the STI cycle, in accordance with the Remuneration policy and with reference to the prior year, the budgets and the business plans for the performance year, ensuring that achievement of the threshold, target or maximum pay-out out are appropriately challenging.

Definitions of goals set for 2022 STI (total at-target weight is 50% of annual base salary):

- Adjusted EBITDA (weighting 12.5%): sum of the operating profit plus depreciation and amortization, adjusted for material items of profit/loss following acquisitions/divestments, restructurings and other circumstances deemed necessary
- Adjusted net operating free cash flow (10%): cash flow from operating activities, corrected for the cash flow of the Alternative Performance Measures (APM) adjustments, minus the cash flow of capital expenditures and drawing rights
- Net sales growth (2.5%): net organic sales growth
- Brighter Living Solutions Plus (BLS+) (5%): DSM applies a Sustainable Portfolio Steering methodology to identify, and further develop sustainable, innovative solutions that deliver sustainability benefits within the value chain. Brighter Living Solutions Plus are those products, services and technologies that, considered over their life cycle, offer a sustainability benefit recognized by key stakeholders, underpinned with substantiating evidence, whilst having no urgent negative signals. The set-up enables us to align the impact of our products more closely with the UN Sustainable Development Goals (SDGs)
- Safety (5%): based on the Frequency Index for recordable injuries
- Employee Engagement (5%): based on the High-Performance Norm in the industry
- Individual goals (10%): in 2022, the Managing Board / Executive Committee shared a team target

The financial measures reflect our strategic growth ambitions while the targets related to Brighter Living Solutions Plus, Employee Engagement and Safety relate to our Sustainability Commitments.

Within DSM's STI scheme, pay-out brackets are defined, considering the nature of the goal. A minimum threshold is set for each goal; an achievement below this threshold results in no pay-out with respect to that target. Over-performance results in a pay-out exceeding 100% where the maximum achievement is capped at 200% of the 'at-target' weighting of the respective goal. Goals, targets and pay-out schedules were defined at the beginning of the year, with defined brackets between 'threshold' and 'maximum'. The following table provides an overview of the realization of the 2022 STI targets.

2022 STI achievement

	Weight in % of base salary	Target definition Threshold[1]	Target	Maximum[2]	Achievement	Performance achieved	Pay-out in % of base salary	Pay-out
Adjusted EBITDA	12.5%	≤ €1,845m	€1,920m	> €1,995m	€1,725m	0%	0%	€0
Adjusted net operating free cash flow	10.0%	≤ €974m	€1,019m	> €1,064m	€425m	0%	0%	€0
Net sales growth	2.5%	≤ 2.5%	5%	> 7.5%	8%	200%	5%	€50,809
Brighter Living Solutions Plus	5.0%	≤ 58%	65%	> 73%	67%	100%	5%	€50,809
Safety	5.0%	≥0.24	0.21	≤ 0.20	0.28	0%	0%	€0
Employee Engagement	5.0%	≤ 73%	76%	> 80%	77%	100%	5%	€50,809
Individual value adding goals[3] (Between 0 and 200% of target)	10.0%					200%	20%	€203,239
Total STI achieved over performance year 2022							35%	€355,666

1 If threshold not achieved, no pay-out on respective goal.
2 If achievement at maximum or above, pay-out capped at 200% of weighted target.
3 In 2022, the Managing Board members had a shared strategic objective related to the strategic transformation.

Considering the challenging business environment, DSM delivered strong results in 2022. As in 2021, our net sales growth target was overachieved (8% in 2022, compared with 13% in 2021). Although pricing actions to counter higher energy and raw materials costs delivered increased revenues, the price-cost gap remained significant for parts of the business. The realization (for 2022 representing total group with DSM Protective Materials included until August 31, 2022) of both the Adjusted EBITDA target and the Cash Flow target therefore remained below their respective thresholds. In 2021 a maximum achievement of these goals had been recorded. Our Safety performance during 2022 was disappointing by our own high standards. Although our safety performance did not contribute to the STI in 2022, we remained on track in terms of our other sustainability targets. Our Brighter Living Solutions Plus score improved, attaining 67% in 2022 versus 64% in 2021. Given the significant external and internal changes the organization underwent, we are proud to report that Employee Engagement improved to a level of 77% compared to 75% in 2021. This resulted in an on-target achievement. It also indicates that our employees are supportive of our ongoing transformation to become a leading Health, Nutrition & Bioscience company. The combined realization resulted in a 2022 STI pay-out, as shown below.

Short-Term Incentive

in €	2022	2021
Geraldine Matchett	355,666	819,888
Dimitri de Vreeze	355,666	819,888

Short-Term Incentive deferral & matching

As included in the Offering Circular, the STI deferral & matching scheme will be canceled in view of the intended merger with Firmenich and settled in cash. Regarding performance year 2022, no PSUs will be granted to eligible persons under the respective deferral & matching plans. Instead, a payment in cash will be made. This will equate to the amount of the maximum deferral percentage (i.e., 50% of the STI achieved) that would have applied under the respective DSM Share Matching Plan over performance year 2022 and also what MB members have consistently deferred in the last years. The achievement of the STI over 2022 is therefore multiplied by a factor of 1.5. This resulted in a mark-up of the STI of €177,833. This figure is not included in the above table (the amount of the STI deferred over performance year 2021 was €409,944, converted to 2,506 PSUs).

Grant of PSUs under the STI deferral & matching scheme

Number of PSUs	2022 grant	2021 grant
Geraldine Matchett	2,506	1,850
Dimitri de Vreeze	2,506	1,850

Long-Term Incentive (LTI)

2022 and 2023 grant

On 31 March 2022, 8,500 Performance Shares Units (PSUs) were granted to each of the Co-CEOs (2021: 10,000). The grant is based on the annual base salary applicable on the grant date and the average share price in January of the year of grant. The fact that the number of PSUs granted in 2022 is lower compared to the previous year is a result of the share price appreciation between both grant dates.

For performance year 2023, final approvals are yet to be made regarding the remuneration of the Executive Committee with regards to the question of whether a grant will be made and – if a grant is confirmed – the number of equity-related instruments to be granted.

Goal setting

Targets were set ahead of the LTI cycle, in accordance with the remuneration policy, ensuring that achievement is realistic but challenging. The following goals were set for the LTI grants:

- Total Shareholder Return — TSR (weighting 25%): sum of capital gain and dividends paid, representing the total return to shareholders; the relative ranking (within the peer group) reflects the overall performance relative to our peers
- Return on Capital Employed — ROCE (25%): operating profit as percentage of weighted average capital employed
- Energy Efficiency Improvement — EEI (25%, as of the 2022 grant 15%): the reduction of the amount of energy used per unit product (known as energy efficiency) on a three-year rolling average basis
- Greenhouse Gas Emissions — GHGE (25%, as of the 2022 grant 35%): absolute structural reduction of greenhouse gas emissions in kilotons

Vesting 2019 grant

The performance period of the PSUs granted in 2019 was completed by year-end 2021: the actual vesting was on 31 March 2022. This concerns the PSUs granted under the Long-Term Incentive plan as well as the PSUs granted under the STI deferral & matching plan. The following vesting schemes applied.

TSR[1]		ROCE		EEI		GHGE Efficiency improvement	
Rank	% of PSUs granted that vest[2]	ROCE ultimo performance period	% of PSUs granted that vest[2]	EEI% (over a 3-year period)	% of PSUs granted that vest[2]	GHGE Efficiency absolute reduction (3-year period)	% of PSUs granted that vest[2]
1	100	>16.7	100	≥4.00	100	<1.285	100
2	97	>16.20 - ≤16.70	83	3.25 - <4.00	83	1.285 - <1.290	83
3	93	>15.20 - ≤16.20	67	2.75 - <3.25	67	1.290 - <1.295	67
4	87	>14.70 - ≤15.20	50	2.50 - <2.75	50	1.295 - <1.300	50
5	80	>14.20 - ≤14.70	33	2.25 - <2.50	33	1.300 - <1.305	33
6	73	≤14.20	-	2.00 - <2.25	17	1.305 - <1.310	17
7	67			<2.00	-	≥1.310	-
8	50						
9	33						
10–15	0						

1 Peer group 2019 grant includes Arkema, BASF, Celanese, Chr. Hanssen, Clariant, Croda International, Evonik, Givaudan, IFF, Kerry, Lonza Group, Novozymes, Solvay, and Symrise. In line with the plan rules, IFF replaced DuPont in the Total Shareholder Return (TSR) peer group.

2 Any PSU grant concerns the maximum number that may vest, 100% vesting included in this table means that the target has been achieved to the maximum level.

On the back of a strong share price appreciation, our Total Shareholder Return performance remained strong. As in 2021, we ranked second, resulting in an achievement of 145% of target. This figure equates to the vesting of 97% of the number of Performance Share Units initially granted and linked to this goal. At 14.3%, the ROCE target resulted in a vesting of 50% of target (or 33% of PSUs granted, related to this goal); the 2021 realization against this target remained below the threshold. In terms of Energy Efficiency, DSM realized an improvement of 14% over the performance period. In terms of greenhouse gas emissions, DSM realized an absolute reduction over the performance period of 1,058kt on average. As a result, the vesting related to both sustainability goals was at maximum level. The below table provides an overview of the vesting (i.e., conversion to shares) on 31 March 2022 of the number of Performance Share Units granted in 2019: 82.5%

(123.75% of target) of the Performance Share Units granted under the Long-Term Incentive plan vested (compared to 74.2% in 2021), whereas all Performance Share Units granted in 2019 under the STI deferral & matching scheme vested in 2022.

PSUs granted in 2019 vested in 2022

Numbers of PSUs vested[1]	LTI	STI deferral & matching scheme
Geraldine Matchett	10,313	2,552
Dimitri de Vreeze	10,313	2,474

1 At vesting, a sell-to-cover applied: out of the vested shares, a number of shares are sold at vesting date to cover taxes due.

Pension and other benefits

Participation in the basic pension plan provided by the Dutch pension fund (*Stichting Pensioenfonds DSM Nederland* – PDN) to all DSM employees in the Netherlands is mandatory for the Managing Board. Regarding pensionable salary not covered by the basic pension plan, a company-paid pension contribution as determined by the Supervisory Board applies. This contribution can be used by Managing Board members to participate in the so-called Net Pension Plan under conditions applicable to all participating DSM employees. The company provides accident insurance cover, a company car, and a fixed representation allowance in line with market practice.

Total remuneration

Actual total remuneration for 2022 is aligned with the remuneration policy. The following table provides an overview of the total remuneration expense for the company in relation to the Managing Board in accordance with IFRS rules (these costs are not necessarily equal to compensation paid or the cash-out for DSM).

Total remuneration expenses incurred in 2022 were higher than in 2021. The differences between the two years are mainly attributable to variable compensation. The Short-Term Incentive concerns the incentive accrued for in 2022. As explained herein, this figure has been multiplied by a factor of 1.5 to offset the cancelation of the STI deferral & matching plan in view of the intended merger with Firmenich. The total amount is 35% lower than in 2021. The expense for share-based compensation is approximately €0.7 million higher in 2022 than in 2021. This is for two reasons: first, the fact that the 2022 amount includes different grants, and second, the additional cost considered in 2022 in view of the Long-Term Incentive grants made in 2021 and 2022. As included in the Offering Circular, PSUs granted in 2021 and 2022 under the Long-Term Incentive plan shall vest on the vesting date as initially determined at the grant date. Such vesting shall be based on the average of the vesting result achieved over the vesting that occurred in 2020, 2021 and 2022. Considering IFRS accounting standards, this results in an additional expense of €0.5 million for each of the Co-CEOs.

Total remuneration expense for the Managing Board in accordance with IFRS definitions

x € thousand	Fixed		Variable compensation				Fixed		Fixed		Total		Proportion fixed / variable remuneration	
	Base salary / fees		Short-term incentive		Share-based compensation[1]		Pension expenditure		Other items[2]					
	2022	2021	2022[3]	2021	2022[4]	2021[4]	2022	2021	2022[5]	2021	2022	2021	2022	2021
Geraldine Matchett	1,016	994	533	820	1,626	903	178	153	17	17	3,370	2,887	36:64	40:60
Dimitri de Vreeze	1,016	994	533	820	1,624	903	201	180	(27)	46	3,347	2,943	36:64	41:59
Total	2,032	1,988	1,066	1,640	3,250	1,806	379	333	(10)	63	6,717	5,830	36:64	41:59

1 Share-based compensation represents the expense of Performance Share Units (PSUs) awarded. These costs are considered over the vesting period and therefore cover several years. Against the opening price at vesting date (i.e., 31 March 2022), the 2022 vesting (the Co-CEOs together) represented the value of €4.2 million (2021 €3.2 million), subject to a sell to cover.

2 Fringe benefits, such as company car and allowances.

3 Including €177,833 (for each of the Co-CEOs) in lieu of the cancelation of the STI deferral & matching scheme for performance year 2022 as included herein.

4 Share-based compensation for 2022 concerns the grants in 2019 (partial), 2010, 2021 and 2022 (partial), share-based compensation for 2021 concerns the grants in 2018 (partial), 2019, 2020 and 2021 (partial).

5 Other items for Mr. De Vreeze include the impact of a tax equalization because he temporarily observed the role of Chair of the Executive Leadership Team of DSM Nutritional Products. This impact exceeds cost of other benefits provided.

Equity-based compensation

Main characteristics

The main conditions of the share-based compensation are:

- Vehicle	Performance Share Units (PSUs), converted to shares at vesting
- Grant date	Last trading day in March
- Vesting period	Three years, starting at Grant date
- Vesting conditions	Realization predefined performance goals and in service at vesting date
- Performance period	Three performance years, starting 1 January in the year of grant
- Holding period	Five years, starting at Grant date
- Lock-up period	Blocking period chosen by incumbent; may result in a tax discount

Outstanding Performance Share Units

The table below provides an overview of outstanding PSUs (granted under the LTI and STI deferral & matching scheme respectively).

Outstanding PSUs

	Year of issue	Outstanding at 31 Dec. 2021	In 2022			Outstanding at 31 Dec. 2022	Share price at date of grant (€)
			Granted	Vested	Forfeited / expired		
Geraldine Matchett	2019	15,052	-	(12,865)	(2,187)	-	97.74
	2020	14,058	-	-	-	14,058	105.00
	2021	11,850	-	-	-	11,850	147.40
	2022	-	11,006	-	-	11,006	163.65
	Total	**40,960**	**11,006**	**(12,865)**	**(2,187)**	**36,914**	
					Retained shares originated from PSUs	58,924	
Dimitri de Vreeze	2019	14,974	-	(12,787)	(2,187)	-	97.74
	2020	14,132	-	-	-	14,132	105.00
	2021	11,850	-	-	-	11,850	147.40
	2022	-	11,006	-	-	11,006	163.65
	Total	**40,956**	**11,006**	**(12,787)**	**(2,187)**	**36,988**	
					Retained shares originated from PSUs	49,482	

For employee information, as required by section 383d Book 2 of the Dutch Civil Code, reference is made to Note 27 Share-based compensation. On 31 December 2022, 1,647,106 (2021: 1,665,073) of the total number of treasury shares outstanding were held for servicing equity-based remuneration plans.

Shareholding obligation

In addition to the performance shares held because of vested grants under the DSM Stock Incentive Plan, the Co-CEOs invested in DSM shares. These shares were bought through private transactions with private funds (including shares purchased through STI deferral). The below table provides an overview of the number of shares held at year-end. The Co-CEOs significantly exceed the shareholding obligation (300% of base salary).

Managing Board holdings of DSM shares

	31 December 2022			31 December 2021		
	Ordinary shares purchased with private money	Holdings from vested PSUs	Total	Ordinary shares purchased with private money	Holdings from vested PSUs	Total
Geraldine Matchett	19,242	58,924	78,166	16,736	51,594	68,330
Dimitri de Vreeze	28,345	49,482	77,827	25,839	42,722	68,561
Total holdings	47,587	108,406	155,993	42,575	94,316	136,891

Company performance versus remuneration over time

Five-year review of company performance and Managing Board remuneration

The following table provides an overview of the development of the remuneration of the members of the Managing Board over the past five years, the development of company performance, and the average remuneration of other employees (excluding the Managing Board members). Total remuneration for Managing Board members consists of the remuneration expenses calculated in accordance with IFRS as included in the annual reports of the relevant years. The table provides an overview of company performance based on Adjusted EBITDA, share price (year-average) and the reduction of greenhouse gas emissions.

Typically, the share of total remuneration that is at risk varies for different employee segments and geographies, due to the impact of incentive schemes. While the percentage of variable pay as a percentage of total remuneration is highest for the Co-CEOs (at target 150%), it may be limited or nil for other employee segments or in certain countries (also because of collective agreements). Based on performance, the results of the respective incentive schemes (and therefore the impact on total remuneration) varies over time. The average remuneration of all other employees (excluding the Managing Board) is influenced not only by factors such as differences in the pay mix, or changes in exchange rates, but also by factors related to the composition of the employee population such as the impact of acquisitions and divestments, restructuring, and in- and outflow of personnel.

5-year overview of the year-on year-change of remuneration and company performance

		2022	2021	2020	2019	2018	Average
Managing Board remuneration							
Geraldine Matchett	Base salary	1,016	994	889	630	614	829
		2.2%	11.8%	41.1%	2.6%	2.7%	12.1%
	Total remuneration expenses	3,370	2,887	2,595	2,182	2,269	2,661
		16.7%	11.3%	18.9%	-3.8%	22.3%	13.1%
Dimitri de Vreeze	Base salary	1,016	994	889	630	614	829
		2.2%	11.8%	41.1%	2.6%	2.7%	12.1%
	Total remuneration expenses	3,347	2,943	2,639	2,175	2,188	2,658
		13.7%	11.5%	21.3%	-0.6%	25.1%	14.2%
Company performance							
Adjusted EBITDA[1]		1,725[2]	1,814	1,534	1,551	1,532	1,631
		-4.9%	18.3%	-1.1%	11,8%[3]	6.0%	6.0%
Year-average share price (€)		143.36	164.86	123.70	103.44	84.00	123.87
		-13.0%	33.3%	19.6%	23.1%	25.8%	17.7%
Greenhouse gas emission improvement		5.1%	14.8%	8.5%	12.7%	9.3%	10.1%
Average employee remuneration							
Average remuneration employees global		92,098	86,860	84,169	84,320	84,500	86,389
		6.0%	3.2%	-0.2%	-0.2%	-1.6%	1.5%

1 Adjusted EBITDA as of 2019 reflects Adjusted EBITDA from Continuing Operations as per current scope. The Adjusted EBITDA for 2018 reflects the Total Group.

2 Represents total group with DSM Protective Materials included until August 31, 2022.

3 EBITDA change versus a pro forma restated 2018 Adjusted EBITDA updated for Continuing Operations. EBITDA change versus 2018 reported Adjusted EBITDA 1.2%.

Although DSM delivered a strong performance in 2022, the price-cost gap remained significant for parts of the business. This resulted in an Adjusted EBITDA lower than in 2021. In line with other companies in the industry whose stock is traded similarly to the DSM stock, the share price dropped during 2022. In line with these observations, the STI fell to a lower level compared to 2021. It should be noted that the increase of remuneration expenses for the Co-CEOs in 2022 compared to 2021 is mainly caused by the fact that -in accordance with IFRS rules- the cost to be considered in 2022 for the outstanding yet unvested PSUs had to be corrected. This correction was necessary because the PSUs granted under the Long-Term Incentive plan in 2021 and 2022, respectively, shall vest against the average of the vesting result achieved over the vesting that occurred in 2020, 2021 and 2022. This is in accordance with IFRS rules and In line with the Offering Circular. Had this not been the case, the 2022 remuneration expenses for each of the Co-CEOs would have dropped by €0.5 million. This demonstrates that total Co-CEO remuneration fluctuates in accordance with the fluctuations in the Short-Term Incentive and the cost of the share-based compensation. Since the variable portion of total remuneration is smaller for employees globally, the year-to-year change of the average of this figure (which includes all employee costs as included in Note 5 of the Consolidated Financial Statements) always fluctuated less in the past. In 2022, however, we recorded a 6% upward movement of the average employee cost. This increase includes one-off payments made to our employees to offset the effects of rising inflation. It should be noted that the average remuneration of all employees remains impacted by merger & acquisition activities and restructuring of our operations. Exchange rate adjustments also have an impact. Furthermore, the year-on-year change of the average employee cost globally is influenced by the fact that the composition of the underlying employee population changes from year to year. This is attributable to a range of factors including retirements, new hires and restructurings.

Pay ratio

The pay ratio is calculated at 31 December 2022 and is based on the average remuneration expense reported for each Co-CEO and the total average employee cost (on an FTE basis). Intercompany comparisons must be made with caution, as differences in the composition of the workforce, the geographical spread or in pay structures may occur. The pay ratio will differ from year to year, since the variable pay (as a percentage of annual base salary) will differ from year to year based on company results. Since their pay is to a larger extent at risk, such fluctuations have a higher impact at Managing Board or executive level, compared to the average variable pay of the employee group (limited or no variable pay component). The ratio will furthermore be influenced by differences in pay structures between regions, acquisitions/divestments and foreign exchange rates.

At DSM, we believe that remuneration throughout the organization should be based on the same principles and values but should also consider local regulations and practices. This means that we aim for a consistent global approach (median of the market reference) and take local circumstances into consideration. This may, for example, result in a different pay mix between countries or for employee segments without jeopardizing our principles and values. That is how we built and internally align our remuneration policies, including the Remuneration policy for the Managing Board. Ratios do not necessarily provide a reflection of such considerations, as they ignore, among other things, the typical differences between fixed and variable pay in geographies and/or employee segments and are influenced by changing currency conversion rates as well as being vulnerable to M&A activities.

The 2022 ratio of total remuneration expenses for each of the Co-CEOs, including annual base salary, STI, LTI expenses and other benefits such as pension (as reported in this Remuneration report) versus the average remuneration of total employees globally is 36:1 (2021: 34:1). As indicated the respective paragraph, this is merely driven by the IFRS requirement impacting the expenses (accruals) to be considered for outstanding equity-based compensation. Had this not occurred, the Pay ratio would have dropped to 31 on the back of the Short-Term Incentives lagging behind the incentive recorded over 2021.

Underlying data for the pay ratio calculation can be retrieved from the table DSM's remuneration expense for the Managing Board (including table notes) in the section Total remuneration of this Remuneration report, and from the table Employee benefit costs in Note 5 Net sales and costs (continuing operations) to the consolidated financial statements.

Retrospect and outlook

As mentioned in the 2021 Remuneration report, DSM intended to revise its Remuneration policy in 2022. In view of the intended merger with Firmenich and consequently the change of the regulatory environment, this project was interrupted. Following a successful completion of the intended merger with Firmenich, the DSM-Firmenich shareholders will at each annual General Meeting have the opportunity to vote, with non-binding effect, on DSM-Firmenich's remuneration report (for the prior financial year) and, with binding effect, on the maximum remuneration envelope for the members of the Board of Directors of DSM-Firmenich (until the next annual General Meeting) and the Executive Committee of DSM-Firmenich (for the next financial year).

Remuneration of the Supervisory Board of Koninklijke DSM N.V. 2022

Summary of the Remuneration policy of the Supervisory Board of Koninklijke DSM N.V.

The Remuneration policy is designed to engage qualified leaders with the right balance of personal skills, competences and experience required to oversee the execution of the company's strategy, its performance, and its creation of long-term value, recognizing the interests of all stakeholders. In line with the Dutch Corporate Governance Code, the remuneration is not linked to company and individual performance. As a reference, the remuneration of the Supervisory Board is benchmarked to market practice, predominantly against AEX companies, given the company's country of domicile. The total fixed remuneration should approach the median of the reference market. The full version of the remuneration policy for the Supervisory Board of Koninklijke DSM N.V. as approved by the 2019 AGM is available on the company website.

The table below summarizes the key elements of the remuneration policy, describing purpose, design and (potential) value.

Purpose	Design	Value
Fixed fee Basic pay for doing the job	Reward Supervisory Board members and incentivize them to utilize their skills and competences to the maximum extent possible in executing their tasks. The reward reflects the nature of responsibilities, the time spent, and aims to provide a fair and competitive pay level to engage qualified leaders. Review: in principle, every three years, based on in-depth benchmarking.	Approaching the median of the market reference (predominantly AEX companies). Position and annual fee: - Chair €105,000 - Deputy Chair €75,000 - Member €70,000 - Chair Audit Committee €18,500 - Member Audit Committee €12,000 - Chair other Committees €14,000 - Member other Committees €8,500
Intercontinental travel fee	Fixed amount representing time commitment related to intercontinental travel.	€5,000 for each time it is required to travel outside the continent of residence.
Expenses	Expenses incurred in fulfilling duties are reimbursed. To be paid upon submission of a statement of expenses, partially covered by a fixed allowance.	Depending on level of expenses. Fixed per annum: €2,475 gross per annum.
Shareholding requirement	In line with Dutch Corporate Governance Code, no mandatory shareholding requirement. Supervisory Board members are encouraged to invest in privately owned DSM shares.	Not applicable.
Benefits and loans	Supervisory Board members are not entitled to participate in any benefits program offered to employees. Loans will not be provided.	Not applicable.

Total remuneration 2022

Committee overview

The Supervisory Board members are assigned to the various committees.

Committee overview	Audit	Nomination	Remuneration	Sustainability
Thomas Leysen (Chair)		Chair	Member	
John Ramsay (Deputy Chair)	Chair		Member	
Eileen Kennedy		Member		Chair
Carla Mahieu		Member	Chair	
Erica Mann	Member			Member
Frits van Paasschen			Member	Member
Pradeep Pant	Member	Member		
Corien Wortmann-Kool	Member			Member

Total Remuneration

The below table provides an overview of the total remuneration provided in 2022.

Remuneration of Supervisory Board Members

in €	Fixed						Total remuneration		Portion fixed/variable compensation	
	Annual fee		Committee fee		Other costs[1]					
	2022	2021	**2022**	2021	**2022**	2021	**2022**	2021	**2022**	2021
Thomas Leysen, Chair	105,000	90,417	22,500	21,667	2,475	1,250	129,975	113,334	100:0	100:0
John Ramsay, Dep. Chair	75,000	72,917	27,000	27,000	2,475	1,250	104,475	101,167	100:0	100:0
Rob Routs, Chair[2]	-	43,750	-	9,375	-	521	-	53,646	n.a.	100:0
Pauline van der Meer Mohr, Dep. Chair[2]	-	31,250	-	9,375	-	521	-	41,146	n.a.	100:0
Eileen Kennedy, Member	70,000	70,000	22,500	22,500	17,475	6,250	109,975	98,750	100:0	100:0
Carla Mahieu, Member[3]	70,000	40,833	18,958	8,167	2,475	729	91,433	49,729	100:0	100:0
Erica Mann, Member	70,000	70,000	20,500	20,500	17,475	1,250	107,975	91,750	100:0	100:0
Frits van Paasschen, Member	70,000	70,000	17,000	18,458	17,475	11,250	104,475	99,708	100:0	100:0
Pradeep Pant, Member	70,000	70,000	20,500	20,500	12,475	11,250	102,975	101,750	100:0	100:0
Corien Wortmann-Kool, Member[3]	70,000	40,833	20,500	11,958	2,475	729	92,975	53,520	100:0	100:0
Total	600,000	600,000	169,458	169,500	74,800	35,000	844,258	804,500	100:0	100:0

1 Involves International travel fee, expenses allowance and expenses exceeding expenses allowance.

2 Member of the Supervisory Board until 6 May 2021.

3 Member of the Supervisory Board since 6 May 2021.

In line with the remuneration policy, variable compensation does not apply, and Supervisory Board members do not participate in any pension scheme. No extraordinary items apply. The total remuneration of the Supervisory Board is slightly above the 2021 level, explained by the fact that more meetings in 2022 have been in person or hybrid, whereas the 2021 meetings were predominantly virtual.

Benefits and loans

Members of the Supervisory Board are not eligible for any benefit programs offered by the company (or any beneficiary) to its employees, nor are any loans provided.

Equity-based compensation

As confirmed in the remuneration policy, Supervisory Board members do not receive any equity-based compensation. They are, however, encouraged to hold privately owned shares in DSM. At year-end 2022, Thomas Leysen held 10,035 shares (2021: 5,035) and John Ramsay held 1,788 shares (2021: 1,068). No other Supervisory Board members held company shares at year-end 2022.

Remuneration over time

The below table provides an overview of the total remuneration of the Supervisory Board members over a five-year period. A comparison of the development of total remuneration compared to company performance is not provided, as the Supervisory Board's total remuneration is not linked to company performance (Dutch Corporate Governance Code and remuneration policy of the Supervisory Board Koninklijke DSM N.V.).

5-year overview of the Supervisory Board remuneration

	2022	2021	2020	2019	2018	5-years average[1]
Thomas Leysen, Chair	129,975	113,334	53,520	-	-	
John Ramsay, Dep. Chair	104,475	101,167	98,250	97,000	82,450	96,668
Eileen Kennedy, Member	109,975	98,750	98,750	110,292	90,250	101,603
Carla Mahieu, Member	91,433	49,729	-	-	-	
Erica Mann, Member	107,975	91,750	96,750	67,251	-	
Frits van Paasschen, Member	104,475	99,708	96,750	114,125	102,250	103,462
Pradeep Pant, Member	102,975	101,750	96,750	109,125	98,250	101,770
Corien Wortmann-Kool, Member	92,975	53,520	-	-	-	

1 Average only calculated if the respective Supervisory Board member was engaged during five whole years.

Closing remarks and shareholder vote

The 2019 AGM approved the remuneration policy for the Supervisory Board of Koninklijke DSM N.V. (98.45% in favor) as well as the remuneration policy for the Managing Board of Koninklijke DSM N.V. (97.48% in favor). The total remuneration delivered in 2022 is aligned with the respective remuneration policies: other than total remuneration lagging behind the median of the labor market peer group, no deviations or derogations applied. As in 2021, no revision or claw-back of any incentives occurred in 2022.

Questions raised in the 2022 AGM regarding remuneration items were addressed in the respective meeting (reference is made to the Q&A document and minutes of that meeting, posted on the company website). As a result, there were no specifics raised that needed to be addressed in this Remuneration report.

Heerlen, 1 March 2023

The Supervisory Board
Thomas Leysen, Chair
John Ramsay, Deputy Chair
Eileen Kennedy
Carla Mahieu
Erica Mann
Frits van Paasschen
Pradeep Pant
Corien Wortmann-Kool

Information on the DSM share

Shares and listing[1]

Ordinary shares in Koninklijke DSM N.V. are listed on the **Euronext stock exchange** in Amsterdam (Netherlands) (Stock code 00982, ISIN code NL0000009827). **Options** on ordinary DSM shares are traded on the **European Option Exchange** in Amsterdam (Euronext.LIFFE).

In the US, a sponsored unlisted American Depositary Receipts (ADR) program was offered by Deutsche Bank Trust Co. Americas (DR ISIN US7802491081), with four ADRs representing the value of one ordinary DSM share. This deposit agreement has been terminated with an effective termination date of 14 November 2022.

Besides the ordinary shares, 44.04 million **Cumulative Preference Shares A** (cumprefs A) are in issue, which are not listed on the stock exchange; these have been placed with institutional investors. The cumprefs A have the same voting rights as ordinary shares, as their nominal value of €1.50 per share is equal to the nominal value of the ordinary shares.

The **dividend percentage** of the cumprefs A is based upon the dividend yield of the ordinary shares (dividend as a percentage of the average share price). This percentage may be increased or decreased by a mark-up or discount of no more than one hundred (100) basis points, to be determined by the Managing Board in consultation with the Supervisory Board. The basis of computation of the dividend on the Cumulative Preference Shares is €5.2942.

Transfer of the cumprefs A requires the approval of the Managing Board, unless the shareholder is obliged by law to transfer his or her shares to a previous shareholder.

The average number of **ordinary shares outstanding** in 2022 was 172,826,732. All shares in issue are fully paid. On 31 December 2022, the company had 173,075,397 ordinary shares outstanding.

Issue of shares

The **issue of shares** takes place by a decision of the Managing Board. This decision is subject to the approval of the Supervisory Board. The scope of this power of the Managing Board shall be determined by a resolution of the General Meeting of Shareholders and shall relate to at most all unissued shares of the authorized capital, as applicable now or at any time in the future. In the Annual General Meeting of Shareholders of 10 May 2022, this power was extended up to and including 10 November 2023, on the understanding that this authorization of the Managing Board is limited to a number of ordinary shares with a nominal value amounting to 10% of the issued capital at the time of issue, and to an additional 10% of the issued capital at the time of issue in connection with a rights issue. The issue price will be determined by the Managing Board and shall to the extent possible be calculated on the basis of the trading prices of ordinary shares on the Euronext Amsterdam Stock Exchange.

Distribution of shares

Under the Dutch Financial Markets Supervision Act, **shareholdings of 3% or more** in any Dutch company must be disclosed to the Netherlands Authority for the Financial Markets (AFM). According to the register kept by the AFM, the following shareholders had disclosed that they have a direct or indirect (potential) interest between 3% and 10% in DSM's total share capital as at 31 December 2022:

- ASR Nederland N.V.
- BlackRock, Inc.
- Capital Research and Management Company
- NN Group N.V.
- Rabo Participaties B.V.

1 Status as at 31 December 2022.

Repurchase of own shares

The company may acquire **paid-up own shares** by virtue of a decision of the Managing Board, provided that the par value of the acquired shares in its capital amounts to no more than one tenth of the issued capital. Such a decision is subject to the approval of the Supervisory Board. In the Annual General Meeting of Shareholders of 10 May 2022, the Managing Board was authorized to acquire own shares for a period of 18 months from said date (i.e., up to and including 10 November 2023), up to a maximum of 10% of the issued capital, provided that the company will hold no more shares in stock than at maximum 10% of the issued capital.

The total number of issued shares is 218,826,029, consisting of 174,786,029 ordinary shares and 44,040,000 Cumprefs A.

In 2022, DSM **repurchased 1,330,000** of its own shares for a total consideration of **€210 million** for the purpose of covering the company's commitments under existing share-based compensation plans and final stock dividend 2021.

Development of the number of ordinary DSM shares

	2022			2021
	Issued	Repurchased	Outstanding	Outstanding
Balance at 1 January	174,786,029	1,817,299	172,968,730	172,219,339
Changes:				
Reissue of shares in connection with share-based payment plans	-	(617,967)	617,967	803,049
Repurchase of shares	-	1,330,000	(1,330,000)	(1,050,000)
Bearer share certificates that have become void	-	-	-	(7,466)
Dividend in the form of ordinary shares	-	(818,700)	818,700	1,003,808
Balance at 31 December	174,786,029	1,710,632	173,075,397	172,968,730
DSM share prices on Euronext Amsterdam (€ per ordinary share):				
- Highest closing price			199	199
- Lowest closing price			112	137
- At 31 December			114	198
Market capitalization at 31 December (€ million)[1]			19,978	34,608

1 Source: Bloomberg.

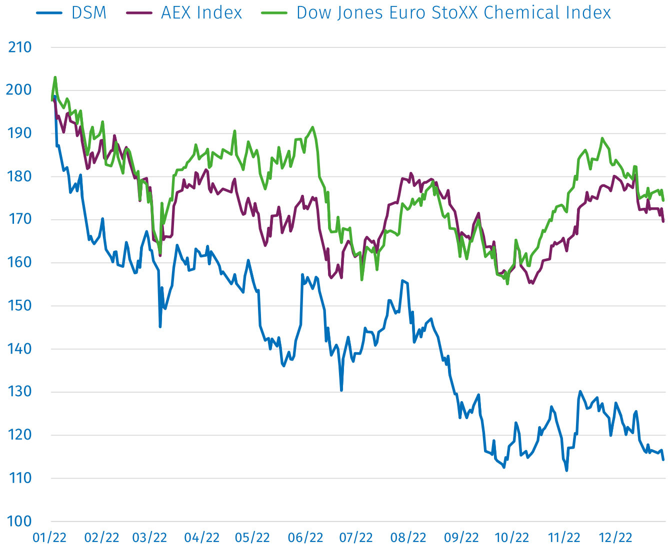
Geographical spread of DSM shares outstanding

in % (excl. cumprefs A)	2022	2021
North America	32	35
United Kingdom	18	17
France	15	13
Netherlands	10	11
Nordic	6	7
Switzerland	5	6
Germany	5	5
Asia-Pacific	4	4
Other countries	5	2

DSM Share price development versus AEX and Dow Jones Euro StoXX Chemical Index

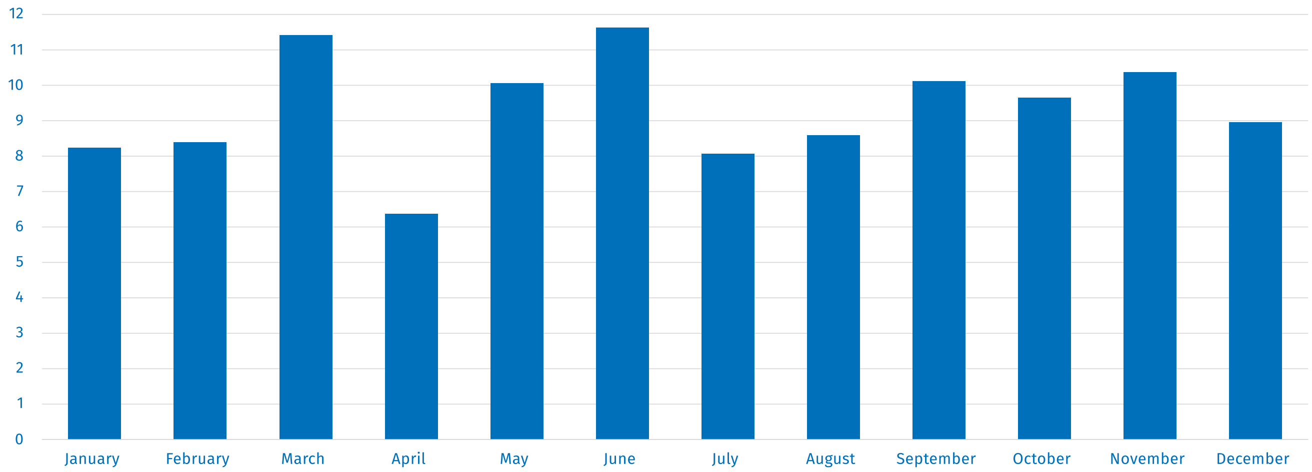
rebased versus DSM share price

in €



Trading volume ordinary DSM shares 2022

x million shares as reported by Euronext Amsterdam



Article 10 of Directive 2004/25

With regard to the information referred to in the Resolution of article 10 of the EC Directive pertaining to a takeover bid which is required to be provided according to Dutch law, the following can be reported:

- Information on major shareholdings can be found above (Distribution of shares)
- There are no special statutory rights attached to the shares of the company
- There are no restrictions on the voting rights of the company's shares. When convening a General Meeting of Shareholders, the Managing Board is entitled to determine a registration date in accordance with the relevant provisions of the Dutch Civil Code
- The applicable provisions regarding the appointment and dismissal of members of the Managing Board and the Supervisory Board and amendments to the Articles of Association can be found in the section Corporate governance and risk management
- The powers of the Managing Board regarding the issue and repurchase of shares in the company can be found in the sections Issue of shares and Repurchase of own shares above
- Other information can be found in the 'Notes to the consolidated financial statements' (16 Equity, 19 Borrowings, 27 Share-based compensation)

Dividend on ordinary shares

An interim dividend for the year 2022 of €0.93 per ordinary share was recognized as a liability in the second quarter of 2022. The total distribution amounted to €161 million. This interim dividend was paid as from 26 August 2022 in cash after deduction of 15% Dutch dividend withholding tax.

Upon a successful completion of the merger transaction between DSM and Firmenich, DSM-Firmenich intends to offer a gross dividend to all DSM-Firmenich shareholders of in total €423 million which is almost €1.60 per share as described in the Offering Circular. Subject to the General Meeting of DSM-Firmenich resolving to pay this dividend, eligible DSM shareholders who tender their DSM ordinary shares for DSM-Firmenich ordinary shares will receive a total dividend of about €2.53 over 2022 (versus €2.50 over 2021).

Dividend on Cumulative Preference Shares A

The Cumprefs A are, in accordance with article 32, section 3, of the Articles of Association, entitled to a dividend for the financial year 2022, which dividend has been determined by the Managing Board in consultation with the Supervisory Board to be €0.1334 per Cumulative Preference Share A, which is equal to the dividend paid over 2021 for these shares. An interim dividend of €0.04 per Cumulative Preference Share A having been paid in August 2022, the final dividend thus amounts to €0.0934 per Cumulative Preference Share A.

Bearer shares

On 27 April 2006, all bearer shares (*'aandelen aan toonder'*) in DSM's issued share capital were converted into registered shares (*'aandelen op naam'*) pursuant to an amendment of the Articles of Association made at the time. In order to exercise the rights vested in the shares, holders of former bearer shares were required to hand in their bearer share certificates (*'aandeelbewijzen'*) to DSM.

Pursuant to an amendment of Section 2:82 of the Dutch Civil Code (DCC) in 2019, DSM shareholders who still have not handed in their bearer share certificates will lose any entitlement to exchange their bearer share certificates for a replacement share as per 2 January 2026.

In accordance with Section 2:391(2) DCC, DSM hereby gives notice of the following:

(i) A shareholder may not exercise the rights vested in a share until after he/she has handed in his/her bearer share certificates to DSM.

