UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

(Mark One)

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended December 31, 2021

OR

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from to

Commission File Number: 001-37792

NantHealth, Inc.

(Exact name of registrant as specified in its charter)

Delaware	**27-3019889**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
3000 RDU Center Drive, Suite 200	**27500**
Morrisville, North Carolina	**(Zip Code)**
(Address of principal executive offices)	

(855) 949-6268

Registrant's telephone number, including area code

9920 Jefferson Blvd.

Culver City, California 90232

(Former name, former address and former fiscal year, if changed since last report)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, par value $0.0001 per share	**NH**	**The NASDAQ Global Select Market**

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark if the Registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☐ No ☒

Indicate by check mark if the Registrant is not required to file reports pursuant to Section 13 or 15(d) of the Act. Yes ☐ No ☒

Indicate by check mark whether the Registrant: (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the Registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the Registrant has submitted electronically every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the Registrant was required to submit and post such files). Yes ☒ No ☐

Indicate by check mark whether the Registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer", "accelerated filer", "smaller reporting company", and "emerging growth company" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer	☐	Accelerated filer	☐
Non-accelerated filer	☒	Smaller reporting company	☒
		Emerging growth company	☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the Registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). YES ☐ NO ☒

The aggregate market value of the voting and non-voting common stock held by non-affiliates of the Registrant on June 30, 2021, based on a closing price $2.32 per share of common stock on the NASDAQ Global Select Market was approximately $99.0 million.

The number of shares of Registrant's common stock, $0.0001 par value per share, outstanding as of February 24, 2022 was 115,520,244.

DOCUMENTS INCORPORATED BY REFERENCE

As noted herein, the information called for by Part III is incorporated by reference to specified portions of the Registrant's definitive proxy statement to be filed in conjunction with the Registrant's 2022 Annual Meeting of Stockholders, which is expected to be filed not later than 120 days after the Registrant's fiscal year ended December 31, 2021.

SPECIAL NOTE REGARDING FORWARD LOOKING STATEMENTS

This Annual Report on Form 10-K, or this Annual Report, including, without limitation, Item 7, “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and Item 1A, “Risk Factors,” contains “forward-looking statements” within the meaning of the Private Securities Litigation Reform Act of 1995. In some cases you can identify these statements by forward-looking words such as “believe,” “may,” “will,” “might,” “estimate,” “continue,” “anticipate,” “intend,” “could,” “should,” “would,” “project,” “plan,” “outlook,” “target,” “expect,” or similar expressions, or the negative or plural of these words or expressions. These forward-looking statements include, but are not limited to, statements concerning the following:

- the structural change in the market for healthcare in the United States, including uncertainty in the healthcare regulatory framework and regulatory developments in the United States and foreign countries;
- any impact of the COVID-19 pandemic, or responses to the pandemic, on our operations or personnel, or on commercial activity or demand across our and our customers’ businesses;
- physician, payer and pharmaceutical business needs for clinical decision support, payer/provider collaboration and data analytics solutions and any perceived advantage of our solutions over those of our competitors, including the ability of our platforms to help physicians treat their patients;
- our ability to increase the commercial success and to accelerate commercial growth of our clinical decision support, payer/provider collaboration, network monitoring and management, and data analytics solutions and our other products and services;
- our plans or ability to develop, implement and commercialize a cloud/SaaS-based version of our network monitoring and management solutions;
- our ability to effectively implement, offer and manage delegated entity services to health plans in a compliant and timely manner in connection with our decision support solutions;
- our ability to effectively manage our growth, including the rate and degree of market acceptance of our solutions;
- our ability to offer new and innovative products and services, including new features and functionality for our existing products and services;
- our ability to attract new partners and customers and our ability to retain or renew contracts with partners and customers;
- our ability to estimate the size of our target market;
- our ability to maintain and enhance our reputation and brand recognition;
- consolidation in the healthcare industry;
- competition which could limit our ability to maintain or expand market share within our industry;
- restrictions and penalties as a result of privacy and data protection laws;
- our use of “open source” software;
- our ability to use, disclose, de-identify or license data and to integrate third-party technologies;
- data loss or corruption due to failures or errors in our systems and service disruptions at our data centers;
- breaches or failures of our security measures;
- our reliance on Internet infrastructure, bandwidth providers, data center providers, other third parties and our own systems for providing services to our users;
- risks related to future acquisition opportunities;
- the requirements of being a public company;
- our ability to attract and retain key personnel;
- our ability to obtain and maintain intellectual property protection for our solutions and not infringe upon the intellectual property of others;
- our financial performance expectations, including our expectations regarding our revenue, cost of revenue, gross profit or gross margin, operating expenses, including changes in research and development, sales and marketing and general and administrative expenses, and our ability to achieve and maintain future profitability; and
- our expectations regarding our ability to comply with Nasdaq continued listing standards.

We caution you that the foregoing list does not contain all of the forward-looking statements made in this Annual Report.

These forward-looking statements are based on current expectations and assumptions that are subject to risks and uncertainties, which could cause our actual results to differ materially from those reflected in the forward-looking statements. These statements are within the meaning of the “safe harbor” provisions of the Private Securities Litigation Reform Act of 1995. These statements appear throughout this Annual Report and are statements regarding our intent, belief, or current expectations, primarily based on our current assumptions, expectations and projections about future events and trends that may affect our business, financial conditions, operating results, cash flows or prospects, as well as related industry developments. You should not place undue reliance on these forward-looking statements, which apply only as of the date of this Annual Report. Our actual results could differ materially from those anticipated in these forward-looking statements for many reasons, including the risks faced by us and described in Part I, Item 1A, “Risk Factors,” and in “Management’s Discussion and Analysis of Financial Condition and Results of Operations” in Part II, Item 7 of this Annual Report. We undertake no obligation to update any forward-looking statements for any reason to conform these statements to actual results or to changes in our expectations, except as required by law.

Form 10-K
For the year ended December 31, 2021
Table Of Contents

We own or have rights to trademarks and service marks that we use in connection with the operation of our business. NantHealth, Inc. and our logo as well as other brands such as NaviNet, Eviti, NaviNet Open, Eviti | Connect, OpenNMS, Quadris and other marks relating to our product lines are used in this Annual Report on Form 10-K. Solely for convenience, the trademarks and service marks referred to in this Annual Report on Form 10-K are listed without the (sm) and (TM) symbols, but we will assert, to the fullest extent under applicable law, our rights or the rights of the applicable licensors to these trademarks, service marks and trade names. Additionally, we do not intend for our use or display of other companies’ trade names, trademarks, or service marks to imply a relationship with, or endorsement or sponsorship of us by, these other companies.

PART I

Item 1. Business

Overview

NantHealth, Inc. (“NantHealth” or the “Company”) provides enterprise solutions that help businesses transform complex data into actionable insights. By offering efficient ways to move, interpret, and visualize complex and highly sensitive information, we help our customers in healthcare, life sciences, logistics, telecommunications, and other industries, to automate, understand, and act on data while keeping it secure and scalable.

NantHealth’s product portfolio comprises the latest technology in payer/provider collaboration platforms for real-time coverage decision support (Eviti and NaviNet) and data solutions that include multi-data analysis, reporting and professional services offerings (Quadris). In addition, The OpenNMS Group, Inc. ("OpenNMS"), a NantHealth subsidiary, helps businesses monitor and manage network health and performance. Altogether, we generally derive revenue from software as a service ("SaaS') subscription fees, support services, professional services, and revenue sharing through collaborations with complementary businesses.

We believe we are uniquely positioned to benefit from multiple significant market opportunities as healthcare providers and payers transition from fee-for-service to value-based reimbursement models. They need solutions that increase operational efficiency, manage costs, improve care collaboration and accelerate their pursuit of evidence-based clinical practice. We also believe that our core business lines enable opportunities to create data analytics services and assets which further drive value and efficiency for our customers. We are investing to further integrate big data and automated intelligence technologies within our core business lines and to create new product and service offerings.

On July 22, 2020, NantHealth entered into an assignment agreement with Cambridge Equities, L.P. ("Cambridge") to acquire approximately 91% of OpenNMS. In August 2021, NantHealth purchased the remaining 9% of outstanding OpenNMS common stock that it previously did not purchase on July 22, 2020. The acquisition of OpenNMS, an enterprise-grade open-source network monitoring company, expands and diversifies NantHealth’s software portfolio and service offerings, adding AI technologies, and enhancing cloud and SaaS capabilities. We believe OpenNMS will provide NantHealth customers with a new set of services to maintain reliable network connections for critical data flows that enable patient data collaboration and decision making at the point of care. See “Management’s Discussion and Analysis of Financial Condition and Results of Operations” for additional information.

We Are Uniquely Positioned to Address Transformative Shifts across the Healthcare Continuum

The shift to digital transformation. The proliferation of data is well-known across all industries, and this is particularly true in healthcare. Every medical device, network and platform is creating and consuming data at a staggering rate. We believe this presents both a challenge and an opportunity. The abundance of data makes it overwhelming to manage, and an even greater challenge is to extract business value embedded in data. Turning data into something businesses can use to their advantage can be a complex, manual task, and the time, effort and energy required can zero out the benefits. If businesses are unable to extract meaning, then data continues to accumulate, becoming a hindrance to business efficiency and effectiveness. It is precisely because it is challenging to make data actionable, that it becomes an opportunity for businesses to build competitive advantage.

We believe we possess six key capabilities needed to help our customers unlock the value that resides in their data to deliver the right care at the right time and place. NantHealth has the ability to: 1) move data efficiently, 2) interpret it accurately, 3) visualize it intuitively while keeping the data 4) safe, 5) secure and 6) scalable. That is what we do at NantHealth. We provide enterprise solutions that help businesses transform complex data into actionable insights. These capabilities are delivered through a comprehensive suite of products and services unique to NantHealth. In addition to the acquisition of OpenNMS, which added network monitoring to our solutions catalog, we are expanding our data science capabilities and AI competencies to drive further innovation across our existing product lines and to explore new product and service offerings in the data analytics field.

The shift to value-based care and evidence-based medicine. The efficiency and effectiveness of the current healthcare system is often hindered by the complex, dynamic interplay of three uncoordinated and segregated domains: the knowledge domain, the care delivery domain, and the payer domain. The disparate nature of these domains, and their often-inconsistent incentives and conflicting priorities, can inhibit interoperability and coordination. We believe three simultaneous, transformative shifts are highlighting these critical deficiencies of the current healthcare environment:

1. ***A rapid evolution from traditional fee-for-service to patient-centered and patient-empowered, value-based models driven by quantifiable measures of outcomes relative to cost.*** Unsustainable escalating healthcare costs, which we believe are due to broken fee-for-service models, are driving many stakeholders and governments toward alternative delivery models. Despite significant investments in electronic health records ("EHRs") and other technologies designed to enable the transition to more value-based care, we believe that, in a fee-for-service model, the economic incentives generally discourage coordination among healthcare stakeholders and encourage volume-driven (rather than outcomes-driven) decision-making. This model results in healthcare and financial data that remains largely segregated into “walled gardens.” Thus, patient data often remains static and cannot be easily shared or interpreted due to siloed legacy proprietary platforms that lack interoperability.