(ii) A bearer share certificate which was not handed in to DSM on or before 31 December 2020 has become void and the share represented by the bearer share certificate has been acquired by DSM for no consideration, irrespective of whether DSM's Articles of Association allow the acquisition of its own shares. Section 2:98a (3) DCC does not apply to this acquisition. DSM shall be registered as the shareholder thereof in DSM’s shareholders register. DSM shall hold the shares until the end of the period mentioned in (iii) below.

(iii) A shareholder who hands in a bearer share certificate to DSM no later than five years after the acquisition mentioned in (ii) above, therefore no later than 1 January 2026, is entitled to receive from DSM a replacement registered share provided that this share is registered in DSM’s shareholders register in the name of a central securities depository, and DSM will instruct the shareholder’s bank to credit the share in a securities account in the name of holder of the bearer share certificate.

The procedure described above follows from Section 2:82(3) up to and including (9) DCC, whose provisions apply.

Sustainability statements

Stakeholder engagement

In the following pages, we present some examples of how we engage with external stakeholders, including the partners in our value chain. For an overview of all our stakeholders, see Stakeholders. For information on how we engage with our employees, see People. For historical information on our sustainability performance, please see the five-year summary – sustainability tables and the company website.

Suppliers

Our partnerships and suppliers across the value chain play an essential role in helping us all thrive in ways that benefit People, Planet and Profit. The goal is to develop our business together in an environmentally, economically and socially responsible manner. This is why we expect all our suppliers to act sustainably.

The DSM Sustainable Procurement Program

Our Sustainable Procurement Program comprises the following elements:

- Supplier development and evaluation program, in which we focus on assessing, auditing and further improving our suppliers' sustainability performance by actively developing and following up on corrective actions
- Our Scope 2 program for reducing greenhouse gas (GHG) emissions from purchased electricity
- Our Scope 3 program for reducing GHG emissions throughout our value chain, where we are working together with our suppliers on our collective carbon footprint and emissions
- A sustainable decarbonization of heat via the procurement of renewable fuels

Supplier Sustainability Evaluation

	2022	2021
Spend coverage SCoC	96%	95%
EcoVadis assessments	429	411
Together for Sustainability audits	9	8
Spend on local suppliers[1]	64%	62%

1 For continuing operations only. Local supplier is defined where the supplier country is equal to the purchasing location's country.

The Supplier Code of Conduct (SCoC) is the foundation of DSM's Sustainable Procurement Program and outlines the business principles which are most relevant for our supply chain, clustered along the People, Planet, and Profit dimensions. In 2022, more than 96% of our spend was covered by the SCoC, exceeding our 95% target. The SCoC is available on the DSM Supplier website in eight languages.

In addition to our SCoC, DSM invites suppliers to perform an EcoVadis assessment. An EcoVadis assessment measures the quality of the relevant supplier's sustainability systems through its policies and actions, and results are categorized in four themes: Environment; Labor & Human Rights; Ethics; and Sustainable Procurement. DSM supports suppliers who do not meet our minimum score in defining and executing a corrective action plan. Assessments are valid for three years in the case when the minimum score is met, and for one year when there are gaps between the supplier's performance and DSM's norms and values.

Assessing sustainability in our supply chain

Improving sustainability in a complex value chain is challenging. That is why we work together with 39 other companies operating in the Together for Sustainability (TfS) initiative. TfS is an industry-driven collaboration dedicated to building sustainable supply chains through supplier engagement and development as well as continuous improvement efforts. We are active in several workstreams to enhance sustainability, and in 2022, TfS welcomed seven new members. More information about this program can be found on our company website.

Through TfS, we also continued to use virtual audits to further increase transparency regarding supplier sustainability performance. Virtual audits are not suitable for every supplier – for example, for initial audits, due to the absence of physical experiences (such as human interaction and smells). However, we believe that virtual audits are a cost-effective and environmentally friendly method to follow up on initial audits and corrective actions.

When a TfS member invites a supplier for an EcoVadis assessment, the results are shared among all other members, enhancing transparency across the industry. In 2022, value chains were disrupted through the energy crisis, the war in Ukraine, and COVID-19. Despite these factors, TfS members assessed 429 DSM suppliers, of which 385 were reassessments. Sixty-two percent of our supplier base received an improved score, confirming that sustainability development remains a key focus point for all stakeholders.

We are also exploring additional tools to EcoVadis for the purpose of evaluating supplier sustainability performance. Through IntegrityNext, we were able to assess 134 suppliers on environmental, social, and governance performance in 2022.

Capabilities to enhance and drive sustainability

We work with our **strategic suppliers** to further elevate sustainability. In addition to assessments, audits, and corrective action plans, we also support our employees and suppliers directly through raising awareness and providing training. Given the increasing importance of driving sustainable business, we have mandatory trainings on sustainable procurement, sustainability assessments and audits, and scope 3. Over the course of 2022, we started to revise our internal training material on scope 3. These trainings, together with training on how to coordinate assessments and audits, are mandatory for all DSM employees within the sourcing area. Going forward, DSM also recommends these trainings to a wider target audience, enabling cross-functional teams to support in tackling our scope 3 ambitions. The new online training will be rolled out over the course of 2023.

Additionally, TfS launched the **TfS Academy** in early 2022. This new online learning platform enables our employees as well as our suppliers to follow 240 online courses in seven languages, covering a broad curriculum ranging from basic education on sustainable procurement to advanced training material on human rights due diligence and developing a scope 3 program. Since the summer of 2022, over 1,000 courses have been completed by TfS members.

When engaging with suppliers on **Scope 3 reduction projects** and corresponding roadmaps, DSM offers expertise from our own GHG experts to support our suppliers in their own journey to reduce emissions. The suppliers' scope 1 and 2 emissions directly determine our scope 3 emissions, making this a mutually beneficial learning experience.

Since 2021, the concept of **sustainable tender** has been included in all strategic sourcing projects within **global logistics and packaging**. With sustainable tender in the supplier selection process, we will be able to identify sustainable solutions from our suppliers, differentiate suppliers in terms of sustainable behavior, and influence the supply market.

Stakeholder engagement

In addition to working with our suppliers, we also work with external partners to enhance **collaboration in the supply chain**. These partners include Roundtable for Sustainable Palm Oil (RSPO), Friends of the Sea, and the Marine Stewardship Council.

Taking steps toward deforestation-free supply chains.

We are taking steps to tackle deforestation: in 2021, we committed to create a healthier future for people, planet and livelihoods, through various global Food System Commitments. One of these commitments is to achieve 100% **deforestation-free primary supply chains**, by 2030 at the latest. This commitment relates to palm derivatives, sugarcane, and direct soy and corn products. For suppliers to prove deforestation-free primary supply chains, we require certifications from not-for-profit organizations such as RSPO, BonSucro, ProTerra, or ISCC. As a member of the RSPO, a not-for-profit, multi-stakeholder organization aimed at making sustainable palm oil the market norm, we aim to have RSPO certification for all of our major production sites that use palm oil derivatives. Through our legal entity DSM Nutritional Products AG, we are a member of RSPO. For more information on our use of palm oil, see the company website.

Responsibly sourced marine resources

Protecting our marine environment is important to us as a company. We are committed to the responsible and sustainable use of natural marine resources. We have 'Friends of the Sea' certification for all our fish oil purchases. This helps ensure that the fisheries involved in providing fish oil to produce our omega-3 product range are sustainable. Furthermore, we have had 100% Marine Stewardship Council (MSC) certification for all our tuna oil suppliers since 2020. We are proud to partner with the MSC, the global gold standard for certification and eco-labeling of seafood, to offer MEG-3® tuna DHA oils and powders that are MSC Chain of Custody (CoC)-certified. This certification guarantees 'ocean-to-purchase' traceability throughout the entire supply chain, providing assurance that our tuna DHA products can be easily traced to certified fisheries.

The BICEPS Network

The BICEPS Network is a network with shippers and industry bodies to advocate sustainability in the international transport market. It has the aim to reduce CO_2 emissions of carriers. In 2022, the Network welcomed new members, and held multiple innovation sessions, with external speakers presenting new innovations in sustainable shipping and workshops to explore cooperating on logistics. The Network created an internationally verified rating system that provides an industry-recognized sustainability ranking of shipping lines and enables us to reward sustainable behavior. We work as much as possible with top-ranked carriers.

Supplier projects

As part of our drive to foster better business through our supplier projects, our Procurement organization engages in proactive dialogue with suppliers to move the business agenda forward. In this context, we pursue initiatives to create joint value, awareness and engagement regarding innovation, greenhouse gas emissions reduction and renewable electricity projects. Over the course of 2022, we continued our engagement with key suppliers through our CO2REDUCE program on reducing the carbon footprint of our most GHG-emitting value streams, jointly developing roadmaps with more than 80 suppliers across our Nutrition business. More information on this program can be found in Scope 3 emissions.

A joint initiative of one of our suppliers and our procurement team in our Health, Nutrition & Care plant in Buk (Poland) replaced all conventional cardboard boxes with FSC-certified packaging. The shift to raw materials originating from responsible forestry, in combination with reduced thickness of the boxes, not only led to a cost saving for our customers, but also made a positive contribution toward maintaining biodiversity.

We are continuously looking for ways to address and assess the impact of our operations in close collaboration with our strategic business partners. Human rights in supply chains is an area that is receiving increased focus from our stakeholders and in legislation around the world. In 2022, we initiated a human rights impact assessment together with Seafoodia, one of our key suppliers in marine resources, to better understand potential and actual human rights risks in our fish oil value chain. As this assessment is performed along the full upstream value chain, transparency and a collaborative approach to engage local stakeholders are required to make this a success. The results will be available in 2023 and will be used to develop future guidance on implementing the UN Guiding Principles. In the event of any actual impacts, a multi-stakeholder approach with Seafoodia will be aligned.

Together with our key suppliers in scientific equipment, we developed a high-end laboratory equipment lease program. Typically, expensive, high-tech lab equipment is purchased and owned for a period of up to 10 years. However, with increasingly rapid advances in technological innovations and improvements, the usefulness and added value of this equipment decreases after only a few years. Leasing now enables us to return the equipment to the supplier and replace it with a newer, updated version, instead of keeping and maintaining the obsolete equipment. This provides our scientists with continued access to the latest and best technology and allows the unused equipment to have a second lease of life.

In Brazil and France, we started utilizing electrical heavyweight trucks for on-site transportation and local distribution. The sourcing process addressed sustainability dimensions alongside the commercial and operational conditions, combined with a longer-term perspective on scalability across Latin America. Besides electric options, we also explored alternative fuels, with HVO (bio-fuel) solutions being implemented in Europe to reduce emissions for customer deliveries.

Investors

We value the essential contribution our capital providers make to our success and prosperity, allowing us to pursue a long-term-oriented, purpose-led, performance-driven strategy. This should also lead to an increase of the company's value for the benefit of all its stakeholders including its shareholders and debt holders. We see the focus of our capital providers increasingly moving from financial returns on financial capital providers increasingly moving from financial returns to requiring simultaneous value-creation across social, environmental, and economic dimensions.

Transparent communication with financial markets

We ensure that accurate financial and relevant non-financial information is communicated to the financial markets in a transparent and simultaneous way. All information is made easily accessible to the public via the company website. Besides the Annual General Meeting of Shareholders, we also reach out to the financial markets through events such as our Investor Days, participation in roadshows and conferences, in person and virtually. We actively seek engagement with both financial and ESG advisors who cover DSM on behalf of their financial market clients, such as brokers, credit rating agencies, proxy advisors, shareholder representative organizations, and ESG rating agencies.

Feedback from the engagement with financial markets is periodically discussed and assessed by the Managing Board and the Supervisory Board. We highly value the insights gained through these dialogues.

In 2022, we engaged with our investors and their representatives on topics such as the SDGs, climate change, biodiversity, governance, sustainability in supply chain management, human rights, responsible taxation, and diversity, equity & inclusion.

Updating investors on our strategic progress

During 2022, we continued to update the market on our progress against our strategic targets and sustainability ambitions, and on the progress of our large sustainability-driven innovation projects.

In 2021, we announced the biggest step yet in the strategic transformation of the company into a Health, Nutrition & Bioscience company. In May 2022, we announced our intention to enter into a merger of equals with Firmenich, a global leader in flavor and fragrances, headquartered in Switzerland. Together we will aim to be the leading creation and innovation partner in nutrition, beauty and well-being. DSM and Firmenich hosted a joint Capital Markets Day for institutional investors and equity analysts in Paris, outlining key value drivers and demonstrating how the complementary nature of the companies can enable enhanced innovation and co-creation with their customers.

There were many macro-economic disruptions in 2022, for instance, caused by COVID-19, turbulent geopolitics, and rising energy costs and inflation. Financial markets continued to be impacted by uncertainty and volatility during 2022. We intensified in-person and virtual contact with our investors in order to keep them informed about business conditions and our actions to counter the situation.

In 2022, our Investor Relations team was ranked number one in its sector by Institutional Investor EMEA Research. Among the recognitions we received were the number one positions for Best IR Team, Best IR program, Best ESG engagement, Best Analyst/Investor Event, and Best Company Board. On an individual basis, both co-CEOs were ranked number 1 in our sector, and two individual DSM IR members were ranked in the top 3 of Best IR Professional. In the Netherlands, the IR team was awarded with Best IR Professional of the AEX in 2022, as well as Best Digital Investor Communication of listed AEX companies.

Engaging with the market about purpose and ESG

Purpose and profit go hand in hand at DSM, as has been demonstrated by a continuing strong performance in terms of both financial and non-financial metrics. In 2022, we actively advocated purpose-driven entrepreneurship among our shareholders. We engaged with investors, including pension funds, to discuss their responsibility in long-term value creation for their customers, but also for the society and the environment their participants live in.

We actively participated in projects of the World Business Council for Sustainable Development (WBCSD), including the CFO network and the Capital Market engagement group. We participated in FCLT (Focusing Capital on the Long Term) projects including the 'Multistakeholder Capitalism in Practice', on how stakeholder strategies are being integrated into long-term decision making.

We are committed to staying ahead in sustainability reporting and ensuring we report against new and future requirements of regulating authorities including the EU Sustainable Finance Action Plan, EU Green deal, EU Taxonomy, EU Corporate Sustainability Reporting Directive and Sustainable Finance Disclosure Regulation (SFDR). We emphasize the need to make reporting metrics uniform, comparable and auditable.

We continued our engagement with leading ESG Ratings and Benchmarks advisors to the financial sector, including Sustainalytics, MSCI, Moody's-Vigeo and ISS-ESG.

In 2022, we continued to see an increased focus in our engagement dialogues on nature and biodiversity, as well as social topics including human rights and diversity, equity & inclusion. We also saw the number of direct engagements between investors and DSM on ESG topics, including SDG impact, increase in 2022. ESG has become part of the regular agenda of our investor meetings. Being recognized as a leader in sustainability and at the same time showing continued good financial progress, we were frequently invited for in-depth engagement calls and meetings on how to include — and compare — important non-financial parameters in our investors' investment processes.

At the end of 2022, 89% of our shares held by institutional investors were held by signatories of the Principles for Responsible Investment (PRI investors) and 17% of our outstanding shares at institutional investors were in dedicated sustainability funds.

Society

We engage with society at multiple levels — from local community initiatives to collaborations with universities and research institutes. Due to the ongoing effects of the pandemic, many of our regular engagements were postponed, or moved online, such as our annual Earth Day activities. We continue to engage in philanthropic and sponsorship activities to the average yearly amount of approximately €6 million, as well as via the in-kind contributions of our employees' hours and expertise.

Showcasing science in Austria

During the *Lange Nacht der Forschung* (Long Night of Research), our scientists shared a program focusing on enzymes and mycotoxins. More than 200 visitors came through the doors of our Science Center in Tulln (Austria), where they were able to participate in interactive experiments demonstrating how enzymes work, solve hand-designed puzzles and see a three-dimensional display of our enzyme ZEN*zyme*.

Providing education and mentoring opportunities in Brazil

Our partnership with the Brazilian Municipal Department of Education supported young people with professional and practical skills training, preparing them effectively for the labor market. This partnership is supported by volunteer employees in Brazil. The mentoring program, in partnership with the Recycle Institute, contributes to skills development and increases employment opportunities for students. An initiative within this program focuses specifically on supporting black and indigenous students. Our 'Solidarity Campaigns' provided donations of food, personal and cleaning products, and warm clothing to local communities in need.

Advocating sustainability in China

In collaboration with The National Animal Husbandry Service (NAHS) and FAO, we trained Chinese animal husbandry players in international standards and guidelines for the assessment of the environmental footprint of livestock. Our China Sustainability Forum 2022 brought together DSM experts and external stakeholder from FAO, industry associations and our value chain partners to share best practices and explore synergies for boosting the sustainable development of the industry and the region. Our DSM Bright Experience charity campaign continued for its 15th year and we continued our support of the DSM Hope School.

Engaging on health and the environment in the Netherlands

The Food Boost Challenge Limburg was organized in cooperation with local health, education and sports organizations. It engaged young people on healthy food, environmental changes and how to improve the offering and availability of new, sustainable products and services. We engaged, through Mr. de Vreeze and our President DSM Netherlands, with the NGO *Milieudefensie* ('Environmental Defense') on our emissions reduction plans to reach net-zero across value chains. We continued our participation in the environmental initiative MaasCleanUp with employees, and their families participating in the clean-up of the river Maas.

Supporting start-ups in Switzerland

We continued our partnership with MassChallenge Switzerland to support start-up companies operating primarily in the fields of personalized and precision nutrition and microbiome and gut health solutions. Our Co-CEO Geraldine Matchett presented the Diamond Winner award at the MassChallenge Switzerland Awards Ceremony in Lausanne.

Assisting local communities in the US

We continued to support the Union County College Close the Gap initiative, contributing to raising graduation rates of African American men from 5% to 25%. We likewise maintained our support for health care providers and teachers by means of donations of essential COVID-19 personal protective equipment. Our sites supported local food banks and school feeding programs. Our DSM North America Employee Relief Fund helped dozens of our colleagues to recover losses incurred due to natural disasters such as hurricanes, floods, tornadoes and wildfires.

Notes to the Sustainability statements

1 Management approach for material topics

In the following sections, we elaborate on the material topics defined in the Materiality matrix and describe how we manage these topics.

Specific mechanisms and policies for our most important material topics are referenced below, while for less material topics, we apply general mechanisms to identify and remediate potential negative impacts (for example, our DSM Alert policy). Positive and negative impacts are monitored through our Risk Management process, while product-specific positive and negative impacts are measured through our Brighter Living Solutions Plus methodology.

Environment

Climate change mitigation

This topic addresses the reduction of energy use and greenhouse gas emissions in our own operations, increasing the share of energy coming from renewable sources and developing solutions to support our customers in reducing carbon footprint across their value chains to enable the transition to a low carbon economy.

Management approach: We manage this topic by improving our own carbon footprint, enabling our customers through innovative solutions and advocating actions toward a low-carbon future. We publicly disclose our impact and strategy via this Report, CDP and other channels. Through our Food System Commitments, we commit to enable on-farm livestock emissions reductions.

For information on this topic, see:
Our approach to the Sustainable Development Goals
Strategy
Collaborative platforms and networks
Climate change mitigation
Review of business
SHE Policy (company website)

Climate adaptation

This topic addresses preparing for the physical and transition risks and opportunities associated with changing climate by ensuring operational procedures are flexible and resilient, and developing solutions to support our customers in their strategy for climate adaptation.

Management approach: We manage this topic through identifying our exposure to climate risks through our physical and transition risk assessments. The outcome of these assessments is reviewed and validated with our businesses, sites and other relevant functions. We publicly disclose our impact and strategy via this Report, CDP and other channels.

For information on this topic, see:
Our approach to the Sustainable Development Goals
Strategy
Collaborative platforms and networks
Climate adaptation
Review of business
SHE Policy (company website)

Nature & biodiversity

Nature & biodiversity refers to the protection of natural capital and ecosystems, including the variety and variability of life on earth and addressing issues such as biosecurity, land degradation, nature loss and ocean pollution.

Management approach: Nature & biodiversity is a global issue that is locally relevant, and that potentially has impact on our operational locations. The DSM Responsible Care Plan defines how we monitor and assess the impact of our operations on these locations. We support the ambitions of the Convention on Biological Diversity and we continue to explore the role the Natural Capital Protocol can play in supporting our decision making. Through our Food System Commitments, we commit to reach people with nutritious, delicious, sustainably produced plant-based foods.

For information on this topic, see:
Nature & biodiversity
Biodiversity position paper (company website)
SHE Policy (company website)

Raw materials & circularity

This topic covers securing our supply of raw materials and making use of raw materials in a circular manner (for instance using raw materials coming from regenerative agriculture) and supporting our value chain in their use of sustainable raw materials.

Management approach: We manage this topic through our Supplier Sustainability Program, by improving the value extracted from our raw materials, supporting the transition to a circular economy through our solutions and advocating a shift toward a circular economy.

For information on this topic, see:
Our approach to the Sustainable Development Goals
Strategy
Collaborative platforms and networks
Waste & circularity
Review of business
Suppliers
SHE Policy (company website)

Water stewardship

Water is essential to life and all ecosystems. As water is becoming a scarcer resource, both the quality and quantity of available water constitute a global issue that has local consequences that may extend from water scarcity to floods and storms.

Management approach: We are committed to the sustainable use of water. Our approach is defined in the DSM Responsible Care Plan, with the ambition to improve our water withdrawal efficiency in water-stressed areas. Water is not a primary ingredient in our products, and we believe that water risks are local by nature, so we focus on local water risk assessments and thorough follow-up on these. We are a signatory to the UN Global Compact CEO Water Mandate and disclose our water management and strategy via CDP.

For information on this topic, see:
Water stewardship
SHE Policy (company website)
Water Policy (company website)

Pollution & waste management

This topic covers reducing air, land and marine pollution, minimizing waste, and using sustainable packaging in our operations and across our value chain partners.

Management approach: We manage this topic through our DSM Responsible Care Program. We measure and report on our waste and pollution, with the ambition to reduce our landfilled waste and our VOC emissions. We minimize hazardous landfill as part of our SHE requirements, aiming to recover this where possible. We work with our suppliers to improve the use of sustainable packaging.

For information on this topic, see:
Our approach to the Sustainable Development Goals
Waste & circularity
Nature & biodiversity
Suppliers
SHE Policy (company website)

Social

Healthy & nutritious diets

This topic is part of the transition to sustainable food systems within planetary boundaries that is needed to secure the future availability of food. It addresses providing solutions that contribute to good nutrition and healthy diets for all. This includes enabling affordable nutrition and ensuring tasty and delicious food is available and low in ingredients that are linked to non-communicable diseases.

Management approach: We manage this topic by enabling healthy food systems through our businesses, which target sustainable food solutions. We advocate for a change in food systems within planetary boundaries. Through our Food System Commitments, we commit to supporting the immunity of people and reaching people with nutritious, delicious, sustainably produced plant-based foods.

For information on this topic, see:
Our approach to the Sustainable Development Goals
Strategy
Collaborative platforms & networks
Review of business

Food security

This topic is part of the transition to sustainable food systems within planetary boundaries that is needed to secure the future availability of food. It includes developing sustainable solutions that will contribute to enabling to feed and nurture the growing global population. This includes creating more resource-efficient food production, for instance by improving Food Conversion Ratio.

Management approach: We manage this topic by enabling healthy food systems through our businesses, which target health and well-being. We advocate for a change in food systems within planetary boundaries. Through our Food System Commitments, we commit to help close the micronutrient gap of vulnerable people.

For information on this topic, see:
Our approach to the Sustainable Development Goals
Strategy
Collaborative platforms & networks
Review of business

Human rights

This topic encompasses decent working conditions for DSM employees, suppliers and other partners across the value chain. It addresses subjects including freedom of association, non-discrimination, the prohibition of child labor and forced labor, and fair compensation. This is done by having a strong due diligence and risk assessment in place, and implementing mitigation and remediation measures where needed.

Management approach: DSM has installed a cross-functional Human Rights Steering Committee and working group to manage our approach toward human rights, which is defined in our position paper. Our whistleblower policy (DSM Alert) is available for employees and external stakeholders to report potential violations of human rights. We monitor and assess our supply chain through EcoVadis and IntegrityNext assessments.

For information on this topic, see:
Human rights
DSM Code of Business Conduct
Suppliers
Human Rights position paper
Whistleblower policy – DSM Alert (company website)

Occupational health, safety & well-being

Occupational health, safety & well-being addresses the company's ability to create and maintain a safe and healthy workplace environment that is free of injuries, fatalities, and illness (both chronic and acute), and to take care of our employees' well-being at work.

Management approach: The occupational health, safety and well-being of all our employees and contractors is our highest priority. Our approach to safety is defined in the DSM Responsible Care Plan and is spearheaded by our Life Saving Rules. We apply an occupational health model whereby we strive to minimize exposure to potential health risks.

For information on this topic, see:
Safety
Health & well-being
DSM Code of Business Conduct

Talent attraction development & retention

This topic refers to the continuous development of employees' skills through training and development programs, and the company's ability to attract and retain talent in order to execute the business strategy. This includes having a strong employer branding, ensuring employees' engagement, supporting people's growth and promotion within the company.

Management approach: Talent attraction, development & retention fuels the growth of our employees and leaders, which in turn enables our overall growth as an organization. Through our People & Organization strategy, we aim to reset the context for leadership to create an inspiring, empowering and inclusive environment for our people and our business, and to empower our people with the tools and an environment that enables them to take ownership of their performance, development and careers.

For information on this topic, see:
Delivering on our P&O strategy

Employee diversity & inclusion

This topic revolves around equal opportunities, in particular ensuring that our company culture and hiring and promotion practices embrace the building of an inclusive and diverse workforce that reflects the makeup of local talent pools and its customer base.

Management approach: We focus our activities on increasing the representation of women and the under-represented nationality diversity of our executive population and management pipeline. We have five diversity pillars – Gender, Race, Ethnicity & National Identity, LGBTQ+, Disability and Generations - which are supported by Employee Resource Groups. Our focus areas are in recruitment, development, and inclusion. Employee inclusion & diversity is addressed through our Inclusion & Diversity (I&D) network, led by our I&D Council. Our employees are trained on Respectful behavior to emphasize the importance of inclusiveness and diversity and to prevent inappropriate behavior including sexual harassment.

For information on this topic, see:
Inclusion & Diversity
Delivering on our P&O strategy
DSM Code of Business Conduct

Food loss & waste

This topic is part of the transition to sustainable food systems within planetary boundaries that is needed to secure the future availability of food. It covers helping to prevent food loss and waste generated throughout food systems by creating better animal nutrition, more resource-efficient food production, innovative packaging, and antioxidants that keep food nutritious and safe.

Management approach: We manage this topic by enabling healthy food systems through our businesses, which prevent food loss and waste. We enable our customers to improve the efficiency of the production of animal-based proteins as well as produce products that keep food products fresher and safer for longer. We work with partners to ensure that nutritious food reaches people in need.

For information on this topic, see:
Our approach to the Sustainable Development Goals
Strategy
Collaborative platforms & networks
Review of business

Business & Governance

Product quality & safety

Product quality & safety ensures the highest product quality standards for our solutions, as well as controlling and minimizing all possible safety risks and adverse effects on human or animal health and on the environment, that could be caused by (the substances present in) our products throughout the value chain. It is about knowing the substances we use and produce, being able to explain why we use them, taking the appropriate risk control measures, and sharing this information with relevant and interested stakeholders.

Management approach: Quality has been accorded the same degree of scrutiny as safety, as we journey toward becoming a company focused on Health, Nutrition & Bioscience. We focus on three areas to ensure that quality is embedded across our organization – risk assessments, standards, and a learning organization. Product safety is addressed in our product stewardship statement. We take a risk-based approach to product stewardship and will use alternatives where feasible, and always where required. We also see the opportunities for safer products with fewer or no hazardous properties in the circular economy.

For information on this topic, see:
Quality
Product stewardship
Product stewardship (company website)

Business ethics & transparency

This topic addresses the company's approach to and public disclosure on ethical and fair business conduct, corporate governance and compliance. This includes taxation, privacy, bioethics, fraud, bribery & corruption, and fiduciary responsibilities.

Management approach: We take our responsibilities as a business seriously. Our approach to ethics and transparency is led by the DSM Code of Business Conduct and our Supplier Code of Conduct. Our whistleblower policy (DSM Alert) supports our employees and third parties in expressing their concerns about suspected misbehavior. DSM's tax position is consistent with the normal course of our business operations and reflects the corporate strategy as well as the geographic spread of our activities. It is available through our position paper. We transparently report on our business through this Report and our public statements.

For information on this topic, see:
DSM Code of Business Conduct
Corporate governance and risk management
DSM Alert policy (company website)
Taxation position paper (company website)

Sustainable agriculture

This topic is part of the transition to sustainable food systems within planetary boundaries that is needed to secure the future availability of food. It covers developing solutions for resource-efficient and sustainable food production systems (for instance, that protect animal welfare and health, reduce carbon emissions and increase yield) and supporting the livelihoods of smallholder farmers across value chains together with partners.

Management approach: We manage this topic by enabling healthy food systems through our Nutrition businesses, which target sustainable agriculture. We advocate for a change in food systems within planetary boundaries. Through our Food System Commitments, we commit to enable on-farm livestock emissions reductions and to support the livelihoods of smallholder farmers.

For information on this topic, see:
Our approach to the Sustainable Development Goals
Strategy
Collaborative platforms & networks
Review of business

Resilience to economic & political volatility

Resilience requires a strong, sustainable and agile business model and supply chain, that reduces exposure to economic and political volatility, brought about by emerging risks such as geopolitical developments and global health crises.

Management approach: Our long-term strategy is toward becoming a company focused on Health, Nutrition & Bioscience which addresses the urgent societal and environmental consequences associated with how the world produces and consumes food. Our business model of 'global products, local solutions' gives us scalability and quantity combined with local (customized) solutions. Through our risk management framework, we identify risks and define mitigating actions.

For information on this topic, see:
Our approach to the Sustainable Development Goals
Strategy
Risk Management
Suppliers

Cybersecurity

Preventing fraud and the unauthorized access to our networks, IT systems and data, while ensuring company and employee data protection.

Management approach: Cybersecurity is under the accountability of the Cyber Security Office together with the Cyber Security Governance Board. Awareness on cybersecurity is addressed through the Security e-learning covering our key security behaviors and the Cyber Fraud Awareness e-learning. Global, as well as targeted, phishing tests are regularly carried out to ensure our people stay alert.

For information on this topic, see:
DSM Code of Business Conduct

Consumer behavior

Addressing changes in consumer behavior and awareness by manufacturing products that consider future needs of society and the environment.

Management approach: Consumer behavior can be both a risk and an opportunity to the company. We recognize shifts in business models, industry and end-consumer behavior, and the ability to respond to changes in our emerging risks. We have shifted our innovation approach to be platform-based, and have identified four growth themes that align to our future strategic needs and support our growth ambitions. These themes align to major global societal, technological and environmental trends.

For information on this topic, see:
Our focus in innovation
Risk management

Digital transformation

Digital transformation refers to the application of digital technologies to all aspects of business and society.

Management approach: Digital solutions support and strengthen our customer relationships. We monitor and mitigate potential risks relating to digital through Group Risk Management. Our Information Security Office and Privacy Policy guide our approach toward the security of information assets.

For information on this topic, see:
Risk management

Community relations

Minimizing a company's impact on communities, engaging with the communities toward common understanding and value creation, and giving back to society through corporate citizenship activities.

Management approach: DSM engages with the communities in which it operates at multiple levels — from local community initiatives to collaborations with universities and research institutes. We engage in philanthropic and sponsorship activities, as well as via the in-kind contributions of our employees' hours and expertise.

For information on this topic, see:
Collaborative platforms & networks
Society

2 EU Taxonomy

The EU Taxonomy

The 2018 EU Action plan on financing sustainable growth sets out an EU strategy for sustainable finance with the aim of redirecting capital flows. In this plan, an EU classification system was established to determine which economic activities qualify as sustainable. This sustainability classification system is generally referred to as the EU Taxonomy and is part of the EU's overall efforts to reach the objectives of the European Green Deal and make Europe climate-neutral by 2050.

The EU Taxonomy entered into force on 12 July 2020, establishing criteria for environmentally sustainable economic activities related to six environmental objectives. The taxonomy regulation also amended the EU Accounting Directive (2013/34/EU) on non-financial information by expanding the scope of content that needs to be disclosed by large companies in the Management Report. It requires companies to disclose the proportion of their activities that qualify as environmentally sustainable.

The disclosure requirements are set out in a Delegated Act under Article 8(4) of the Taxonomy Regulation (published 6 July 2021). From 2022 onward, companies are required to also disclose the proportion of taxonomy-aligned activities, in addition to the information already provided on the proportion of **taxonomy-eligible and taxonomy non-eligible economic activities**. For this purpose, DSM has to disclose the proportion of activities that meet the eligibility and alignment criteria using the indicators **turnover**, **capital expenditure**, and **operational expenditure**, as well as qualitative information. We have assessed our economic activities for eligibility and, if applicable, alignment in relation to the first two environmental objectives as per the EU Taxonomy.

The first **Delegated Act with climate objectives** aims to identify those industries that can make the **largest contribution toward a carbon-neutral society**. These include energy, selected manufacturing activities, transport and buildings. As a Health, Nutrition & Bioscience company, we have concluded that **our economic activities** are not covered by the Climate Delegated Act, and consequently, we are not in the **primary scope of industries** that are relevant to the two climate-related objectives. As such, despite our significant efforts and investments in reducing greenhouse gas emissions with the aim of reaching our specified Science Based Targets and net-zero commitments (see also Climate change mitigation), the activities through which we try to achieve these goals are currently **not included in the Taxonomy**. These activities relate to food system transformation, including the reduction of greenhouse gas emissions.

Our eligibility for the first two environmental objectives

In 2021, we provided information on the Taxonomy-eligible activities that related to the production of primary plastics. These activities were classified as discontinued operations in 2022 following the announced divestment of our Materials businesses, and so these activities are excluded from our Taxonomy disclosures (in accordance with Article 8 Delegated Act, Annex 1.1.1). As our economic activities are not in the primary scope of the Taxonomy, we concluded that no turnover currently qualifies as Taxonomy-eligible and, as a consequence, Taxonomy-aligned regarding the first two environmental objectives (climate mitigation and climate adaptation). In line with our turnover, we also assessed the CAPEX and OPEX that qualifies as Taxonomy-eligible and Taxonomy-aligned as negligible.

Based on the standard table as provided in the EU Taxonomy (Article 8 Delegated Act, Annex 2) and as no economic activities qualify as Taxonomy-eligible, DSM reports the following condensed format of the table for 2022:

(in € million)	NACE-codes	Taxonomy Activity	Substantial contribution criteria	DNSH criteria	Turnover[1]	CAPEX[2 3]	OPEX[4 5]
A1 Eligible and Aligned	n.a.	n.a.	n.a.	n.a.	0	0	0
A2 Eligible	n.a.	n.a.	n.a.	n.a.	0	0	0
Total					0	0	0
B Non-Eligible					8,390 (100%)	696 (100%)	406 (100%)
A + B Total					**8,390**	**696**	**406**

1 Based on continuing operations as reported on the face of the income statement in the Consolidated financial statements.

2 Total CAPEX is determined based on the 2022 additions to property, plant and equipment, intangible assets, and additions to right-of-use assets. See Note 8 and Note 9 to the Consolidated financial statements.

3 While a limited portion of our capital expenditures could potentially relate to the purchase of output of Taxonomy-aligned activities or are individual measures that enable our activities to become low-carbon or lead to GHG reductions, the extent to which these expenditures are in line with the Taxonomy is currently not tracked in our financial systems. In line with our conservative approach outlined below we therefore do not consider any of the before mentioned limited CAPEX to be Taxonomy eligible or aligned.

4 Total OPEX consists of maintenance (including building renovations) and R&D costs, excluding costs and income related to bad debts, government grants, depreciation and amortization, own work capitalized, and special / APM items.

5 Based on the considerations related to revenue and CAPEX eligibility, the OPEX that could be eligible and, in turn, aligned under the Taxonomy is also deemed negligible.

We welcome the implementation of the EU Taxonomy and have assessed its impact on our company in line with its overall objectives, albeit accepting that parts of the Taxonomy Regulation are subject to interpretation, which may lead to variety in its application. Considering the level of complexity as well as the evolving character of the framework, we expect that Taxonomy reporting will develop over time. As such, we shall apply a conservative approach to and interpretation of the Taxonomy legislation until we believe it has sufficiently matured. We will periodically revalidate our methodology and our reported KPIs based on the evolution of the regulations and forthcoming guidance from, among others, the European Commission and the European Securities and Markets Authority (ESMA).

More information on our strategy and sustainability commitments can be found in the sections on Delivering a long-term, purpose-led, positive impact, and the DSM Responsible Care Plan. For more information on our climate risk assessment, our ambitions and actions, including our path to reduce emissions by 2030, please refer to Climate adaptation and Climate-related risks.

3 Taskforce on Climate-related Financial Disclosures (TCFD)

The TCFD recommendations are a set of voluntary, climate-related financial disclosures for use by companies to provide information to their stakeholders. We were among the first companies to commit to implementing, as fully as practicable, these recommendations as outlined in the TCFD's implementation path. The recommendations are structured around four elements – Governance, Strategy, Risk Management, and Metrics and Targets. This Report includes various disclosures relevant for the TCFD recommendations. To highlight this, for each TCFD theme reference is made to relevant sections.

TCFD elements	Recommended disclosures	References in this report
Governance	1. Managing Board's oversight on climate-related risks and opportunities	Governance Framework - Sustainability Report by the Supervisory Board - Sustainability Committee
	2. Management's role in assessing and managing climate related risks and opportunities	Planet - Climate change mitigation Planet – Progress against our DSM Responsible Care Plan
Strategy	1. Description of climate related risks and opportunities	Risk Management
	2. Impact of climate-related risks on the company's business activities and strategic and financial planning	Planet - Climate change mitigation Planet - Climate adaptation Planet - Water stewardship
	3. Resilience of the organization's strategy	Purpose Strategy
Risk management	1. The company's processes for identifying and assessing climate-related risks	Risk Management - Climate-related risks
	2. The company's processes for managing climate-related risks	Risk Management – Performance
	3. Integration of processes for identifying, assessing and managing climate-related risks into the company's general risk management system	Risk Management – Performance Risk Management – Review & revision
Metrics and targets	1. Metrics with which the company assesses climate-related risks and opportunities	Planet – Progress against our DSM Responsible Care Plan Brighter Living Solutions Plus
	2. Disclosure of scope-1, scope-2 and scope-3 GHG emissions	Planet - Climate change mitigation five-year summaries: Sustainability tables
	3. Targets used to manage climate-related opportunities and risks against performance	Remuneration report Note 27 Share-based compensation

4 SASB and WEF IBC mapping

We map our disclosures to other standards and frameworks to support our stakeholders who are using these. You can find how our disclosures map to the **Sustainability Accounting Standards Board**'s Chemicals Standard and the **WEF IBC** Stakeholder Capitalism metrics and disclosures below. SASB disclosures that are considered 'not material' have been omitted from the table.

Topic	Reference	Location and WEF IBC notes
Governing purpose	WEF IBC: Setting Purpose	Purpose
Quality of governing body	WEF IBC: Governance Body Composition	Governance framework
Stakeholder engagement	WEF IBC: Material issues impacting stakeholders	Materiality Management approach for material topics
Ethical behavior	WEF IBC: Anti-Corruption	Code of Business Conduct
	WEF IBC: Protected ethics advice and reporting mechanisms	Code of Business Conduct
Risk and opportunity oversight	WEF IBC: Integrating risk and opportunity into business process	Risk management Animal Nutrition & Health Health, Nutrition & Care Food & Beverage
Climate change	WEF IBC: Greenhouse Gas (GHG) emissions SASB: RT-CH-110a.1 SASB: RT-CH-110a.2	Scope 1 + 2 GHG emissions Scope 3 GHG emissions
	WEF IBC: TCFD Implementation	Taskforce for Climate-related Financial Disclosures (TCFD)
Nature loss	WEF IBC: Land use and ecological sensitivity	Nature & biodiversity – only % of sites in or adjacent to protected sites is reported. IUCN Red List species is currently unknown.
Freshwater availability	WEF IBC: Water consumption and withdrawal in water-stressed areas SASB: RT-CH-140a.1 SASB: RT-CH-140a.3	Water stewardship – water stress is only measured for 'non-OTC' water withdrawal.
Air quality	SASB: RT-CH-120a.1	Other emissions to air
Energy management	SASB: RT-CH-130a.1	Renewable energy
Waste management	SASB: RT-CH-150a.1	Waste
Safety & environmental stewardship of chemicals	SASB: RT-CH-410b.1 SASB: RT-CH-410b.2	Product stewardship Product stewardship on the company website
Genetically modified organisms	SASB: RT-CH-410c.1	Position paper on Industrial biotechnology on the company website
Dignity and equality	WEF IBC: Diversity and inclusion (%)	Inclusion & diversity
	WEF IBC: Pay equality (%)	Human rights Fair remuneration framework on the company website Gender pay gap is reported at company level. Additional analysis and validation is ongoing.