2. ***The rise of evidence-based care to ensure patients receive the most effective care at the most appropriate cost.*** As drug prices soar and the overall expense of cancer and autoimmune care increases, unnecessary or inappropriate therapy has never been more costly. We believe leveraging the ever-evolving body of evidence-based standards of care can drive better and more efficient outcomes for members. Evidence-based care eliminates unwarranted variability by applying nationally accepted treatment standards at the moment of clinical prescribing, ensuring that compliance takes place at the front-end of care as opposed to the back-end review after treatment has begun. Evidence-based treatment that offers the best-expected outcome at a better cost than a competing therapy also supports the transformative shift to value-based care that benefits all parties.

3. **Growing focus on health equity and the personalized care path members and patients need**. Recent events, including the disproportionate impact of COVID-19 on communities of color, have raised awareness of the healthcare industry’s need to move towards a care delivery system that views members holistically. For example, we understand a cancer patient’s journey may be impacted by factors outside of the care system, like socioeconomic status – the neighborhoods and environments in which they work and live, and barriers such as internet, transportation, and healthy food availability. Access to information and social trust of patients differ, and those differences are too often put aside in the current standard of care thinking.

We believe these shifts, and the associated challenges, require advanced technology systems and data expertise that our customers cannot quickly and easily develop on their own. Our unique portfolio of technology solutions allows us to collect, interpret and deliver data insights that help our customers improve their businesses, provide decision support with a comprehensive knowledge base of evidence-based treatment options, and help both payers and providers effectively transition to value-based care. Given the magnitude of these shifts and the difficulty involved in addressing the associated challenges, we believe our solution platforms serve to position NantHealth at the forefront of multiple market opportunities. We have invested significant capital, software development, data and healthcare expertise over a decade to develop, acquire and integrate the components that we believe address many of the challenges faced by stakeholders across the continuum of care.

Our Strategy

Our goal is to become the leading provider of solutions that enable enterprises to leverage actionable data insights. In the healthcare space, we seek to facilitate payer and provider collaboration, and to leverage clinical data and knowledge towards delivering improved patient outcomes and more effective treatment decisions for critical illnesses. To accomplish this goal, we plan to deploy NantHealth solutions designed to address and accelerate the transformational shifts occurring in healthcare (empowering the extraction of value from the growing abundance of data and supporting the evolution from traditional fee-for-service to value-based models), while also expanding our network monitoring solution capabilities to support the underlying infrastructure necessary to enable transformational shifts in healthcare and other industries. The key elements of our strategy include:

- **Leveraging NantHealth's key capabilities delivered through a comprehensive suite of solutions to unlock value from data.** NantHealth’s solution capabilities include:

    - **SaaS-based platforms:** our enterprise-grade platforms are designed for automation, security, ease-of-use and scalability;
    - **Evidence-based support:** our robust database and analysis of FDA-approved treatment options improves decision support while reducing waste;
    - **Real-world enabled insights:** our solutions can provide real-world evidence that demonstrates effectiveness, safety and value;
    - **Network performance:** our OpenNMS services provide a highly scalable, reliable, and extensible platform for network monitoring; and
    - **Interoperability:** we connect and normalize data for real-time collaboration and information exchange.

- **Increasing sales of NantHealth solutions to healthcare payers, providers, and self-insured employers.** We are marketing NantHealth solutions to healthcare payers and providers transitioning from fee-for-service reimbursement models to value-based care models in pursuit of improved patient outcomes and lower costs. We believe we are positioning NantHealth as a next-generation payer intermediary and partner with healthcare payers and self-insured employers as they roll out value-based model partnerships and transition to value-based precision care.

- **Growing the market for open source-based network monitoring services across industries and across sites of care within the health care sector.** We are working to grow the on-premise install base for the OpenNMS network monitoring platform and expand sales of OpenNMS maintenance, support and professional service offerings. We are also expanding the OpenNMS service suite to include SaaS based monitoring services and easier to manage "no-touch" remote appliance services (including home-based devices).

- **Developing new features and functionality for NantHealth solutions.** We are continuing to make significant R&D investments to create new features and functionality within NantHealth's solutions. For example, we are exploring the expansion of our Eviti decision support product line to cover additional diseases and chronic conditions and are furthering the integration of artificial intelligence/machine learning (AI/ML)-based analytics into our network monitoring solutions to provide insights into alarm/event correlation, anomaly detection, and root cause analysis (RCA). We are also continuing the development of data analytics capabilities and assets so that we can expand the products and services offered to our healthcare customers and partners.

- **Complementing internal growth with strategic acquisitions.** We believe opportunities exist for us to enhance our competitive position by acquiring additional companies with complementary products and technologies and/or acquiring rights to proprietary products or technologies from third parties.

Our Industry

Today, the explosion in the quantity, frequency and complexity of data and the ability to measure data in terms of outcomes relative to cost, demands mature, specialized software platforms, and expertise to address transformative shifts and challenges.

Every device, network and platform is creating and consuming data at a staggering rate, making it overwhelming to manage, and extract business value embedded in the data.

Nearly 100% of C-level executives surveyed by PricewaterhouseCoopers said they see data on customers as "critical or important" to getting an edge on competitors in the years ahead. Businesses must learn how to uncover actionable insights hidden in their data, or risk being left behind. But turning bits and bytes of data into something businesses can use to their advantage can be a complex, manual task that involves the ability to:

- Connect systems
- Normalize data
- Interpret outputs
- Make it actionable

Developing the capabilities needed for businesses to undertake the challenge of managing, analyzing, and interpreting data is difficult. Those able to tap the insights hidden within their data and make it actionable for their employees, stakeholders and customers will unearth a new source of value and differentiation.

In the U.S. healthcare industry, a rapid evolution from traditional fee-for-service to patient-centered and patient-empowered, value-based models driven by quantifiable measures of outcomes relative to cost.

In response to the rising cost of healthcare, government and private payers and providers are introducing value-based care models. In value-based models, providers assume increased levels of clinical and financial responsibility for patient outcomes, instead of being reimbursed strictly based on the quantity of services provided. We believe that healthcare platforms that efficiently assist healthcare stakeholders to transition to these value-based models will be best positioned to capture this opportunity.

Challenges associated with the adoption of value-based models

The healthcare continuum can be viewed as an aggregation of three distinct domains:

- The knowledge domain, including academic centers, scientific institutions and companies that discover and commercialize medical and scientific knowledge;
- The care delivery domain, including hospitals, community practices, physicians and other constituents that deliver healthcare to patients; and
- The payer domain, including insurers, governments and self-insured employers that administer and provide funding to the healthcare system.

The disparate and fragmented nature of these domains and economic incentives under traditional fee-for-service models frequently result in overtreatment, high costs and suboptimal patient outcomes. Fee-for-service models are as a general matter inherently site-centric, volume driven, reactive in nature and uncoordinated. In contrast, value-based models are generally more patient-centric, outcomes-focused, proactive and coordinated across the care continuum.

Despite a clear need, the design and implementation of next-generation interoperable systems has been limited due to reliance on legacy, site-specific, fee-for-service technology systems and infrastructure. Since the passage of the Health Information Technology for Economic and Clinical Health ("HITECH") Act in 2009, providers and payers have made significant investments in EHRs, and other technologies meant to enable the transition to value-based care. Despite extensive investment and coordination, the introduction of value-based models has been limited due to the shortcomings of legacy, proprietary systems and the reliance on unstructured data that hinders interoperability and cannot be sufficiently shared or manipulated to produce actionable findings. Value-based models require collection and analysis of longitudinal treatment, outcomes and financial data at the patient level, regardless of treatment site. Critically, these systems must also securely safeguard patient data in compliance with stringent Health Insurance Portability and Accountability Act of 1996 ("HIPAA") and other privacy regulations. We believe that there is a significant need for interoperability platforms that dynamically access, normalize, integrate and update information from disparate sources across the healthcare continuum in real time. Secure interoperability platforms can allow for more comprehensive solutions development that proactively connect, deliver business and clinical intelligence and enable enhanced provider and patient engagement.

Managing massive volumes of data requires specialized infrastructure, and making data meaningful and actionable requires it to be processed by advanced systems operating in scalable and reliable environments.

The network monitoring market is moving away from corporate managed, on-premise solutions towards hybrid and cloud solutions with a focus on platform services expansion and AI/ML-based analytics to provide intelligent alarm/event management.

Key trends include:

- Expansion of the network edge to include internet of things components and the migration of the network core to the cloud requires that network performance monitoring and diagnostics tools provide visibility in hybrid environments, including edge and cloud network monitoring.
- Implementation of cloud native applications and microservices for platform management and orchestration to optimize performance and cost in the cloud.
- Increasing appetite for flexible deployment models include SaaS and on-demand pricing, and use of virtual machines, software appliances, and hardware appliances to enable these deployments.
- Evolution of traditional network monitoring platforms beyond the basic levels of infrastructure monitoring, and incorporating APIs for easy extension of additional services such as Digital Experience Monitoring, flows/flowlogs, and other applications that support business users and understanding of end-user experience.
- Increasing focus on AI/ML advanced analytics to support artificial intelligence for IT operations ("AIOps") (e.g., for anomaly detection and event correlation and RCA).
- Focus on network security and alignment between network operations and security operations.

With our highly scalable, reliable, and extensible platform solution for network monitoring, OpenNMS is well positioned to address these market trends. Our zero touch appliance solution enables remote monitoring of edge components and enables additional hybrid and cloud integrations. Our traffic analysis (flows) and route monitoring solutions provide deep understanding of network performance. Our Architecture for Learning Enabled Correlation (ALEC) AI/ML solution provides valuable insights and visualizations for interpreting complex faults/alerts.

Our Market Opportunity

We believe the increasing focus on managing, analyzing and interpreting the large amounts of generated data, and on value-based reimbursement models and evidence-based, personalized medicine will drive validation and adoption of NantHealth solutions.

Proliferation of Data: Over 44T gigabytes of data have been amassed by companies as of 2020, with a projected 581% increase in new data by 2025. Given the challenges and specialized capabilities required to manage, analyze, and derive insights from the vast amounts of data, we believe we are uniquely positioned to address this market need.

Cost of Cancer Care: Recent statistics show that 39.5% of Americans will be diagnosed with cancer at some point in their lives, resulting in an estimated cost of $246 billion by 2030. As the cost of cancer care continues to grow, there will be an ongoing need to balance cost efficiency with improved outcomes. Our evidence-based decision support solutions can help providers and payers better manage oncology care for the patients and members they serve.