Topic	Reference	Location and WEF IBC notes
	WEF IBC: Wage level (%)	Human rights Fair remuneration framework on the company website DSM focuses on living wage instead of minimum wage.
	WEF IBC: Risk for incidents of child, forced, or compulsory labor	DSM figures: five-year summary – People We have found no instances of child labor within DSM, and child and forced labor are part of the Code of Business Conduct. Risk assessment is in progress for the Supply Chain. It is included in the Supplier Code of Conduct.
Health & well-being	WEF IBC: Health and safety (%) SASB: RT-CH-320a.1 SASB: RT-CH-320a.2	Safety Health & Well-being We do not report on absenteeism.
Skills for the future	WEF IBC: Training provided (#, $)	Inclusion & diversity We report on employee level only, as we do not consider it material to our management approach on training to break this number down.
Safety incidents and response	SASB: RT-CH-540a.1 SASB: RT-CH-540a.2	Safety, Quality and Health & Well-being
Employment and wealth generation	WEF IBC: Absolute number and rate of employment	DSM figures: five-year summary – People We do not provide a breakdown using multiple angles as we do not consider it material to do so.
	WEF IBC: Economic Contribution	Taxation position paper on the company website We do not report on the financial contributions received from governments.
	WEF IBC: Financial Investment Contribution	Strategy Key business figures at a glance Information on the DSM share
Innovation in better products and services	WEF IBC: Total R&D Expenses ($)	Innovation
Community and social vitality	WEF IBC: Total tax paid	Taxation position paper on the company website

Consolidated financial statements

Summary of significant accounting policies

Basis of preparation

DSM's consolidated financial statements have been prepared in accordance with International Financial Reporting Standards (IFRS) as adopted by the European Union and the provisions of section 362-8 of Book 2 of the Dutch Civil Code. The accounting policies applied by DSM comply with IFRS and the pronouncements of the International Financial Reporting Interpretation Committee (IFRIC) effective at 31 December 2022.

New or amended standards that are effective from 1 January 2022 do not have a material effect on DSM's consolidated financial statements. In addition, new or amended standards effective after 1 January 2023 were neither adopted early, nor expected to have significant impact.

Consolidation including joint arrangements

The consolidated financial statements comprise the financial statements of Royal DSM and its subsidiaries (together 'DSM' or 'group'). As a parent company, DSM is exposed, or has a right, to the variable returns from its involvement with its subsidiaries and has the ability to affect the returns through its power over the subsidiary. The financial data of subsidiaries are fully consolidated. Non-controlling interests in the group's equity and profit and loss are stated separately. Subsidiaries are consolidated from the acquisition date until the date on which DSM ceases to have control. From the acquisition date onwards, all intra-group balances and transactions and unrealized profits or losses from intra-group transactions are eliminated, with one exception: unrealized losses are not eliminated if there is evidence of an impairment of the asset transferred. In such cases, an impairment of the asset is recognized.

A joint arrangement is an entity in which DSM holds an interest and which is jointly controlled by DSM and one or more other venturers under a contractual arrangement. A joint arrangement can either be a joint venture where DSM and the other partner(s) have rights to the net assets of the arrangement, or a joint operation where DSM and the partner(s) have rights to the assets and obligations for the liabilities of the arrangement. For joint ventures, the investment in the net assets is recognized and accounted for in accordance with the equity method. For a joint operation, assets, liabilities, revenues and expenses are recognized in the financial statements of DSM in accordance with the contractual entitlement or obligations of DSM.

Business combinations

Business combinations are accounted for using the acquisition method. The cost of an acquisition is measured as the aggregate of the consideration transferred, including liabilities incurred, measured at acquisition date fair value, and the amount of any non-controlling interest in the acquiree. Acquisition costs incurred are expensed.

As of the acquisition date, identifiable assets acquired, liabilities assumed and any non-controlling interest in the acquiree are recognized separately from goodwill. Identifiable assets acquired and the liabilities assumed are measured at acquisition date fair value. For each business combination, DSM elects whether it measures the non-controlling interest in the acquiree at fair value or at the proportionate share of the acquiree's identifiable net assets. Any contingent consideration payable is measured at fair value at the acquisition date.

For business combinations with the acquisition date in the prior reporting period, comparative information is revised in case adjustments are made during the measurement period to the provisional amounts, determined as part of the purchase price allocation (PPA), based on information available at the acquisition date.

Segmentation

Segment information is presented in respect of the group's reportable operating segments, about which separate financial information is available that is regularly evaluated by the Chief Operating Decision Maker. DSM has determined that Animal Nutrition & Health (ANH), Health, Nutrition & Care (HNC), and Food & Beverage (F&B) represent reportable operating segments in addition to the reportable segment Corporate Activities. The Managing Board decides how to allocate resources and assesses the performance of the Business Groups. Business Group performance is reported and reviewed down to the level of Adjusted EBITDA. The Business Groups are organized in accordance with the type of products produced and the nature of the markets served. The same accounting policies that are applied for the consolidated financial statements of DSM are also applied for the operating segments. Prices for transactions between segments are determined on an arm’s length basis. Segment results, assets and liabilities include items directly attributable to a segment as well as those that can reasonably and consistently be allocated. Selected information on a country and regional basis is provided in addition to the information about operating segments.

Foreign currency translation

The presentation currency of the group is the euro.

Each entity of the group records transactions and balance sheet items in its functional currency. Transactions denominated in a currency other than the functional currency are recorded at the spot exchange rates prevailing at the date of the transactions. Monetary assets and liabilities denominated in a currency other than the functional currency of the entity are translated at the closing rates. Exchange differences resulting from the settlement of these transactions and from the translation of monetary items are recognized in the income statement.

Non-monetary items that are measured on the basis of historical costs denominated in a currency other than the functional currency continue to be translated against the rate at initial recognition and will not result in exchange differences.

On consolidation, the balance sheets of subsidiaries that do not have the euro as their functional currency are translated into euros at the closing rate. The income statements of these entities are translated into euros at the average rates for the relevant period. Goodwill paid on acquisition is recorded in the functional currency of the acquired entity. Exchange differences arising from the translation of the net investment in entities with a functional currency other than the euro are recorded in Other comprehensive income. The same applies to exchange differences arising from borrowings and other financial instruments insofar as those instruments hedge the currency risk related to the net investment. On disposal of an entity with a functional currency other than the euro, the cumulative exchange differences relating to the translation of the net investment are recognized in profit or loss.

Distinction between current and non-current

An asset (liability) is classified as current when it is expected to be realized (settled) within 12 months after the balance sheet date.

Offsetting

Financial assets and financial liabilities are offset and the net amount is presented in the balance sheet when DSM has a legal right to offset the amounts and intends either to settle them on a net basis or to realize the asset and settle the liability simultaneously.

Intangible assets

Goodwill represents the excess of the cost of an acquisition over DSM’s share in the net fair value of the identifiable assets and liabilities of an acquired subsidiary, joint venture or associate. Goodwill paid on acquisition of subsidiaries is included in intangible assets. Goodwill paid on acquisition of joint ventures or associates is included in the carrying amount of these entities. Goodwill recognized as an intangible asset is not amortized but tested for impairment annually, and when there are indications that the carrying amount may exceed the recoverable amount. A gain or loss on the disposal of an entity includes the carrying amount of goodwill relating to the entity sold.

Intangible assets acquired in a business combination are recognized at fair value on the date of acquisition and subsequently amortized over their expected useful lives, which vary from 4 to 20 years.

Separately acquired licenses, patents, drawing rights and application software are carried at historical cost less straight-line amortization and less any impairment losses. The expected useful lives vary from 4 to 15 years. Costs of software maintenance are expensed when incurred. Capital expenditure that is directly related to the development of application software is recognized as an intangible asset and amortized over its estimated useful life (5 to 8 years).

Research costs are expensed when incurred. Development expenditure is capitalized if the recognition criteria are met and if it is demonstrated that it is technically feasible to complete the asset; that the entity intends to complete the asset; that the entity is able to sell the asset; that the asset is capable of generating future economic benefits; that adequate resources are available to complete the asset; and that the expenditure attributable to the asset can be reliably measured. Development expenditure is amortized over the asset's useful life. Development projects under construction are included under 'Development projects'.

Property, plant and equipment

Property, plant and equipment are measured at cost less depreciation calculated on a straight-line basis and less any impairment losses. Interest during construction is capitalized when it meets the criteria of a qualifying asset. Expenditures relating to major scheduled turnarounds are capitalized and depreciated over the period up to the next turnaround.

Property, plant and equipment are systematically depreciated over their estimated useful lives. The estimated remaining lives of assets are reviewed every year, taking account of commercial and technological obsolescence as well as normal wear and tear. The initially assumed expected useful lives are in principle as follows: for buildings 10–50 years; for plant and machinery 5–15 years; for other equipment 4–10 years. Land is not depreciated.

An item of property, plant and equipment is derecognized upon disposal or when no future economic benefits are expected to arise from the continued use or the sale of the asset. Any gain or loss arising on derecognition of the asset is recorded in profit or loss.

Leases

DSM recognizes a lease liability and a corresponding right-of-use asset at the commencement date of a lease. The lease liability is initially measured at the present value of the remaining lease payments that are not paid at the commencement date. In general, DSM splits the contractual consideration into a lease and a non-lease component based on their relative stand-alone prices. For vehicle leases, however, DSM applies the practical expedient not to make this split but rather accounts for the fixed consideration as a single lease component. If available, DSM applies the implicit interest rate in the contract to discount the remaining lease payments; only if this is not the case, DSM uses the applicable incremental borrowing rate as the discount rate. In determining the incremental borrowing rate, DSM applies the practical expedient to use a single discount rate to portfolios of leases with reasonably similar characteristics. Over time, the lease liability is increased by the interest expense related to the unwinding of the lease liability and decreased by the lease payments made. The lease liability is remeasured when DSM reassesses or modifies the contractual terms and conditions, including indexation.

The corresponding right-of-use assets are measured at cost less any depreciation on a straight-line basis over the expected lease term, less any impairment losses, and adjusted for remeasurements of the lease liability. In line with the initially assumed expected useful life of the corresponding asset class within Property, plant and equipment, the minimum expected lease term for building leases is in principle 10 years. However, the contractual terms or specific circumstances could require applying the shorter non-cancellable period in determining the expected lease term. For vehicle leases, the expected lease term is set equal to the contractual term (4–5 years).

Payments related to short-term leases (leases with a term shorter than 12 months) are recognized on a straight-line basis in profit or loss.

Impairment of non-financial assets

When there are indications that the carrying amount of a non-financial asset (an intangible asset or an item of property, plant and equipment) may exceed the estimated recoverable amount (the higher of its value in use and fair value less costs to sell), the possible existence of an impairment loss is investigated. If an asset does not generate largely independent cash flows, the recoverable amount is determined for the cash generating unit (CGU) to which the asset belongs. In assessing the value in use, the estimated future cash flows are discounted to their present value using a pre-tax discount rate that reflects current market interest rates and the risks specific to the asset.

When the recoverable amount of a non-financial asset or a CGU is less than its carrying amount, the carrying amount is impaired to its recoverable amount and an impairment charge is recognized in profit or loss. An impairment loss is reversed when there has been a change in estimate that is relevant for the determination of the asset's recoverable amount since the last impairment loss was recognized. Impairment losses for goodwill are never reversed.

Associates and joint ventures

An associate is an entity over which DSM has significant influence but no control or joint control, usually evidenced by a shareholding that entitles DSM to between 20% and 50% of the voting rights. A joint venture is an entity over which DSM has joint control and is entitled to its share of the net assets and liabilities. Investments in associates and joint ventures are accounted for by the equity method, which involves recognition in the income statement of DSM's share of the associate's or joint venture's profit or loss for the year determined in accordance with the accounting policies of DSM. Any other results at DSM in relation to associated companies are recognized under Other results related to associates and joint ventures. DSM's interest in an associate or joint venture is carried in the balance sheet at its share in the net assets of the associate or joint venture together with goodwill paid on acquisition, less any impairment loss.

When DSM's share in the loss of an associate or joint venture exceeds the carrying amount of that entity, the carrying amount is reduced to zero. No further losses are recognized unless DSM has responsibility for obligations relating to the entity.

Financial instruments

Financial instruments are contractual rights and obligations resulting in an inflow or outflow of financial assets or the issue of equity instruments. They are initially measured at fair value plus any directly attributable transaction costs. Transaction costs for financial instruments assigned to the category 'At fair value through profit and loss' are recognized directly in the income statement. Subsequent measurement is based on the classification of financial instruments defined in IFRS 9.

Non-derivative financial instruments

DSM initially recognizes financial assets and financial liabilities on the date when DSM becomes a party to the contractual provisions of the instrument. DSM derecognizes a financial asset when the contractual rights to the cash flows from the asset expire, or when it transfers the rights to receive the contractual cash flows in a transaction in which substantially all the risks and rewards of ownership of the financial asset are transferred. DSM derecognizes a financial liability when its contractual obligations are discharged or canceled, or expire.

Other financial assets

Other financial assets comprise loans to associates and joint ventures, other participating interests and other receivables.

DSM's business model objective for loans is 'held-to-collect contractual cash flows only'. Held to collect loans, other receivables and other deferred items, for which the contractual cash flows consist solely of principal and interest, are measured at amortized cost, using the effective interest method, which generally corresponds to the nominal value, less an adjustment for expected credit loss. Upon disposal of these assets, the gain or loss is recognized in profit or loss.

Other receivables, for which the contractual cash flows are not solely principal and interest, are recognized at fair value, with changes in fair value recognized in profit or loss.

Other participating interests comprise equity interests in entities in which DSM has no significant influence; these are accounted for as assets at fair value through profit or loss, or DSM uses the irrevocable election to present the fair value changes in other comprehensive income (Fair value reserve) instead of profit or loss. These fair value changes in other comprehensive income (OCI) will not be recycled through profit and loss upon disposal of the interest. All dividends received will be presented in profit or loss.

Expected credit loss

All financial assets measured at amortized cost include an allowance for expected credit loss as of the date of initial recognition of the asset. Expected credit losses are measured as the present value of the difference between the cash flows due to DSM, and the cash flows that DSM expects to receive. Expected credit losses are reassessed over time and recognized in the income statement. Loss allowances for trade receivables are always measured at lifetime expected credit loss.

Inventories
Inventories are stated at the lower of cost and net realizable value. The first in, first out (FIFO) method of valuation is used unless the nature of the inventories requires the use of a different cost formula, in which case the weighted average cost method is used. The cost of intermediates and finished goods includes directly attributable costs and related production overhead expenses. Net realizable value is determined as the estimated selling price in the ordinary course of business, less the estimated costs of completion and the estimated costs necessary to make the sale. Products whose manufacturing cost cannot be calculated because of joint cost components are stated at net realizable value after deduction of a margin for selling and distribution efforts.

Current receivables
Current receivables, for which the contractual cash flows are solely principal and interest, are initially recognized at fair value plus any directly attributable transaction costs. Subsequent to initial recognition, they are measured at amortized cost using the effective interest method, which generally corresponds to nominal value, less an adjustment for expected credit loss.

Current investments
Current investments are initially recognized at fair value plus any directly attributable transaction costs. Subsequent to initial recognition, they are measured at amortized cost using the effective interest method. Deposits with banks with a maturity between 3 and 12 months are classified as current investments.

Cash and cash equivalents
Cash and cash equivalents comprise cash at banks and in hand and deposits held at call with banks with a maturity of less than three months at inception. Bank overdrafts are included in current liabilities. Included in cash and cash equivalents are investments in money market funds that do not meet the SPPI (Solely Payments of Principal & Interest) criterion but are held to meet short-term cash demand. Cash and cash equivalents are measured at fair value through profit and loss, or amortized cost.

Non-current assets and disposal groups held for sale
Non-current assets and disposal groups (assets and liabilities relating to an activity that is to be sold) are classified as ‘held for sale’ if their carrying amount is to be recovered principally through a sales transaction rather than through continuing use. The reclassification takes place when the assets are available for immediate sale and the sale is highly probable. These conditions are usually met as from the date on which a letter of intent or agreement to sell is ready for signing. Non-current assets and disposal groups held for sale are measured at the lower of carrying amount and fair value less costs to sell. Non-current assets held for sale are not depreciated or amortized. For transparency, non-current assets and disposal groups that will contribute to joint ventures are reported separately from other assets and liabilities held for sale.

Discontinued operations
Discontinued operations comprise those activities that were disposed of during the period or which were classified as held for sale at the end of the period and represent a separate major line of business or geographical area that can be clearly distinguished for operational and financial reporting purposes.

Royal DSM Shareholders’ equity
DSM’s ordinary shares and Cumulative Preference Shares are classified as Royal DSM Shareholders’ equity. This is the case for the latter, as there is no mandatory redemption, and distributions to the shareholders are at the discretion of DSM. The price paid for repurchased DSM shares (treasury shares) is deducted from Royal DSM Shareholders’ equity until the shares are canceled or reissued. Treasury shares are presented in the treasury share reserve. When treasury shares are sold or reissued, the amount received is recognized as an increase in equity. Dividend to be distributed to holders of Cumulative Preference Shares is recognized as a liability when the Supervisory Board approves the proposal for profit distribution. Dividend to be distributed to holders of ordinary shares is recognized as a liability when the Annual General Meeting of Shareholders approves the profit appropriation.

Provisions
Provisions are recognized when all of the following conditions are met: (1) there is a present legal or constructive obligation as a result of past events, (2) it is probable that a transfer of economic benefits will settle the obligation, and (3) a reliable estimate can be made of the amount of the obligation.

The probable amount required to settle long-term obligations is discounted if the effect of discounting is material. Where discounting is used, the increase in the provision due to the passage of time is recognized as financial expense.

Borrowings
Borrowings are not held for trading and are initially recognized at fair value of the proceeds received, net of transaction costs. Subsequently, borrowings are stated at amortized cost using the effective interest method. Measurement at amortized cost includes any discount or premium on the borrowing. Interest expenses are recorded as financial expense in profit or loss.

If the interest rate risk relating to a long-term borrowing is hedged through a fair value hedge, and the hedge is effective, the carrying amount of the long-term loan is adjusted for changes in fair value of the interest component of the hedged loan.

Other liabilities
Other liabilities are measured at amortized cost, which generally corresponds to the nominal value, or at fair value through profit and loss. The latter is mainly applied to acquisition-related liabilities.

Revenue from contracts with customers
Revenue from contracts with customers is recognized by identifying the contract and its performance obligations as well as determination and allocation of the transaction price to these performance obligations. At DSM, revenue related to the sale of goods is recognized in the income statement when the performance obligation is satisfied. This is at the point in time when transfer of control of the goods passes to the buyer. Revenue recognized is measured at the fair value of the contractual transaction price allocated to the performance obligation that is satisfied.

Income coming from the rendering of services is recognized when the service, i.e., the performance obligation, has been performed. The revenue recognized is measured at the fair value of the contractual transaction price allocated to the performance obligation that is satisfied.

Net sales represent the invoice value less estimated rebates, cash discounts, and indirect taxes.

Income related to the sale or licensing of technologies or technological expertise is recognized in the income statement either at a point in time or over time, depending on when the contractually identified performance obligations are satisfied. Performance obligations related to license income include the transfer of rights and obligations associated with those technologies. License income is reported in Net sales when the income is part of the ordinary and recurring activities of the business and, if this is not the case, it is reported in Other operating income.

Interest income is recognized on a time-proportionate basis using the effective interest method.

Dividend income is recognized when the right to receive payment is established.

Government grants
Government grants are recognized at their fair value if there is reasonable assurance that the grant will be received and all related conditions will be complied with. Cost grants are recognized as income over the periods necessary to match the grant on a systematic basis to the cost that it is intended to compensate. If the grant is an investment grant, its fair value is initially recognized as deferred income in Other non-current liabilities and then released to profit or loss over the expected useful life of the relevant asset.

Share-based compensation
Performance share units and restricted share units are granted free of charge to eligible staff and generally vest after three years on the achievement of previously determined target vesting conditions. The cost of performance share units

and restricted share units is measured by reference to the fair value of the DSM shares on the date on which the performance share units and restricted share units were granted or modified and is recognized in profit or loss (Employee benefit costs) during the vesting period, together with a corresponding increase in equity. Vesting conditions other than market conditions are taken into account by adjusting the number of equity instruments, so that the amount recognized during the vesting period in employee benefit costs is based on the number of equity instruments that eventually vest.

The costs of option plans are measured by reference to the fair value of the options on the date on which the options are granted. The fair value is determined using the Black-Scholes model, taking into account market conditions linked to the price of the DSM share. The costs of these options are recognized in profit or loss (Employee benefit costs) during the vesting period, together with a corresponding increase in Equity in the case of equity-settled options or Other non-current liabilities in the case of cash-settled options. No expense is recognized for options that do not ultimately vest, except for options where vesting is conditional upon a market condition.

Emission rights

DSM is subject to legislation encouraging reductions in greenhouse gas emissions and has been awarded emission rights (principally CO_2 emission rights) in a number of jurisdictions. Emission rights are reserved for meeting delivery obligations and are recognized at cost. Revenue is recognized when surplus emission rights are sold to third parties. When actual emissions exceed the emission rights available to DSM, a liability is recognized for the expected additional costs.

Alternative performance measures (APMs)

DSM uses Alternative performance measures to present and discuss DSM's financial results. To arrive at these APMs, adjustments are made for material items of income and expense arising from circumstances such as acquisitions and divestments, restructuring, impairments and other events.

Other APM adjusting events include site closure costs, environmental cleaning, litigation settlements or other non-operational (contractual) arrangements. Other than items related to acquisition and integration costs incurred in the first year from the acquisition date (including non-recurring inventory value adjustments) as well as adjustments due to previously recognized APM adjusting events, the threshold is €10 million.

Income tax

Income tax expense is recognized in the income statement except to the extent that it relates to an item recognized directly in Other comprehensive income or Shareholders' equity.

Current tax is the expected tax payable or receivable on the taxable income for the year, using tax rates enacted at the balance sheet date, and any adjustment to tax payable with respect to previous years. The current tax position also reflects any uncertainty related to income taxes. Current tax assets and liabilities are offset only if certain criteria are met.

Deferred tax assets and liabilities are recognized for the expected tax consequences of temporary differences between the carrying amount of assets and liabilities and their tax base. Deferred tax assets and liabilities are measured at the tax rates that have been enacted or substantially enacted at the balance sheet date, and reflect any uncertainty related to income taxes and are expected to apply when the related deferred tax assets are realized or the deferred tax liabilities are settled. Deferred tax assets, including assets arising from losses carried forward and tax credits, are reassessed over time and recognized to the extent that it is probable that future taxable profits will be available against which the deductible temporary differences and unused tax losses can be utilized. Deferred tax assets and liabilities are stated at nominal value.

Deferred taxes are not provided for the following temporary differences: the initial recognition of goodwill, the initial recognition of assets or liabilities that affect neither accounting nor taxable profit, and differences relating to investments in subsidiaries to the extent that they will probably not reverse in the foreseeable future. Deferred tax assets and deferred tax liabilities are offset and presented net when there is a legally enforceable right to offset, and the assets and liabilities relate to income taxes levied by the same taxation authority.

Derivatives

Derivatives are measured at fair value at initial recognition and subsequent changes are recognized in profit or loss, unless hedge accounting is applied.

Hedging

DSM uses derivatives such as foreign currency forward contracts and interest rate swaps to hedge risks associated with foreign currency and interest rate fluctuations. In addition, DSM may use commodity swap or forward contracts to hedge risks associated with exposure to fluctuations in commodity prices.

Derivatives used as a hedge instrument are recognized in the balance sheet at fair value and changes in fair value are recognized in profit or loss unless cash flow hedge accounting or net investment hedge accounting is applied.

Cash flow hedge

Changes in the fair value of derivatives designated and qualifying as cash flow hedges are recognized in Other comprehensive income (Hedging reserve) to the extent that the hedge is effective. Upon recognition of the related asset or liability, the cumulative gain or loss is transferred from the hedging reserve and included in the carrying amount of the hedged item if it is a non-financial asset or liability. Any ineffective portion of the changes of the fair value of the derivative is recognized immediately in profit and loss. If the forecast transaction is no longer expected to occur, the hedge no longer meets the criteria for hedge accounting, the hedging instrument expires or is sold, terminated or exercised, or the designation is revoked, then hedge accounting is discontinued prospectively. If the forecast transaction is no longer expected to occur, then the amount accumulated in equity is reclassified to profit or loss. If the hedged item is a financial asset or liability, the gain or loss is transferred to profit or loss.

Net investment hedge

Changes in the fair value of derivatives designated and qualifying as net investment hedges are recognized in Other comprehensive income (Translation reserve) to the extent that the hedge is effective and the change in fair value is caused by changes in currency exchange rates. Accumulated gains and losses are released from Other comprehensive income and are included in profit or loss when the net investment is disposed of.

Fair value hedge

Changes in the fair value of derivatives designated and qualifying as fair value hedges are immediately recognized in the income statement, together with any changes in the fair value of the hedged assets or liabilities attributable to the hedged risk.

Pensions and other post-employment benefits

For DSM's defined contribution plans, the obligations are limited to the payment of contributions, which are recognized as Employee benefit costs.

For defined benefit plans, the aggregate of the value of the defined benefit obligation and the fair value of plan assets for each plan is recognized as a net defined benefit liability or asset. Defined benefit obligations are determined using the projected unit credit method. Plan assets are recognized at fair value. If the fair value of plan assets exceeds the present value of the defined benefit obligation, a net asset is only recognized to the extent that the asset is available for refunds to the employer or for reductions in future contributions to the plan. Defined benefit pension costs consist of three elements: service costs, net interest, and remeasurements. Service costs are part of Employee benefit costs and consist of current service costs. Past service costs and results of plan settlements are included in Other operating income or expense. Net interest is part of Financial income and expense and is determined on the basis of the value of the net defined benefit asset or liability at the start of the year, and on the interest on high-quality corporate bonds. Remeasurements are actuarial gains and losses, the return (or interest cost) on net plan assets (or liabilities) excluding amounts included in net interest and changes in the effect of the asset ceiling. These remeasurements are recognized in Other comprehensive income as they occur and are not recycled through profit or loss at a later stage.

Consolidated financial statements

Consolidated income statement

x € million	Notes	2022	2021
Continuing operations			
Net sales	5	8,390	7,269
Cost of sales	5	(5,700)	(4,657)
Gross margin		2,690	2,612
Marketing and sales	5	(1,235)	(1,172)
Research and development	5	(295)	(274)
General and administrative	5	(534)	(475)
Other operating income	5	107	82
Other operating expense	5	(51)	(62)
Operating profit		682	711
Financial income	6	71	24
Financial expense	6	(159)	(124)
Profit before income tax expense		594	611
Income tax expense	7	(124)	(123)
Share of the profit of associates and joint ventures	10	12	16
Other results related to associates and joint ventures	10	(7)	326
Net profit from continuing operations		475	830
Net profit from discontinued operations	3	1,240	850
Net profit for the year		1,715	1,680
Of which:			
- Attributable to non-controlling interests	17	15	4
- Dividend on Cumulative Preference Shares	16	6	6
- Available to holders of ordinary shares	16	1,694	1,670
Earnings per share (EPS) total (in €):	2		
- Net basic EPS		9.80	9.68
- Net diluted EPS		9.77	9.63
Earnings per share (EPS) continuing operations (in €):	2		
- Net basic EPS		2.64	4.76
- Net diluted EPS		2.63	4.74

The accompanying notes are an integral part of these consolidated financial statements.

See Note 2 Alternative performance measures for the reconciliation to Adjusted EBITDA of €1,395 million (2021: €1,379 million) and other adjusted IFRS performance measures.

Consolidated statement of comprehensive income

x € million	Notes	2022	2021
Net profit for the year		**1,715**	**1,680**
Other comprehensive income			
Remeasurements of defined benefit pension plans	24	10	153
Fair value changes in Other participating interests and other financial instruments	11	(61)	46
Exchange differences on translation of foreign operations relating to the non-controlling interests	17	(3)	8
Tax related items that will not be reclassified to profit or loss		(10)	(20)
Items that will not be reclassified to profit or loss		**(64)**	**187**
Exchange differences on translation of foreign operations	16		
- Change for the year		267	478
- Reclassification adjustment to the income statement		(16)	(13)
Hedging reserve	16		
- Change for the year		(6)	(24)
- Reclassification adjustment to the income statement		53	7
Equity accounted investees – share of Other comprehensive income		-	1
Tax related items that may subsequently be reclassified to profit or loss		(7)	7
Items that may subsequently be reclassified to profit or loss		**291**	**456**
Total comprehensive income		**1,942**	**2,323**
Of which:			
- Attributable to non-controlling interests	17	12	12
- Available to equity holders of Koninklijke DSM N.V.	16	1,930	2,311

Consolidated balance sheet at 31 December

x € million	Notes	2022	2021
Assets			
Intangible assets	8	5,147	5,309
Property, plant and equipment	9	3,576	3,964
Deferred tax assets	7	95	203
Prepaid pension costs	24	19	75
Share in associates and joint ventures	10	61	64
Derivatives	23	82	48
Other financial assets	11	295	227
Non-current assets		**9,275**	**9,890**
Inventories	12	2,339	2,297
Trade receivables	13	1,508	1,604
Income tax receivables	13	36	61
Other current receivables	13	78	32
Derivatives	23	42	30
Current investments	14	125	489
Cash and cash equivalents	15	2,755	1,561
Assets held for sale	3	1,245	56
Current assets		**8,128**	**6,130**
Total		**17,403**	**16,020**
Equity and liabilities			
Shareholders' equity		10,743	9,318
Non-controlling interests	17	102	79
Equity	16	**10,845**	**9,397**
Deferred tax liabilities	7	476	490
Employee benefit liabilities	24	241	323
Provisions	18	74	96
Borrowings	19	2,978	2,995
Derivatives	23	4	9
Other non-current liabilities	20	205	280
Non-current liabilities		**3,978**	**4,193**
Employee benefit liabilities	24	22	21
Provisions	18	50	68
Borrowings	19	86	103
Derivatives	23	23	40
Trade payables	21	1,415	1,571
Income tax payables	21	64	77
Other current liabilities	21	490	540
Liabilities held for sale	3	430	10
Current liabilities		**2,580**	**2,430**
Total		**17,403**	**16,020**

Consolidated statement of changes in equity (Note 16)

x € million	Share capital	Share premium	Treasury shares	Other reserves	Retained earnings	Total	Non-controlling interests	Total Equity
Balance at 1 January 2021	338	489	(976)	(243)	7,791	7,399	88	7,487
Dividend	-	-	-	-	(421)	(421)	(3)	(424)
Options / performance shares granted	-	-	-	22	-	22	-	22
Options / performance shares vested / canceled	-	-	-	(24)	24	-	-	-
Cancellation of shares	(10)	(18)	746	-	(718)	-	-	-
Reissued shares	-	-	218	-	(25)	193	-	193
Acquisition of NCI without a change in control	-	-	-	-	(20)	(20)	7	(13)
Acquisition (divestment) of subsidiary with NCI	-	-	-	-	-	-	(24)	(24)
Repurchase of shares	-	-	(165)	-	-	(165)	-	(165)
Transfer	-	-	-	(101)	101	-	-	-
Other	-	-	-	1	(2)	(1)	(1)	(2)
Total comprehensive income	-	-	-	501	1,810	2,311	12	2,323
Balance at 31 December 2021	328	471	(177)	156	8,540	9,318	79	9,397
Dividend	-	-	-	-	(459)	(459)	-	(459)
Options / performance shares granted	-	-	-	34	-	34	-	34
Options / performance shares vested / canceled	-	-	-	(29)	29	-	-	-
Reissued shares	-	-	191	-	(50)	141	-	141
Acquisition (divestment) of subsidiary with NCI	-	-	-	-	-	-	(4)	(4)
Repurchase of shares	-	-	(210)	-	-	(210)	-	(210)
Transfer	-	-	-	(28)	17	(11)	11	-
Other	-	-	-	-	-	-	4	4
Total comprehensive income	-	-	-	230	1,700	1,930	12	1,942
Balance at 31 December 2022	328	471	(196)	363	9,777	10,743	102	10,845

Consolidated cash flow statement (Note 26)

x € million	2022	2021
Operating activities		
Net profit for the year	1,715	1,680
Share of the profit of associates and joint ventures (including discontinued operations)[1]	(5)	(342)
Income tax (including discontinued operations)[1]	190	245
Profit before income tax expense (including discontinued operations)[1]	1,900	1,583
Financial income and expense (including discontinued operations)[1]	94	106
Operating profit (including discontinued operations)[1]	1,994	1,689
Depreciation, amortization and impairments (including discontinued operations)[1]	652	681
EBITDA (including discontinued operations)[1]	2,646	2,370
Adjustments for:		
- (Gain) or loss from disposals	(1,024)	(649)
- Acquisition- / divestment-related in EBITDA	4	22
- Change in provisions	(33)	(20)
- Defined benefit plans	(15)	(39)
Adjustments for EBITDA	(1,068)	(686)
Income tax received	35	23
Income tax paid	(166)	(156)
Share-based compensation	34	22
Other	(19)	(2)
Adjustments for non-EBITDA	(116)	(113)
Operating cash flow before changes in working capital	**1,462**	**1,571**
Changes in operating working capital:		
Inventories	(442)	(323)
Trade receivables	(133)	(194)
Trade payables	116	334
Changes in inventories, trade receivables and trade payables	(459)	(183)
Changes in non-operating working capital	(38)	39
Changes in working capital	(497)	(144)
Cash provided by operating activities	**965**	**1,427**

1 The Consolidated cash flow statement includes an analysis of all cash flows in total, therefore including both continuing and discontinued operations. For the amounts related to discontinued operations split by activities and a reconciliation of profit from continuing operations to total, including discontinued operations, see Note 3 Change in the scope of the consolidation.

Consolidated cash flow statement (Note 26) continued

x € million	2022	2021
Cash provided by operating activities	965	1,427
Investing activities		
Capital expenditure for:		
- Intangible assets	(138)	(137)
- Property, plant and equipment	(506)	(433)
Payments regarding drawing rights	(7)	(7)
Proceeds from disposal of property, plant and equipment	17	27
Acquisition of subsidiaries and associates	(74)	(704)
Disposal of subsidiaries, businesses and associates	1,366	1,791
Additions to fixed-term deposits	(638)	(2,070)
Withdrawal from fixed-term deposits	1,001	1,625
Interest received	6	5
Other financial assets:		
- Capital payments and acquisitions	(33)	(43)
- Dividends received	4	12
- Additions to loans granted	(152)	(10)
- Repayment of loans granted	-	29
- Proceeds from disposals	30	123
Cash from / (used in) investing activities	876	208
Financing activities		
Contributions from non-controlling interests	5	3
Acquisition of non-controlling interests	-	(13)
Loans taken up	51	37
Repayment of loans	(29)	(513)
Payments of lease liabilities	(57)	(54)
Change in debt to credit institutions	(21)	12
Dividend paid	(345)	(266)
Interest paid	(52)	(65)
Proceeds from reissued treasury shares	25	34
Repurchase of shares	(210)	(165)
Other	(12)	6
Cash (used in) / from financing activities	(645)	(984)
Change in cash and cash equivalents	1,196	651
Cash and cash equivalents at 1 January	1,561	871
Exchange differences relating to cash held	(2)	39
Cash and cash equivalents at 31 December	2,755	1,561

Notes to the consolidated financial statements of Royal DSM

1 General information

Unless stated otherwise, all amounts are in € million.

A list of DSM participations has been filed with the Chamber of Commerce (Netherlands) and is available from the company upon request. The list can also be downloaded from the company website.

On 31 May 2022, DSM and Firmenich announced that they have reached a business combination agreement with the intention to enter into a merger of equals to create DSM-Firmenich. The merger is to be consummated in 2023 and it impacts the 2022 financial statements in the following sections: Note 16 on 'Equity' specifically the dividend 2022, Note 23 'Financial Instruments and Risks' regarding a bridge facility, Note 2 'Alternative Performance Measures' regarding merger-related costs, and Note 18 'Provisions' regarding a restructuring program. For further details on the merger plans refer to 'Events after balance sheet date'.

The preparation of financial statements requires estimates and judgments that affect the reported amounts of assets and liabilities, revenues and expenses, and related disclosure of contingent assets and liabilities at the date of the financial statements.

In addition to DSM's significant accounting policies in the previous section, the policies that management considers to be the most important for the presentation of the financial position and results of DSM's operations are further discussed in the relevant Notes. The same holds for the items that require management estimates and judgments about matters that are inherently uncertain. Management cautions that future events often vary from forecasts and that estimates routinely require adjustment. Areas of judgment that have the most significant effect on the amounts recognized in the financial statements relate to the categorization of material items in profit or loss as 'APM adjustments', therefore impacting the alternative performance measures, and the identification of cash generating units (CGUs), impacting goodwill impairment testing.

Key estimates that need to be made by management relate to the useful lives of non-current assets (Notes 8 and 9), the establishment of provisions for restructuring costs, environmental costs (Note 18) and retirement and other post-employment benefits (Note 24), the recognition and measurement of income taxes (Note 7), the determination of fair values for financial instruments (Note 23) and for share-based compensation (Note 27). The uncertainty concerning the actual outflows of the aforementioned items relates to both the amounts and the timing of potential future events.

Furthermore, impairment testing of goodwill, intangible assets and development projects requires key estimates and judgments by management. Apart from the determination of CGUs, the estimation of future cashflows, growth rates, discount rates and fair values minus costs of disposal require estimates and judgments as well (Notes 2, 8, 9 and 10). Significant estimates and judgment are also required for the determination of the fair value of assets acquired, and liabilities assumed in business combinations (Note 3). Estimates are based on historical quoted market prices, experience and assumptions that are considered reasonable under the circumstances.

For lease contracts under IFRS 16 that include renewal options, determining the lease term involves estimates and judgments based on the underlying asset class, past practices and current business outlooks. The assessment of these renewal options affects the lease term of these contracts and, in turn, the recognized lease liabilities and the corresponding right-of-use assets.

Exchange rates

The currency exchange rates that were used in preparing the consolidated financial statements are listed below for the most important currencies.

1 euro =	Exchange rate at balance sheet date		Average exchange rate	
	2022	2021	2022	2021
US dollar	1.07	1.13	1.05	1.18
Swiss franc	0.98	1.03	1.00	1.08
Brazilian real	5.64	6.31	5.44	6.38
Chinese renminbi	7.36	7.19	7.08	7.63

Presentation of Consolidated income statement

DSM presents expenses in the Consolidated income statement in accordance with their function. This allows the presentation of gross margin on the face of the income statement, which is a widely used performance measure in the industry. The composition of the costs allocated to the individual functions is explained below.

Cost of sales encompasses all manufacturing costs (including raw materials, employee benefits, and depreciation and amortization) related to goods and services captured in net sales. These are measured at their actual cost based on FIFO, or weighted average cost.

Marketing & Sales relates to the selling and marketing of goods and services, and also includes all costs that are directly related to the sale of goods, but are not originated by the manufacturing of the goods (e.g., outbound freight).

Research & Development consists of:

- Research, which is defined as original and planned investigation undertaken with the prospect of gaining new scientific or technical knowledge and understanding
- Development, which is defined as the application of research findings or other knowledge to a plan or design for the production of new or substantially improved materials, devices, products, processes, systems or services before the start of commercial production or use that do not meet the accounting requirements for capitalization

General and administrative relates to the strategic and governance role of the general management of the company as well as the representation of DSM as a whole in the financial, political or business community. It also relates to business support activities of staff departments that are not directly related to the other functional areas.

2 Alternative performance measures

In presenting and discussing DSM's financial position, operating results and net results, management uses certain Alternative performance measures not defined by IFRS. These Alternative performance measures (APMs) should not be viewed in isolation as alternatives to the equivalent IFRS measures and should be used as supplementary information in conjunction with the most directly comparable IFRS measures. Alternative performance measures do not have standardized meaning under IFRS and therefore may not be comparable to similar measures presented by other companies.

To provide clear reporting on the developments of the business, APM adjustments, which represent material items of income or expense, are made. These adjustments impact the EBIT(DA), operating profit, net profit, ROCE, cash provided by operating activities and EPS. A reconciliation of the Alternative performance measures to the most directly comparable IFRS measures can be found in the table Alternative performance measures.

The APM adjustments to net profit, as included in the APMs, can be specified as follows:

	2022	2021
APM Adjustments (continuing operations)		
- Acquisitions/divestments	4	21
- Restructuring	87	76
- Other	-	(6)
- Impairments/(reversals) of PPE and intangible assets	(6)	6
- Financial income and expense	8	-
- Income tax related to adjustments	(15)	(25)
- Adjustments to result from associates and joint ventures	2	(319)
Total APM adjustments (income)/expense	80	(247)

2022

The main APM adjustments in 2022 are listed below:

- Restructuring costs of €87 million relate mainly to restructuring projects, following the new strategy and the announced intention for the merger with Firmenich, including the redundancy schemes associated with the dismissal of employees and costs of termination of contracts

2021

The main APM adjustments in 2021 are listed below:

- Acquisition and divestment costs of €21 million relate mainly to the acquisition and integration of Erber and First Choice Ingredients
- Restructuring costs of €76 million relate mainly to restructuring projects, following the new strategy and the restructuring project at Materials, including the redundancy schemes associated with the dismissal of employees and costs of termination of contracts
- APM adjustments to the result from associates and joint ventures are a profit of €319 million and relate mainly to the book profit of €303 million on the sale of DSM's share of AOC and a profit of €13 million on a higher earn-out relating to previous divestments

Alternative performance measures (continuing operations)

	2022	2021
Operating profit	682	711
Depreciation, amortization and impairments	622	577
EBITDA	1,304	1,288
APM adjustments to EBITDA:		
- Acquisitions/divestments	4	21
- Restructuring	87	76
- Other	-	(6)
Total APM adjustments	91	91
Adjusted EBITDA	1,395	1,379
Operating profit	682	711
APM adjustments to Operating profit:		
- APM adjustments to EBITDA	91	91
- Impairments/(reversals) of PPE and Intangible assets	(6)	6
Total APM adjustments	85	97
Adjusted operating profit	767	808
Net profit from continuing operations	475	830
APM adjustments to:		
- Operating profit	85	97
- Financial income and expense	8	-
- Result relating to associates / joint ventures	2	(319)
Income tax related to APM adjustments	(15)	(25)
Total APM adjustments	80	(247)
Adjusted net profit from continuing operations	555	583
Profit attributable to non-controlling interests	(13)	(2)
Dividend on Cumulative Preference Shares	(6)	(6)
Adjusted net profit from continuing operations available to holders of ordinary shares	536	575

The below table reflects the earnings per share (EPS) related to continuing operations and to total earnings including discontinued operations.

	2022		2021	
	Continuing operations	Total	Continuing operations	Total
Earnings per share (EPS)				
Average number of ordinary shares outstanding (x 1,000)		172,827		172,648
Effect of dilution due to share options (x 1,000)		477		747
Adjusted average number of ordinary shares outstanding (x 1,000)		173,304		173,395
x € million				
Net profit available to holders of ordinary shares	456	1,694	822	1,670
Adjusted net profit available to holders of ordinary shares	536	776	575	869
in €				
Net basic EPS	2.64	9.80	4.76	9.68
Net diluted EPS	2.63	9.77	4.74	9.63
Adjusted net basic EPS	3.10	4.49	3.33	5.03
Adjusted net diluted EPS	3.09	4.48	3.32	5.01

Alternative performance measures

	2022	2021
Capital employed		
Intangible assets	5,147	5,309
Property, plant and equipment	3,576	3,964
Investment grants / drawing rights	(55)	(111)
Inventories	2,339	2,297
Current receivables	1,622	1,697
Current liabilities	(1,969)	(2,188)
Included discontinued operations	-	(954)
Capital employed at 31 December	**10,660**	**10,014**
Average capital employed		
Capital employed at 1 January	10,014	8,741
Capital employed at 31 March	10,229	9,082
Capital employed at 30 June	10,626	9,100
Capital employed at 30 September	11,402	9,438
Capital employed at 31 December	10,660	10,014
Average capital employed	**10,586**	**9,275**
Adjusted operating profit, continuing operations	767	808
ROCE in %, continuing operations	7	9
Cash provided by operating activities	**965**	**1,427**
Cash impact APM adjustments	111	91
Capital expenditure	(644)	(570)
Payments regarding drawing rights	(7)	(7)
Adjusted net operating free cash flow	**425**	**941**
Adjusted net operating free cash flow, continuing operations	**310**	**626**

3 Change in the scope of the consolidation

Acquisitions

In 2022, DSM acquired businesses for a total consideration of €77 million (in 2021: €757 million).

Prodap

On 31 August 2022, DSM Nutritional Products acquired a 100% interest in Prodap, headquartered in Belo-Horizonte, Brazil for a total consideration of €77 million. Prodap is a Brazilian animal nutrition and technology company that combines technology offerings, consulting services, and customized nutritional solutions to drive efficiency and sustainability in animal farming. The consideration consists of an upfront cash payment of €70 million and an additional earn-out amount between €5 and €12 million, depending mainly on the EBITDA and customer loyalty, to be paid out in three installments in 2024, 2025 and 2026.

In accordance with IFRS 3, the purchase price was provisionally allocated to identifiable assets and liabilities acquired, pending final confirmation of the local valuator. This allocation resulted in a non-tax-deductible goodwill amount of €51 million and intangible assets for technology of €20 million, customer relations of €11 million and trade names of €4 million.

The acquisition of Prodap contributed €9 million to net sales, -€2 million to operating result and -€1 million to Adjusted EBITDA during a period of four months in 2022. If the acquisition had occurred on 1 January 2022, additional net sales would have been approximately €26 million, operating result -€2 million and Adjusted EBITDA €1 million.

Finalization of Vestkorn Milling PPA

In the reporting year, the Purchase Price Allocation (PPA) related to the acquisition of Vestkorn Milling in 2021 was finalized, resulting in an additional allocation of €22 million to intangible assets, mainly for customer relations and technology, a decrease of the goodwill amount by €23 million and an increase of other net assets by €1 million. The comparative information for the reference year has been modified for these measurement period adjustments. As the impact on the profit and loss account is negligible, no comparative information has been adjusted.

Valuation techniques intangible assets

Part of a Purchase Price Allocation is the recognition of intangible assets which are recognized apart from goodwill. The valuation techniques DSM used for measuring the fair value of these intangible assets in 2022 were as follows:

The acquired technology and trade names were valued by applying the relief-from-royalty method, a form of the income approach whereby the value of an asset is estimated by capitalizing the royalties saved as a result of owning the asset.

The fair values of customer relationships were determined by applying the multi-period excess earnings method (MEEM), considering the present value of the projected cash flow revenues and adjusted for retention.

Summary acquisitions in 2022

The accounting of the acquisitions upon closing impacted DSM's consolidated balance sheet 2022 as shown in below table (measured at the date of acquisition).

	Prodap Brazil		Other acquisitions	Total	
	Book value	Fair value	Fair value	Book value	Fair value
Assets					
Intangible assets	4	35	-	4	35
Property, plant and equipment	3	3	-	3	3
Inventories	3	3	-	3	3
Receivables	8	8	-	8	8
Cash and cash equivalents	-	-	-	-	-
Total assets	**18**	**49**	**-**	**18**	**49**
Liabilities					
Non-current liabilities	3	13	-	3	13
Current liabilities	10	10	-	10	10
Total liabilities	**13**	**23**	**-**	**13**	**23**
Net assets	**5**	**26**	**-**	**5**	**26**
Acquisition price (in cash)		70	-		70
Acquisition price (payable)		7	-		7
Consideration		**77**	**-**		**77**
Goodwill		**51**	**-**		**51**
Acquisition costs recognized in APM adjustments		(1)	(2)		(3)

Divestments

Protective Materials

On 1 September 2022, DSM completed the divestment of its Protective Materials business (DPM) to Avient Corporation. Prior to this divestment, DSM reclassified the results of this business (the 'disposal group') to 'discontinued operations'.

Engineering Materials

On 31 May 2022, DSM announced that it had reached an agreement to sell its Engineering Materials business (DEM) to Advent International and LANXESS. Completion of this transaction is expected in the first half of 2023. DSM reclassified the results of this business (the 'disposal group') to 'discontinued operations'.

Summary divestments in 2022

See below table for the book result of the divestments that took place in the reporting year.

x € million	Protective Materials (DPM)	Other	Total
Assets			
Intangible assets	(62)	(3)	**(65)**
Property, plant and equipment	(234)	(1)	**(235)**
Other non-current assets	(55)	-	**(55)**
Inventories	(91)	(1)	**(92)**
Receivables	(64)	(6)	**(70)**
Cash and cash equivalents	(49)	(2)	**(51)**
Total assets	**(555)**	**(13)**	**(568)**
Liabilities			
Non-current liabilities	(65)	-	**(65)**
Current liabilities	(92)	(4)	**(96)**
Total liabilities	**(157)**	**(4)**	**(161)**
Net assets	(398)	(9)	**(407)**
Non-controlling interest	(2)	(2)	**(4)**
Net assets DSM shareholders	**(396)**	**(7)**	**(403)**
Consideration (net of selling costs, translation differences and net debt)	1,427	18	**1,445**
Book result 2022	1,031	11	**1,042**
Income tax	(13)	(3)	**(16)**
Net book result	**1,018**	**8**	**1,026**

Impact on comprehensive income

The impact of the business that has been presented as discontinued operations in the income statement and statement of comprehensive income, is presented in the below tables.

	2022			2021		
	Continuing operations	Discontinued operations	**Total**	Continuing operations	Discontinued operations	Total
Net sales	8,390	2,090	**10,480**	7,269	2,199	9,468
Adjusted EBITDA	1,395	330	**1,725**	1,379	463	1,842
EBITDA	1,304	1,342	**2,646**	1,288	1,082	2,370
Total expenses	7,708	778	**8,486**	6,558	1,221	7,779
Adjusted operating profit	767	304	**1,071**	808	359	1,167
Operating profit	682	1,312	**1,994**	711	978	1,689
Financial income and expense	(88)	(6)	**(94)**	(100)	(6)	(106)
Profit before income tax expense	**594**	**1,306**	**1,900**	**611**	**972**	**1,583**
Income tax expense	(124)	(66)	**(190)**	(123)	(122)	(245)
Results related to associates and joint ventures	5	-	**5**	342	-	342
Net profit for the year	**475**	**1,240**	**1,715**	**830**	**850**	**1,680**
Of which:						
- Attributable to non-controlling interests	13	2	**15**	2	2	4
- Dividend on Cumulative Preference Shares	6	-	**6**	6	-	6
- Available to holders of ordinary shares	456	1,238	**1,694**	822	848	1,670
Earnings per share (EPS)						
- Net basic EPS	2.64	7.16	**9.80**	4.76	4.92	9.68
- Net diluted EPS	2.63	7.14	**9.77**	4.74	4.89	9.63

The Operating profit in discontinued operations amounting to €1,312 million comprises the regular activities of the DPM business in the first eight months of the reporting year (€53 million), the book profit on the sale of the DPM business on 1 September 2022 (€1,031 million) and the full-year activities of the remaining Materials business (€228 million). The business results reclassified to discontinued operations include also intercompany recharges that will cease to be earned/incurred on disposal. Corporate costs have been excluded from the reclassification to discontinued operations. The comparative numbers in the Income statement and OCI are re-presented as if the activities of the DPM and DEM businesses had been discontinued from the start of the comparative year 2021. In addition, these comparative numbers also include three months of business results related to DSM's former Resins and Functional Materials business, which was divested in April 2021.

See also the section Assets and liabilities held for sale.

	2022	2021
Net profit from discontinued operations	**1,240**	**850**
Other comprehensive income		
Remeasurements of defined benefit pension plans	1	2
Fair value changes in Other participating interests and other financial instruments	(1)	-
Tax related items that will not be reclassified to profit or loss	-	-
Items that will not be reclassified to profit or loss	**-**	**2**
Exchange differences on translation of foreign operations		
- Change for the year	(44)	42
Hedging reserve		
- Change for the year	-	-
Tax related items that may subsequently be reclassified to profit or loss	-	-
Items that may subsequently be reclassified to profit or loss	**(44)**	**42**
Total comprehensive income discontinued operations	**1,196**	**894**
Of which:		
- Attributable to non-controlling interests	1	4
- Available to equity holders of Koninklijke DSM N.V.	1,195	890

Impact on cash flow statement

The impact of the business that has been included as discontinued operations in the cash flow statement is shown in the following table.

	2022	2021
Net cash provided by / (used in):		
- Operating activities	190	387
- Investing activities	1,291	1,339
Net change in cash and cash equivalents	**1,481**	**1,726**

See also Note 26 Notes to the cash flow statement.

Assets and liabilities held for sale

Engineering Materials business (DEM)

On 31 May 2022, DSM announced that it had reached an agreement to sell its Engineering Materials business to Advent International and LANXESS. DSM reclassified the results of this business (the 'disposal group') to 'discontinued operations', and reclassified all related assets and liabilities as held for sale on 1 April 2022. The related assets and liabilities of the disposal group on 31 December 2022 have been reclassified as held for sale. Completion of the announced transaction, which is subject to the customary conditions and approvals, is expected in the first half of 2023. Before reclassification, these activities were reported in the segment Materials.

Pentapharm
At the end of 2021, DSM had announced its intention to dispose of its Pentapharm business, and therefore classified the relevant assets and liabilities as held for sale. As at the end of 2022, the closure of this divestment was not expected within the year, the conditions for held for sale were no longer met, hence the related assets and liabilities were transferred back from held for sale to the respective balance sheet line items in the reporting year.

Impact on balance sheet
The impact of the reclassification of the DEM activities on the DSM consolidated balance sheet is presented in the following table.

x € million	2022
Assets	
Non-current assets	
Intangible assets	219
Property, plant and equipment	377
Other non-current assets	36
Current assets	-
Inventories	379
Receivables	234
Total assets	1,245
Liabilities	
Non-current liabilities	78
Current liabilities	352
Total liabilities	430
Net assets	815

4 Segment information

Following the Health, Nutrition & Bioscience (HNB) structure becoming effective as of 1 January 2022, DSM's reportable operating segments were Animal Nutrition & Health (ANH), Health, Nutrition & Care (HNC) and Food & Beverage (F&B) in 2022. These operating segments mainly comprise the former operating segments Nutrition and Innovation. The Materials business also continued to be a reportable operating segment throughout part of 2022; however, following the announced sale of this business, it was reclassified to 'discontinued operations' in the first half of 2022.

DSM has segmented its operations by business activity from which revenues are earned and expenses incurred. These operating results are regularly reviewed by the entity's Chief Operating Decision Maker (CODM) to make decisions about resources to be allocated to the operating segment and assess its performance. DSM uses Adjusted EBITDA as the main indicator to evaluate the consolidated performance as well as the performance per operating segment. Discrete financial information is available for each identified operating segment.

The accounting policies of the operating segments are the same as those described in the Summary of significant accounting policies. Transactions between segments are generally executed at market-based prices. Interest income, interest expense, and income tax expense or income are not allocated to segments as these amounts are not included in the measure of segment profit or loss reviewed by the CODM, or otherwise regularly provided to the CODM.

Our operating segment Animal Nutrition & Health (ANH) drives the development of sustainable animal farming through its essential products, performance solutions, and precision services serving the poultry, swine, ruminants and aquaculture market segments around the globe.

Our operating segment Health, Nutrition & Care (HNC) provides health, nutrition and care solutions for markets such as early life nutrition, dietary supplements, pharma, medical and personal care.

Our operating segment Food & Beverage (F&B) supports healthy diets through nutritious, delicious and sustainable solutions for several market segments including bakery, beverages & brewing, dairy, savory, plant-based alternative proteins and pet food.

Any consolidated activities outside the three reportable operating segments above are reported as the reportable segment ‘Corporate Activities’. These consist of operating and service activities that are considered unallocated activities.

Following the change in the composition of DSM’s reportable segments in 2022 due to the HNB structure becoming effective, for each individual line item of disclosure, DSM applied the guidance provided in IFRS8.29-30 in assessing whether to restate the comparative segment information based on the information available. The 2021 segmentation comparatives that have been restated relate to the previously reported operating segment Innovation Center in 2021. This was restated for the purposes of comparison by redistributing the amounts to HNB and Corporate Activities.

DSM does not have a single external customer that represents 10% or more of total sales.

Geographical information

	Nether-lands	Switzer-land	Rest of Europe	North America	Latin America	China	Rest of Asia	Rest of world	Total
2021									
Net sales (by destination)									
In € million	355	157	1,912	1,535	1,170	792	1,074	274	**7,269**
In %	5	2	26	21	16	11	15	4	**100**
Workforce at year-end (headcount)[1]	3,006	2,174	4,161	3,018	2,290	4,704	1,709	296	**21,358**
Intangible assets and Property, plant and equipment (carrying amount)	1,990	1,733	2,079	2,201	291	836	113	30	**9,273**
2022									
Net sales (by destination)									
In € million	402	156	2,154	1,869	1,507	803	1,188	311	**8,390**
In %	5	2	25	22	18	10	14	4	**100**
Workforce at year-end (headcount)[1]	2,642	2,232	4,211	2,618	2,302	4,591	1,742	344	**20,682**
Intangible assets and Property, plant and equipment (carrying amount)	1,304	1,852	2,099	2,143	404	774	113	34	**8,723**

1 Refers to total group, including discontinued operations.

Business segments

The following table represents the financial performance of the business segments based on the operating segments that existed in 2021, and as disclosed in the Integrated Annual Report 2021.

	Nutrition	Innovation Center	Corporate Activities	**Total continuing operations**	Discontinued operations	**Total**
2021						
Financial performance						
Net sales	7,031	168	70	**7,269**	2,199	**9,468**
Adjusted EBITDA[1]	1,447	26	(94)	**1,379**	463	**1,842**
EBITDA	1,396	17	(125)	**1,288**	1,082	**2,370**
Adjusted operating profit[1]	940	4	(136)	**808**	359	**1,167**
Operating profit	889	(10)	(168)	**711**	978	**1,689**
R&D costs				**255**		
Adjusted EBITDA margin (in %)	20.6			**19.0**	21.1	**19.5**

1 See Note 2 Alternative performance measures for the reconciliation to IFRS performance measures.

In the below table, the amounts that were included in the previously reported operating segment Innovation Center have been redistributed to HNB and Corporate Activities for the purposes of comparison.

	Animal Nutrition & Health	Health, Nutrition & Care	Food & Beverage	Other	**Total HNB**	Corporate Activities	**Total continuing operations**	Discontinued operations	**Total**
2021									
Financial performance									
Net sales	3,347	2,516	1,256	47	**7,166**	103	**7,269**	2,199	**9,468**
Adjusted EBITDA[1]					**1,467**	(88)	**1,379**	463	**1,842**
EBITDA					**1,416**	(128)	**1,288**	1,082	**2,370**
Adjusted operating profit[1]					**951**	(143)	**808**	359	**1,167**
Operating profit					**900**	(189)	**711**	978	**1,689**
R&D costs							**255**		
Adjusted EBITDA margin (in %)					**20.5**		**19.0**	21.1	**19.5**
2022									
Financial performance									
Net sales	3,788	2,939	1,546	46	**8,319**	71	**8,390**	2,090	**10,480**
Adjusted EBITDA[1]	546	676	266	2	**1,490**	(95)	**1,395**	330	**1,725**
EBITDA	523	667	245	2	**1,437**	(133)	**1,304**	1,342	**2,646**
Adjusted operating profit[1]	351	428	136	1	**916**	(149)	**767**	304	**1,071**
Operating profit	328	419	115	1	**863**	(181)	**682**	1,312	**1,994**
R&D costs							**280**		
Adjusted EBITDA margin (in %)	14.4	23.0	17.2		**17.9**		**16.6**	15.8	**16.5**

1 See Note 2 Alternative performance measures for the reconciliation to IFRS performance measures.

5 Net sales and costs (continuing operations)

Net sales

	2022	2021
Goods sold	8,191	7,077
Services rendered	193	177
Royalties	6	15
Total	8,390	7,269

Fulfillment of the performance obligations related to goods sold is measured using the commercial shipment terms as an indicator for the transfer of control. Fulfillment of the performance obligations for services rendered is identified according to the individual contract. The payment terms are determined per business segment on a customer basis. DSM has neither specific obligations for returns or refunds, nor specific warranties or other related obligations.

Disaggregation of net sales

	2022	2021
Animal Nutrition & Health	3,788	3,347
Health, Nutrition & Care	2,939	2,516
Food & Beverage	1,546	1,256
Other	46	47
Total HNB	8,319	7,166
Corporate Activities	71	103
Total	8,390	7,269

Total costs

In 2022, total operating costs (the total costs included in operating profit) amounted to €7.7 billion, €1.1 billion higher than in 2021, when these costs stood at €6.6 billion. Total operating costs in 2022 included Cost of sales amounting to €5.7 billion (2021: €4.7 billion); gross margin as a percentage of net sales stood at 32% (2021: 36%).

Employee benefit costs

	2022	2021
Wages and salaries	1,353	1,289
Social security costs	169	150
Pension costs (see also Note 24)	102	97
Share-based compensation (see also Note 27)	35	22
Total	1,659	1,558

Depreciation, amortization and impairments

	2022	2021
Amortization of intangible assets	234	199
Depreciation of property, plant and equipment owned	325	299
Depreciation of right-of-use assets	49	47
Impairment losses	14	32
Total	622	577

Other operating income

	2022	2021
Release of provisions	10	15
Gain on sale of assets and activities	31	13
Insurance benefits	12	10
Amendments / settlements to pension plans	2	9
Earn-out payments and other settlements	9	2
Lease income	7	-
Royalties	4	2
Legal and other settlements	-	2
Sundry	32	29
Total	107	82

Other operating expense

	2022	2021
Additions to provisions	4	5
Exchange differences	18	8
Acquisitions / disposals	3	20
Damages w.r.t insurance	4	-
Sundry	22	29
Total	51	62

6 Financial income and expense (continuing operations)

	2022	2021
Financial income		
Interest income	22	3
Fair value change in derivatives	46	10
Sundry	3	11
Total financial income	71	24
Financial expense		
Interest expense	(101)	(91)
Interest relating to lease liabilities	(6)	(5)
Interest relating to defined benefit plans	(3)	(2)
Fair value change in derivatives	(14)	(17)
Capitalized interest during construction	3	4
Exchange differences	(2)	-
Unwinding of discounted payables	(23)	(10)
Sundry	(13)	(3)
Total financial expense	(159)	(124)
Financial income and expense	(88)	(100)

In 2022, the interest rate applied in the capitalization of interest during construction was 2.5% (in 2021 it was 3.0% for the first 6 months and 2.5% for the last 6 months).

7 Income tax

The income tax expense on continuing operations was €124 million, which represents an effective income tax rate of 21.0% (2021: €123 million, representing an effective income tax rate of 20.1%). The amount excludes tax expense from discontinued operations of €66 million (2021: €122 million) and can be broken down as follows.

	2022	2021
Current tax expense:		
- Current year	(121)	(56)
- Prior-year adjustments	16	1
- Tax credits compensated	3	4
- Non-recoverable withholding tax	(5)	(6)
Total current tax expense	**(107)**	**(57)**
Deferred tax expense:		
- Originating from temporary differences and their reversal	(16)	(24)
- Prior-year adjustments	(17)	5
- Change in tax rate	15	3
- Changes arising from write-down of deferred tax assets	7	(17)
- Changes in previously and newly recognized tax losses and tax credits	(6)	(21)
- Other changes in tax losses and tax credits	-	(12)
Total deferred tax expense	**(17)**	**(66)**
Total tax expense	**(124)**	**(123)**
Of which related to:		
- Taxable result excl. APM adjustments	(139)	(148)
- APM adjustments	15	25

The relationship between the income tax rate in the Netherlands and the effective tax rate on the taxable result can be explained as follows.

Effective tax rate (continuing operations)

In %	2022	2021
Domestic income tax rate	25.8	25.0
Tax effects of:		
- Deviating rates	(5.0)	(7.2)
- Change in tax rates	(2.1)	(0.4)
- Tax-exempt income and non-deductible expense	0.6	(0.4)
- Other effects	0.9	3.9
Effective tax rate taxable result, excl. APM adjustments	**20.2**	**20.9**
APM adjustments (see Note 2)	0.8	(0.8)
Total effective tax rate	**21.0**	**20.1**

The total effective tax rate on the taxable result in 2022 was 21.0% (2021: 20.1%), excluding APM adjustments this was 20.2% (2021: 20.9%).

The effective tax rate in 2022 compared to the Dutch statutory rate, was positively impacted by the geographical spread and changes in tax rates under local tax law in various countries, partly offset by effects increasing the effective tax rate, including non-deductible expenses.

Compared to prior year, the decrease of the effective tax rate excluding APM adjustments was mainly due to changes in tax rates in various countries, partly compensated by the higher domestic tax rate and less impact of the geographical spread.

The balance of the deferred tax assets and deferred tax liabilities increased by €96 million owing to the changes presented in the following table.

Deferred tax assets and liabilities

	2022	2021
Balance at 1 January		
Deferred tax assets	203	240
Deferred tax liabilities	(490)	(431)
Total	**(287)**	**(191)**
Changes:		-
- Income tax income / (expense) in income statement	(52)	(77)
- Income tax: change in tax percentage	15	4
- Income tax: tax result share in associates	-	-
Total income statement	(37)	(73)
- Income tax expense in OCI	(17)	(13)
- Acquisitions and disposals	(6)	(12)
- Consolidation changes	-	(3)
- Exchange differences	(13)	(11)
- Reclassification to held for sale	(21)	9
- Transfer	-	7
Balance at 31 December	(381)	(287)
Of which:		
- Deferred tax assets	95	203
- Deferred tax liabilities	(476)	(490)

In various countries, DSM has taken standpoints regarding its tax position which may at any time be challenged, or have already been challenged, by the tax authorities, because the authorities in question interpret the law differently. These uncertainties are taken into account in determining the probability of realization of deferred tax assets and liabilities.

The deferred tax assets and liabilities relate to the following balance sheet items.

Deferred tax assets and liabilities by balance sheet item

	2022		2021	
	Deferred tax assets	Deferred tax liabilities	Deferred tax assets	Deferred tax liabilities
Intangible assets	28	(368)	19	(373)
Property, plant and equipment	15	(181)	19	(175)
Right-of-use assets	-	(34)	-	(38)
Financial assets	28	(25)	33	(25)
Inventories	36	(46)	56	(39)
Receivables	5	(22)	6	(22)
Lease liabilities non-current	25	-	31	-
Other non-current liabilities	1	(2)	16	(2)
Non-current provisions	41	-	70	-
Other current liabilities	66	(6)	83	(4)
Lease liabilities current	11	-	11	-
	256	**(684)**	**344**	**(678)**
Tax losses carried forward	47		47	
Set-off	(208)	208	(188)	188
Total	**95**	**(476)**	**203**	**(490)**

No deferred tax assets were recognized for loss carryforwards amounting to €153 million (2021: €203 million). Unrecognized loss carryforwards amounting to €54 million will expire in the years up to and including 2027 (2021: €98 million up to and including 2026), €30 million between 2028 and 2032 (2021: €37 million between 2027 and 2031) and the remaining €69 million in 2033 and beyond (2021: €68 million between 2032 and beyond). In addition, an amount of €17 million (2021: €23 million) of withholding taxes was unrecognized.

The valuation of deferred tax assets depends on the probability of the reversal of temporary differences and the utilization of tax loss carryforwards, tax credits and withholding tax. Deferred tax assets are recognized for future tax benefits arising from temporary differences and for tax loss carryforwards to the extent that the tax benefits are probable. DSM has to assess the likelihood that deferred tax assets will be recovered from future taxable profits. Deferred tax assets are reduced if, and to the extent that, it is not probable that all or some portion of the deferred tax assets will be realized. In the event that actual future results differ from estimates, and depending on tax strategies that DSM may be able to implement, changes to the measurement of deferred taxes could be required, which could have an impact on the company's financial position and profit for the year.

8 Intangible assets

	Goodwill	Customer- and marketing-related	Technology-based	Licenses, patents, and application software	Under construction	Development projects	Other	Total
Balance at 1 January 2021								
Cost	2,487	1,147	579	527	115	380	603	**5,838**
Amortization and impairment losses	20	422	114	387	-	157	298	**1,398**
Carrying amount	**2,467**	**725**	**465**	**140**	**115**	**223**	**305**	**4,440**
- Capital expenditure	-	-	-	4	85	48	-	**137**
- Drawing rights	-	-	-	-	-	-	21	**21**
- Put into operation	-	-	-	38	(45)	-	7	**-**
- Acquisitions	329	109	294	12	-	-	-	**744**
- Amortization	-	(75)	(46)	(38)	-	(28)	(34)	**(221)**
- Impairment losses	(5)	-	-	(3)	-	(11)	-	**(19)**
- Exchange differences	138	13	21	9	1	7	12	**201**
- Reclassification to held for sale	(1)	-	-	-	-	(1)	-	**(2)**
- Transfers	-	(35)	-	31	-	-	4	**-**
- Other	-	-	3	4	-	2	(1)	**8**
	461	**12**	**272**	**57**	**41**	**17**	**9**	**869**
Balance at 31 December 2021								
Cost	2,943	1,257	898	592	156	414	659	**6,919**
Amortization and impairment losses	14	520	161	395	-	174	345	**1,609**
Carrying amount	**2,928**	**737**	**737**	**197**	**156**	**240**	**314**	**5,309**
- Of which acquisition related	2,928	737	737	35	-	-	68	**4,505**
Changes in carrying amount:								
- Capital expenditure	-	-	-	8	88	42	-	**138**
- Put into operation	-	-	-	90	(100)	-	10	**-**
- Acquisitions	52	15	17	-	2	-	-	**86**
- Disposal subs	(46)	-	-	(7)	(4)	(3)	(4)	**(64)**
- Amortization	-	(76)	(58)	(49)	-	(34)	(23)	**(240)**
- Impairment losses	(4)	-	-	(3)	-	5	-	**(2)**
- Exchange differences	80	17	16	6	2	8	-	**129**
- Reclassification to held for sale	(26)	-	-	-	(9)	(2)	(182)	**(219)**
- Transfers	-	22	22	(1)	-	-	(43)	**-**
- Other	-	-	1	8	(1)	-	2	**10**
	56	**(22)**	**(2)**	**52**	**(22)**	**16**	**(240)**	**(162)**
Balance at 31 December 2022								
Cost	2,989	1,373	1,005	612	134	442	270	**6,825**
Amortization and impairment losses	5	658	270	363	-	186	196	**1,678**
Carrying amount	**2,984**	**715**	**735**	**249**	**134**	**256**	**74**	**5,147**
- Of which acquisition-related	2,984	715	735	2	-	-	36	**4,472**

The amortization of intangible assets is included in Cost of sales, Marketing & Sales, Research & Development and General & Administrative expenses.

Over the past few years, DSM has acquired several entities in business combinations that have been accounted for by the acquisition method, resulting in recognition of mainly goodwill, customer- and marketing-related, and technology-based intangible assets. The amounts assigned to the acquired assets and liabilities are based on assumptions and estimates about their fair values. In making these estimates, management consults independent, qualified appraisers where appropriate.

Customer- and marketing-related intangibles were, among other things, obtained during the acquisition of Erber Group and Glycom in 2020, as well as CSK in 2019 and Fortitech in 2012. Technology-based intangibles were mainly obtained via the acquisition of Erber Group and Glycom in 2020 and F&F Amyris and First Choice Ingredients in 2021. Intangible assets are amortized on a straight-line basis and subject to impairment trigger testing. There are no intangible assets with an indefinite useful life (same as in 2021).

The carrying amount of the development projects includes €143 million (2021: €121 million) that relates mainly to strategic projects which are not being amortized yet. The recoverable amount of these projects was estimated based on the present value of the future cash flows expected to be derived from the projects (value-in-use).

Goodwill

DSM's Cash Generating Unit (CGU) structure changed in 2022 because the Health, Nutrition & Bioscience (HNB) structure became effective as of 1 January 2022. More specifically, the CGUs DSM identified in 2022 were Animal Nutrition & Health (ANH), Health, Nutrition & Care (HNC), and Food & Beverage (F&B). Following the change in DSM's CGU structure, the goodwill from continuing operations has been reallocated to the newly identified CGUs based on their relative value as derived from the recoverable amounts of these CGUs. The breakdown of the carrying amount of goodwill at year-end 2022 is as follows.

Goodwill per Cash generating unit

Cash generating unit	2022
Animal Nutrition & Health[1]	1,011
Health, Nutrition & Care	1,429
Food & Beverage	544
Total	2,984

1 Contains provisional PPA, see Note 3 Change in the scope of the consolidation.

The annual impairment tests of goodwill are performed in the fourth quarter. The recoverable amount of the CGUs is based on a value-in-use calculation.

The cash flow projections are derived from DSM's business plan as adopted by the Managing Board and updated periodically — for example when the strategy is updated. Mature businesses come to a terminal value after five years. The terminal value growth rate is determined with the assumption of limited inflationary growth. The key assumptions in the cash flow projections relate to the market growth for the CGUs and the related revenue projections, EBITDA developments, and the rates used for discounting cash flows.

Key assumptions for goodwill impairment tests

	2022	2021
Forecast period (years)		
- Mature business	5	5
- Emerging business	10	10
Terminal value growth	1.5%	1.0%
Pre-tax discount rate		
- Animal Nutrition & Health	10.7%	
- Health, Nutrition & Care	9.1%	
- Food & Beverage	8.7%	
Organic sales growth (year 1–5)		
- Animal Nutrition & Health	4%–7%	
- Health, Nutrition & Care	5%–8%	
- Food & Beverage	5%–8%	

For ANH and HNC, the growth assumptions are based on the growth of the global food and feed markets, for F&B on the growth assumptions of the global food and beverage market. A sensitivity test was performed on the impairment tests of the CGUs and showed that the conclusions of these tests would not have been different if a reasonable possible adverse change in key parameters had been assumed.

The market capitalization of DSM at 31 December 2022 amounted to €19,978 million (31 December 2021: €34,608 million) and was clearly above the carrying amount of net assets, thus providing an additional indication that goodwill was not impaired.

9 Property, plant and equipment

Composition of Property, plant and equipment

	2022	2021
Property, plant and equipment owned	3,402	3,767
Right-of-use assets	174	197
Total	3,576	3,964

Property, plant and equipment owned

	Land and buildings	Plant and machinery	Other equipment	Under construction	Not used for operating activities	Total
Balance at 1 January 2021						
Cost	2,099	4,781	192	527	8	7,607
Depreciation and impairments	941	2,957	138	4	-	4,040
Carrying amount at 1 January 2021	1,158	1,824	54	523	8	3,567
Changes in carrying amount:						
- Capital expenditure	7	52	4	414	-	477
- Put into operation	61	312	17	(390)	-	-
- Acquisitions	5	5	-	-	-	10
- Disposals and deconsolidations	(22)	(16)	-	-	-	(38)
- Depreciation	(78)	(277)	(19)	-	-	(374)
- Impairment losses	(3)	(11)	(2)	2	-	(14)
- Exchange differences	54	108	3	20	-	185
- Reclassification to held for sale	(17)	(13)	(1)	(2)	-	(33)
- Transfer to RoU assets	(5)	-	-	-	-	(5)
- Other changes	2	(6)	-	(4)	-	(8)
	4	154	2	40	-	200
Balance at 31 December 2021						
Cost	2,108	5,488	219	564	8	8,387
Depreciation and impairments	946	3,510	163	1	-	4,620
Carrying amount at 31 December 2021	1,162	1,978	56	563	8	3,767
Changes in carrying amount:						
- Capital expenditure	7	42	6	443	-	498
- Put into operation	70	290	13	(373)	-	-
- Acquisitions	2	1	-	-	-	3
- Disposals and deconsolidations	(55)	(161)	-	(22)	-	(238)
- Depreciation	(71)	(253)	(18)	-	-	(342)
- Impairment losses	(2)	(14)	(2)	-	-	(18)
- Exchange differences	28	40	2	9	-	79
- Reclassification to held for sale	(55)	(234)	(9)	(42)	-	(340)
- Other reclassifications	2	(1)	(1)	(6)	(2)	(8)
- Other changes	2	(1)	-	-	-	1
	(72)	(291)	(9)	9	(2)	(365)
Balance at 31 December 2022						
Cost	1,929	4,429	196	572	6	7,132
Depreciation and impairments	839	2,742	149	-	-	3,730
Carrying amount at 31 December 2022	1,090	1,687	47	572	6	3,402

In 2022, impairment losses of €18 million (2021: €14 million) were recognized on Property, plant and equipment. See also Note 2 Alternative performance measures.

Right-of-use assets

	Land and buildings	Plant and machinery	Other equipment	Vehicles	Other	Total
Balance at 1 January 2021	147	7	31	21	2	208
Changes in carrying amount:						
New leases / terminations	13	3	-	10	-	26
Remeasurements	(1)	1	2	-	-	2
Depreciation	(33)	(1)	(4)	(12)	(1)	(51)
Impairment losses	(2)	-	-	-	-	(2)
Transfer from PPE	5	-	-	-	-	5
Exchange rate differences	7	1	1	1	-	10
Reclassification to held for sale	-	(1)	-	-	-	(1)
	(11)	3	(1)	(1)	(1)	(11)
Balance at 31 December 2021						
Cost	217	13	39	39	2	310
Depreciation and impairments	(81)	(3)	(9)	(19)	(1)	(113)
Carrying amount at 31 December 2021	136	10	30	20	1	197
Changes in carrying amount:						
New leases / terminations	8	-	-	14	-	22
Remeasurements	12	(1)	-	1	-	12
Depreciation	(33)	(1)	(4)	(12)	-	(50)
Disposals	(2)	-	-	-	-	(2)
Exchange rate differences	4	-	1	-	-	5
Reclassification to held for sale	(6)	-	-	(3)	(1)	(10)
	(17)	(2)	(3)	-	(1)	(23)
Balance at 31 December 2022						
Cost	219	11	40	40	1	311
Depreciation and impairments	(100)	(3)	(13)	(20)	(1)	(137)
Carrying amount	119	8	27	20	-	174

For the disclosures on the lease liabilities that correspond with the right-of-use assets, see Note 19 Borrowings.

10 Associates and joint arrangements

Associates and joint ventures

The following table analyses, in aggregate, the carrying amount and share of profit of associates and joint ventures.

	2022			2021
	Associates	Joint ventures	Total	Total
Balance at 1 January	57	7	64	93
- Share of the profit of associates and joint ventures	1	9	10	15
- Other comprehensive income	-	-	-	4
- Capital payments	4	-	4	5
- Dividends received	(2)	-	(2)	(10)
- Acquisitions	-	-	-	-
- Consolidation changes	-	-	-	(17)
- Disposals	(7)	(2)	(9)	(34)
- Fair value adjustments	-	-	-	8
- Other	-	(6)	(6)	-
Balance at 31 December	53	8	61	64

Joint operations

The operations Veramaris (2017) and Avansya (2019) are accounted for in accordance with IFRS 11 for joint operations. DSM therefore recognizes their amounts for the assets, liabilities, revenues and expenses in accordance with the contractual entitlement and obligations of DSM.

11 Other financial assets

	Loans associates and joint ventures	Other participating interests	Other receivables	Other	Total
Balance at 1 January 2021	4	219	83	9	315
Changes:					
- Charged to the income statement	-	-	(14)	(2)	(16)
- Disposals	-	(123)	-	-	(123)
- Capital payments	-	35	-	-	35
- Loans granted / prepayments	-	-	10	-	10
- Repayments / (receipts)	-	-	(31)	1	(30)
- Exchange differences	-	-	3	-	3
- Transfers	(3)	14	(20)	(4)	(13)
- Changes in fair value	-	46	-	-	46
Balance at 31 December 2021	1	191	31	4	227
Changes:					
- Charged to the income statement	-	-	1	(1)	-
- Disposals	-	(24)	-	-	(24)
- Capital payments	-	28	-	-	28
- Loans granted / prepayments	1	-	127	-	128
- Repayments / (receipts)	-	-	1	3	4
- Exchange differences	-	-	(7)	-	(7)
- Transfers	-	-	16	-	16
- Changes in fair value	-	(66)	-	-	(66)
- Expected credit loss (ECL) adjustment and impairments	-	-	(11)	-	(11)
- Reclassification from/to held for sale	-	(4)	-	-	(4)
- Other changes	-	-	-	4	4
Balance at 31 December 2022	2	125	158	10	295

'Disposals' includes the divestment by DSM Venturing of its share in Natreon Inc. (€18 million) and S-Biomedic N.V. (€6 million).

'Loans granted' reflects a loan granted to Amyris, Inc. (€77 million) and Brains Bioceutical Corp. (€20 million) and to other participating interests held by DSM Venturing.

'Changes in fair value' consists mainly of the value decrease of our minority share in Amyris, Inc. (-€56 million). These changes are posted to the Fair value reserve in Other comprehensive income.

12 Inventories

	2022	2021
Raw materials and consumables	596	621
Intermediates and finished goods	1,809	1,758
	2,405	2,379
Adjustments to lower net realizable value	(66)	(82)
Total	2,339	2,297

Changes in the adjustment to net realizable value

	2022	2021
Balance at 1 January	(82)	(79)
Additions charged to income statement	(31)	(20)
Utilization / reversals	20	20
Exchange differences	(2)	(3)
Disposal	15	-
Transfer	(10)	-
Reclassification to held for sale	24	-
Balance at 31 December	(66)	(82)

The carrying amount of inventories adjusted to net realizable value was €190 million (2021: €310 million).

13 Current receivables

	2022	2021
Trade receivables		
Trade accounts receivable	1,306	1,391
Other trade receivables	182	190
Deferred items	31	34
Receivables from associates	1	12
	1,520	1,627
Expected credit loss	(12)	(23)
Total Trade receivables	1,508	1,604
Income tax receivable	36	61
Other current receivables		-
Other taxes and social security contributions	23	20
Employee-related receivables	3	2
Acquisition- / disposal-related receivables	7	2
Loans	24	-
Other receivables	9	3
Deferred items	12	5
Total Other current receivables	78	32
Total current receivables	1,622	1,697

Information about the expected credit loss that relates to trade accounts receivable resulting in a loss allowance is included under Credit risk in Note 23 Financial instruments and risks.

Deferred items comprised €43 million (2021: €39 million) in prepaid expenses that include advance payments for any expenditure that would have otherwise been made during the next 12 months.

14 Current investments

	2022	2021
Fixed term deposits	125	489
Total	125	489

All fixed-term deposits have been placed with institutions with a high credit rating in line with our counterparty policy. The purpose of the deposits is either to meet short-term cash commitments, or to manage liquidity to such extent that yields are optimized while allowing DSM sufficient freedom in fulfilling its (strategic) goals.

For more information regarding the counterparty policy, see Note 23 Financial instruments and risks.

15 Cash and cash equivalents

	2022	2021
Deposits	23	318
Money-market funds	1,493	-
Cash at bank and in hand	1,221	1,243
Payments in transit	18	-
Total	2,755	1,561

Deposits will be classified as 'cash equivalent' if held at banks with a maturity of less than three months at inception. Deposits will be classified as 'current investments' if the maturity is more than three months but less than or equal to one year.