Transition to Digital: Reports show that medical communications are still reliant on faxes, phone calls, emails and other manual channels. Recent research suggests that around 70% of health-care organizations still use faxes. Our payer/provider collaboration platforms can significantly improve the efficient, accurate and timely exchange of information.

Management of Complex Networks: Today's enterprise requires insights and analytics regarding network performance and availability in order to maintain uptime across multiple environments, geographies and devices.

Focus on Security: Government buyers continue to have a very strong interest in products incorporating zero trust network access due to the executive order on improving the nation’s cybersecurity. In the private sector, interest in zero trust grew more than 230% in 2020. To meet this need, OpenNMS is adopting zero trust architecture principles for its suite of products.

Open Platform: Due to the rapid pace of innovation and the changing nature of enterprise networks due to the pandemic, buyers are looking to leverage technologies and technology platforms that are open and extensible. This allows them to plan and respond to the increasing number of changes and additional complexities of their environments. As an extensible and open network monitoring platform, OpenNMS offers a highly scalable solution that can be incorporated into existing technical architecture.

We believe the potential addressable market for our solutions will continue to grow in relation to the market-share gains of value-based models, the continuing transition to digital only clinical communications and collaboration and the adoption of precision medicine.

NantHealth Solutions

Our NantHealth solutions comprise a highly differentiated, integrated model for the application of data insights and the delivery of healthcare, comprised of our unique software-as-a-service platforms, data management, analysis and interpretation solutions and network monitoring solutions., enabling value-based care and evidence-based clinical practice. Our platforms and our multi-domain solutions are designed to address some of the most pressing cross-domain challenges across the healthcare continuum. Our solutions are single-domain and cross-domain offerings that can be utilized, for example, by a provider organization or hospital system and a commercial insurance provider in an Accountable Care Organization, ("ACO"), crossing multiple domains. We believe our unique systems-based approach positions us as a next-generation intermediary and partner that facilitates payment for value, improved patient outcomes and more efficient communication and collaboration among systems and industry participants.

- **Payer Solutions.** Our NantHealth payer SaaS solutions, including NaviNet Open and Eviti Connect, establish daily access to the clinical practice and caregiver and leverage the data available on our systems infrastructure to facilitate reduction in overall administrative costs and payment for value. We believe our position between the payer and the provider allows us to align incentives as a next-generation payer intermediary, to help payers ensure consistent evidence-based treatment pathways and to accelerate pre-adjudication and lower administrative overhead for providers. This can ultimately drive quality of care and streamline workflows while improving control over the administrative and operating costs associated with eligibility and benefits, claims processing, referrals, authorizations, information exchange and review utilization. Our multi-payer collaboration solution, NaviNet Open, offers provider end users a uniform set of workflows and services across many or all the payers with whom they routinely collaborate. This multi-payer experience benefits payers and providers alike. Providers can benefit from a

uniform experience and toolset across multiple payer relationships, and the payer can benefit from the uniform application of best practices, tools, and options, as well as the reduction in costly errors and phone-based interactions that can stem from a non-uniform end-user experience.

- **Provider Solutions.** Our provider SaaS solutions, comprised of NaviNet AllPayer and Eviti Advisor, leverage the data available on our systems infrastructure to enable patient-centered engagement and coordination across care locations. These solutions include clinical and administrative workflows, including eligibility and benefits, claims, referrals and authorizations management solutions.

- **Network Management Solutions.** Our OpenNMS service offerings provide a reliable, scalable, comprehensive fault, performance, and traffic monitoring solution that easily integrates with core business applications and workflows to monitor and visualize everything in the network. The OpenNMS open-source platform monitors some of the largest networks in the Fortune 500, covering the healthcare, technology, energy, finance, government, education, retail and industrial sectors, including many with tens of thousands of networked devices.

- **Data Solutions (Quadris).** Our data product and service offerings enable customers to leverage real-world data, AI/ML to optimize commercial spend, demonstrate ongoing safety and value, improve clinical development, speed drug delivery.

We designed our NantHealth solutions to enable providers, payers, and pharma and self-insured employers to overcome challenges encountered across the knowledge, care delivery, and payer domains within the healthcare continuum.

Product Overviews

Eviti Connect and Eviti Advisor

The rapid advancement of molecular and biometric medicine is overwhelming many physicians' cognitive ability, while uncoordinated, non-evidence-based treatment plans are increasing costs and reducing the quality of care.