Money-market funds investments have been placed with institutions with a high credit rating in line with our counterparty policy.

The purpose of the deposits and money-market funds is either to meet short-term cash commitments, or to manage liquidity to such an extent that yields are optimized, while allowing DSM sufficient freedom in fulfilling its (strategic) goals.

Cash at year-end 2022 was not being used as collateral and therefore was not restricted (same as in 2021).

In a few countries, DSM faces cross-border foreign exchange controls and/or other legal restrictions that limit its ability to make these balances available at short notice for general use by the group. The amount of cash held in these countries was €105 million at year-end 2022 (2021: €87 million). The cash will generally be invested or held in the relevant country and, given the other liquidity resources available to the group, does not significantly affect the ability of the group to meet its obligations.

For more information regarding the counterparty policy, see Note 23 Financial instruments and risks.

16 Equity

	2022	2021
Balance at 1 January	9,397	7,487
Net profit for the year	1,715	1,680
Other comprehensive income	227	643
Options / share units granted	34	22
Dividend	(459)	(424)
Proceeds from reissue of ordinary shares	141	193
Acquisition of NCI without a change in control	-	(13)
Acquisition (divestment) of subsidiary with NCI	(4)	(24)
Repurchase of shares	(210)	(165)
Other changes	4	(2)
Balance at 31 December	10,845	9,397

Dividend

For the year 2022, the following dividends were proposed by the Managing Board.

	2022	2021
Per cumulative preference share A: €0.13 (2021: €0.13)	6	6
Per ordinary share: €0.93 (2021: €2.50)	161	432
Total	167	438

The proposed final dividend on ordinary shares is subject to approval by the Annual General Meeting of Shareholders. See also the paragraph on Profit appropriation in Note 6 Shareholders' equity to the Parent company financial statements.

For a description of the rules of profit appropriation and of the statutory rights attached to Cumulative Preference Shares A and B, see Note 6 Shareholders' equity to the Parent company financial statements.

Share capital

On 31 December 2022, the authorized capital amounted to €1,125 million (2021: €1,125 million), distributed over 330,960,000 ordinary shares, 44,040,000 Cumulative Preference Shares A and 375,000,000 Cumulative Preference Shares B. All shares have a nominal value of €1.50 each. The outstanding shares provide an entitlement of one vote per share at the General Meeting of Shareholders. All rights attached to the Company's shares held by the Group (treasury shares) are suspended until those shares are reissued.

Every year the Managing Board, with the approval of the Supervisory Board, shall decide which part of the profit shall be set aside. Out of the profit remaining, a dividend based on EURIBOR, plus a premium at the company's discretion, shall be distributed insofar as possible on the Cumulative Preference Shares B. From the amount remaining of the profit, a dividend shall be distributed insofar as possible on the Cumulative Preference Shares A, the percentage based on the effective return on government loans, increased by a mark-up to be determined at the company's discretion. If, for any financial year, the distributions on the Cumulative Preference Shares B and A cannot be effected or cannot be fully effected because the profit after reservation does not suffice, the deficit shall be distributed to the debit of the following financial years. In that case, each time as much as possible, the overdue dividend, augmented by the dividend for the last expired financial year, shall be distributed, first on Cumulative Preference Shares B and next on Cumulative Preference Shares A. The remaining profit shall be put at the disposal of the General Meeting of Shareholders.

The changes in the number of issued and outstanding shares in 2021 and 2022 are shown in the following table.

Overview of shares

	Issued shares Ordinary	Issued shares Cumprefs A	Treasury shares Ordinary
Balance at 1 January 2021	181,425,000	44,040,000	9,205,661
Cancellation of issued shares	(6,638,971)		(6,638,971)
Reissue of shares in connection with share-based payments			(803,049)
Repurchase of shares			1,050,000
Bearer share certificates that have become void			7,466
Dividend in the form of ordinary shares			(1,003,808)
Balance at 31 December 2021	174,786,029	44,040,000	1,817,299
Number of treasury shares at 31 December 2021	(1,817,299)		
Number of shares outstanding at 31 December 2021	172,968,730	44,040,000	
Balance at 1 January 2022	174,786,029	44,040,000	1,817,299
Reissue of shares in connection with share-based payments			(617,967)
Repurchase of shares			1,330,000
Dividend in the form of ordinary shares			(818,700)
Balance at 31 December 2022	174,786,029	44,040,000	1,710,632
Number of treasury shares at 31 December 2022	(1,710,632)		
Number of shares outstanding at 31 December 2022	173,075,397	44,040,000	

The average number of ordinary shares outstanding in 2022 was 172,826,732 (2021: 172,647,995). All shares issued are fully paid.

The Cumulative Preference Shares A have been classified as equity, because there is no mandatory redemption and distributions to the shareholders are at the discretion of DSM. On 31 December 2022, no Cumulative Preference Shares B were outstanding (same as 2021).

Share premium
Of the total share premium of €471 million (2021: €471 million), an amount of €87 million (2021: €89 million) can be regarded as entirely free of tax.

Treasury shares
In 2022, DSM repurchased 0.7 million shares for an amount of €116 million to cover commitments for stock dividend, and 0.6 million shares for an amount of €95 million to fulfill its obligations under share-based compensation plans.

At 31 December 2022, DSM possessed 1,710,632 (2021: 1,817,299) ordinary shares with a nominal value of €3 million, or 0.78% (2021: 0.83%) of the share capital. The average purchase price of the ordinary treasury shares as at 31 December 2022 was €114.81 (2021: €97.50). At 31 December 2022, 1,647,106 (2021: 1,665,073) of the total number of treasury shares outstanding were held for servicing share-option rights and share plans and 63,526 (2021: 152,226) shares for stock dividend.

Other reserves in Shareholders' equity

	Translation reserve	Hedging reserve	Reserve for share-based compensation	Fair value reserve	Total
Balance at 1 January 2021	(289)	(68)	41	73	(243)
Changes:					
Fair-value changes of derivatives	-	(24)	-	-	(24)
Release to income statement	(13)	7	-	-	(6)
Fair-value changes of other financial assets	-	-	-	46	46
Exchange differences	478	-	-	-	478
Options and performance shares granted	-	-	22	-	22
Options and performance shares exercised/canceled	-	-	(24)	-	(24)
Transfer to retained earnings	-	-	-	(101)	(101)
Changes in joint ventures and associates	1	-	-	-	1
Income tax	-	8	-	(1)	7
Total changes	466	(9)	(2)	(56)	399
Balance at 31 December 2021	177	(77)	39	17	156
Changes:					
Fair-value changes of derivatives	-	(6)	-	-	(6)
Release to income statement	(16)	53	-	-	37
Fair-value changes of other financial assets	-	-	-	(61)	(61)
Exchange differences	267	-	-	-	267
Options and performance shares granted	-	-	34	-	34
Options and performance shares exercised/canceled	-	-	(29)	-	(29)
Transfer to retained earnings	-	-	-	(28)	(28)
Income tax	(4)	(3)	-	-	(7)
Total changes	247	44	5	(89)	207
Balance at 31 December 2022	424	(33)	44	(72)	363

The increase in the Translation reserve in 2022 is mainly caused by a weakening of the euro against the US dollar, Swiss franc and Brazilian real versus a strengthening against the Chinese renminbi. As a consequence, the total value of the subsidiaries increased, which led to a positive exchange difference of €267 million.

The Translation reserve, Hedging reserve and Fair value reserve (partly) are legal reserves in accordance with Dutch law and cannot be distributed to shareholders. Additional information is provided in Note 6 Shareholders' equity to the Parent company financial statements.

17 Non-controlling interests

	2022				2021
	Andre Pectin	Yimante	Other	Total	
% of non-controlling interest	25%	25%			
Balance at 1 January	42	24	13	79	88
Changes:					
- Share of profit/charged to income statement	5	13	(3)	15	4
- Divestments	-	-	(4)	(4)	(23)
- Transfers	-	11	-	11	-
- Other consolidation changes	-	-	-	-	2
- Capital payments	-	-	4	4	3
- Dividend paid	-	-	-	-	(3)
- Exchange differences	(1)	(1)	(1)	(3)	8
Total changes	4	23	(4)	23	(9)
Balance at 31 December	46	47	9	102	79

The shareholding by DSM in Yimante Health Ingredients (Jingzhou) Company Ltd. is 75%. The profit will be distributed in a 50:50 proportion. The impact of this arrangement has led to a transfer of €11 million within equity from shareholders' equity to non-controlling interest.

Not fully-owned subsidiaries on a 100% basis

	2022				2021
	Andre Pectin	Yimante	Other	Total	
Assets					
Intangible assets	52	23	17	92	104
Property, plant and equipment	43	136	131	310	328
Other non-current assets	2	38	51	91	70
Inventories	33	20	15	68	62
Receivables	68	53	32	153	103
Cash and cash equivalents	7	10	24	41	49
Total assets	205	280	270	755	716
Liabilities					
Provisions (non-current)	12	1	1	14	14
Borrowings (non-current)	1	78	88	167	172
Other non-current liabilities	-	1	1	2	2
Borrowings and derivatives (current)	-	20	30	50	67
Other current liabilities	9	37	66	112	118
Total liabilities	22	137	186	345	373
Net assets (100% basis)	183	143	84	410	343
Net sales	98	6	55	159	189
Net profit for the year	21	50	(15)	56	6
Cash provided by / (used in) operating activities	37	55	(1)	91	71

18 Provisions

	Restructuring costs and termination benefits	Environmental costs	Other long-term employee benefits	Other provisions	**Total**
Balance at 1 January 2021	**50**	**40**	**41**	**53**	**184**
Of which current	42	7	5	7	**61**
Changes:					
- Additions	56	-	6	9	**71**
- Releases	(10)	-	-	(12)	**(22)**
- Uses	(43)	(3)	(6)	(17)	**(69)**
- Other change	-	-	(1)	1	**-**
Total changes	3	(3)	(1)	(19)	**(20)**
Balance at 31 December 2021	**53**	**37**	**40**	**34**	**164**
Of which current	49	4	5	10	**68**
Changes:					
- Additions	44	-	(3)	8	**49**
- Releases	(15)	(5)	-	(8)	**(28)**
- Uses	(41)	(3)	(4)	(7)	**(55)**
- Other change	-	-	-	(2)	**(2)**
- Reclassification to held for sale	-	-	(4)	-	**(4)**
Total changes	(12)	(8)	(11)	(9)	**(40)**
Balance at 31 December 2022	**41**	**29**	**29**	**25**	**124**
Of which current	40	2	4	4	**50**

In cases where the effect of the time value of money is material, provisions are measured at the present value of the expenditures expected to be required to settle the obligation. The discount rate used increased from 1.3% to 4.2%. Depending on the risk profile, the discount rates used at the end of 2022 vary from 4.2% to 5.8%. The balance of provisions measured at present value increased by less than €1 million in 2022 in view of the passage of time (same as in 2021).

The provisions for restructuring costs and termination benefits mainly relate to the costs of redundancy schemes connected to the dismissal of employees and costs of termination of contracts. These provisions generally have a term of 1 to 3 years.

The restructuring program following up on the new strategy of DSM, which was launched at the end of 2021, was continued. An additional €9 million was recognized for this program, and €25 million was used during the year. Furthermore, a restructuring program following up on the announced merger of DSM with Firmenich was launched in 2022. A provision of €16 million was recognized for this program. The other additions to the provisions for restructuring costs and termination benefits in 2022 relate mainly to the various smaller restructuring projects (same as in 2021).

The provisions for environmental costs relate to soil clean-up obligations, among other things. These provisions have an average life of around 30 years.

The provisions for other long-term employee benefits relate mainly to length-of-service and end-of-service payments. The average life of this provision is estimated to be between 10 and 12 years.

Several items have been combined under Other provisions, for example, demolition costs, onerous contracts and legal claims. These provisions have an average life of 1 to 10 years.

19 Borrowings

	2022		2021	
	Total	Of which current	Total	Of which current
Debenture loans	2,741	-	2,739	-
Private loans	116	14	115	12
Lease liabilities	179	44	202	49
Credit institutions	28	28	42	42
Total	3,064	86	3,098	103

In agreements governing loans with a residual amount at year-end 2022 of €2,741 million (31 December 2021: €2,739 million), negative pledge clauses have been included that restrict the provision of security.

The documentation of the €500 million bond issued in March 2014, the €500 million bond issued in April 2015, the €750 million bond issued in September 2016, and both €500 million bonds issued in June 2020 include a change-of-control clause. This clause allows the bond investors to request repayment at par if 50% or more of the DSM shares are controlled by a third party and if the company is downgraded below investment grade (< BBB-). DSM's credit rating has been kept stable throughout 2022 and is set out as follows: Moody's: "A3"/stable outlook and S&P: "A-"/stable outlook. At 31 December 2022, there was €1,044 million in borrowings outstanding with a remaining term of more than 5 years (at 31 December 2021, €1,043 million).

The schedule of repayment of borrowings is as follows.

Borrowings by maturity

	2022	2021
2022	-	103
2023	86	74
2024	558	550
2025	579	555
2026 and 2027	797	823
After 2027	1,044	993
Total	3,064	3,098

A breakdown by currency is given in the following table.

Borrowings by currency

	2022	2021
EUR	2,833	2,864
CNY	80	93
USD	84	80
CHF	20	20
BRL	19	10
Other	28	31
Total	3,064	3,098

On balance, total borrowings decreased by €34 million due to the following changes.

Movements of borrowings

	2022	2021
Balance at 1 January	3,098	3,586
Loans taken up	51	37
Repayments	(29)	(513)
Unwinding (interest)	9	7
Acquisitions / consolidation changes	9	16
Disposals	(28)	(30)
Reclassification to held for sale	(8)	-
Changes in debt to credit institutions	(21)	12
New lease arrangements (incl. remeasurements)	34	19
Payment of lease liabilities	(57)	(54)
Exchange differences	6	18
Balance at 31 December	3,064	3,098

The average effective interest rate on the portfolio of borrowings outstanding in 2022, including hedge instruments related to these borrowings, amounted to 1.90% (2021: 1.86%).

A breakdown of debenture loans is given below.

Debenture loans

			Nominal amount	2022	2021
EUR loan	2.38%	2014—2024	500	500	499
EUR loan	1.00%	2015—2025	500	499	499
EUR loan	0.75%	2016—2026	750	749	749
EUR loan	0.25%	2020—2028	500	496	498
EUR loan	0.625%	2020—2032	500	498	495
Total			2,750	2,741	2,739

All debenture loans have a fixed interest rate and are listed on the AEX.

- The 2.375% EUR bond 2014–2024 of €500 million was pre-hedged by means of forward starting swaps, resulting in an effective interest rate for this bond of 3.97%, including the settlement of the pre-hedge
- The 1% EUR bond 2015–2025 of €500 million was pre-hedged by means of forward starting swaps, resulting in an effective interest rate for this bond at 3.65%, including the settlement of the pre-hedge
- The 0.75% EUR bond 2016–2026 of €750 million was pre-hedged by means of a collar resulting in an effective interest rate for this bond of 1.08%, including the settlement of the pre-hedge
- The 0.25% EUR bond 2020–2028 of €500 million has an effective interest rate of 0.29%
- The 0.625% EUR bond 2020–2032 of €500 million has an effective interest rate of 0.70%

A breakdown of private loans is given below.

Private loans

	2022	2021
CNY loan	63	73
Other loans	53	42
Total	116	115

A breakdown of the lease liabilities is given below.

Lease liabilities by maturity

	2022	2021
2022	-	48
2023	49	39
2024	40	31
2025	28	23
2026	20	17
2027	15	12
After 2027	60	48
Total undiscounted lease liabilities at 31 December	212	218
Lease liabilities included in the Balance Sheet at 31 December	179	202
Current	44	49
Non-current	135	153

In addition to the contractual lease commitments, DSM has identified explicit renewal options available to DSM, which are currently not reasonably certain to be exercised and are therefore not included in the measurement of the lease. The associated future lease payments which are uncommitted and optional for DSM, are estimated around €86 million (undiscounted; 2021: €79 million).

The interest expense on the lease liabilities was €6 million (2021: €5 million) and the total repayments of the lease liabilities amounted to €57 million in 2022 (2021: €54 million). These cash flows are reported as financing cash flows.

DSM's policy regarding financial risk management is described in Note 23 Financial instruments and risks.

20 Other non-current liabilities

	2022	2021
Investment grants / customer funding	55	62
Deferred items	25	24
Drawing rights	-	49
Acquisition- / divestment-related liabilities	123	143
Other non-current liabilities	2	2
Total	205	280

The decrease in the Other non-current liabilities mainly relates to the reclassification to liabilities held for sale and to current liabilities. See also Note 3 Change in the scope of the consolidation.

21 Current liabilities

	2022	2021
Trade payables		
Received in advance	4	10
Trade accounts payable	1,410	1,550
Notes and cheques due	1	4
Owing to associates and joint ventures	-	7
Total Trade payables	1,415	1,571
Income tax payable	64	77
Other current liabilities		-
Other taxes and social security contributions	46	60
Interest	23	20
Pensions	2	2
Investment creditors	118	145
Employee-related liabilities	246	302
Payables associates and joint ventures relating to cash facility	2	1
Acquisition- / divestment related liabilities	53	10
Total Other current liabilities	490	540
Total current liabilities	1,969	2,188

Included in trade accounts payable are amounts due to suppliers which could be part of a supply chain finance arrangement between the supplier and a third-party bank. DSM suppliers have the option to enter into such supply chain finance arrangements with third party banks, which provides them with the option of earlier payment based on terms linked to DSM's investment grade credit rating. If a supplier chooses to participate in such an arrangement, this does not impact the classification of the trade payable for DSM, as these supply chain finance arrangements are concluded between the banks and the suppliers and do not alter the payment conditions between the supplier and DSM. Therefore, these amounts remain classified as trade payables.

22 Contingent liabilities and other financial obligations

The contingent liabilities and other financial obligations in the following table are not recognized in the balance sheet.

	2022	2021
Guarantee obligations on behalf of associates and third parties	178	206
Outstanding orders for projects under construction	6	11
Other	104	108
Total	288	325

Guarantee obligations are principally related to VAT and duties on the one hand and to financing obligations of associated companies or related third parties on the other. Guarantee obligations will only lead to a cash outflow when called upon. At year-end, no obligations had been called upon. Most of the outstanding orders for projects under construction will be completed in 2023. Other relates mainly to contingent liabilities in contracts for catalysts.

Litigation

DSM has a process in place to monitor legal claims periodically and systematically.

DSM is involved in several legal proceedings, most of which are related to the ordinary course of business. DSM does not expect these proceedings to result in liabilities that have a material effect on the company's financial position. In cases where it is probable that the outcome of the proceedings will be unfavorable, and the financial outcome can be measured reliably, a provision has been recognized in the financial statements and disclosed in 18 Provisions.

In 2015, an award was issued against DSM Sinochem Pharmaceuticals India Private Ltd. (DSP India) in a protracted arbitration case in India going back to 2004 involving a joint venture that DSP India had formed with Hindustan Antibiotics Ltd., which suspended its operations in 2003. DSP India (renamed to Centrient Pharmaceuticals after divestment by DSM in 2018) is covered by an indemnity from Koninklijke DSM N.V. for this case. In 2015, DSP India made an application with the Civil Court in Pune (India) to set aside the arbitral award. The award amounts to INR 127.5 crore (approximately €14 million as at year-end 2022) excluding interest of 12% per year as of 2004. In 2019, DSM provided the Bombay High Court a bank guarantee of INR 150 crore (approximately €17 million as at year-end 2022). At the end of 2022, the application proceedings were still pending. DSM has always viewed this case as unfounded and is of the opinion that the likelihood of the award being ultimately set aside is high. Therefore, no liability is recognized in respect of this case.

In 2019, Brazilian tax authorities disagreed with certain tax treatment as applied by the company in 2014–2016, which would have an effect on such prior year income tax returns of around BRL 65 million (approximately €12 million as at year-end 2022), including penalties and interest. DSM views this case as unfounded and considers that the possibility of winning this case is high, as confirmed by external legal counsel. Therefore, no liability relating to this case is recognized. During 2022 no relevant developments took place that alter this view.

On 8 March 2022, DSM was informed by the district court of Munich (Germany) that TransnetBW GmbH (Transnet), responsible for collecting the renewable energy levy (EEG Levy) from companies supplying energy to end users, filed a claim against KGW-Kraftwerk Grenzach-Whylen GmbH (KGW). KGW is the owner of the cogeneration plant on DSM's site in Grenzach (Germany), which is leased to and operated by DSM. DSM and KGW are of the opinion that DSM is exempted from the EEG levy, which for the period 2010 until 2020 for electricity consumed by DSM would amount to approximately €50 million. KGW filed its statement of defense on 30 June 2022. So far, DSM has not joined the proceedings and is therefore not a party to the claim. Depending on how this case progresses, it is still considered possible that either KGW will assert a recourse claim against DSM, or Transnet will assert an alternative payment claim against DSM. A court hearing is expected to take place not before the summer of 2023. DSM has not recognized a provision in respect of this case.

23 Financial instruments and risks

Policies on financial risks

As an international company, DSM is exposed to financial risks in the normal course of business. A major objective of our group policy is to minimize the impact of market, liquidity and credit risk on the value of the company and its profitability. In order to achieve this, a systematic financial and risk management system has been established. For the purpose of securing compliance with the risk management policies, an internal control framework has been implemented, and the controls are monitored and tested periodically.

The derivatives contracts used by DSM are entered into exclusively in connection with the corresponding underlying transaction (hedged item) relating to normal operating business. The instruments used are customary products, such as currency swaps, cross-currency interest rate swaps, collars, forward exchange contracts and interest rate swaps.

An important element of DSM's financial policy and capital management is the allocation of cash flow. DSM primarily allocates cash flow to investments aimed at strengthening its business positions and securing the payment of dividends to its shareholders. The remaining cash flow is further used for acquisitions and partnerships that strengthen DSM's competences and market positions. The net debt to equity ratio (gearing) is 0.8 (2021: 9.7), see also Note 25 Net debt.

Liquidity risk

Liquidity risk is the financial risk that an entity does not have and/or cannot access enough liquid cash and/or assets to meet its obligations. This can happen if the entity's credit rating falls, or when it experiences sudden unexpected cash outflows or an unexpected drop in cash inflows, or some other event that causes counterparties to avoid trading with or lending to the entity. Additionally, an entity can be indirectly exposed to market liquidity risk if the financial markets on which it depends are subject to loss of liquidity.

The primary objective of liquidity management is to optimize the corporate cash position, among other things, by securing availability of sufficient liquidity for execution of payments by DSM entities, at the right time and in the right place.

At 31 December 2022, DSM had cash and cash equivalents of €2,755 million (2021: €1,561 million).

At the end of 2022, DSM had a committed credit facility amounting to €1.0 billion, maturing on 28 May 2025. The agreement for the committed credit facility has neither financial covenants nor material adverse changes clauses. The committed credit facility links the interest rate to DSM's greenhouse gas (GHG) emission reduction. At year-end 2022, no loans had been taken up under the committed credit facilities.

On 31 May 2022, DSM and Firmenich announced their intention to enter into a merger of equals to create DSM-Firmenich. The merger is planned to take place in 2023 through a public offer for DSM shares in exchange for DSM-Firmenich shares and the contribution of Firmenich shares to DSM-Firmenich in exchange for DSM-Firmenich shares and €3.5 billion cash. DSM will finance the cash payment to be made in connection with the combination from available cash resources. To assist DSM therein, it has entered into a bridge financing facility of €2.0 billion, with final maturity day on 30 November 2024.

Furthermore, DSM has a commercial paper program amounting to €2.0 billion (2021: €2.0 billion). The company will use the commercial paper program to a total of not more than €1.0 billion (2021: €1.0 billion). At 31 December 2022, €0 million had been issued as commercial paper (2021: €0 million).

DSM has no derivative contracts to manage currency risk or interest rate risk outstanding under which margin calls by the counterparty would be permitted.

Floating-rate and fixed-rate borrowings and monetary liabilities analyzed by maturity are summarized in the following table. Borrowings excluding credit institutions are shown after taking into account related interest rate derivatives in designated hedging relationships. DSM manages financial liabilities and related derivative contracts on the basis of the remaining contractual maturities of these instruments. The remaining maturities presented in the following table provide an overview of the timing of the cash flows related to these instruments. Financial assets are not linked to financial liabilities in order to meet cash outflows on these liabilities.

Financial liabilities

	Carrying amount	Within 1 year	1 to 2 years	2 to 3 years	3 to 4 years	4 to 5 years	After 5 years
2021							
Borrowings	3,098	103	74	550	554	772	1,045
Monetary liabilities	2,399	2,188	67	37	57	18	32
Guarantees	206	-	-	-	-	-	206
Derivatives	49	40	7	2	-	-	-
Interest payments	127	27	27	27	15	10	21
Cash at redemption[1]	11	2	2	2	1	1	3
Total	**5,890**	**2,360**	**177**	**618**	**627**	**801**	**1,307**
2022							
Borrowings	3,064	86	558	579	775	22	1,044
Monetary liabilities	2,110	1,969	45	59	15	10	12
Guarantees	178	14	28	-	-	-	136
Derivatives	27	23	3	1	-	-	-
Interest payments	100	27	27	15	10	4	17
Cash at redemption[1]	9	2	2	1	1	1	2
Total	**5,488**	**2,121**	**663**	**655**	**801**	**37**	**1,211**

1 Difference between nominal redemption and amortized costs.

The following table reflects the exposure of the derivatives to liquidity risk. It contains the cash flows from derivatives with positive fair values and from derivatives with negative fair values so as to provide a complete overview of the derivative-related cash flows. The amounts are gross and undiscounted.

Derivatives cash flow

	2022	2023	2024	2025	2026	2027	Total
2021							
Inflow	2,092	107	39	8	13		**2,259**
Outflow	(2,109)	(112)	(39)	(9)	(13)		**(2,282)**
2022							
Inflow	-	2,287	52	33	29	4	**2,405**
Outflow	-	(2,270)	(52)	(34)	(33)	(4)	**(2,393)**

Market risk

Market risk can be subdivided into interest rate risk, currency risk and price risk.

Interest rate risk

Interest rate risk is the risk that adverse movements of interest rates lead to high costs on interest-bearing debt or assets, which negatively impact the company's capability to honor its commitments. DSM's interest rate risk policy is aimed at minimizing the interest rate risks associated with the financing of the company and thus at the same time optimizing the net interest costs. This policy translates into a certain desired profile of fixed-interest and floating-interest positions, including cash and cash equivalents, with the floating-interest position not exceeding 60% of net debt.

At 31 December 2022, there was a CNY 101 million credit facility held by DSM Inner Mongolia Rainbow, based on floating rate SHIBOR (2021: CNY 166 million). There were no outstanding fixed-floating interest rate swaps (end of 2021 none).

The following analysis of the sensitivity of borrowings, assets and related derivatives to interest rate movements assumes an instantaneous 1% change in interest rates for all maturities from their level on 31 December 2022, with all other variables held constant. A 1% reduction in interest rates would result in a €28 million pre-tax loss in the income statement and equity on the basis of the composition of financial instruments on 31 December 2022, as floating-rate borrowings are more than compensated for by floating-rate assets (mainly cash). The opposite applies in the case of a 1% increase in interest rates. The sensitivity of financial instruments with a floating interest rate on 31 December 2022 to changes in interest rates is set out in the following table.

For more information regarding fixed or floating interest, see Note 19 Borrowings.

Sensitivity to change in interest rate

	2022			2021		
	Carrying amount	Sensitivity		Carrying amount	Sensitivity	
		+1%	(1%)		+1%	(1%)
Loans to associates and joint ventures	2	-	-	1	-	-
Current investments	125	1	(1)	489	5	(5)
Cash and cash equivalents	2,755	28	(28)	1,561	16	(16)
Short-term borrowings	(86)	-	-	(103)	(1)	1
Long-term borrowings	(2,978)	(1)	1	(2,995)	(2)	2

Currency risk

Currency risk is the risk that adverse movements of foreign currencies negatively impact the results of operations and the financial condition of the company, for example due to losses on assets or liabilities in foreign currencies. It is DSM's policy to hedge 100% of the currency risks resulting from sales and purchases at the moment of recognition of the receivables and payables. This is realized by transferring at spot rates the respective exposures to the group, which are, consequently (on a netted basis), hedged externally.

In addition, operating companies may — under strict conditions — opt for hedging currency risks from firm commitments and forecast transactions. The currencies giving rise to these risks are primarily USD, CHF and JPY. The risks arising from currency exposures are regularly reviewed and hedged when appropriate. DSM uses currency forward contracts, spot contracts, and average-rate currency forwards and options to hedge the exposure to fluctuations in foreign exchange rates. At year-end, these instruments had remaining maturities of less than one year. For the hedging of currency risks from firm commitments and forecast transaction cash flows, hedge accounting is applied. Hedge accounting is not applied for hedges of recognized trade receivables and trade payables hedged with short-term derivatives.

To hedge intercompany loans, receivables and payables denominated in currencies other than the functional currency of the subsidiaries, DSM uses currency swaps or forward contracts.

The following analysis of the sensitivity of net borrowings and derivative financial instruments to currency movements against the euro assumes a 10% change in all foreign currency rates against the euro from their level on 31 December 2022, with all other variables held constant. A +10% change indicates a strengthening of the foreign currencies against the euro. A -10% change represents a weakening of the foreign currencies against the euro.

Sensitivity to change in exchange rate

	2022			2021		
	Carrying amount	Sensitivity		Carrying amount	Sensitivity	
		+10%	(10%)		+10%	(10%)
Loans to associates and joint ventures	2	-	-	1	-	-
Current investments	125	5	(5)	489	2	(2)
Cash and cash equivalents	2,755	29	(29)	1,561	24	(24)
Short-term borrowings (excluding lease liabilities)	(42)	(4)	4	(54)	(2)	2
Long-term borrowings (excluding lease liabilities)	(2,843)	(6)	6	(2,842)	(7)	7
Lease liabilities	(179)	(14)	14	(202)	(14)	14
Currency forward contracts	1	14	(14)	(11)	8	(8)
Currency forwards related to net investments in foreign entities[1]	-	-	-	-	(8)	8
Average-rate forwards used for economic hedging[2]	18	(19)	19	(10)	22	(22)
Other derivatives	78	1	(1)	50	3	(3)

1 Fair-value change reported in Translation reserve.
2 Fair-value change reported in Hedging reserve.

Sensitivity changes on these positions will generally be recognized in profit or loss or in the translation reserve in equity, with the exception of the instruments for which cash flow hedge accounting or net-investment hedge accounting is applied.

In case of a strengthening or weakening of the euro against USD, CHF and CNY (being the key currencies), this would affect the translation of financial instruments denominated in these currencies taking into account the effect of hedge accounting and assuming all other variables being constant.

	Profit or loss		Equity	
	Strengthening	Weakening	Strengthening	Weakening
EUR				
USD (10% movement)	(154)	154	(303)	303
CHF (10% movement)	27	(27)	(251)	251
CNY (10% movement)	(5)	5	(100)	100

Price risk

Financial instruments that are subject to changes in stock exchange prices or indexes are subject to a price risk. At year-end 2022, mainly other participating interests are subject to price risks.

Credit risk

Credit risk is the risk that a (commercial or financial) counterparty may not be able to honor a financial commitment according to the contractual agreement with DSM. The company manages the credit risk to which it is exposed by applying credit limits per institution and by dealing exclusively with institutions that have a high credit rating.

At the balance sheet date, there were no significant concentrations of credit risks.

For all financial assets measured at amortized cost, the estimation of the loss allowance for doubtful accounts receivable is based on an expected credit loss (ECL) model.

For trade receivables, DSM uses an allowance matrix to measure the lifetime ECL for trade receivables. The loss rates depend among other things on the specified aging categories and are based on historical write-off percentages, taking market developments into account.

For other financial assets, DSM applies an ECL model that reflects the size and significance of DSM's exposure to credit loss. The ECL is based on the allocation of a credit risk grade which is based on data that is determined to be predictive of the risk of loss (including but not limited to external ratings, audited financial statements, management accounts and cash flow projections and available press information about customers) and applying experienced credit judgement. Credit risk grades are defined using qualitative and quantitative factors that are indicative of the risk of default and are aligned to external credit rating definitions from Moody's.

Risk of default is herewith considered as the risk of bankruptcy, or any legal impediment to the timely payment of either interest and/or principal, as well as missed or delayed disbursement of either interest and/or principal.

The loss allowance on non-current financial assets that has been taken into consideration at the end of 2022 was €2 million (2021: nil).

With regard to treasury activities (for example cash, cash equivalents and derivatives held with banks or financial institutions) it is ensured that financial transactions are only concluded with counterparties that have at least a Moody's credit rating of A3 for long-term instruments. At Business Group level, outstanding receivables are continuously monitored by management. Appropriate allowances are made for any credit risks that have been identified in line with the expected credit loss policy.

The development of the outstanding trade accounts receivable per aging category is as follows.

	2022	2021
Neither past due nor impaired	1,117	1,070
1–29 days overdue	69	179
30–89 days overdue	100	118
90 days or more overdue	20	24
Total	**1,306**	**1,391**

The table below provides information about the credit risk exposure per aging category and the ECL for trade accounts receivable of €12 million at 31 December 2022 (31 December 2021: €23 million), see Note 13 Current receivables.

	2022			2021		
	Weighted average loss rate	Gross carrying amount	**Expected credit loss**	Weighted average loss rate	Gross carrying amount	Expected credit loss
Neither past due nor impaired	0.1%	1,117	(1)	0.3%	1,070	(3)
1–29 days overdue	0.0%	69	-	1.0%	179	(2)
30–89 days overdue	1.0%	100	(1)	4.0%	118	(5)
90 days or more overdue	53.0%	20	(10)	55.0%	24	(13)
Total		**1,306**	**(12)**		**1,391**	**(23)**

The changes in the expected credit loss for trade accounts receivable are as follows.

	2022	2021
Balance at 1 January	(23)	(28)
Net remeasurement of expected credit loss	7	2
Deductions	3	2
Disposals	1	1
Balance at 31 December	(12)	(23)

The maximum exposure to credit risk is represented by the carrying amounts of financial assets that are recognized in the balance sheet, including derivative financial instruments. DSM has International Swaps and Derivatives Association (ISDA) agreements in place with its financial counterparties that allow for the netting of exposures in case of a default of either party, but do not meet the criteria for offsetting in the balance sheet. The following table presents the carrying amounts of the derivative financial instruments subject to these agreements. No significant agreements or financial instruments were available at the reporting date that would reduce the maximum exposure to credit risk.

Exposure to credit risk related to derivatives

	2022	2021
Receivables from derivatives presented in the balance sheet	124	78
Related amounts not offset in the balance sheet	(23)	(14)
Net amount	101	64
Liabilities from derivatives presented in the balance sheet	(27)	(49)
Related amounts not offset in the balance sheet	23	14
Net amount	(4)	(35)

Notional value of derivative financial instruments

	2022			2021		
	Non-current	Current	Total	Non-current	Current	Total
Cross-currency interest rate swaps	(29)	(87)	(116)	(170)	(90)	(260)
Forward exchange contracts, currency options, currency swaps	(7)	(973)	(980)	(3)	(2,019)	(2,022)
Other derivatives	-	(1)	(1)	39	16	55
Total	(36)	(1,061)	(1,097)	(134)	(2,093)	(2,227)

Information about financial assets is presented in Note 10 Associates and joint arrangements, Note 11 Other financial assets, Note 13 Current receivables, Note 14 Current investments, Note 15 Cash and cash equivalents and Note 23 Financial instruments and risks.

DSM's policy is to grant corporate guarantees for credit support of subsidiaries and associates, to get access to credit facilities which are necessary for their operating working capital needs and which cannot be funded by the corporate cash pools and/or for bank guarantees needed for local governmental requirements. Information on guarantees is presented in Note 22 Contingent liabilities and other financial obligations.

Hedge accounting

DSM uses derivative financial instruments to manage financial risks relating to business operations and does not enter into speculative derivative positions. The purpose of cash flow hedges is to minimize the risk of volatility of future cash flows. These may result from a recognized asset or liability or a forecast transaction that is considered highly probable (firm commitment). DSM determines the existence of an economic relationship between the hedging instrument and hedging item based on currency, amount and timing of their respective cash-flows. The hedge ratio is dependent on the risk analysis related to the specific cash flow, and can vary from 50% to 100%. Changes in fair value as a result of changes in interest (for cash flows hedges) or as a result of changes in exchange rate (for firm commitment hedges) are recognized in Other comprehensive income (Hedging reserve), and ineffectiveness (mainly as a result of changes in timing of the hedged transactions) will be recognized in the income statement. As soon as the forecast transaction is realized (the underlying hedged item materializes), the amount recognized in the Other comprehensive income will be reclassified to the income statement. In case the hedged future transaction is a non-financial asset or liability, the gain or loss recognized in Other comprehensive income will be included in the cost of acquisition of the asset or liability.

The purpose of a hedge of a net investment is to reduce the foreign currency translation risk of an investment in a company whose functional currency is not the euro. Changes in fair value are recognized in Other comprehensive income (Translation reserve), and ineffectiveness will be recognized in the income statement. The amount recognized in Other comprehensive income will be reclassified to the income statement, upon divestment of the respective foreign subsidiary.

The purpose of a fair value hedge is to hedge the fair value of assets or liabilities reflected on the balance sheet. Changes of fair value in hedging instruments, as well as hedged items, will be recognized in the income statement.

Cash flow hedges

In 2022, DSM hedged USD 611 million (2021: USD 572 million) of its 2023 projected net cash flow in USD against the EUR by means of average-rate currency forward contracts at an average exchange rate of USD 1.07 per EUR for the four quarters of 2023. Each quarter, the relevant hedges for that quarter will be settled and recognized in the income statement. In 2022, DSM also hedged JPY 5,687 million (2021: JPY 6,771 million) of its 2023 projected net cash flow in JPY against the EUR by means of average-rate currency forward contracts at an average exchange rate of JPY 136.21 per EUR for the four quarters of 2023. DSM also hedged the projected CHF obligations against the EUR, namely CHF 417 million (2021: CHF 375 million) at an average exchange rate of CHF 1.01 per EUR. These hedges have fixed the exchange rate for part of the USD and JPY receipts and CHF payments in 2023. Cash flow hedge accounting is applied for these hedges. As a result of similar hedges concluded in 2021 for the year 2022, €30 million negative was recognized in the 2022 operating profit of the segments involved in accordance with the realization of the expected cash flows. There was no ineffectiveness in relation to these hedges.

Net investment hedges

The partial hedging of the currency risk associated with the translation of DSM's CHF-denominated investments was zero (2021: CHF 80 million). There was no material ineffectiveness in relation to these hedges.

	Cash flow hedges Foreign currency risk		Net investment hedges Foreign exchange - denominated debt (CHF currency)	
	Inventory purchases	Other[1]	Assets	Liabilities
2021				
Nominal amount hedged item	23	184	-	77
Carrying amount assets	5	-	-	-
Carrying amount liabilities	-	(10)	-	-
Line item balance sheet	Derivatives	Derivatives	Derivatives	Derivatives
Change in the value of the hedging instrument	(5)	45	-	-
Costs of hedging recognized in OCI	(5)	29	-	1
Reclassified from hedging reserve to income statement	9	(16)	-	-
Line item income statement	Cost of sales	Sales	Finex[2]	Finex[2]
2022				
Nominal amount hedged item	29	194	-	-
Carrying amount assets	1	18	-	-
Carrying amount liabilities	-	-	-	-
Line item balance sheet	Derivatives	Derivatives	Derivatives	Derivatives
Change in the value of the hedging instrument	4	(28)	-	-
Costs of hedging recognized in OCI	4	1	-	-
Reclassified from hedging reserve to income statement	10	30	-	-
Line item income statement	Cost of sales	Sales	Finex[2]	Finex[2]

1 Forward contracts, sales, receivables and borrowings.

2 Financial income and expense.

For movements in Hedging or Translation reserve, see also Note 16 Equity.

Fair value of financial instruments

The following methods and assumptions were used to determine the fair value of financial instruments: cash, current investments, current receivables, current borrowings (excluding current portion of long-term instruments) and other current liabilities are stated at carrying amount, which approximates fair value in view of the short maturity of these instruments. The fair value of derivatives and long-term instruments are based on calculations, quoted market prices or quotes obtained from intermediaries.

The portfolio of derivatives consists of average-rate forward contracts that are valued against average foreign exchange forward rates obtained from Bloomberg and other derivatives that are valued using a discounted cash flow model, applicable market yield curves and foreign exchange spot rates. Inputs for the fair value calculations represent observable market data that are obtained from external sources that are deemed to be independent and reliable.

DSM uses the following hierarchy for determining the fair value of financial instruments:

- Level 1: quoted prices in active markets for identical assets or liabilities
- Level 2: other techniques for which all inputs that have a significant effect on the fair value are observable, either directly or indirectly
- Level 3: techniques that use inputs that have a significant effect on the fair value that are not based on observable market data

The following table shows the carrying amounts and fair values of financial assets and financial liabilities, including their levels in the fair value hierarchy.

Fair value of financial instruments

	Carrying amount					Fair Value			
	Amort. Cost	Fair value hedging instr.	FVTPL	FVOCI	Total	Level 1	Level 2	Level 3	Total
Assets 2021									
Non-current derivatives	-	1	47	-	48	-	48	-	48
Other participating interests	-	-	-	191	191	86	44	61	191
Non-current loans to associates and JVs	1	-	-	-	1	-	1	-	1
Other non-current receivables	31	-	-	-	31	-	-	31	31
Trade receivables	1,604	-	-	-	1,604	-	-	1,604	1,604
Other current receivables	32	-	-	-	32	-	-	32	32
Current derivatives	-	30	-	-	30	-	30	-	30
Current investments	489	-	-	-	489	-	-	489	489
Cash and cash equivalents	1,541	-	20	-	1,561	20	-	1,541	1,561
Liabilities 2021									
Non-current borrowings	(2,995)	-	-	-	(2,995)	(2,920)	-	(153)	(3,073)
Non-current derivatives	-	(9)	-	-	(9)	-	(9)	-	(9)
Other non-current liabilities	(137)	-	(143)	-	(280)	(137)	-	(143)	(280)
Current borrowings	(103)	-	-	-	(103)	(54)	-	(49)	(103)
Current derivatives	-	(40)	-	-	(40)	-	(40)	-	(40)
Trade payables	(1,571)	-	-	-	(1,571)	-	-	(1,571)	(1,571)
Other current liabilities	(540)	-	-	-	(540)	-	-	(540)	(540)
Assets 2022									
Non-current derivatives	-	4	78	-	82	-	82	-	82
Other participating interests	-	-	-	125	125	27	62	36	125
Non-current loans to associates and JVs	2	-	-	-	2	-	2	-	2
Other non-current receivables	158	-	-	-	158	-	-	158	158
Trade receivables	1,508	-	-	-	1,508	-	-	1,508	1,508
Other current receivables	78	-	-	-	78	-	-	78	78
Current derivatives	-	42	-	-	42	-	42	-	42
Current investments	125	-	-	-	125	-	-	125	125
Cash and cash equivalents	1,262	-	1,493	-	2,755	1,493	-	1,262	2,755
Liabilities 2022									
Non-current borrowings	(2,978)	-	-	-	(2,978)	(2,534)	-	(135)	(2,669)
Non-current derivatives	-	(4)	-	-	(4)	-	(4)	-	(4)
Other non-current liabilities	(82)	-	(123)	-	(205)	(82)	-	(123)	(205)
Current borrowings	(86)	-	-	-	(86)	(42)	-	(44)	(86)
Current derivatives	-	(23)	-	-	(23)	-	(23)	-	(23)
Trade payables	(1,415)	-	-	-	(1,415)	-	-	(1,415)	(1,415)
Other current liabilities	(490)	-	-	-	(490)	-	-	(490)	(490)

During the year there were no material transfers between individual levels of the fair value hierarchy.

24 Post-employment benefits

The group operates a number of defined benefit plans and defined contribution plans throughout the world, the assets of which are generally held in separately administered funds. The pension plans are generally funded by payments from employees and from the relevant group companies. The group also provides certain additional healthcare benefits to retired employees in the US.

Post-employment benefits are employee benefits (other than termination benefits and short-term employee benefits) that are payable after the completion of employment. The defined benefit obligation is valued using the projected unit credit method as prescribed under IAS 19 'Employee Benefits'. Post-employment benefit accounting is intended to reflect the recognition of post-employment benefits over the employee's approximate service period, based on the terms of the plans and the investment and funding. The accounting requires management to make assumptions regarding variables such as discount rate, future salary increases, life expectancy, and future healthcare costs. Management consults with external actuaries regarding these assumptions at least annually for significant plans.

Changes in these key assumptions can have a significant impact on the projected defined benefit obligations, funding requirements and periodic costs incurred.

The charges for pension costs recognized in the income statement (Note 5 Net sales and costs (continuing operations)) relate to the following.

Pension costs

	2022	2021
Defined benefit plans:		
- Current service costs pension plans	38	34
- Other post-employment benefits	3	3
Defined contribution plans	61	60
Total pension costs included in employee benefit costs	102	97
- Pension costs included in Other operating (income) / expense	(2)	(9)
Total in operating profit, continuing operations	100	88
Pension costs included in Financial income and expense	3	2
Total continuing operations	103	90
Discontinued operations	19	22
Total	122	112
Of which:		
- Defined contribution plans	79	81
- Defined benefit plans	43	31

For 2023, costs for the defined benefit plans relating to pensions are expected to be €40 million (2022: €40 million).

Changes in Employee benefit net liabilities recognized in the balance sheet are shown in the following overview.

Employee benefit net liabilities

	2022	2021
Balance at 1 January	269	454
Changes:		
- Balance of actuarial (gains)/losses	(5)	(153)
- Employee benefit costs	43	30
- Contributions by employer	(56)	(66)
- Exchange differences	(2)	(1)
- Other	-	5
- Reclassification from/to held for sale	(5)	-
Total changes	(25)	(185)
Balance at 31 December	244	269

The Employee benefit net liabilities of €244 million (2021: €269 million) consist of €228 million related to pensions (2021: €251 million), €4 million related to healthcare and other costs (2021: €5 million) and €12 million related to other post-employment benefits (2021: €13 million). See also the table below.

Net assets/liabilities

	2022	2021
Major plans:		
Present value of funded obligations	(1,452)	(1,810)
Fair value of plan assets	1,593	1,887
Net	141	77
Present value of unfunded obligations	(245)	(325)
Effect of asset ceiling	(129)	-
Net (liabilities) / net assets major plans	(233)	(248)
Net (liabilities) / net assets other plans	(11)	(21)
Total (net liabilities) / net assets	(244)	(269)
Of which:		
Liabilities (Employee benefit liabilities)	(263)	(344)
Assets (Prepaid pension costs)	19	75

Pensions

The DSM group companies have various pension plans, which are geared to the local regulations and practices in the countries in which they operate. As these plans are designed to comply with the statutory framework, tax legislation, local customs and economic situation of the countries concerned, it follows that the nature of the plans varies from country to country. The plans are based on local legal and contractual obligations.

DSM's current policy is to offer defined contribution retirement benefit plans to new employees wherever possible. However, DSM still has a (small) number of defined benefit pension and healthcare schemes from the past or in countries where legislation does not allow us to offer a defined contribution scheme. Generally, these schemes have been funded through external trusts or foundations, where DSM faces the potential risk of funding shortfalls. The most significant defined benefit schemes are:

- Pension Plan at DSM Nutritional Products AG in Switzerland (DNP AG)
- DSM UK Pension Scheme in the UK
- Consolidated Pension Plan of DSM North America, Inc. in the US
- Pension Plan at DSM Nutritional Products GmbH in Germany (DNP GmbH)

For each plan, the following characteristics are relevant:

DNP AG Pension Plan in Switzerland

The DNP AG Pension Plan is a typical Swiss Cash Balance plan. For accounting purposes, this plan is qualified as a defined benefit plan. It is a contribution-based plan. There is no promise of indexation for on-going pensions. The Swiss state minimal requirements for occupational benefit plans have however to be respected; the Minimum Guaranteed Interest Return that needs to be applied on the cash balance accounts according to the Swiss BVG legislation was 1.0% for 2022 (2021: 1.0%). The actual return that was granted to the cash balance accounts in 2022 was 1.0% (4.5% in 2021). There is also a minimal conversion rate applicable. The weighted average duration of the defined benefit obligation is 10.0 years (2021: 14.9 years) which could be seen as an indication of the maturity profile of the scheme.

The pension plan is managed and controlled by a DSM company pension fund. The Board of Trustees consists of representatives of the employer and the employees who have an independent role. The plan assets are collectively invested (no individual investment choice). The current (estimated) funding level, based on local standards, is 107% (2021: 124%), which is above the legally required minimum funding level and also above the long-term buffer target.

DSM UK Pension Scheme

The DSM UK Pension Scheme was closed as of 30 September 2016 for all pension accruals. An unconditional indexation policy is applicable for the vested pension rights. The weighted average duration of the defined benefit obligation is 14.3 years (2021: 18.9 years), which could be seen as an indication of the maturity profile of the scheme.

The pension plan is managed and controlled by a DSM company pension fund. The Board of Trustees consists of representatives of the employer and the employees who have an independent role. There are two company guarantees in place: (1) a guarantee from DNP AG (capped at GBP 14 million) related to the 2012 valuation, and (2) a guarantee from Royal DSM (capped at GBP 11 million) related to arrangements with respect to former UK divestments. There is a long-term de-risking strategy for the DSM UK Pension Scheme in place with the objective to align the company's intentions and the Trustees responsibility with respect to this plan. The current funding level, based on local standards, is estimated at 91% (2021: 101%).

Consolidated Plan in the US

The Consolidated Plan in the US has been closed to new entrants since 2014. As of 31 December 2016, the plan was closed for pension accrual of the non-unionized employees and as a result of the DRF divestment in 2021, it was fully frozen for all unionized employees as well.

There is no indexation applicable for the vested pension rights. The weighted average duration of the defined obligations is 9.7 years (2021: 11.8 years), which could be seen as an indication of the maturity profile of the scheme.

The pension plan is managed and controlled by a DSM company pension fund. The Board of Trustees consists of representatives of the employer and the employees, who have an independent role.

The internal funding policy of this plan is based on IFRS valuation. This implies a stricter funding policy than the minimum requirements on local funding. The current IFRS funding level is 108% (2021: 107%) and the funding on local standards (Pension Protection Act) will be substantially higher. The minimum required funding level on local standards is 80% on the basis of this Act, so this plan is well funded.

DNP GmbH Pension Plan in Germany

The DNP GmbH Pension Plan in Germany has been closed to new entrants as of 31 December 2008. The accrual is still applicable for employees who have been participating in the plan since 2008. The pension plan is a final-pay pension plan (averaged over the last 12 months prior to retirement) and service-related benefit. The liability is on the balance sheet of DSM Nutritional Products GmbH. No assets are allocated to this liability. All reimbursements will be paid out by the local company. The weighted average duration of the defined benefit obligation is 12.9 years (2021: 14.5 years), which could be seen as an indication of the maturity profile of the scheme.

The most important unfunded plans are in Germany, for which the associated liability amounts to €236 million (2021: €316 million).

The changes in the present value of the defined benefit obligations and in the fair value of plan assets of the major plans are listed below.

Present value of defined benefit obligations

	2022	2021
Balance at 1 January	2,135	2,110
Changes:		
- Service costs	40	35
- Interest costs	18	13
- Contributions	19	16
- Actuarial (gains) / losses	(498)	(52)
- Past service costs	-	(11)
- Exchange differences	64	94
- Disbursements	(82)	(72)
- Other	1	2
Total changes	(438)	25
Balance at 31 December	1,697	2,135

Fair value of plan assets

	2022	2021
Balance at 1 January	1,887	1,676
Changes:		
- Interest income on plan assets	16	11
- Actuarial gains/(losses)	(369)	101
Actual return on plan assets	(353)	112
- Contributions by employer	42	47
- Contributions by employees	19	16
- Disbursement	(70)	(60)
- Acquisition / Divestment	-	(1)
- Exchange differences	69	97
- Other	(1)	-
Total changes	(294)	211
Balance at 31 December	1,593	1,887

The fair value of the plan assets consists of 94% of quoted assets (2021: 96%).

The actuarial gains/losses as included in the previous tables can be specified as follows.

Remeasurement effects as included in Other comprehensive income

	2022	2021
Defined benefit obligation major pension plans		
Actuarial (gain)/loss due to experience	2	68
Actuarial (gain)/loss due to demographic assumption changes	-	(62)
Actuarial (gain)/loss due to financial assumption changes	(500)	(58)
Total	(498)	(52)
Plan assets major pension plans		
Change in irrecoverable surplus other than interest	124	-
Return on plan assets (greater) / less than discount rate	369	(101)
Total	493	(101)
Actuarial (gain) / loss major plans	(5)	(153)
Actuarial (gain) / loss other plans	-	-
Total actuarial (gain) / loss	(5)	(153)

The major categories of pension-plan assets as a percentage of total plan assets are as follows.

Pension-plan assets by category

	2022	2021
Bonds[1]	46%	46%
Equities[1]	24%	26%
Property funds	20%	20%
Other	10%	8%

1 With quoted market price in active market.

The pension-plan assets include neither ordinary DSM shares nor property occupied by DSM.

In 2023, DSM is expected to contribute €40 million (actual 2022: €42 million) to its major defined benefit plans.

The main actuarial assumptions for the year (weighted averages) are:

Actuarial assumptions for major plans outside the Netherlands

	2022	2021
Discount rate	3.01%	0.85%
Price inflation	1.52%	1.49%
Salary increase	2.34%	2.06%
Pension increase	0.80–2.90%	0.84–3.15%

Year-end amounts for the current and previous periods are as follows.

Major defined benefit plans per year

	2022	2021	2020	2019	2018
Defined benefit obligations	(1,697)	(2,135)	(2,110)	(2,079)	(1,808)
Plan assets	1,593	1,887	1,676	1,644	1,370
Funded status of asset / (liability)	**(104)**	**(248)**	**(434)**	**(435)**	**(438)**
Experience adjustments on plan assets, gain / (loss)	(369)	101	89	192	(94)
Experience adjustments on plan liabilities, gain / (loss)	(2)	(68)	(9)	(36)	(35)
Gain/(loss) on liabilities due to changes in assumptions	500	120	(105)	(180)	52

Sensitivities of significant actuarial assumptions

The discount rate, the future increase in wages and salaries and the pension increase rate were identified as significant actuarial assumptions. The following impacts on the defined benefit obligation are to be expected.

- A 0.25% increase/decrease in the discount rate would lead to a decrease/increase of 2.5% (2021: 3.5%) in the defined benefit obligation
- A 0.25% increase/decrease in the expected increase in salaries/wages would lead to an increase/decrease of 0.3% (2021: 0.3%) in the defined benefit obligation
- A 0.25% increase/decrease in the expected rate of pension increase would lead to an increase/decrease of less than 0.6% (2021: 1.0%) in the defined benefit obligation

The sensitivity analysis is based on realistically possible changes as at the end of the reporting year. Each change in a significant actuarial assumption was analyzed separately as part of the test. Interdependencies were not taken into account.

Healthcare and other costs

In some countries, particularly the US, group companies provide retired employees and their surviving dependents with post-employment benefits other than pensions, mainly allowances for healthcare expenses and life-insurance premiums. Some of these are unfunded; in these cases, approved expense claims are reimbursed out of the financial resources of the group companies concerned. These plans are not sufficiently material to warrant the individual disclosures required by IAS 19.

25 Net debt

The development of the components of net debt is as follows.

	Cash and cash equivalents	Current investments	Non-current borrowings	Current borrowings	Credit institutions	Derivatives	Total
Balance at 1 January 2021	871	43	(3,484)	(49)	(53)	95	(2,577)
Change from operating activities	1,427	-	(7)	-	-	(66)	1,354
Change from investing activities	208	445	(9)	(2)	25	-	667
Reclassification from non-current to current	-	-	516	(516)	-	-	-
Transfers	(522)	-	24	506	(12)	4	-
Dividend	(266)	-	-	-	-	-	(266)
Interest	(65)	-	-	-	-	-	(65)
Proceeds from reissued shares	34	-	-	-	-	-	34
New/unwinding leases	-	-	(19)	-	-	-	(19)
Repurchase of shares	(165)	-	-	-	-	-	(165)
Other	-	-	-	-	-	(4)	(4)
Change from financing activities	(984)	-	521	(10)	(12)	-	(485)
Exchange differences	39	1	(16)	-	(2)	-	22
Total changes	690	446	489	(12)	11	(66)	1,558
Balance at 31 December 2021	1,561	489	(2,995)	(61)	(42)	29	(1,019)
Change from operating activities	965	-	(9)	-	-	65	1,021
Change from investing activities	876	(364)	7	25	(5)	-	539
Reclassification from non-current to current	-	-	40	(40)	-	-	-
Transfers	(58)	-	17	18	21	2	-
Dividend	(345)	-	-	-	-	-	(345)
Interest	(52)	-	-	-	-	-	(52)
Proceeds from reissued shares	25	-	-	-	-	-	25
New/unwinding leases	-	-	(34)	-	-	-	(34)
Repurchase of shares	(210)	-	-	-	-	-	(210)
Other	(5)	-	-	-	-	(5)	(10)
Change from financing activities	(645)	-	23	(22)	21	(3)	(626)
Exchange differences	(2)		(4)	(1)	(1)	6	(2)
Total changes	1,194	(364)	17	2	15	68	932
Balance at 31 December 2022	2,755	125	(2,978)	(59)	(27)	97	(87)

In 2022, the gearing (net debt / equity plus net debt) was 0.8% (in 2021: 9.7%).

26 Notes to the cash flow statement

The cash flow statement provides an explanation of the changes in cash and cash equivalents. It is prepared on the basis of a comparison of the balance sheets at 1 January and 31 December. Changes that do not involve cash flows, such as changes in exchange rates, amortization, depreciation, impairment losses and transfers to other balance sheet items, are eliminated.

Changes in working capital due to the acquisition or disposal of consolidated companies are included under Investing activities.

The Consolidated cash flow statement includes an analysis of all cash flows in total, therefore including both continuing and discontinued operations. For the amounts related to discontinued operations split by activities and a reconciliation of results from continuing operations to total, see Note 3 Change in the scope of the consolidation.

Most of the changes in the cash flow statement can be traced back to the detailed statements of changes for the balance sheet items concerned. For those balance sheet items for which no detailed statement of changes is included, the table below shows the link between the change according to the balance sheet and the change according to the cash flow statement.

Change in operating working capital

	2022	2021
Operating working capital		
Balance at 1 January	2,330	2,052
Balance at 31 December	2,432	2,330
Balance sheet change	**102**	**278**
Adjustments:		
- Exchange differences	(63)	(108)
- Changes in consolidation (including acquisitions and disposals)	399	98
- Transfers/non-cash value adjustments	21	(85)
Total change in operating working capital according to the cash flow statement	**459**	**183**

In 2022, the operating working capital continuing operations was €2,432 million (2021: €2,018 million), which amounts to 29.0% of annualized fourth-quarter net sales (2021: 26.1%).

The disposal of subsidiaries, businesses and associates of €1,366 million consists primarily of the cash impact of the divestment of the Protective Materials business for €1,363 million.

27 Share-based compensation

The Royal DSM Restricted- and Performance Share Unit Plan provides rules for the grant of Restricted Share Units (RSU) and/or Performance Share Units (PSU) to eligible employees. Considering the plan rules that allow multiple grant dates, best practice is to effectuate the grant of share units on the last trading day at the Amsterdam Stock Exchange in March.

The number of share units to be granted is based on job level and the face value of the DSM share. As a result, the number of share units to be granted annually will fluctuate with the share price development.

RSUs and PSUs are subject to a vesting period of 3 years starting at the grant date. Vesting of RSUs is subject to continued employment until the vesting date (‘time vesting’). In addition, vesting of PSUs is also subject to the achievement of predefined performance targets at the end of the performance period. In view of the intended merger of equals between DSM and Firmenich, it is decided (as included in the Offering Circular) that the PSUs granted under the Long-Term Incentive plan in 2021 and 2022, respectively, shall vest against the average of the vesting result achieved over the vesting that occurred in 2020, 2021 and 2022.

Non-vested share units will be forfeited. If employment is terminated prior to the vesting date, specific rules regarding vesting and forfeitures apply.

Prior to 2017, stock options were granted to eligible executives. Stock options have a term of 8 years and are subject to a vesting period of 3 years. All outstanding stock options are vested.

Share units and stock options are settled by delivery of DSM shares.

In September 2022, a group of senior key employees (excluding the Co-CEOs) received an RSU grant, subject to completion of the merger between DSM and Firmenich. The respective grant will be settled in cash.

Overview of stock options

Year of grant	Outstanding at 31 Dec. 2021	In 2022 Exercised	Average price (€)	Forfeited/ expired	Outstanding at 31 Dec. 2022	Fair value on grant date (€)	Exercise price (€)	Expiry date
2014	49,540	(49,540)	150	-	-	11	52	9 May 2022
2015	244,850	(66,675)	129	-	178,175	10	51	5 May 2023
2016	421,200	(63,950)	147	-	357,250	9	53	3 May 2024
2022 Total	**715,590**	**(180,165)**	**141**	**-**	**535,425**			
Of which vested	715,590				535,425			
	at 31 Dec. 2020				at 31 Dec. 2021			
2021 Total	1,066,920	(343,830)	168	(7,500)	715,590			
Of which vested	1,066,920				715,590			

Overview of share units[1]

Year of issue	Outstanding at 31 Dec. 2021	Adjustment PSUs to at-target grant	In 2022 Granted	Vested	Forfeited/ expired[2]	Outstanding at 31 Dec. 2022	Share price at date of grant (€)	Expiry date
2019	157,578	38,307	-	(192,435)	(3,450)	-	98	31 Mar 2022
2020	127,637	-	-	(18,625)	(4,894)	104,118	104	31 Mar 2023
2021	109,195	-	364	(14,842)	(5,050)	89,667	144	31 Mar 2024
2022	-	-	90,122	(2,418)	(1,651)	86,053	163	31 Mar 2025
2022	-	-	103,064	-	(898)	102,166	117	30 Sep 2025
2022 Total	394,410	38,307	193,550	(228,320)	(15,943)	382,004		
	at 31 Dec. 2020					at 31 Dec. 2021		
2021 Total	690,351	(175,775)	114,894	(207,637)	(27,423)	394,410		

1 This table also forms part of the Remuneration report 2022 as included in the Supervisory Board Report.

2 Restricted- and Performance Share Units may partly vest upon termination of employment in connection with, for example, divestments, retirement or early retirement.

Whereas the grant of PSUs to members of the Managing Board and the Executive Committee is based on the maximum number to vest, the grant to other eligible employees is – as of 2021 – based on the 'at-target' grant level (in previous years this was the 'maximum number' that could vest). An 'at-target' grant level includes RSUs as well as PSUs. In the future this may, upon vesting and depending on the achievement of underlying goals, result in a performance correction, i.e., the forfeiture of outstanding PSUs (if performance goals are not or only partly achieved) or in an additional number of PSUs to vest (if performance goals are overachieved). The switch to an 'at-target' grant was applied retroactively for the grants made in previous years. As a result of this, the table above includes a correction of outstanding PSUs for grants in previous years (i.e. 2019 and 2020). The shift towards a grant on 'at-target' level did not impact the valuation of the outstanding share units nor the share-based compensation in the income statement.

Certain employees in the Netherlands are entitled to employee stock options, to be granted on the first day on which the DSM stock is quoted ex-dividend following the Annual General Meeting of Shareholders. The opening price of the DSM stock on that day is the exercise price of such stock options. Employee stock options can immediately be exercised and have a term of five years.

Overview of stock options for employees

Year of grant	Outstanding at 31 Dec. 2021	In 2022 Granted	Exercised	Average price (€)	Forfeited/ expired	Outstanding at 31 Dec. 2022	Fair value on grant date (€)	Exercise price (€)	Exercise period until
2017	28,745	-	(26,940)	158	(1,805)	-	6	67	May 2022
2018	61,555	-	(15,695)	147	(1,215)	44,645	9	85	May 2023
2019	102,515	-	(22,060)	144	(1,635)	78,820	9	98	May 2024
2020	71,540	-	(14,315)	145	(1,175)	56,050	10	112	May 2025
2022	-	481,350	(60,905)	153	(33,720)	386,725	14	138	May 2027
2022 Total	**264,355**	**481,350**	**(139,915)**	**151**	**(39,550)**	**566,240**			
	at 31 Dec. 2020					at 31 Dec. 2021			
2021 Total	447,120	-	(179,110)	159	(3,655)	264,355			

Measurement of fair value

The costs of share units are measured by reference to the fair value of the DSM share at the date on which the share units are granted, ex-dividend as the share units do not accumulate dividend during the three-year vesting period.

The costs of option plans are measured by reference to the fair value of the options at the date on which the options are granted. The fair value is determined using the Black-Scholes model, taking into account market conditions linked to the price of the DSM share. Stock-price volatility is determined on the basis of historical volatilities of the DSM share price measured each month over a period equal to the expected option life. The costs of these options are recognized in the income statement (Employee benefit costs).

Assumptions determining fair value

The following assumptions were used to determine the fair value at grant date.

Plan assumptions

	2022		2021
	Equity settled	Cash settled	Equity settled
Share units			
Risk-free rate	0.25%		-0.67%
Expected share life in years	3	3	3
Nominal share life in years	3	3	3
Share price in €	162.50	117.45	144.30
Expected dividend in €	2.50	2.50	7.20
Fair value of share granted in €	156.37	116.01	137.10
Employee options			
Risk-free rate	0.17%		-
Expected option life in years	2		-
Nominal option life in years	5		-
Share price in €	137.85		-
Exercise price in €	137.85		-
Volatility	20.0%		-
Expected dividend	2.50		-
Fair value of option granted in €	13.58		-

An amount of €35 million is included in the costs for wages and salaries for share-based compensation (2021: €22 million). The following table specifies the share-based compensation.

Share-based compensation

	2022	2021
Employee stock options	6	-
Other stock options	1	2
Restricted and Performance share units	28	20
Total expense	**35**	**22**

28 Related parties

Koninklijke DSM N.V. is the group holding company that is listed on the Euronext Amsterdam stock exchange. The financial statements of the company are included in the section Parent company financial statements.

In the ordinary course of business, DSM buys and sells goods and services from/to various related parties in which DSM has significant influence. Transactions are conducted under terms and conditions that are equivalent to those that apply to arm's length transactions.

Transactions and relationships with related parties are reported in the table below.

Transactions with related parties

	Associates and joint ventures	
	2022	2021
Sales to	18	13
Purchases from	35	87
Loans to	1	1
Receivables from	17	15
Payables to	4	7
Interest from	1	1
Commitments to	-	4

Transactions with joint ventures are immaterial.

DSM may issue guarantees as credit enhancement of associates to acquire bank facilities for these associates. DSM has provided guarantees to third parties for debts of associates and to a third party (a former associate) for an amount of €60 million (2021: €81 million).

Other related-parties disclosures relate entirely to key management of DSM, being represented by the company's Managing Board, Executive Committee and the Supervisory Board. For further details about their remuneration, see Note 12 Remuneration of Managing Board and Supervisory Board to the Parent company financial statements.

29 Service fees paid to external auditors

The service fees recognized in the financial statements 2022 for the services of KPMG amounted to €8.8 million (2021: €5.8 million). The amounts per service category are shown in the following table.

	Total service fee		Of which	
	KPMG	KPMG	**KPMG NL**	KPMG NL
	2022	2021	**2022**	2021
Audit of the Group financial statements	4.7	4.5	3.2	3.0
Audit of other (statutory) financial statements	0.9	0.7	0.1	0.1
Other assurance services	3.2	0.6	2.8	0.6
Total assurance services charged to DSM	**8.8**	**5.8**	**6.1**	**3.7**
Of which: Assurance services related to transactions	2.6	-	2.3	-

The service fees mentioned in the table for the audit of the financial statements 2022 (2021) relate to the total fees for the audit of the financial statements 2022 (2021), irrespective of whether the activities have been performed during the financial year 2022 (2021).

The other assurance services rendered by KPMG in 2022 mainly relate to assurance engagements required for the divestment of DSM Materials as well as for the announced merger plans. Assurance costs related to the divestment were partly recharged to the buyer. The remainder of other assurance services include assurance engagements on non-financial information and on internal controls of DSM Pension Services, assurance engagements on government grants and regulatory filings. KPMG did provide permitted non-assurance services in 2022 related to regulatory filings, agreed-upon procedures on certain information for the Remuneration Committee of Royal DSM and the pension fund and their external auditor (the same as in 2021).

30 Events after the balance sheet date

On 23 January 2023, the DSM shareholders voted in favor of all resolutions related to the merger with Firmenich at the Extraordinary General Meeting. As a result, the acceptance threshold was automatically adjusted from 95% to 80% of DSM's aggregate issued and outstanding ordinary share capital. Furthermore, the acceptance period, which period was set to expire on 31 January 2023, was extended until two weeks after the announcement that the Indian competition clearance has been obtained, but not before 17:40 hours CET on 7 March and no later than 17:40 hours CET on 11 April 2023.

Parent company financial statements

Balance sheet at 31 December of Koninklijke DSM N.V. before profit appropriation

x € million	Notes	2022	2021
Assets			
Intangible assets	2	466	464
Financial assets	3	15,634	13,789
Deferred tax assets	4	52	97
Other deferred items		1	2
Non-current assets		16,153	14,352
Receivables	5	51	77
Cash and cash equivalents		1	1
Current assets		52	78
Total		16,205	14,430
Shareholders' equity and liabilities			
Share capital	6	328	328
Share premium	6	471	471
Treasury shares	6	(196)	(177)
Legal reserves	6	833	460
Other reserves, incl. retained earnings	6	7,770	6,700
Undistributed results:	6		
- Net profit for the year	6	1,700	1,676
- Less: interim dividend	6	(163)	(140)
Shareholders' equity	6	10,743	9,318
Borrowings	7	2,741	2,739
Other non-current liabilities		8	8
Non-current liabilities		2,749	2,747
Current liabilities			
Other current liabilities	8	2,713	2,365
Current liabilities		2,713	2,365
Total		16,205	14,430

The accompanying notes are an integral part of these parent company financial statements.

Income statement of Koninklijke DSM N.V.

x € million	Notes	2022	2021
Other income	1	18	18
Cost of outsourced work and other external costs		(21)	(21)
Wages and salaries	10	(8)	(5)
Other movements in the value of intangible assets		-	(5)
Other operating expense		(1)	(1)
Total operating expenses		(30)	(32)
Operating profit		(12)	(14)
Financial expense	11	(107)	(106)
Profit before income tax		(119)	(120)
Income tax	4	25	(3)
Share of the profit of subsidiaries	3	1,794	1,784
Profit after income tax		1,700	1,661
Income from receivables attributable to non-current assets and from investments		-	15
Net profit available to equity holders of Koninklijke DSM N.V.		1,700	1,676

Notes to the parent company financial statements

1 General

Unless stated otherwise, all amounts are in € million.

Summary of the accounting policies

These separate financial statements have been prepared in accordance with Title 9, Book 2 of the Dutch Civil Code. The accounting policies used are the same as those used in the consolidated EU-IFRS financial statements, in accordance with the provisions of article 362-8 of Book 2 of the Dutch Civil Code.

In these separate financial statements, investments in subsidiaries are accounted for using the net asset value, with separate presentation of the goodwill component under intangible fixed assets. Results on transactions involving the transfer of assets and liabilities between the Company and its participating interests and mutually between participating interests themselves are eliminated to the extent that they can be considered as not realized. For an appropriate interpretation of these statutory financial statements, the separate financial statements should be read in conjunction with the consolidated financial statements.

Participating interests with a negative net asset value are valued at nil. This measurement also covers any receivables provided to the participating interests that are, in substance, an extension of the net investment. In particular, this relates to loans for which settlement is neither planned nor likely to occur in the foreseeable future. A share in the profits of the participating interest in subsequent years will only be recognised if and to the extent that the cumulative unrecognised share of loss has been absorbed. If the Company fully or partially guarantees the debts of the relevant participating interest, or if has the constructive obligation to enable the participating interest to pay its debts (for its share therein), then a provision is recognised accordingly to the amount of the estimated payments by the Company on behalf of the participating interest.

Information on the use of financial instruments and on related risks for the group is provided in Note 23 of the consolidated financial statements. The Company makes use of the option to eliminate intragroup expected credit losses against the book value of loans and receivables from the Company to participating interests, instead of elimination against the equity value / net asset value of the participating interests.

Other income consists mainly of the charge out of the parent company related corporate overhead and services to the group companies, which is fully realized in the Netherlands.

Statutory and fiscal seat

The statutory seat of Koninklijke DSM N.V. is Het Overloon 1, Heerlen (Netherlands). A list of Koninklijke DSM N.V.'s participations has been filed with the Chamber of Commerce (Netherlands) and is available from the company upon request, as well as on the company website. DSM is registered in the Dutch Commercial Register under number 14022069.

The company forms a fiscal unity for corporate income tax and VAT purposes together with the group companies in the Netherlands. Each of the companies recognizes the portion of corporate income tax that the relevant company would owe as an independent tax payer, taking into account tax liabilities applicable to the company, as well as the tax position of the fiscal unity.

Merger between DSM and Firmenich

On 31 May 2022, DSM and Firmenich announced their intention to enter into a merger of equals to create DSM-Firmenich. The merger is planned to take place in 2023 and it impacts the 2022 Consolidated financial statements as specified in Note 1 General Information and the 2022 Parent company financial statements in the following sections: Note 6 Shareholders' Equity, Note 7 Borrowings and Note 11 Financial expense. For further details on the merger plans, refer to Note 30 Events after balance sheet date in the Consolidated financial statements.

2 Intangible assets

The carrying amount of intangible assets comprises goodwill on the acquisition of the Erber Group in 2020 (€423 million), Pentapharm in 2007 (€34 million) and Crina in 2006 (€9 million). For full information on these assets including the discussion of the related impairment tests, see Note 8 Intangible assets to the 'Consolidated financial statements'.

Intangible assets of Koninklijke DSM N.V.

	Total
Balance at 1 January 2021	
Cost	825
Carrying amount	**825**
Changes in carrying amount:	
- Exchange rate difference	2
- Disposal subsidiaries	(358)
- Impairment	(5)
Balance at 31 December 2021	
Cost	469
Amortization and impairment losses	5
Carrying amount	**464**
Changes in carrying amount:	
- Exchange rate difference	2
Balance at 31 December 2022	
Cost	471
Amortization and impairment losses	5
Carrying amount	**466**

3 Financial assets

	Share in Subsidiaries	Other participating interests	Receivables	Total
Balance at 1 January 2021	11,953	41	22	12,016
Changes:				
- Share in profit	1,784	-	-	1,784
- Dividend received	(385)	-	-	(385)
- Disposal of subsidiaries	(239)	-	-	(239)
- Net actuarial gains/(losses)	132	-	-	132
- Change in Fair value reserve	81	(36)	-	45
- Change in Hedging reserve	(33)	-	-	(33)
- Exchange differences	479	-	-	479
- Intra-group transfers	32	-	-	32
- Other	(20)	-	(22)	(42)
Balance at 31 December 2021	13,784	5	-	13,789
Changes:				
- Share in profit	1,794	-	-	1,794
- Dividend received	(99)	-	-	(99)
- Disposal of subsidiaries	(74)	-	-	(74)
- Net actuarial gains/(losses)	(3)	-	-	(3)
- Change in Fair value reserve	(62)	-	-	(62)
- Change in Hedging reserve	22	-	-	22
- Exchange differences	272	-	-	272
- Intra-group transfers	-	-	-	-
- Other	(7)	2	-	(5)
Balance at 31 December 2022	15,627	7	-	15,634

The disposal of subsidiaries relates to the divestment of the DPM (DSM Protective Materials) business.

4 Deferred tax assets

The deferred tax asset of €52 million relates to net operating losses and temporary differences in the Dutch fiscal unity, of which €33 million is recoverable within 1 year. The decrease of the deferred tax asset in 2022 relates mainly to movements of temporary differences and partly relating to the DPM divestment. The increase in the effective tax rate from 2.5% in 2021 to 21% in 2022 was mainly due to a one-time effect related to the divestment of the RFM business in 2021.

5 Receivables

	2022	2021
Receivables from subsidiaries	13	58
Other receivables	38	19
Total	51	77

The carrying values of the receivables are a reasonable approximation of their respective fair values, given the short maturities of the positions and the fact that allowances for doubtful debts have been recognized, if necessary. All receivables have an estimated maturity shorter than one year.

The Receivables from subsidiaries of €13 million (2021: €58 million) mainly include receivables relating to the Dutch fiscal unity. Other receivables €38 million (2021: €19 million) mainly consist of VAT and other tax receivables and prepaid expenses.

6 Shareholders' equity

x € million	Share capital	Share prem.	Treas. shares	Legal reserves					Other reserves			Undistri buted results	Total share-holder equity
				Trans-lation res.	Capital dev. costs	Part. inte-rest	Reval. reserve	Hedg. reserve	Fair value res.	Share-based comp.	Ret. Earn.		
Balance at 31 December 2020	338	489	(976)	(289)	223	120	-	(68)	73	41	7,082	366	7,399
Added to other reserves	-	-	-	-	-	-	-	-	-	-	366	(366)	-
Net profit	-	-	-	-	-	-	-	-	-	-	-	1,676	1,676
Dividend	-	-	-	-	-	-	-	-	-	-	(281)	(140)	(421)
Reissued shares	-	-	218	-	-	-	-	-	-	-	(25)	-	193
Acquisition of NCI without a change in control	-	-	-	-	-	-	-	-	-	-	(20)	-	(20)
Cancellation of treasury shares	(10)	(18)	746	-	-	-	-	-	-	-	(718)	-	-
Repurchase of shares	-	-	(165)	-	-	-	-	-	-	-	-	-	(165)
Fair value changes of derivatives	-	-	-	-	-	-	-	(24)	-	-	-	-	(24)
Release to income statement	-	-	-	(13)	-	-	-	7	-	-	-	-	(6)
Fair value changes of other financial assets	-	-	-	-	-	-	-	-	46	-	-	-	46
Transfer fair value reserve	-	-	-	-	-	-	-	-	(8)	-	8	-	-
Exchange differences	-	-	-	478	-	-	-	-	-	-	-	-	478
Options and performance shares granted	-	-	-	-	-	-	-	-	-	22	-	-	22
Options and performance shares exercised/canceled	-	-	-	-	-	-	-	-	-	(24)	24	-	-
Transfer to retained earnings	-	-	-	-	16	1	-	-	(93)	-	76	-	-
Changes in joint ventures and associates	-	-	-	1	-	-	-	-	-	-	-	-	
Income tax	-	-	-	-	-	-	-	8	(1)	-	-	-	7
Remeasurements of defined benefit pension plans	-	-	-	-	-	-	-	-	-	-	132	-	132
Balance at 31 December 2021	328	471	(177)	177	239	121	-	(77)	17	39	6,644	1,536	9,318
Added to other reserves	-	-	-	-	-	-	-	-	-	-	1,536	(1,536)	-
Net profit	-	-	-	-	-	-	-	-	-	-	-	1,700	1,700
Dividend	-	-	-	-	-	-	-	-	-	-	(296)	(163)	(459)
Reissued shares	-	-	191	-	-	-	-	-	-	-	(50)	-	141
Repurchase of shares	-	-	(210)	-	-	-	-	-	-	-	-	-	(210)
Fair value changes of derivatives	-	-	-	-	-	-	-	(5)	-	-	-	-	(5)
Release to income statement	-	-	-	(16)	-	-	-	53	-	-	-	-	37
Fair value changes of other financial assets	-	-	-	-	-	-	-	-	(61)	-	-	-	(61)
Transfer fair value reserve	-	-	-	-		-	-	-	(28)	-	28	-	-
Exchange differences	-	-	-	267	-	-	-	-	-	-	-	-	267
Options and performance shares granted	-	-	-	-	-	-	-	-	-	33	-	-	33
Options and performance shares exercised/canceled	-	-	-	-	-	-	-	-	-	(29)	29	-	-
Transfer to retained earnings	-	-	-	-	17	61	-	-	-	-	(78)	-	-
Changes in joint ventures and associates	-	-	-	-	-	-	-	-	-	-	(11)	-	(11)
Income tax	-	-	-	(4)	-	-	-	(3)	-	-	(10)	-	(17)
Remeasurements of defined benefit pension plans	-	-	-	-	-	-	-	-	-	-	10	-	10
Balance at 31 December 2022	328	471	(196)	424	256	182	-	(32)	(72)	43	7,802	1,537	10,743

For details see the consolidated statement of changes in Note 16 Equity to the 'Consolidated financial statements'.

Legal reserves

In Shareholders' equity, a total amount of €830 million (2021: €460 million) is included for legal reserves required by Dutch law. The translation reserve relates to exchange gains and losses arising from the translation of the functional currency of foreign operations to the reporting currency of Koninklijke DSM N.V. Further, a legal reserve is recorded for capitalized development costs. The legal reserve for participating interests is recorded to the extent that there are limitations for Koninklijke DSM N.V. to arrange profit distributions from its participating interests. The hedging reserve relates to cash flow hedge accounting. The negative hedge reserve of -€32 million (2021: -€77 million) as part of the legal reserve should be deducted from the freely distributable reserve. In addition, a revaluation reserve has been included for fair value changes of unquoted equity instruments of participating interests with no frequent notations owned by DSM; debit balances are recorded as part of Other reserves, which are considered freely distributable reserves.

Other reserves

The Other reserves comprise a Fair value reserve for fair value changes of unquoted equity instruments of participating interests with frequent notations, debit balances of the legal reserve for fair value changes of unquoted equity instruments of participating interests owned by DSM, and a Reserve for share-based compensation.

In the 'Consolidated financial statements', the Other reserves consist of the Translation reserve, Fair value reserve, Hedging reserve and Reserve for share-based compensation. See Note 16 Equity to the 'Consolidated financial statements'.

Profit appropriation

According to article 32 of the Articles of Association of Koninklijke DSM N.V. and with the approval of the Supervisory Board, every year the Managing Board determines the portion of the net profit to be appropriated to the reserves. For the year 2022, the net profit is €1,700 million (2021: €1,676 million) and the amount to be appropriated to the reserves has been established at €1,533 million (2021: €1,238 million). From the subsequent balance of the net profit of €167 million (2021: €438 million), dividend is first distributed on the Cumulative Preference Shares B. At the end of 2022, no Cumulative Preference Shares B were in issue (same as for 2021). Subsequently, 2.52% (2021: 2.52%) dividend is distributed on the Cumulative Preference Shares A, based on a share price of €5.2942 (2021: €5.2942) per Cumulative Preference Share A. For 2022, this distribution amounts to €0.13 (2021: €0.13) per share, which is €6 million in total. An interim dividend of €0.04 per Cumulative Preference Share A paid in August 2022, the final dividend will then amount to €0.0934 per Cumulative Preference Share A.