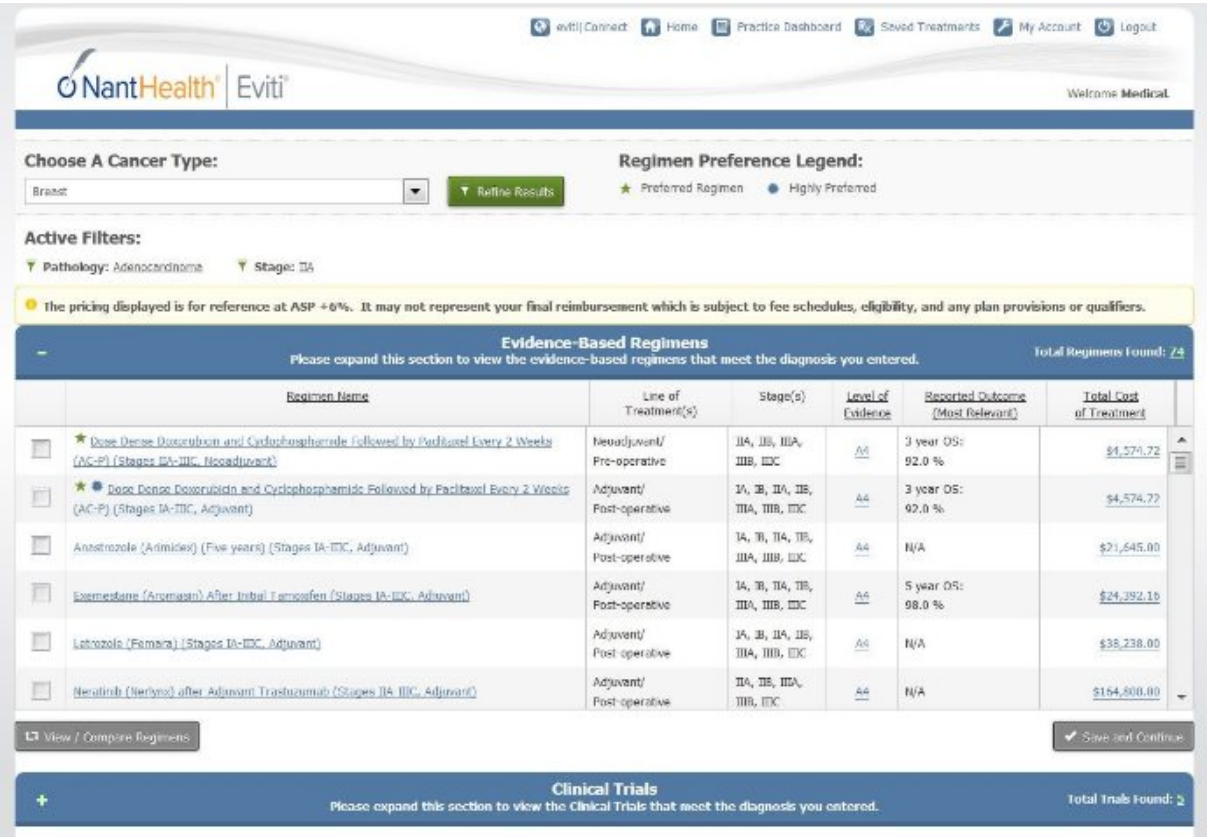
Eviti, our decision support platform, provides evidence-based clinical decision support, which is a critical element to ensure optimal treatment regimens. Eviti is a SaaS-based clinical decision support solution that centralizes clinical content, treatment cost data from Medicare reimbursements and treatment toxicity data. The clinical content is curated by our dedicated team of clinicians, including oncologists and nurses, who convert published literature and clinical trials into structured information that can be used for decision support. The Eviti Connect product is sold to health plans and utilizes the platform to offer pre-authorization automation that helps payers and providers navigate the complexities of cancer care, making it easier to identify and validate oncology treatment regimens suited to each patient. The Eviti Advisor product is offered to providers and allows physicians to access the Eviti platform's comprehensive library of evidence-based treatment standards and protocols to better inform treatment decisions and readily stay abreast of the latest advances in cancer care.

Eviti provides value to our customers through its access to over 8,900 federally-registered clinical trials updated weekly and over 4,500 evidence-based treatment regimens for the treatment of cancer arising from over 40 different anatomical locations. Over the past ten years, Eviti has saved health plan customers several hundred million dollars by directing providers to evidence-based protocols at the point of prescribing. Unique to the care delivery domain, physicians also benefit from improved claim processing by using the Eviti Connect product, which issues a pre-authorization "Eviti code" when the physician chooses an approved evidence-based clinical pathway, thereby validating appropriate treatment and pre-adjudicating the claim. This is an important step in that payers and providers are collaborating on high-value, evidence-based clinical pathways as opposed to non-value-added reimbursements and denials of payments. Eviti Connect is typically sold to health plans on a per member (or life) per month basis. These health plans sponsor the solution and provide Eviti free of charge to oncologists and their staffs.

As Eviti evolves, we expect to expand the platform's capacity beyond regimen decisions to help providers and payors deliver the right care, in the right time and in the right place across the cancer patient's entire life cycle of care. In addition, we have already expanded the Eviti platform to another disease state, autoimmune. As one pharmacy benefit manager ("PBM") studied data on its 15 million commercially insured members in 2019 and 2020, it found that fewer than 1% of members had an inflammatory autoimmune condition such as psoriasis, rheumatoid arthritis, ulcerative colitis or Crohn's disease. However, drugs treating these conditions accounted for nearly 20% of drug spend in the medical and pharmacy benefit. (source: Drugs for autoimmune disorders account for a growing part of pharmacy spend: Prime Therapeutics | FierceHealthcare).

NantHealth has achieved delegated entity licensure/certification for utilization management in 10 states, enabling the expansion of Eviti Connect to include fully delegated services in these jurisdictions and others that do not require special licensure. Offering this service helps our payer customers reduce operational costs and increase efficiency by centralizing activities related to utilization management reviews and communications. We will continue to pursue delegated entity status in additional states as we expand the value Eviti brings to our customers.

The snapshot of our system below illustrates how different cancer treatment options for a patient is presented to compare treatments across a variety of metrics, including expected treatment outcome, plan compliance and costs. By providing the oncologist with this comparison, we believe Eviti drives compliance and a greater number of treatments to be in accordance with evidence-based medicine.



NaviNet

NaviNet is a suite of SaaS-based solutions enabling payers and providers to streamline communication and consolidate information, while gaining access to a richer set of data to improve patient care. The NaviNet solutions include clinical and administrative workflow, eligibility and benefits, claims, and referral management solutions.