The profit remaining after distribution of these dividends on the Cumulative Preference Shares A of €161 million (2021: €432 million) will be put at the disposal of the Annual General Meeting of Shareholders in accordance with the provisions of Article 32, section 5 of the Articles of Association.

The Managing Board proposes a dividend on ordinary shares outstanding for the year 2022 of €0.93 (2021: €2.50) per share. An interim dividend for the year 2022 of €0.93 per ordinary share was recognized as a liability in the second quarter of 2022. The total distribution amounted to €161 million. This interim dividend was paid as from 26 August 2022 in cash after deduction of 15% Dutch dividend withholding tax.

If the Annual General Meeting of Shareholders decides in accordance with the proposal, the net profit will be appropriated as follows.

in € million	2022	2021
Net profit for the year	**1,700**	**1,676**
Profit appropriation:		
- To be added to the reserves	1,533	1,238
- Dividend on Cumulative Preference Shares A	6	6
- Interim dividend on ordinary shares	161	138
- Final dividend distributable on ordinary shares	-	294

Upon a successful completion of the merger transaction between DSM and Firmenich, DSM-Firmenich intends to offer a gross dividend to all DSM-Firmenich shareholders of in total €423 million.

7 Borrowings

	2022 Total	2022 Of which current	2021 Total	2021 Of which current
Debenture loans	2,741	-	2,739	-
Total	**2,741**	**-**	**2,739**	**-**

At 31 December 2022, there were five debenture loans (€2,741 million, maturing in 2024, 2025, 2026 and from 2026 through 2032). During 2021, the debenture loan in the amount of €500 million originally maturing in 2022, was early redeemed.

The repayment schedule for borrowings is as follows.

Borrowings by maturity

	2022	2021
2024	500	499
2025 and 2026	1,248	1,248
After 2026	993	992
Total	**2,741**	**2,739**

In agreements governing loans with a residual amount at year-end 2022 of €2,741 million (31 December 2021: €2,739 million), clauses have been included which restrict the provision of security. More information on borrowings is provided in Note 19 Borrowings to the 'Consolidated financial statements'.

8 Other current liabilities

	2022	2021
Liabilities to subsidiaries	2,691	2,347
Other liabilities	22	18
Total	**2,713**	**2,365**

The Liabilities to subsidiaries concern mainly the current account toward the DSM internal financing company. These liabilities carry a short-term maturity and are interest-bearing. The increase of this current account in 2022 is mainly caused by changing financing needs.

The carrying values of the recorded liabilities are a reasonable approximation of their respective fair values, given the short maturities of the positions. All liabilities have an estimated maturity shorter than one year.

9 Contingent liabilities

Guarantee obligations on behalf of affiliated companies and third parties amounted to €591 million (31 December 2021: €628 million). Koninklijke DSM N.V. has declared in writing that it accepts several liabilities for debts arising from acts in law of a number of consolidated companies (including relating to the Dutch fiscal unity for income tax and VAT). These debts are included in the consolidated balance sheet.

10 Personnel

During the 2022 financial year, the average number of staff employed by DSM N.V. amounted to 2 employees (2021: 2). Both were employed inside the Netherlands.

11 Financial expense

Financial expense of €107 million (2021: net €106 million) mainly consists of the interest costs on bonds issued and the counterpart of the net investment hedge. See also Note 19 Borrowings and Note 23 Financial instruments and risks to the 'Consolidated financial statements'.

12 Remuneration of Managing Board and Supervisory Board

Disclosure of the total board remuneration is based on section 383 book 2 of the Dutch Civil Code. Furthermore, the members of the Executive Committee (which includes the Managing Board) and the Supervisory Board meet the definition of key management personnel as defined in IAS 24 'Related Parties'. IAS 24 requires disclosure of the total of short-term employee benefits (salary and Short-Term Incentive), post-employment (pension expenditure) and other long-term benefits (none), termination benefits and share-based payment cost (share-based compensation), which are reported in the table below.

Key management personnel remuneration and total board remuneration

	2022	2021
Salary	6,521	4,443
Short-Term Incentive	3,399	3,474
Pension contributions	1,197	801
Share-based compensation	7,778	3,774
Other	6,612	2,216
Total key management personnel remuneration	**25,507**	**14,708**
Of which: Managing Board remuneration[1]	6,717	5,830
Supervisory Board remuneration	844	805

1 See Remuneration report 2022.

Total remuneration for key management increased by €10.8 million in 2022 compared to 2021.

Approximately €3.9 million of this figure (excluding LTI) was related to an extension of the Executive Committee as of January 2022. With their appointment to the Executive Committee, the four new members took on additional responsibilities on top of their existing roles. The impact on total costs for the company is limited.

An amount of around €2.7 million was caused by the change in vesting conditions of the Performance Share Units granted in 2021 and 2022 under the Long-Term Incentive plan. Those grants will now vest against the average of the vesting result recorded for the years 2020, 2021 and 2022.

The 2022 amount referred to as 'Other' includes €3.4 million (2021: 0) subject to article 32bb of the Dutch Wage Tax Act, related to key position-holders leaving the company. The respective amount is to a large extent driven by the vesting of Performance Share Units granted in prior years.

Heerlen, 1 March 2023

Managing Board,

Geraldine Matchett, Co-CEO
Dimitri de Vreeze, Co-CEO

Heerlen, 1 March 2023

Supervisory Board,

Thomas Leysen, Chair
John Ramsay, Deputy Chair
Eileen Kennedy
Carla Mahieu
Erica Mann
Frits van Paasschen
Pradeep Pant
Corien Wortmann-Kool

Other Information

Independent auditor's report

To: the Annual General Meeting of Shareholders and the Supervisory Board of Koninklijke DSM N.V.

Report on the audit of the financial statements 2022 included in the Integrated Annual Report

Our opinion

In our opinion:

- the accompanying consolidated financial statements give a true and fair view of the financial position of Koninklijke DSM N.V. (hereafter: 'Royal DSM', 'DSM' or the 'Company') as at 31 December 2022 and of its result and its cash flows for the year then ended, in accordance with International Financial Reporting Standards as adopted by the European Union (EU-IFRS) and with Part 9 of Book 2 of the Dutch Civil Code
- the accompanying parent company financial statements give a true and fair view of the financial position of Royal DSM as at 31 December 2022 and of its result for the year then ended in accordance with Part 9 of Book 2 of the Dutch Civil Code

What we have audited

We have audited the financial statements 2022 of Royal DSM based in Heerlen. The financial statements include the consolidated financial statements and the parent company financial statements.

The consolidated financial statements comprise:

1. the consolidated balance sheet as at 31 December 2022;
2. the following consolidated statements for 2022: the income statement, the statements of comprehensive income, changes in equity and cash flows; and
3. the notes comprising a summary of the significant accounting policies and other explanatory information

The parent company financial statements comprise:

1. the parent company balance sheet as 31 December 2022;
2. the parent company income statement for 2022; and
3. the notes comprising a summary of the accounting policies and other explanatory information

Basis for our opinion

We conducted our audit in accordance with Dutch law, including the Dutch Standards on Auditing. Our responsibilities under those standards are further described in the 'Our responsibilities for the audit of the financial statements' section of our report.

We are independent of Royal DSM in accordance with the 'Verordening inzake de onafhankelijkheid van accountants bij assurance-opdrachten' (ViO, Code of Ethics for Professional Accountants, a regulation with respect to independence) and other relevant independence regulations in the Netherlands. Furthermore, we have complied with the 'Verordening gedrags- en beroepsregels accountants' (VGBA, Dutch Code of Ethics).

We designed our audit procedures in the context of our audit of the financial statements as a whole and in forming our opinion thereon. The information in respect of going concern, fraud and non-compliance with laws and regulations, climate and the key audit matters was addressed in this context, and we do not provide a separate opinion or conclusion on these matters.

We believe the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Information in support of our opinion

Summary

Materiality

- Materiality of EUR 32.5 million
- 5.4% of normalized profit before income tax expense

Group audit

- Audit coverage of 78% of total assets
- Audit coverage of 75% of net sales

Fraud/Noclar, Going concern and Climate related risks

- Fraud & Non-compliance with laws and regulations (Noclar) related risks: presumed fraud risks of management override of controls and revenue recognition identified
- Going concern related risks: no going concern risks identified
- Climate related risks: We have considered the impact of climate-related risks on the financial statements and described our approach and observations in the section 'Audit response to climate-related risks'.

Key audit matters

- Transformation of the DSM businesses
- Announced divestment Engineering Materials business
- Divestment Protective Materials business

Opinion

- Unqualified

Materiality

Based on our professional judgement we determined the materiality for the financial statements as a whole at EUR 32.5 million (2021: EUR 45 million). The materiality is determined with reference to profit before income tax expense, normalized for acquisition/divestment related expenses, resulting in a percentage of 5.4% (2021: 4.8%). We consider this normalized profit before income tax expense as the most appropriate benchmark following our analysis of the common information needs of users of the financial statements. The reduction in materiality is the result of the (announced) divestments of the Engineering Materials business and Protective Materials business. Although included in net profit for the year, the results of these businesses and related activities, including the book result from the disposal of the Protective Materials business in 2022, have been presented separate from continuing operations, and are no longer part of (normalized) profit before income tax expense. We have also taken into account misstatements and/or possible misstatements that in our opinion are material for the users of the financial statements for qualitative reasons.

We agreed with the Supervisory Board that misstatements identified during our audit in excess of EUR 1.5 million would be reported to them, as well as smaller misstatements that in our view must be reported on qualitative grounds.

Scope of the group audit

Royal DSM is at the head of a group of components. The financial information of this group is included in the financial statements of Royal DSM.

Because we are ultimately responsible for the auditor's report, we are also responsible for directing, supervising and performing the group audit. In this respect we have determined the nature and extent of the audit procedures to be carried out for components reporting for group audit purposes. Decisive were the size and/or the risk profile of the components or operations. Based on our risk assessment, we selected 18 components (2021: 23 components) to perform audits for group reporting purposes on a complete set of reporting packages. In addition, we selected 17 components (2021: 13 components) to perform specified audit procedures for group reporting purposes on specific items of the reporting packages.

This resulted in a coverage of 75% (2021: 76%) of total net sales and 78% (2021: 79%) of total assets. The remaining 25% of total net sales (2021: 24%) and 22% of total assets (2021: 21%) is represented by a significant number of components ('Remaining components'), none of which individually represent more than 1% of total net sales and 2% of total assets.

For these remaining components, we performed central procedures such as analytical procedures to validate our assessment that there are no risks of material misstatement within these components.

Our procedures as described above can be summarized as follows:

Total assets

66%	12%	22%
Audit of the complete reporting package	Specified audit procedures	Central procedures remaining components

Total net sales

52%	23%	25%
Audit of the complete reporting package	Specified audit procedures	Central procedures remaining components

We have:

- performed audit procedures at group level in respect of areas such as the annual goodwill impairment tests, other asset impairment (trigger) assessments, income tax for the Dutch fiscal unities, acquisitions of subsidiaries, accounting for (announced) divestments, restructuring provisions, treasury and shared service centers; and
- used the work of local KPMG (‘component auditors’) when auditing reporting packages or performing specified audit procedures at component level

The group audit team has set materiality levels for the components, which ranged from EUR 5 million to EUR 12.5 million (2021: EUR 5 million to EUR 12.5 million), based on the mix of size and risk profile of the respective components.

The group audit team provided detailed instructions to all Business Group and component auditors part of the group audit, covering the significant audit areas, including the relevant risks of material misstatement, and the information required to be reported back to the group audit team.

The group audit team scheduled (virtual) site visit meetings with local component auditors and local component management in the United States of America, Switzerland, China, the Netherlands and the shared service center in India. For these components, as well as the components in Brazil and Mexico, the group audit team reviewed selected component auditor documentation.

Virtual meetings were held with all component auditors that participated in the group audit, to discuss the audit approach and the audit findings and observations reported to the group audit team.

By performing the procedures mentioned above at group components, together with additional procedures at group level, we have been able to obtain sufficient and appropriate audit evidence about the group’s financial information to provide an opinion about the financial statements.

Audit response to the risk of fraud and non-compliance with laws and regulations

In the chapter “Corporate governance and risk management” of the Integrated Annual Report, the Managing Board describes its procedures in respect of the risks of fraud and non-compliance with laws and regulations. In the chapter “Supervisory Board Report”, the Supervisory Board reflects on this.

As part of our audit, we have gained insights into Royal DSM and its business environment, and evaluated the design and implementation of Royal DSM’s risk assessment in relation to fraud and non-compliance. Our procedures included, among other things, assessing Royal DSM’s code of business conduct, alert cases (whistleblowing procedures), compliance policies and its procedures to investigate indications of possible fraud and non-compliance. Furthermore, we performed relevant inquiries with the Managing Board, Supervisory Board and other relevant functions, such as the Corporate Operational Audit department, Legal Counsel and Fraud Committee.

As part of our audit procedures, we:

- obtained an understanding of how the company uses information technology (IT) and the impact of IT on the financial statements, including the potential for cybersecurity incidents to have a material impact on the financial statements;
- assessed other positions held by Managing Board members and Executive Committee members and paid special attention to procedures and governance in view of possible conflicts of interest;
- evaluated indications of possible fraud and non-compliance;
- evaluated correspondence with relevant supervisory authorities and regulators as well as legal confirmation letters

In addition, we performed procedures to obtain an understanding of the legal and regulatory frameworks that are applicable to Royal DSM and identified the following areas as those most likely to have a material effect on the financial statements:

- Health and safety regulation (reflecting the nature of Royal DSM's production and distribution processes);
- Environmental regulation (reflecting the environmental clean-up responsibilities related to mainly Royal DSM's former production and distribution processes);
- Competition legislation (reflecting Royal DSM's operations across the world and potential investigations by national competition authorities);
- Employment legislation (reflecting Royal DSM's significant and geographically diverse work force);
- Consumer product law relating to product safety (reflecting the nature of Royal DSM's diverse product base)

We, together with our forensics specialists, evaluated the fraud and non-compliance risk factors to consider whether those factors indicate a risk of material misstatement in the financial statements.

Based on the above and the auditing standards, we identified the following fraud risks that are relevant to our audit, including the relevant presumed risks laid down in the auditing standards, and responded as follows:

Management override of controls (a presumed risk)

Risk:

- Fraud risk related to management override and alteration of (financial) results to meet external expectations, to maintain/increase current stock price and to meet bonus targets

Responses:

- We evaluated the design and the implementation of internal controls that mitigate fraud risks such as controls related to journal entries
- We performed data analyses on high-risk journal entries and evaluated key estimates and judgements for bias by management, such as estimates relating to impairment testing of goodwill, development projects and acquisition-related intangibles, accounting for retirement and other post-employment benefits and accounting for acquisitions, including retrospective reviews of prior year's estimates. Furthermore, we evaluated bias in the adjustments made to arrive at the alternative performance measures used by management. Where we identified instances of unexpected journal entries or other risks through our data analytics, we performed additional audit procedures to address each identified risk. These procedures also included testing of transactions back to source information
- We incorporated elements of unpredictability in our audit, including changes in the scope of the group audit and increasing the scope of the data analytics procedures in the sales cycle

Revenue recognition (a presumed risk)

Risk:

- Fraudulent revenue recognition on sales cut-off before the end of the reporting period is an inherent risk within Royal DSM

Responses:

- In addition to the procedures related to management override mentioned above, we evaluated the design and the implementation of internal controls that mitigate fraud risks with respect to revenue recognition
- In their nine months' 2022 trading update, DSM lowered the full year 2022 outlook. We assessed the effect thereof on our fraud risk assessment, and concluded to focus the fraud risk with respect to revenue recognition specifically to sales cut-off before the end of the reporting period. This was also confirmed by the risk assessment of our component auditors based on an assessment of local facts and circumstances
- To assess whether revenue was recognized in the appropriate period, for selected sales transactions recognized before year-end we inspected agreements with the customers and shipping documents
- Further, we inspected selected credit notes issued before year-end to assess whether revenue was recognized appropriately

Our procedures to address the identified risks of fraud did not result in a key audit matter.

We communicated our risk assessment, audit responses and results to the Managing Board and the Supervisory Board.

Our audit procedures did not reveal indications and/or reasonable suspicion of fraud and non-compliance that are considered material for our audit.

Audit response to going concern

The Managing Board has performed its going concern assessment and has not identified any significant going concern risks. To assess management's assessment, we have performed, among other things, the following procedures:

- we considered whether the Managing Board's assessment of the going concern risks includes all relevant information of which we are aware as a result of our audit;
- we inspected the financing agreements for terms or conditions that could lead to significant going concern risks;
- we analyzed the operating results forecast and the related cash flows compared to the actual results of 2022, developments in the business sector, macro-economic developments impacting amongst others energy and raw material prices and any information of which we are aware as a result of our audit;
- we analyzed the company's financial position as at year-end and compared it to the previous financial year in terms of indicators that could identify significant going concern risks

The outcome of our risk assessment procedures did not give reason to perform additional audit procedures on management's going concern assessment.

Audit response to climate-related risks

Royal DSM has set out its commitments and ambitions relating to climate change in the 'Climate mitigation' chapter included in the 'Planet' section of the Integrated Annual Report. Royal DSM has set targets on Greenhouse Gas (GHG) Emissions Scope 1 and 2 (absolute reduction of 59% by 2030) and Scope 3 emissions (intensity reduction of 28% by 2030) compared to a baseline in 2016. The targets were set based on the goals in the Paris Agreement. In addition, Royal DSM commits to 100% renewable electricity from purchased sources by 2030 and to reaching net-zero emissions across its own operations and its value chain by 2050. In addition, Royal DSM has set sub-targets in relation to energy, water and waste.

Against the background of Royal DSM's business and operations, management has appropriately assessed how climate-related risks and opportunities and Royal DSM's own commitments and ambitions could have a significant impact on its business or could impose the need to adapt its strategy and operations. As described in the 'Climate-related risks' chapter, included in the 'Corporate Governance and risk management' section of the Integrated Annual Report, Management has considered the impact of physical- and transition risks on the financial statements, more specifically relating to policy, legal and market effects, such as impact of carbon pricing schemes on operating costs, emission regulations limiting emissions-intensive manufacturing activities, lowering demand due to emission regulations or demand shifting to products with lower carbon footprint or dietary changes and negative impact on availability and price levels of raw materials.

Management prepared the financial statements, including considering whether the implications from material climate-related risks and commitments have been appropriately accounted for and disclosed, in accordance with the applicable financial reporting framework. The material climate-related risks are managed by Royal DSM as part of its regular risk management process and as such are taken into account in the preparation of the financial statements.

As part of our audit we performed a risk assessment of the impact of climate-related risk and the commitments and ambitions made by Royal DSM in respect of climate change on the financial statements and our audit approach. In doing this we performed the following:

- To understand management's assessment and processes, against the background of Royal DSM's business and operations, of the potential impact of climate-related risks and opportunities on Royal DSM's financial statements, we:

  - held inquiries with relevant functions at Royal DSM including the Managing Board and the Sustainability Committee;
  - inspected documents such as internal climate-related risk assessments (both on physical and transition risks);
  - read minutes of meetings (including those of Audit- and Sustainability Committee) and draft disclosures in the Integrated Annual Report;
  - performed an analysis of the external environment and obtained an understanding of relevant sustainability themes and issues, and the characteristics of Royal DSM

- We have evaluated climate-related fraud risk factors, including sustainability goals, such as climate related KPIs Energy Efficiency Improvement and GHG Emissions, being linked to board remuneration.

- We have made use of KPMG climate risk subject matter experts to:

  - Support in obtaining an understanding of management's assessment processes, participate in inquiry sessions and inspect the aforementioned documentation;
  - Assess Royal DSM's climate-related risk assessment, both on physical and transition risks, climate-related disclosures and reporting in line with TCFD recommendations in the Integrated Annual Report;
  - Obtain insights into potential business implications of the climate-related risks and opportunities identified impacting Royal DSM. These insights provided us with a better understanding of how climate-related risks and opportunities may affect Royal DSM and its accounting in the 2022 financial statements

Based on the procedures performed above we considered whether there is a risk of material misstatement specific to climate relative to the going concern assumption and valuation of long lived assets. Considering the risk assessment work performed, we did not identify a risk of material misstatement specific to climate and thus no further audit response was considered necessary.

Furthermore, we have read the other information with respect to climate-related risks as included in the Integrated Annual Report and considered whether such information contains material inconsistencies compared to the financial statements or our knowledge obtained through the audit.

Our key audit matters

Key audit matters are those matters that, in our professional judgement, were of most significance in our audit of the financial statements. We have communicated the key audit matters to the Supervisory Board. The key audit matters are not a comprehensive reflection of all matters discussed.

Compared to last year the key audit matter with respect to the accounting for acquisitions is not included, as there were no significant acquisitions in 2022. Furthermore, compared to last year the key audit matter with respect to the transformation of the DSM businesses was included because the transformation was effective as of 1 January 2022.

Transformation of the DSM businesses

Description

As disclosed in Note 4 and 8 to the financial statements, the new Health, Nutrition & Bioscience (HNB) structure, including the creation of the three new Business Groups (Animal Nutrition & Health, Health, Nutrition & Care and Food & Beverage), became effective as of 1 January 2022.

DSM assessed and concluded that as a result of above developments the identified three new Business Groups represent the reportable operating segments, and also form the basis for goodwill impairment testing as they represent the relevant (groups of) cash generating units ('CGUs').

Upon a change in the reporting structure in a way that changes the composition of one or more cash-generating units to which goodwill has been allocated, a reallocation of goodwill is required. As a consequence, as of 1 January 2022 the goodwill was reallocated to the three new Business Groups, based on a relative value approach.

Subsequently, management allocated the assets, liabilities and results to the respective CGUs for the purpose of goodwill impairment testing.

As disclosed in Note 4 of the financial statements, in line with IFRS 8, DSM restated the sales information for 2021 based on the 2022 reportable segment structure. DSM did not restate the other previously reported comparative segment information in reference to the guidance included in IFRS 8.29-30.

This event is significant to our audit because the aforementioned effects are complex, the accounting is non-routine and the allocations involve a certain level of management judgment.

Our response

We evaluated management's assessment of the reportable operating segments and relevant (groups of) CGUs. Furthermore, we assessed management's reallocation of goodwill to these CGUs, including the approach applied.

In relation to the allocation of assets, liabilities and results to the respective CGUs for the purposes of goodwill impairment testing, we inspected and evaluated the underlying calculations to support the allocations made. Further we performed sensitivity analyses to evaluate the impact of changes in allocations on the overall outcome.

Finally, we assessed the adequacy of the disclosures (Note 4 and 8) to the financial statements.

Our observation

We consider that the outcome of management's assessments of the reportable operating segments and relevant (groups of) CGUs is appropriate and adequately disclosed in respectively Note 4 and 8 to the financial statements.

Announced divestment of Engineering Materials business

Description

As disclosed in Note 3 to the financial statements, on 31 May 2022, DSM announced their agreement to sell the Engineering Materials business to Advent International and LANXESS, subject to certain conditions and approvals. Management concluded that the Engineering Materials business classifies as held for sale and should be presented as discontinued operations (for the full Materials cluster together with the Protective Materials business).

This event is significant to our audit because the assessment of the classification as asset held for sale and discontinued operations is complex, the transaction and its accounting is non-routine and involves a certain level of management judgement. These include, amongst others, determining the date of classification of the Engineering Materials business as held for sale and the presentation of its results separately as discontinued operations (together with the Protective Materials business as elaborated in the next key audit matter). This further involves determining whether charges from other DSM group companies to the Engineering Materials business should be presented as part of continuing or discontinued operations. Furthermore, upon classification of the Engineering Materials business as discontinued operations, management had to measure this business at the lower of the carrying amount and its fair value less cost to sell.

Our response

We inspected the contractual agreements and other relevant documents underlying the announced divestment in order to understand key terms and conditions and to assess the accounting impact. Our audit procedures included, among others, an assessment of the appropriateness of the classification of the Engineering Materials business as held for sale and the presentation of its results as discontinued operations.

This involved evaluating management’s judgements over the identification of the disposal group, assessing the date as of which the Engineering Materials business is classified as held for sale, assessing the measurement of the Engineering Materials business at the lower of the carrying amount and fair value less cost of disposal, and testing the presentation of the Engineering Materials business in the financial statements (together with the Protective Materials business). Our evaluation of the recognition and presentation of the results of the Engineering Materials business as discontinued operations in the financial statements included an assessment of management’s assumptions in allocating charges from other group companies to the Engineering Materials business.

Finally, we assessed the adequacy of both the presentation as assets held for sale and discontinued operations and the disclosure (Note 3) of the announced divestment in the financial statements.

Our observation

We consider that the measurement of the Engineering Materials business, as well as the presentation of its assets and liabilities as held for sale and its results as those from discontinued operations (together with the Protective Materials business), is adequately reflected and disclosed in Note 3 to the financial statements.

Divestment of Protective Materials business

Description

As disclosed in Note 3 to the financial statements, on 1 September 2022, Royal DSM completed the sale of its Protective Materials business to Avient Corporation for a consideration of EUR 1.4 billion. The net book result on the transaction amounts to EUR 1.0 billion.

The divestment is significant to our audit due to the non-routine nature of the transaction, amounts involved and its impact on the financial statements.

Our response

We inspected the contractual agreements and other relevant documents underlying the divestment in order to understand key terms and conditions and to assess the accounting impact. We verified that the deconsolidation of the Protective Materials business has been recorded at the date of disposal. As part of our audit procedures we assessed the book result by vouching the sales price to the contractual agreement, the cash receipts to bank statements, the net asset values that have been de-consolidated to underlying accounting records and allocated transaction costs to underlying supporting documentation such as invoices and contractual agreements.

Finally, we assessed the adequacy of the presentation as discontinued operations and the disclosure (Note 3) of the divestment in the financial statements.

Our observation

We consider that the net book result, as well as the presentation of the results as those from discontinued operations, are adequately reflected and disclosed in Note 3 to the financial statements.

Report on the other information included in the annual report

In addition to the financial statements and our auditor's report thereon, the Integrated Annual Report contains other information.

Based on the following procedures performed, we conclude that the other information:

- is consistent with the financial statements and does not contain material misstatements; and
- contains the information as required by Part 9 of Book 2 of the Dutch Civil Code for the report by the Managing Board and other information

We have read the other information. Based on our knowledge and understanding obtained through our audit of the financial statements or otherwise, we have considered whether the other information contains material misstatements.

By performing these procedures, we comply with the requirements of Part 9 of Book 2 of the Dutch Civil Code and the Dutch Standard 720. The scope of the procedures performed is less than the scope of those performed in our audit of the financial statements.

The Managing Board is responsible for the preparation of the other information, including the information as required by Part 9 of Book 2 of the Dutch Civil Code.

Report on other legal and regulatory requirements and ESEF

Engagement

We were engaged by the Annual General Meeting of Shareholders as auditor of Royal DSM on 7 May 2014, as of the audit for the year 2015 and have operated as statutory auditor ever since that financial year.

No prohibited non-audit services

We have not provided prohibited non-audit services as referred to in Article 5(1) of the EU Regulation on specific requirements regarding statutory audits of public-interest entities.

European Single Electronic Format (ESEF)

Royal DSM has prepared its Integrated Annual Report in ESEF. The requirements for this are set out in the Delegated Regulation (EU) 2019/815 with regard to regulatory technical standards on the specification of a single electronic reporting format (hereinafter: the RTS on ESEF).

In our opinion the Integrated Annual Report prepared in XHTML format, including the (partly) marked-up consolidated financial statements as included in the reporting package by Royal DSM, complies in all material respects with the RTS on ESEF.

The Managing Board is responsible for preparing the Integrated Annual Report including the financial statements in accordance with the RTS on ESEF, whereby the Managing Board combines the various components into one single reporting package.

Our responsibility is to obtain reasonable assurance for our opinion whether the Integrated Annual Report in this reporting package complies with the RTS on ESEF. We performed our examination in accordance with Dutch law, including Dutch Standard 3950N 'Assurance-opdrachten inzake het voldoen aan de criteria voor het opstellen van een digitaal verantwoordingsdocument' (assurance engagements relating to compliance with criteria for digital reporting). Our examination included among others:

- Obtaining an understanding of Royal DSM's financial reporting process, including the preparation of the reporting package;
- Identifying and assessing the risks that the Integrated Annual Report does not comply in all material respects with the RTS on ESEF and designing and performing further assurance procedures responsive to those risks to provide a basis for our opinion, including:
- Obtaining the reporting package and performing validations to determine whether the reporting package containing the Inline XBRL instance document and the XBRL extension taxonomy files have been prepared in accordance with the technical specifications as included in the RTS on ESEF;
- Examining the information related to the consolidated financial statements in the reporting package to determine whether all required mark-ups have been applied and whether these are in accordance with the RTS on ESEF

Description of responsibilities regarding the financial statements

Responsibilities of the Managing Board and the Supervisory Board for the financial statements

The Managing Board is responsible for the preparation and fair presentation of the financial statements in accordance with EU-IFRS and Part 9 of Book 2 of the Dutch Civil Code. Furthermore, the Managing Board is responsible for such internal control as management determines is necessary to enable the preparation of the financial statements that are free from material misstatement, whether due to fraud or error. In that respect the Managing Board, under supervision of the Supervisory Board, is responsible for the prevention and detection of fraud and non-compliance with laws and regulations, including determining measures to resolve the consequences of it and to prevent recurrence.

As part of the preparation of the financial statements, the Managing Board is responsible for assessing Royal DSM's ability to continue as a going concern. Based on the financial reporting frameworks mentioned, the Managing Board should prepare the financial statements using the going concern basis of accounting unless the Managing Board either intends to liquidate the Company or to cease operations, or has no realistic alternative but to do so. The Managing Board should disclose events and circumstances that may cast significant doubt on the company's ability to continue as a going concern in the financial statements.

The Supervisory Board is responsible for overseeing Royal DSM's financial reporting process.

Our responsibilities for the audit of the financial statements

Our objective is to plan and perform the audit engagement in a manner that allows us to obtain sufficient and appropriate audit evidence for our opinion.

Our audit has been performed with a high, but not absolute, level of assurance, which means we may not detect all material errors and fraud during our audit.

Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements. The materiality affects the nature, timing and extent of our audit procedures and the evaluation of the effect of identified misstatements on our opinion.

A further description of our responsibilities for the audit of the financial statements is included in the appendix of this auditor's report. This description forms part of our auditor's report.

Amstelveen, 1 March 2023

KPMG Accountants N.V.

P.J. Groenland – van der Linden RA

Appendix:
Description of our responsibilities for the audit of the financial statements

Appendix

Description of our responsibilities for the audit of the financial statements

We have exercised professional judgement and have maintained professional scepticism throughout the audit, in accordance with Dutch Standards on Auditing, ethical requirements and independence requirements. Our audit included among others:

- identifying and assessing the risks of material misstatement of the financial statements, whether due to fraud or error, designing and performing audit procedures responsive to those risks, and obtaining audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than the risk resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control;
- obtaining an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of Royal DSM’s internal control;
- evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the Managing Board;
- concluding on the appropriateness of the Managing Board’s use of the going concern basis of accounting, and based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on Royal DSM’s ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor’s report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor’s report. However, future events or conditions may cause a company to cease to continue as a going concern;
- evaluating the overall presentation, structure and content of the financial statements, including the disclosures; and
- evaluating whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation

We are solely responsible for the opinion and therefore responsible to obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the group to express an opinion on the financial statements. In this respect we are also responsible for directing, supervising and performing the group audit.

We communicate with the Supervisory Board regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant findings in internal control that we identify during our audit. In this respect we also submit an additional report to the Supervisory Board in accordance with Article 11 of the EU Regulation on specific requirements regarding statutory audits of public-interest entities. The information included in this additional report is consistent with our audit opinion in this auditor’s report.

We provide the Supervisory Board with a statement that we have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

From the matters communicated with the Supervisory Board, we determine the key audit matters: those matters that were of most significance in the audit of the financial statements. We describe these matters in our auditor’s report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, not communicating the matter is in the public interest.

Assurance report of the independent auditor

To: the Annual General Meeting of Shareholders and the Supervisory Board of Koninklijke DSM N.V.

Report on the audit of the sustainability information 2022 included in the Integrated Annual Report

Our opinion

We have audited the non-financial information in the sections ‘Key data’, ’Co-CEO letter, ‘Our approach to the Sustainable Development Goals’, ‘Sustainable Portfolio Steering’, ‘Food System Commitments’, ‘Report by the Managing Board, consisting of the chapters Purpose, Strategy, Case studies, Stakeholders, People and Planet’, the ‘Non-financial reporting policy’, the 'Sustainability Statements' (excluding section ‘2. EU Taxonomy’ of the ‘Notes to the Sustainability statements’) and the ‘Sustainability tables’, as included in the Integrated Annual Report for 2022 (hereafter: the ‘sustainability information’) of Koninklijke DSM N.V. (hereafter 'Royal DSM'), based in Heerlen, the Netherlands. An audit is aimed at obtaining a reasonable level of assurance.

In our opinion, the sustainability information presents, in all material respects, a reliable and adequate view of:

- the policy and business operations with regard to sustainability; and
- the thereto related events and achievements in 2022;

in accordance with the GRI Standards and Royal DSM's internally developed supplemental reporting criteria as disclosed in the section Non-financial reporting policy included in the chapter ‘Reporting policies’ of the Integrated Annual Report.

Basis for our opinion

We have performed our audit on the sustainability information in accordance with Dutch law, including Dutch Standard 3810N 'Assurance-opdrachten inzake maatschappelijke verslagen' (Assurance engagements relating to sustainability reports), which is a specified Dutch standard that is based on the International Standard on Assurance Engagements (ISAE) 3000 'Assurance Engagements Other than Audits or Reviews of Historical Financial Information'. Our responsibilities under this standard are further described in the ‘Our responsibilities for the audit of the sustainability information’ section of our report.

We are independent of Royal DSM in accordance with the ‘Verordening inzake de onafhankelijkheid van accountants bij assurance-opdrachten’ (ViO, Code of Ethics for Professional Accountants, a regulation with respect to independence). Furthermore, we have complied with the ‘Verordening gedrags- en beroepsregels accountants’ (VGBA, Dutch Code of Ethics).

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Reporting Criteria

The sustainability information is prepared in accordance with the Sustainability Reporting Standards of the Global Reporting Initiative (GRI Standards) and Royal DSM's internally developed supplemental reporting criteria as disclosed in the section Non-financial reporting policy included in the chapter ‘Reporting policies’ of the Integrated Annual Report. The GRI Standards used are listed in the GRI Content Index included in the chapter ‘Other Information’.

The absence of an established practice on which to draw, to evaluate and measure non-financial information allows for different, but acceptable, measurement techniques and can affect comparability between entities and over time.

Consequently, the sustainability information needs to be read and understood together with the reporting criteria used.

Materiality

Based on our professional judgement we determined materiality levels for each relevant part of the sustainability information as included in the Integrated Annual Report. When evaluating our materiality levels, we have taken into account quantitative and qualitative considerations as well as the relevance of information for both stakeholders and Royal DSM.

Scope of the group audit

Royal DSM is the head of a group of components. The sustainability information incorporates the consolidated information of this group of components to the extent as disclosed in the 'Non-financial reporting policy' of the Integrated Annual Report.

Our group audit procedures consisted of audit procedures at corporate and component level. Our selection of components in scope of our audit procedures is primarily based on the component's individual contribution to the consolidated sustainability information. Furthermore, our selection of components considered relevant reporting risks and geographical spread.

By performing our audit procedures at corporate and component level, we have been able to obtain sufficient and appropriate audit evidence about Royal DSM's reported sustainability information to provide an opinion about the sustainability information.

Our key audit matters

Key audit matters are those matters that, in our professional judgement, were of most significance in our audit of the sustainability information. We have communicated the key audit matter to the Managing Board and the Supervisory Board. The key audit matters are not a comprehensive reflection of all matters discussed.

These key audit matters were addressed in the context of our audit of the sustainability information as a whole and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

The sustainability indicator on Royal DSM's solutions labeled as Brighter Living Solutions+ and performance on DSM's Food System Commitments were determined to be key audit matters as these assessments are inherently subject to assumptions and management judgement, whereas the determination of other important sustainability indicators on Safety, Health and Environment and Human Resources require such judgement to a lesser extent.

Brighter Living Solutions+

Description

Royal DSM reports on Brighter Living Solutions+ ("BLS+”), which is a categorization of products and services that have specific environmental or social benefits, whilst not having any urgent, significant and measurable negative impacts, assessed based on DSM’s sustainable portfolio steering (SPS) methodology.

The indicator is defined as net sales from BLS+ as a percentage of total net sales of Royal DSM. BLS+ was significant to our audit since we identified that it serves as a material indicator for Royal DSM to report on the environmental and social impact of its solutions and because the assessment of solutions to qualify as BLS+ is inherently subject to uncertainties as a result of estimates, assumptions and judgement.

Our response

We obtained an understanding of the reporting process, the applicable definitions and applied reporting criteria (based on the SPS methodology), performed walkthrough procedures and evaluated the design and implementation of relevant internal controls. We inquired Royal DSM’s staff members involved in the BLS+ assessment process and inspected internal documentation to understand the application of these definitions and applied reporting criteria. We challenged underlying evidence, such as product sustainability assessment questionnaires, life cycle assessments and expert opinions for solutions classified as BLS+ and assessed the calculation of the BLS+ percentage. Finally, we assessed whether the reporting criteria, estimates, assumptions and definitions are adequately disclosed in the Integrated Annual Report.

Our observation

We consider that the definitions and criteria for BLS+ as described in Royal DSM's internally developed supplemental reporting criteria as disclosed in the section Non-financial reporting policy included in the chapter ‘Reporting policies’ of the Integrated Annual Report have been appropriately applied and that the estimates and assumptions are adequately explained. We also consider the disclosure on BLS+ in the Integrated Annual Report as being adequate.

Food System Commitments

Description

Royal DSM reports for the first time on a set of new performance indicators related to Food System Commitments ("FSCs"). The FSCs are seven quantifiable commitments on the environmental or societal impact in global food systems of Royal DSM together with its partners in its value chain. The FSCs, grouped in the areas Health for People, Health for Planet, Healthy Livelihoods and Basic commitments, are explained in the 'Food Systems Commitments' section of the Integrated Annual Report. The FSCs are defined as listed below:

1. Help close the micronutrient gap of 800 million vulnerable people by 2030
2. Support the immunity of half a billion people by 2030
3. Enable double-digit on-farm livestock emission reduction by 2030
4. Reach 150 million people with nutritious, sustainable plant-based protein foods by 2030
5. Support the livelihoods of 500,000 smallholder farmers across the value chain together with our partners by 2030
6. Deforestation-free in our primary supply chains by 2030
7. Good workforce nutrition by 2030

The performance indicators related to the FSCs are significant to our audit since we identified that they serve as material indicators for Royal DSM to report on their societal reach and impact on global food systems. Also, this is the first year that Royal DSM is reporting on these commitments and the assessment of commitment is inherently subject to uncertainties as a result of estimates, assumptions and judgement.

Our response

For each FSC we obtained an understanding of the reporting process, applicable definitions, applied reporting criteria and methodologies, performed walkthrough procedures and evaluated the design and implementation of relevant internal controls. We inquired Royal DSM's staff members involved in the FSC reporting process and inspected internal documentation to understand the application of these definitions, applied reporting criteria and methodologies. Methodologies were supported with individual assessments of applied estimates and assumptions per FSC, which we consider to be critical in validating the (external) reference sources applied for each FSC. We challenged underlying evidence, such as sales volume and spend data, market studies and external (scientific) research on relevant topics, such as but not limited to: greenhouse gas emissions (e.g. methane), intake dosages, crop yield factors, lives reached overlap factors, attendance statistics for educational webinars and certifications related to deforestation programs. We assessed external sources used for its relevance and reliability, and we made use of external confirmations where considered appropriate. Finally, we assessed whether the reporting criteria, estimates, assumptions and definitions are adequately disclosed in the Integrated Annual Report.

Our observation

We consider that the definitions and criteria for the performance indicators related to FSCs as described in Royal DSM's internally developed methodology documents and reporting criteria as disclosed in the section 'Non-financial reporting policy' included in the chapter 'Reporting policies' of the Integrated Annual Report have been appropriately applied and that the estimates and assumptions are adequately explained. We also consider the disclosure on the performance indicators, related to FSCs, in the Integrated Annual Report as being adequate.

Limitations to the scope of our audit

The sustainability information includes prospective information such as ambitions, strategy, plans, expectations and estimates.

Inherent to this prospective information, the actual future results are uncertain. We do not provide any assurance on the assumptions and achievability of prospective information included in the sustainability information.

References to external sources or websites in the Integrated Annual Report are not part of the sustainability information as audited by us. Therefore, we do not provide assurance on this information.

Our opinion is not modified in respect to these matters.

Responsibilities of the Managing Board and the Supervisory Board for the sustainability information

The Managing Board of Royal DSM is responsible for the preparation of reliable and adequate sustainability information in accordance with the reporting criteria as included in the section 'reporting criteria', including the identification of stakeholders and the definition of material matters.

The Management Board is also responsible for selecting and applying the reporting criteria and for determining that these reporting criteria are suitable for the legitimate information needs of stakeholders, taking into account applicable law and regulations related to reporting.

The choices made by the Managing Board regarding the scope of the sustainability information and the reporting policy are summarized in the section Non-financial reporting policy of the Integrated Annual Report.

Furthermore, the Managing Board is responsible for such internal control as it determines is necessary to enable the preparation of the sustainability information that is free from material misstatements, whether due to error or fraud.

The Supervisory Board is, amongst other things, responsible for overseeing Royal DSM's sustainability reporting process.

Our responsibilities for the audit of the sustainability information

Our responsibility is to plan and perform our audit engagement in a manner that allows us to obtain sufficient and appropriate audit evidence for our opinion.

Our audit has been performed with a high, but not absolute, level of assurance, which means we may not have detected all material misstatements due to error or fraud during our audit.

Misstatements can arise from errors or fraud and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the decisions of users taken on the basis of the sustainability information. The materiality affects the nature, timing and extent of our audit procedures and the evaluation of the effect of identified misstatements on our opinion.

We apply the 'Nadere Voorschriften Kwaliteitssystemen' (Regulations for Quality management systems) and accordingly maintain a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and other relevant legal and regulatory requirements.

We have exercised professional judgement and have maintained professional skepticism throughout the audit, in accordance with the Dutch Standard 3810N, ethical requirements and independence requirements.

Our audit included among others:

- Performing an analysis of the external environment and obtaining an understanding of relevant sustainability themes and issues, and the characteristics of Royal DSM;
- Evaluating the appropriateness of the reporting criteria used, their consistent application and related disclosures in the sustainability information. This includes the evaluation of the results of the stakeholders' dialogue and the reasonableness of estimates made by management of Royal DSM;
- Obtaining an understanding of the systems and processes for collecting, reporting and consolidating the sustainability information, including obtaining an understanding of internal control relevant to our audit, but not for the purpose of expressing an opinion on the effectiveness of Royal DSM's internal control;
- Evaluating the procedures performed by Royal DSM's Corporate Operational Audit department;
- Identifying and assessing the risks if the sustainability information is misleading or unbalanced, or contains material misstatements, whether due to errors or fraud. Designing and performing further audit procedures responsive to those risks, and obtaining audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk that the sustainability information is misleading or unbalanced, or the risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from errors. Fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. These further procedures included among others:
    - Inquiry with management and relevant staff of Royal DSM at corporate and component level responsible for the sustainability strategy, policies and results;
    - Inquiry with relevant staff of Royal DSM responsible for providing the information for, carrying out internal control procedures on, and consolidating the data in the sustainability information;
    - Determining the nature and extent of the audit procedures at corporate and component level. For this, the nature, size and/or risk profile of these components were decisive. Based thereon we selected the components to visit. The (remote) visits to production sites in the China, USA, Brazil and the Netherlands were aimed at, on a component level, validating source data and evaluating the design, implementation and operation of controls and validation procedures. In view of restrictions on the movement of people across borders, for affected countries in the Covid-19 pandemic where travelling to affected countries was not practicable, we conducted our visits remotely for those components;
    - Obtaining audit evidence that the sustainability information reconciles with underlying records of Royal DSM;
    - Evaluating relevant internal and external documentation, on a test basis, to determine the reliability of the information in the sustainability information; and
    - Performing an analytical review of the data and trends
- Evaluating the consistency of the sustainability information with the information in the Integrated Annual Report which is not included in the scope of our audit;
- Evaluating the overall presentation and content of the sustainability information; and
- Considering whether the sustainability information as a whole, including the disclosures, reflects the purpose of the reporting criteria used

We communicate with the Supervisory Board regarding, among other matters, the planned scope and timing of the audit and significant findings, including any significant findings in internal control that we identify during our audit.

Amstelveen, 1 March 2023

KPMG Accountants N.V.

P.J. Groenland – van der Linden RA

Special statutory rights

DSM Preference Shares Foundation

The DSM Preference Shares Foundation was established in 1989.

By virtue of DSM's Articles of Association, 375,000,000 Cumulative Preference Shares B can be issued. The listing prospectus of 1989 stated that if, without the approval of the Managing Board and Supervisory Board, either a bid is made for the ordinary shares or a significant participation in ordinary shares is built up, or such an event is likely to occur, then these Preference Shares B may be issued, which shall have the same voting rights as the ordinary shares.

Under an agreement entered into in 1999, and subsequently amended, between the DSM Preference Shares Foundation and DSM, the Foundation has the right to acquire such Preference Shares (call option) to a maximum corresponding to 100% of the capital issued in any form other than Preference Shares B, less one.

The objective of the Foundation is to promote the interest of DSM, and the enterprise maintained by DSM and all parties connected therewith, whereby influences that would threaten the continuity, independence or identity, contrary to the aforementioned interests, are resisted to the maximum extent possible.

The purpose of the agreement with the Foundation is, among other things, for the Foundation to allow DSM the opportunity to determine its position, for example with regard to a possible bidder for DSM shares or a party or parties tempting to obtain (de facto) control, to examine any plans in detail and, to the extent applicable, to look for (better) alternatives. Preference Shares B will not be outstanding longer than necessary. As soon as there are no longer any reasons for the Preference Shares B to remain outstanding, the Managing Board will convene a General Meeting of Shareholders and recommend the cancellation of the Preference Shares B that are still outstanding.

The Foundation acquired no Preference Shares B in 2022.

The DSM Preference Shares Foundation is an independent legal entity within the meaning of article 5:71, first paragraph, under c of the Dutch Act on Financial Supervision *(Wet op het financieel toezicht).*

On 31 December 2022, the Board of the Foundation was composed as follows:

Gerard Kleisterlee, Chair
Cees Maas, Deputy Chair
Bas Kortmann

DSM figures: five-year summary

All figures are including discontinued operations unless stated otherwise, see also Note 3 Change in the scope of the consolidation.

Balance sheet

x € million	2022	2021	2020	2019	2018
Assets					
Intangible assets	5,147	5,309	4,440	3,515	3,090
Property, plant and equipment	3,576	3,964	3,775	4,040	3,511
Deferred tax assets	95	203	240	217	248
Share in associates and joint ventures	61	64	93	155	205
Derivatives	82	48	61	27	14
Other financial assets	314	302	317	265	263
Non-current assets	9,275	9,890	8,926	8,219	7,331
Inventories	2,339	2,297	1,879	2,019	1,993
Current receivables	1,622	1,697	1,483	1,698	1,738
Derivatives	42	30	48	19	21
Current investments	125	489	43	688	1,277
Cash and cash equivalents	2,755	1,561	871	800	1,281
Assets held for sale	1,245	56	1,096	-	-
Current assets	8,128	6,130	5,420	5,224	6,310
Total assets	17,403	16,020	14,346	13,443	13,641
Equity and liabilities					
Shareholders' equity	10,743	9,318	7,399	7,731	7,782
Non-controlling interests	102	79	88	104	33
Equity	10,845	9,397	7,487	7,835	7,815
Deferred tax liabilities	476	490	431	296	254
Employee benefit liabilities	241	323	414	413	413
Provisions	74	96	123	120	116
Borrowings	2,978	2,995	3,484	2,464	2,272
Derivatives	4	9	1	7	3
Other non-current liabilities	205	280	163	145	197
Non-current liabilities	3,978	4,193	4,616	3,445	3,255
Employee benefits liabilities	22	21	42	43	46
Provisions	50	68	61	48	37
Borrowings	86	103	102	189	380
Derivatives	23	40	13	18	51
Current liabilities	1,969	2,188	1,771	1,865	2,057
Liabilities held for sale	430	10	254	-	-
Current liabilities	2,580	2,430	2,243	2,163	2,571
Total equity and liabilities	17,403	16,020	14,346	13,443	13,641

Income statement

x € million	2022	2021	2020	2019	2018
Net sales	10,480	9,468	9,038	9,010	8,852[1]
Net sales from continuing operations	8,390	7,269	-	-	-
Adjusted EBITDA[2]	1,725	1,842	1,650	1,684	1,532[1]
EBITDA	2,646	2,370	1,476	1,586	1,754
Adjusted operating profit (EBIT)[2]	1,071	1,167	1,011	1,075	1,055[1]
Operating profit (EBIT)	1,994	1,689	736	954	1,245
Operating profit (EBIT) from continuing operations	682	711	-	-	-
Financial income and expense	(94)	(106)	(67)	(92)	(101)
Income tax expense	(190)	(245)	(129)	(152)	(194)
Share of the profit of associates and joint ventures	5	342	(32)	54	129
Net profit for the year	**1,715**	**1,680**	**508**	**764**	**1,079**
Net profit attributable to non-controlling interests	15	4	2	6	2
Net profit available to equity holders of Koninklijke DSM N.V.	**1,700**	**1,676**	**506**	**758**	**1,077**
Dividend on Cumulative Preference Shares	(6)	(6)	(7)	(8)	(8)
Net profit available to holders of ordinary shares	**1,694**	**1,670**	**499**	**750**	**1,069**
Key figures and financial ratios					
Capital employed	11,473	11,019	10,557	9,311	8,181
Capital expenditure:					
- Intangible assets and Property, plant and equipment	636	614	622	623	653
- Acquisitions	77	754	1,579	585	50
Disposals	1,413	1,941	46	44	335
Depreciation, amortization and impairments	652	681	740	632	509
Net debt	(87)	(1,019)	(2,577)	(1,144)	(113)
Dividend	167	438	420	425	412
Workforce at 31 December, headcount	20,682	21,358	23,127	22,174	20,977
Employee benefit costs (x € million)	1,910	1,853	1,848	1,811	1,753
Financial ratios[2]					
ROCE in %	9.3	11.1	10.3	12.0	13.3[1]
Net sales / average capital employed	0.91	0.93	0.92	1.01	1.11[1]
Current assets / current liabilities	3.15	2.52	2.42	2.42	2.45
Equity / total assets	0.62	0.59	0.52	0.58	0.57
Gearing (net debt / equity plus net debt)	0.01	0.10	0.26	0.13	0.01
Adjusted EBIT / net sales in %	10.2	12.4	11.2	11.9	11.9[1]
Net profit / average Shareholders' equity available to holders of ordinary shares in %	17.3	20.5	6.8	10.0	24.7
Adjusted EBITDA / financial income and expense	20.1	17.4	24.6	18.3	15.2[1]

1 2018 adjusted for the temporary vitamin effect for comparison reasons of €415 million in sales, €290 million in adjusted EBITDA and €290 million in adjusted operating profit, including associated ratios.

2 In presenting and discussing DSM's financial position, operating results and cash flows, DSM uses certain Alternative performance measures (APMs) not defined by IFRS. These APMs are used because they are an important measure of DSM's business development and DSM's management performance. A full reconciliation of IFRS performance measures to the APMs is given in Note 2 Alternative performance measures.

Information about ordinary DSM shares

per ordinary share in €	2022	2021	2020	2019	2018
Adjusted net profit	4.49	5.03	4.43	4.64	5.84
Net profit	9.80	9.67	2.91	4.27	6.10
Operating cash flow	5.58	8.23	8.67	7.84	7.89
Dividend:	0.93	2.50	2.40	2.40	2.30
- Interim dividend	0.93	0.80	0.80	0.77	0.77
- Final dividend	-	1.70	1.60	1.63	1.53
Pay-out including dividend on Cumulative Preference Shares as % of Adjusted net profit	21	50	55	52	40
Dividend yield (dividend as % of average price of an ordinary DSM share)	1.2	2.7	1.9	2.3	2.7
Share prices on Euronext Amsterdam (closing price):					
- Highest price	198.70	199.40	148.55	117.90	92.98
- Lowest price	111.80	136.55	87.52	69.54	68.98
- At 31 December	114.30	198.00	140.80	116.10	71.44
Number of ordinary shares outstanding (x 1,000):					
- At 31 December	173,075	172,969	172,219	172,449	175,651
- Average	172,827	172,648	171,536	175,731	175,323
Daily trading volumes on Euronext Amsterdam:					
- Average	435	331	518	635	732
- Lowest	177	31	64	75	130
- Highest	1,799	914	1,900	2,242	2,617

Sustainability tables

All figures are including discontinued operations unless stated otherwise, see also the Non-financial reporting policy.

People

	2022	2021	2020	2019	2018
Workforce[1] [2]	20,682	21,358	23,127	22,174	20,977
Female:male ratio	31:69	30:70	29:71	28:72	28:72
% by age category					
<26 years[3]	5	5	5	5	5
26–35 years	27	27	26	26	25
36–45 years	30	29	29	29	30
46–55 years	24	24	25	25	26
>55	14	15	15	15	14
% under-represented nationalities					
Executives	29	31	30	31	31
Management	42	43	42	44	43
Other	51	57	58	59	59
% female					
Executives	26	23	21	20	19
Management	33	32	30	29	28
Other	38	30	29	28	28

1 All data presented in the Sustainability Statements are subject to the Non-financial reporting policy.

2 For the indexes based on age, nationalities, gender, inflow and outflow, the companies that are not integrated into the HR systems (approximately 5% of the total workforce) are not taken into account.

3 We do not employ people younger than 15 under DSM contract. We require our suppliers to not use forced labor or child labor according to our Supplier Code of Conduct.

	2022	2021	2020	2019	2018
Inflow / Outflow					
Total number new hires (excluding acquisitions)	2,840	2,489	1,729	2,372	3,005
Acquisitions	108	93	1,539	1,161	80
% executive hires					
Under-represented nationalities	33	43	65	55	61
Female	53	57	26	32	61
% new hires by region					
Netherlands	11	10	11	11	13
Rest of Europe	28	27	25	24	22
North America	21	21	19	22	25
China	12	14	15	18	16
Rest of Asia–Pacific	14	12	11	12	9
Rest of the world	14	16	19	13	15
Outflow of employees					
Voluntary resignations	1,492	1,362	1,052	1,118	1,098
Total outflow (excluding divestments)	2,540	2,439	2,336	2,352	2,868
Divestments	1,084	1,912	-	-	357
Voluntary resignations (% total workforce)	7.6	6.7	4.8	5.4	5.3
Total turnover (% total workforce)	13.0	11.9	10.6	11.2	13.9

	2022	2021	2020	2019	2018
Employee Engagement Survey					
Employee Engagement (%)	77	76	76	74	76
Inclusion Index (%)	79	77	75	72	72
Participation rate (%)	89	92	92	92	87

	2022	2021	2020	2019	2018
Safety (per 100 DSM employees and contractor employees)					
Frequency Index of Recordable Injuries	0.28	0.22	0.24	0.28	0.33
Frequency Index of Lost Working day Cases	0.11	0.12	0.09	0.09	0.11
Process Safety Incident Rate	0.18	0.23	0.20	0.23	0.22
Occupational Health Incident Rate	0.09[1]	-	-	-	-

1 2022 was the first year of reporting the Occupational Health Incident Rate.

	2022	2021	2020	2019	2018
Other People indicators					
Development training in hours per employee	8	8	6	8	6
Net sales per employee (x €1,000)[1]	495	445	414	421	429[2]

1 Net sales per employee is for total DSM (= continuing and discontinued operations).

2 Excluding the temporary vitamin effect in 2018, see Profit in Integrated Annual Report 2019.

Brighter Living Solutions Plus

	2022	2021	2020	2019	2018
Brighter Living Solutions Plus sales as % of net sales[1 2]	67	-	-	-	-
Brighter Living Solutions sales as % of net sales	-	64	63	63	62[3]

1 All data presented in the Sustainability Statements are subject to the Non-financial reporting policy.

2 BLS+ is a new methodology introduced in 2022 to replace BLS.

3 Excluding the temporary vitamin effect in 2018, see Profit in Integrated Annual Report 2019.

Planet

	2022	2021	2020	2019	2018
Energy and greenhouse gas[1]					
Primary energy use (in PJ)	19.5	21.4	21.5	21.2	20.8
Energy efficiency improvement (%, year-on-year)	-0.4	6.0	5.7	2.3	1.4
Greenhouse gas emissions scope 1 + 2, market-based (in CO_2 equivalents x million tons)	1.05	1.21	1.24	1.17	1.23
Greenhouse gas emissions scope 1 + 2, location-based (in CO_2 equivalents x million tons)	1.31	1.46	1.43	1.38	1.38
Total biogenic CO_2 emissions from combustion of biofuels (x million tons)	0.031	0.063	0.046[2]	-	-
Electricity purchased from renewable resources (%)	78	72	60	50	41
Total purchased renewable electricity (GWh)	992	961	748	632	446
Emissions to air					
Volatile Organic Compounds (x 1,000 tons)	4.6	4.1	3.2[3]	2.7	4.9
Nitrogen oxide (NO_x (x 1,000 tons)	0.4	0.4	0.3	0.4	0.5
Sulfur dioxide (SO_2) (x 1,000 tons)	0.01	0.01	0.02	0.06	0.09
Discharges to water and landfill					
Chemical Oxygen Demand discharges to surface waters (x 1,000 tons)	1.9	2.0	2.0	2.1	2.2
Waste recycled (in %)	91	86	85	86	83
(Landfilling) Non-hazardous waste (x 1,000 tons)	10	17	17	15	18
Total process-related waste (x 1,000 tons)	183	195	190[3]	192	177
Water					
Water withdrawal for non-once-through cooling (x million m^3)	26	26	24	23	22
Total water withdrawal, including once-through cooling (x million m^3)	111	106	108	111	114
Raw materials					
Renewable raw materials (in %)	15	15	15	15	14
Biodiversity					
Sites in or adjacent to protected areas (in %)	34	28	27	25[4]	-
Fines (in €)	4,300	141,000[5]	26,000	115,100	23,500
Non-monetary sanctions	4	5	18	2	6
Environmental incidents	48	73	79	60	71
Environmental complaints	14	39	51	58	53

1 All data presented in the Sustainability Statements are subject to the Non-financial reporting policy.

2 The total biogenic CO_2 emissions from combustion of biofuels is available as of 2020.

3 The 2020 figure has been restated. See Planet section (Other emissions to air and Waste) for details.

4 In 2019, Sites in or adjacent to protected areas was measured against a stricter definition. The figures of previous years could not be recalculated against the stricter definition, which means there are no relevant figures available for previous years.

5 The increase in environmental fines in 2021 is due to under-performance on energy reductions at one site in the Netherlands with an addendum to the Dutch energy efficiency covenant (addendum Meerjarenafspraak Energie-efficiëntie ETS ondernemingen, MEE-convenant).

Explanation of some concepts and ratios

General

Better-for-you (BFY) products
Products that have added beneficial ingredients, or else have had undesirable ingredients removed. BFY products are generally low in fat, salt, and/or sugar, and high in fiber and/or vitamins.

Biosciences[1]
Biosciences are any of the sciences that deal with living organisms.

Brighter Living Solutions Plus
Brighter Living Solutions Plus (BLS+) is DSM's program for the development of sustainable, innovative solutions with environmental and/or social benefits, creating shared value for our stakeholders. BLS+ are products, services and technologies that, considered over their life cycle, offer a benefit recognized by key stakeholders, underpinned with substantiating evidence, whilst having no urgent negative signals. Three performance levels are defined, where the product is:

- 'Outperforming' its peers within the market
- 'Performing' within the market
- 'In Transition', to identify products that either do not meet the DSM minimum requirements, or where an urgent negative signal has been identified

More information and definitions can be found on the company website.

Eubiotics
The general term 'Eubiotics', is derived from the Greek term 'Eubiosis' (meaning microbial balance within the body) and describes feed ingredients that support an optimal balance of microbiota in the gastrointestinal tract of livestock animals. Eubiotics promote efficient gut performance so as to produce well-nourished animals that get the most from their feed, while at the same time sustaining their health and welfare and protecting the environment.

Integrated Reporting <IR> Framework – Value Creation model
The Value Creation diagram is based on the International Integrated Reporting Council's Integrated Reporting <IR> framework and gives an overview of how we create value for our stakeholders based on six capital inputs.

Human capital (People)
We employ skilled and talented people from diverse backgrounds. We strive to provide employees with a safe and inspiring workplace as well as with the tools and training they need to be effective and to develop their abilities. We reward employees with competitive benefit packages.

Societal & relationship capital (People)
We engage with various stakeholders to ensure close alignment between our aims and societal needs. We generate value for stakeholders outside our direct value chains of employees, suppliers, customers and end-users; these include employees' families, governments, local communities and civil society.

1 Source: The Free Dictionary.

Natural capital (Planet)
We recognize that the world is an interconnected system of resources. This represents a responsibility and a business opportunity. We aim to improve the environmental impact of our supply chain, operations and products and services, while developing innovative solutions that deliver sustainability benefits to customers and beyond.

Financial capital (Profit)
Providers of capital – shareholders and bondholders, banks and the financial markets – supply funds that we use in our business to create value, driving growth and delivering sustainable returns.

Intellectual capital (Profit)
We manufacture and distribute high-quality products and services safely, efficiently and responsibly, and strive to develop valuable, collaborative and long-term relationships with customers and suppliers. We pursue open innovation, connecting and collaborating with partners and investing in start-ups.

Manufactured capital (Profit)
We have unique competences in Health, Nutrition & Bioscience and connect these to deliver innovative solutions that nourish, protect and improve performance.

Omics
Any of several areas of biological study defined by the investigation of the entire complement of a specific type of biomolecule or the totality of a molecular process within an organism. In biology the word omics refers to the sum of constituents within a cell. The omics sciences share the overarching aim of identifying, describing, and quantifying the biomolecules and molecular processes that contribute to the form and function of cells and tissues.

Plant-forward
A trend descriptor coined by Innova Market Insights in 2021 to signal the plant-based foods category's push towards broader consumer appeal and expansion into more market categories and regions of the world.

People

Equal pay and gender pay gap
Equal pay is a legal requirement for men and women to be paid the same for performing the same or similar work or work that has been rated as being of equal value (by job evaluation). The gender pay gap zooms in on the difference between what men typically earn overall in an organization compared to women, irrespective of their role or seniority.

Frequency Index (FI)
The Frequency Index is a way to measure safety performance. The number of accidents of a particular category per 100 employees per year. DSM reports frequency indexes in the areas of Lost Workday Cases, Process Safety Incidents and Recordable injuries.

Recordable injuries occupational safety
The REC rate occupational safety DSM-all is the number of recordable injuries per 100 DSM employees and contractor employees in the past 12 months: REC rate = 100 * (number of RECs (past 12 months) / average effective manpower including contractor employees (past 12 months)).

Lost Workday Cases occupational safety
The Lost Workday Case (LWC) rate DSM-own is the number of lost workday cases per 100 DSM employees in the past 12 months: LWC rate = 100 * (number of LWCs (past 12 months) / average effective manpower (past 12 months)).

Process Safety Incidents
The PSI rate is the number of Process Safety Incidents per 100 DSM employees and contractor employees in the past 12 months: PSI rate = 100 * (number of PSIs (past 12 months) / average effective manpower including contractor employees (past 12 months)).

Recordable injuries occupational health
The REC rate occupational health DSM-all is the number of occupational health cases per 100 DSM employees and contractor employees in the past 12 months: REC rate = 100 * (number of RECs (past 12 months) / average effective manpower including contractor employees (past 12 months))

Global South
The term Global South is used to describe countries whose economies are not yet fully developed and which face challenges such as low per capita income, excessive unemployment, and a lack of valuable capital. These countries are located largely in the southern hemisphere.

Inclusion Index
The Inclusion Index is a subset of items in the Employee Engagement (Pulse) Survey to specifically measure Inclusion. Inclusion is: "A working environment where all employees are a full and equal member of a team; where diverse perspectives are valued, and investment is made in their development; where people are respected and able to contribute as they are and not having to conform; where they can reach their potential, and where they can speak up without fear of retribution."

Living wage
The remuneration received for a standard working time by an employee in a particular place sufficient to afford a decent standard of living for the employee and his/her family. Elements of a decent standard of living include food, water, housing, education, healthcare, transport, clothing, and other essential needs, including provision for unexpected events.

Safety, Health and Environment (SHE)
DSM's policy is to maintain business activities and produce products that do not adversely affect safety or health, and that fit with the concept of sustainable development. The company does this by setting the following objectives: to provide an injury-free and incident-free workplace; to prevent all work-related disabilities or health problems; to control and minimize the risks associated with DSM's products for their whole life cycle and to choose production processes and products such that the use of raw materials and energy is minimized; to evaluate and improve DSM's practices, processes and products continuously in order to make them safe and acceptable to its employees, the customers, the public and the environment.

United Nations' Universal Declaration of Human Rights
On 10 December 1948, the General Assembly of the United Nations adopted and proclaimed the Universal Declaration of Human Rights. Following this historic act, the Assembly called upon all Member countries to publicize the text of the Declaration and "to cause it to be disseminated, displayed, read and expounded principally in schools and other educational institutions, without distinction based on the political status of countries or territories."

Planet

Biofuel
A fuel which is derived from renewable organic resources, as distinct from one which is derived from non-renewable resources such as crude oil and natural gas.

Carbon footprint
The total set of direct and indirect greenhouse gas emissions expressed as CO_2eq.

Carbon price
The price that is paid to emit one ton CO_2eq into the atmosphere. DSM implements an internal carbon price of €100/t CO_2eq.

Circular economy
Circular economy refers to an economy that is restorative and in which materials flows are of two types: biological nutrients, designed to re-enter the biosphere safely, and technical nutrients, which are designed to circulate at high quality without entering the biosphere throughout their entire lifecycle.

CO_2

Carbon dioxide, a gas that naturally occurs in the atmosphere. It is part of the natural carbon cycle through photosynthesis and respiration. It is also generated as a by-product of combustion. Carbon dioxide is a greenhouse gas.

Chemical Oxygen Demand (COD)

COD is an indicator of the degree of pollution of wastewater by organic substances.

Eco-efficiency

Eco-efficiency is a concept (created in 1992 by the WBCSD) that refers to the creation of more goods and services while using less resources and creating less waste and pollution throughout their entire life cycle. In the context of DSM's SHE targets, eco-efficiency relates specifically to the reduction of emissions and energy and water consumption, relative to the production volumes of DSM's plants.

Energy

Primary energy is energy that has not yet been subjected to a human engineered conversion process. It is the energy contained in unprocessed fuels.

Final (consumed) energy is the energy that is consumed by end-users. The difference between primary energy and final consumed energy is caused by the conversion process between the two as well as any transmission losses.

Essential for life

Essential for life refers to substances that have a proven beneficial nutritional or pharmaceutical effect when used at the officially recommended dose.

Greenhouse gas emissions (GHG)

DSM applies the Greenhouse Gas Protocol, which defines GHG as "atmospheric gases that absorb and emit radiation within the thermal infrared range and that contribute to the greenhouse effect and global climate change." We report GHGs based on their global warming potential over 100 years in carbon dioxide equivalent (CO_2eq).

Scope 1 + 2

Scope 1: Direct GHG emissions occur from sources that are owned or controlled by the company (i.e., emissions from combustion in owned or controlled boilers, furnaces, vehicles, etc.).

Scope 2: Indirect GHG emissions relate to the generation of purchased energy (i.e., electricity, heat or cooling) consumed by the company. Purchased energy is defined as energy that is purchased or otherwise brought into the organizational boundary of the company. Scope 2 emissions physically occur at the facility where the energy is generated.

Scope 3

Scope 3 emissions are all indirect emissions (not included in scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions.

Net-zero emissions

The Intergovernmental Panel on Climate Change states: "Net-zero emissions are achieved when anthropogenic emissions of greenhouse gases to the atmosphere are balanced by anthropogenic removals over a specified period. Where multiple greenhouse gases are involved, the quantification of net-zero emissions depends on the climate metric chosen to compare emissions of different gases (such as global warming potential, global temperature change potential, and others, as well as the chosen time horizon)".

Market-based emissions

Reflects GHG emissions from electricity supplies (scope 2) that companies have purposely chosen (or their lack of choice) and contracted. Corresponding emission factors:

- Supplier specific emission factor (provided by the supplier)
- Residual emission factor (country-based grid factor, corrected for allocated purchased electricity from renewable resources)

Location-based emissions
Reflects the average GHG emissions intensity of grids on which electricity consumption (scope 2) occurs (using mostly national grid-average emission factor data). Corresponding emission factor: in most cases, the country emission factor.

Greenhouse gas emissions (GHG) efficiency improvement
The GHGE efficiency improvement is the amount of GHG emissions per unit of output (specific emissions) in a given year compared to the specific emissions in the prior year.

GRI
The Global Reporting Initiative (GRI) has developed Sustainability Reporting Guidelines that strive to increase the transparency and accountability of economic, environmental, and social performance. The GRI was established in 1997 in partnership with the UN Environment Programme. It is an international, multi-stakeholder and independent institution whose mission is to develop and disseminate globally applicable Sustainability Reporting Guidelines. These Guidelines are for voluntary use by organizations for reporting on the economic, environmental, and social dimensions of their activities, products and services.

Guarantee of origin (GO)
A guarantee of origin is defined in EU Directive 2009/28/EC as “an electronic document which has the sole function of providing proof to a final customer that a given share or quantity of energy was produced from renewable sources as required by Article 3(6) of Directive 2003/54/EC.” The requirements of a GO are explained in Article 15 of the same Directive.

Loss of Primary Containment (LOPC)
Loss of Primary Containment is an unplanned or uncontrolled release of material from the container that is in direct contact with the material.

Mass-balance
Mass-balance accounting is a well-known approach that has been designed to trace the flow of materials through a complex value chain. The mass-balance approach provides a set of rules for how to allocate the bio-based and/or recycled content to different products to be able to claim and market the content as ‘bio’-based or ‘recycled’-based.

Mass spectrometry
Mass spectrometry is an analytical tool useful for measuring the mass-to-charge ratio (m/z) of one or more molecules present in a sample. These measurements can often be used to calculate the exact molecular weight of the sample components as well. Typically, mass spectrometers can be used to identify unknown compounds via molecular weight determination, to quantify known compounds, and to determine structure and chemical properties of molecules.

Mycotoxins
Mycotoxins are toxic compounds that are naturally produced by certain types of molds (fungi). Molds that can produce mycotoxins grow on numerous foodstuffs such as cereals, dried fruits, nuts and spices.

NO_x
Nitrogen oxides. These gases are released mainly during combustion.

Renewable resource
A natural resource which is replenished by natural processes at a rate comparable to, or faster than, its rate of consumption by humans or other users. The term covers perpetual resources such as solar radiation, tides, winds and hydroelectricity as well as fuels derived from organic matter (bio-based fuels).

SO_2
Sulfur dioxide. This gas is formed during the combustion of fossil fuels.

VOC
Volatile organic compounds. The term covers a wide range of chemical compounds, such as organic solvents, some of which can be harmful.

Water use and water consumption
Water use includes water used for 'once-through cooling' that is returned to the original water source after use. Water consumption is the portion of water used that is not returned to the original water source after being withdrawn.

Profit

General
In calculating financial profitability ratios, use is made of the average of the opening and closing values of balance sheet items in the year under review.

The financial indicators per ordinary share are calculated on the basis of the average number of ordinary shares outstanding (average daily number). In calculating Shareholders' equity per ordinary share, however, the number of shares outstanding at year-end is used.

In calculating the figures per ordinary share and the 'net profit as a percentage of average Shareholders' equity available to holders of ordinary shares', the amounts available to the holders of Cumulative Preference Shares are deducted from the profits and from Shareholders' equity.

Adjusted net operating free cash flow
The cash flow from operating activities, corrected for the cash flow of the APM adjustments (see Note 2 to the Consolidated financial statements on Alternative performance measures), minus the cash flow of capital expenditures and drawing rights.

Capital employed
The total of the carrying amount of intangible assets and property, plant and equipment, inventories, trade receivables and other receivables, less trade payables, other current liabilities, investment grants and customer funding.

Capital expenditure
This includes all investments in intangible assets and property, plant and equipment.

Disposals
This includes the disposal of intangible assets and property, plant and equipment as well as the disposal of participating interests and other securities.

Earnings before interest, tax, depreciation and amortization (EBITDA)
EBITDA is the sum of operating profit plus depreciation and amortization. Adjusted EBITDA is the EBITDA adjusted for material items of profit or loss coming from acquisitions/divestments, restructuring and other circumstances that management deem it necessary to adjust in order to provide clear reporting on the development of the business.

Earnings per ordinary share
Net profit attributable to equity holders of Koninklijke DSM N.V. minus dividend on Cumulative Preference Shares, divided by the average number of ordinary shares outstanding.

Net debt
Net debt is the total of current and non-current borrowings less cash and cash equivalents, current investments and the net position of derivatives.

Operating working capital
The total of inventories and trade receivables, less trade payables. See also Working capital.

Organic sales growth
Organic sales growth is the total impact of volume and price/mix. Impact of acquisitions and divestments as well as currency impact are excluded.

R&D expenditure

R&D expenditure relates to all efforts done across the company to develop new products or improve existing products and processes. As such, R&D expenditure includes all costs and capitalized expenditures that relate to Research & Development, as well as costs incurred by other departments to support R&D activities.

Return on capital employed (ROCE)

Adjusted operating profit from continuing operations as a percentage of average capital employed.

Total shareholder return (TSR)

Total shareholder return is capital gain plus dividend paid.

Working capital

The total of inventories and current receivables, less current payables. See also Operating working capital.

List of abbreviations

A4S	Accounting for Sustainability
ABC	Anti-Bribery & Corruption
AC	Audit Committee
ACE	Assets, CSR and Employees engagement
ADR	American Depositary Receipts
AFM	The Dutch Authority for the Financial Markets
AGM	Annual General Meeting of Shareholders
AI	Artificial Intelligence
AI4b.io	AI for Biosciences
AIF	Africa Improved Foods
ANH	Animal Nutrition & Health
API	Active pharmaceutical ingredient
APM	Alternative performance measures
ASF	African swine fever
BCTI	Business Commission to Tackle Inequality
BFY	Better-for-you
BLS	Brighter Living Solutions
BLS+	Brighter Living Solutions Plus
CBD	Cannabidiol
CDC	Centers for Disease Control and Prevention
CDP	Carbon Disclosure Project
Cefic	*Conseil Européen des Fédérations de l'Industrie Chimique* (European Chemical Industry Council)
CFO	Chief Financial Officer
CGU	Cash Generating Unit
CO_2eq	Carbon dioxide equivalent
COA	Corporate Operational Audit department
CoC	Chain of Custody
COD	Chemical Oxygen Demand
CODM	Chief Operating Decision Maker
COs	World Food Programme Country Offices
COSO	The Committee of Sponsoring Organizations of the Treadway Commission
CPLC	Carbon Pricing Leadership Coalition
CRA	Corporate Risk Assessment
CRP	Corporate Research Program
CSIRO	The Commonwealth Scientific and Industrial Research Organisation
CSR	Corporate Social Responsibility
Cumprefs A	Cumulative Preference Shares A
DCC	Dutch Civil Code
DE&I	Diversity, Equity & Inclusion
DEM	DSM Engineering Materials
DES	Drug-eluting stent
DHA	Docosahexaenoic Acid
DNP	DSM Nutritional Products
DPM	DSM Protective Materials
DRCP	DSM Responsible Care Plan
DRF	DSM Resins & Functional Materials
DSGC	Dutch Sustainable Growth Coalition
DSP	DSM Sinochem Pharmaceuticals
EAC	East African Community

EBIT	Earnings Before Interest and Taxes (Operating Profit)
EBITDA	Earnings Before Interest, Taxes, Depreciation and Amortization
ECL	Expected credit loss
EEI	Energy Efficiency Improvement
EES	Employee Engagement Survey
EFRAG	European Financial Reporting Advisory Group
EPA	Eicosapentaenoic Acid
EPS	Earnings per share
ERG	Employee Resource Group
ESEF	European Single Electronic Format
ESG	Environmental, Social, Governance
ESMA	European Securities and Markets Authority
ESRS	European Sustainability Reporting Standards
EVP	Executive Vice President
F&B	Food & Beverage
FAO	UN Food and Agriculture Organization
FCLT	Focusing Capital on the Long Term
FCR	Feed conversion ratio
FDA	United States Food and Drug Administration
FI	Frequency index
FIFO	First in, first out
FReSH	Food Reform for Sustainability and Health
FRK	Fortified rice kernels
FTE	Full-time equivalent
FVOCI	Fair value other comprehensive income
FVTPL	Fair value through profit and loss
GAIN	Global Alliance for Improved Nutrition
GCA	Global Center and Commission on Adaptation
GDPR	General Data Protection Regulation
GdS	Group digital Services
GHG	Greenhouse gas
GHGE	Greenhouse gas emissions
GMO	Genetically modified organism
GO	Guarantee of origin
GRI	Global Reporting Initiative
GRM	Group Risk Management
GWP	Global warming potential
HMO	Human milk oligosaccharides
HNC	Health, Nutrition & Care
HRIA	Human Rights Impact Assessment
I&D	Inclusion & Diversity
I4N	ImpAct4Nutrition
IAS	International Accounting Standards
IBC	International Business Council
ICF	Internal Control Framework
ICP	Internal carbon price
IEC	International Egg Commission
IFAC	International Federation of Accountants
IFC	International Finance Corporation
IFRIC	International Financial Reporting Interpretation Committee
IFRS	International Financial Reporting Standards
IMMFA	Institutional Money Market Funds Association
IP	Intellectual property

IPCC	Intergovernmental Panel on Climate Change
IR	Integrated Reporting
ISAE	International Standard on Assurance Engagements
ISDA	International Swaps and Derivatives Association
ISO	International Organization for Standardization
ISSB	International Sustainability Standards Board
KPI	Key performance indicator
LCA	Life Cycle Assessment
LGBTQ+	Lesbian, Gay, Bisexual, Transgender, Intersex and Queer
LOPC	Loss of Primary Containment
LoR	Letter of Representation
Lototo	Lock-Out, Try-Out, Tag-Out
LTI	Long-Term Incentive
LWC	Lost Workday Case
M&A	Mergers & Acquisitions
MANDI	Making a Nutritional Difference to India
MEEM	Multi-period excess earnings method
MMS	Multiple micronutrient supplement
MNP	Micronutrient powder
MRS	Market-ready solutions; also Mainstream Reference Solution
MSC	Marine Stewardship Council
NAHS	The National Animal Husbandry Service
NBA	*Koninklijke Nederlandse Beroepsorganisatie van Accountants* (Netherlands Institute of Chartered Accountants)
NCI	Non-controlling interests
NGO	Non-Governmental Organization
NICE	Nutrition in City Ecosystems
NLP	Natural language processing
Noclar	Non-compliance with laws and regulations
NomCo	Nomination Committee
NO_x	Nitrous oxide
NPS	Net Promoter Score
OCI	Other Comprehensive Income
OON	Optimum Omega Nutrition
OP2B	One Planet Business for Biodiversity
OTC	Once-through cooling
OWC	Operating working capital
OYW	One Young World
P&O	People & Organization
p.p.	Percentage points
PDN	*Stichting Pensioenfonds DSM Nederland* (DSM Nederland Pension Fund)
PEA	Polyesteramide
PFS	Partners in Food Solutions
PPA	Purchase Price Allocation; also Power Purchase Agreement
PPE	Personal Protective Equipment; also Property, Plant and Equipment
PPP	Public-private partnership
PRI	Principles for Responsible Investment
PRRS	Porcine reproductive and respiratory syndrome
PSA	Portfolio Sustainability Assessment
PSI	Process Safety Incident
PSU	Performance Share Unit
R&D	Research & Development
RCP	Representative Concentration Pathway

REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
REC	Renewable energy certificate
RemCo	Remuneration Committee
REN	Race, Ethnicity & National Identity
RFM	Resins & Functional Materials and associated businesses
ROCE	Return on Capital Employed
RSPO	Roundtable on Sustainable Palm Oil
RSU	Restricted Share Unit
rTG	Re-esterified triglyceride
RTS	Regulatory technical standards
RWE	Real-world evidence
SAL	Sight and Life
SASB	Sustainability Accounting Standards Board
SB	Supervisory Board
SBCC	Social Behavior Change and Communication
SBN	SUN Business Network
SBT	Science Based Targets
SBTi	Science Based Targets initiative
SBTN	Science Based Targets Network
SCoC	Supplier Code of Conduct
SDG	Sustainable Development Goal
SFDR	Sustainable Finance Disclosure Regulation
SHE	Safety, Health and Environment
SHIBOR	Shanghai Interbank Offered Rate
SME	Small and medium-sized enterprise
SO_2	Sulfur dioxide
SoD	Segregation of Duties
SPPI	Solely Payments of Principal & Interest
STI	Short-Term Incentive
SUN	Scaling Up Nutrition Movement
SustCo	Sustainability Committee
TCFD	Taskforce on Climate-related Financial Disclosures
TfS	Together for Sustainability
TG	Triglyceride
TNFD	Taskforce for Nature-Related Financial Disclosures
TSR	Total Shareholder Return
TVP	Textured vegetable proteins
UN	United Nations
UNGPs	United Nations Guiding Principles
VGBA	*Verordening gedrags- en beroepsregels accountants* (Dutch Code of Ethics)
ViO	*Verordening inzake de onafhankelijkheid van accountants bij assurance-opdrachten* (Code of Ethics for Professional Accountants)
VOC	Volatile Organic Compound
WBCSD	World Business Council for Sustainable Development
WEF	World Economic Forum
WFP	United Nations World Food Programme
WRA	Water risk assessment
WWTP	Wastewater treatment plant