NaviNet Open

NaviNet Open is a leading payer-provider collaboration platform, enhancing communication between health plans and providers to increase operating efficiency, lower costs, improve provider satisfaction and enable expansion. As organizations develop more value-based product lines to support the transition to value-based care, provider alignment and actionable data prior to care delivery becomes critical. To enable these capabilities, health plans and providers need a flexible, extensible infrastructure that fosters collaboration and encourages interoperability. NaviNet Open delivers vital administrative and clinical information to providers in real-time, so they can quickly and easily communicate across multiple health plans. As of December 31, 2021, NaviNet Open has over 375,000 registered users who performed more than 33 million online interactions per month with over 1,000 health plans.

NaviNet Open solutions include:

- **Plan Central:** Provides our health plan partners with the ability to deliver a branded custom-content experience to their provider networks, allowing plans to own and manage their communications to users in support of their business. Plan Central is valued by our partners as a single access point for all provider and end-user communications, transactions, and content, delivering ease of use and increased provider satisfaction.

- **Eligibility and Benefits:** Delivers membership verification, insurance coverage, and payment information, such as co-payments, deductibles, and benefit intelligence to provider offices in real-time; information that is highly valued by providers and members alike. Provider offices can verify insurance and benefit coverage at the time of a patient visit or as part of the billing cycle.

- **Claims Status Inquiry:** Permits provider offices access to detailed financial and claim status information in real-time; automating the delivery of claim receipt confirmation, adjudication status, and payment details. This eliminates the need for provider offices to call health plans directly to maintain a healthy revenue cycle and improves provider satisfaction.

- **Claims Management:** A collection of powerful claim applications that consist of Claim Submission, pre- and post-adjudication Corrections and Adjustments, Claim Attachments, Claim Investigation, Claim Appeals and a multi-payer Claims Log where users manage their claim submissions. Our integrated Claims Management solution simplifies payment efforts by eliminating phone calls, costly paper claims, and other manual processes associated with claims follow-up, correction, and resubmission. Providers now gain access to a powerful set of claim tools, augmenting provider systems with self-service access, or without needing a sophisticated EHR or practice management system at all.

- **Referrals:** Lets provider offices submit and access referrals in real-time, guiding patients to the best specialist at the most affordable cost. Referrals empowers provider staff with more referral information - such as benefit tiers, preferred providers, and patient payment implications. Administrative staff becomes better equipped to navigate complex sub-networks, while health plans optimize in-network referrals to reduce leakage and lower costs.

- **Authorizations:** Lets provider offices submit authorizations to health plans and access real-time authorization information, such as status updates and approvals. The authorizations workflow is optimized to make it simple for health plans to configure fields and add additional business logic and links to third party applications. Providers can upload any documents needed for authorization processing, further streaming workflows and lowering costs.

- **Document Exchange:** Modernizes communication between health plans and providers by transmitting administrative and clinical information in real-time. This application lets health plans and providers share risk adjustment information, quality measurement data, and performance reports, among other data. Providers are notified of care gaps within their existing workflows, making it easy to upload supporting documents. NaviNet Open Document Exchange enables health plans and providers to thrive in a world of value-based care by providing real-time access to critical information at the point of care.

- **API Capabilities:** A series of secure Application Programming Interfaces (APIs) offer provider and revenue cycle organizations connectivity to payers via the NaviNet Open platform. The APIs enable faster information retrieval and easier payer access through a secure real-time, HIPAA compliant gateway to payers. The workflows include Eligibility & Benefits, Claim Status Inquiry, Authorizations, and Referrals. NaviNet also offers APIs for payers to access the secure and flexible NaviNet Open Document Exchange platform.

NaviNet AllPayer

NaviNet AllPayer provides standard eligibility, benefit, and claim status information to provider offices for over 1,000 commercial and government plans and Centers for Medicare and Medicaid Services ("CMS") for Medicare beneficiaries through the NaviNet portal. Building on the rich, multi-payer experience of NaviNet Open, NaviNet AllPayer allows provider offices, and payer Coordination of Benefits ('COB") and Payment Integrity teams, to quickly find the information they need, without having to jump between portals or spend unnecessary time on the phone with health plans.

OpenNMS

OpenNMS is an open-source network monitoring solution for enterprise-grade networks. It empowers businesses to monitor, manage, maintain, and visualize their networks to better understand health and performance for faster remediation. OpenNMS solutions monitor system alerts and events and other key performance indicators in IT infrastructure. Advanced network traffic flows and routing analysis capability ensures critical data flows at scale. OpenNMS users include some of the largest networks in existence, covering the healthcare, technology, energy, finance, government, education, retail and industrial sectors, many with tens of thousands of networked devices.

OpenNMS solutions are delivered as two different, completely open-source distributions: Horizon and Meridian. Both distributions are built from the same open source code base; however, the release cycle and the support options available vary for each:

- **Horizon (Community):** Horizon is freely available to download and follows the “release early, release often” model. OpenNMS Horizon contains the newest features that are developed for the platform and updated on a rapid release schedule.

- **Meridian (Enterprise):** OpenNMS Meridian is made available via a subscription service that provides access to an optimized and very stable version of OpenNMS that maximizes the platform’s value and minimizes the effort required to maintain it. Features that have proven to be stable and effective in Horizon are merged into Meridian.

The following are some of the key features that provide scalability and analytics capability into the OpenNMS platform:

- Architecture for Learning Enabled Correlation (ALEC) is our AI/ML-based analytics solution that provides insights into alarm/event correlation, anomaly detection, and RCA.
- Minion is a vertically scalable application that acts as “eyes and ears” for the core OpenNMS application by extending the platform reach into remote and disparate edges of the network.
- Sentinel is a horizontally scalable application that scales the platform capacity by offloading memory and CPU workloads from the core OpenNMS application.
- Application Perspective Monitoring (APM) enables remote polling of network components by using remote minion applications to look at other parts of the network from “the outside in”, enabling improved understanding of availability and latency.

Quadris

NantHealth’s Quadris is a comprehensive analytics and insights service that will leverage both enriched and optimized real-world data, automated surveillance and research collaboration tools. The solution/service will include a configurable user experience enabling a range of intuitive, market specific insights such as commercial spend, longitudinal patient journey analysis and improved clinical development efficiency. Quadris insights are informed by data and analytics optimized by proprietary machine learning, natural language processing and AI methods.

NantHealth Systems Infrastructure to Enable NantHealth Solutions:

Our unique interoperable systems infrastructure has been built over the last decade to address the knowledge, care delivery and payer domains.

We host our applications and serve all our clients from four redundant data centers in geographically diverse locations. These infrastructure-hosting services also include capabilities such as secure server and application hosting, secure offsite backup, disaster recovery and business continuity solutions. We are expanding our infrastructure using a hybrid-cloud model to leverage the flexibility and scalability available at commercial cloud providers.

Due to the sensitive nature of our customers’ data, we have a heightened focus on data security and protection. We have implemented healthcare IT industry-standard processes, policies and tools through all levels of our software development and network administration, including regularly scheduled vulnerability scanning and third-party penetration testing to reduce the risk of vulnerabilities in our system.

Our Eviti clinical decision support platform achieved initial full URAC accreditation in Health Utilization Management ("HUM"), during September 2010 and subsequently re-accredited every three years – the most recent during August 2019 for another three-year period.

Our NaviNet platform has been accredited under the Health Network Accreditation Program of the Electronic Healthcare Network Accreditation Commission since 2006 and the accreditation is valid until November 2022. NaviNet has been HITRUST certified since December 2021 and this certification is valid until December 2023.

Our Relationship with Allscripts

On August 3, 2017, we entered into an asset purchase agreement with Allscripts Healthcare Solutions, Inc. ("Allscripts"), pursuant to which we agreed to sell to Allscripts substantially all of the assets of the Company's provider/patient engagement solutions business, including our FusionFX solution and components of its NantOS software connectivity solutions. The sale was completed on August 25, 2017.

Concurrent with the sale to Allscripts and as contemplated by the asset purchase agreement, we and Allscripts modified the amended and restated mutual license and reseller agreement dated June 26, 2015, which was further amended on December 30, 2017, such that, among other things, we committed to deliver a minimum of $95.0 million of total bookings over a ten-year period ("Bookings Commitment") from referral transactions and sales of certain Allscripts products under this agreement. We also agreed that Allscripts shall receive at least $0.5 million per year in payments from bookings (the "Annual Minimum Commitment"). If the total payments received by Allscripts from bookings during such period are less than the Annual Minimum Commitment, we shall pay to Allscripts the difference between the Annual Minimum Commitment and the total amount received by Allscripts from bookings during such period. In the event of a Bookings Commitment shortfall at the end of the ten-year period, we may be obligated to pay 70% of the shortfall, subject to certain credits. We will earn 30% commission from Allscripts on each software referral transaction that results in a booking with Allscripts. We account for the Bookings Commitment at its estimated fair value over the life of the agreement and, as of December 31, 2021, we estimate the total liability to be $35.7 million.

Our Clients

NantHealth solutions and technology platforms are used by key healthcare stakeholders, including healthcare providers, payers, self-insured employers, academic institutions and biotechnology and pharmaceutical companies, and our network monitoring solutions are used by stakeholders in the logistics, telecommunication, and other industries, to automate, understand, and act on data while keeping it secure and scalable. NantHealth solutions, coupled with our engagement methodology, is designed to be tailored to meet the large-scale needs of governmental organizations and private entities while remaining convenient, intuitive and configurable at the user level. We believe that this provides us with a significant advantage over a siloed, single vendor approach, which often requires the removal or replacement of existing information technology infrastructure and applications.

Our total revenue was $62.6 million and $73.2 million in 2021 and 2020, respectively. For the years ended December 31, 2021 and 2020, there were two and four customers, respectively, each accounting for more than 10% of our revenue.

Sales and Marketing

Our sales organization is primarily comprised of direct sales executives and pre-sales support teams organized by account type and domain and subject matter expertise. We also leverage strategic reseller arrangements and a channel relationship coverage team.

- **Direct sales organization:** We leverage domain and subject matter expertise, market credibility, thought leadership, and relationships of our executives, senior management, and product leaders in our sales efforts. Our direct sales organization is by product ownership. These direct coverage teams include both sales professionals searching for new accounts and customer engagement sales professionals responsible for developing existing accounts. Furthermore, sales professionals have unique expertise and specialized coverage for health plans, self-insured employers, health systems, and individual providers. Our account management organization is responsible for the continuity of current customer relationships and the expansion of those relationships to include additional solutions and services.

  We have a pre-sales organization that includes clinical, business and technical customer alignment teams to support our sales organization in addition to executive sponsorship with members of our senior management team.

- **Resale and channel partnership:** In the United States, we have entered into strategic resale arrangements with major partners, including EHR vendors (including Allscripts), in-hospital medical devices manufacturers and health plans who resell our solutions to their customer base. Internationally, we have entered into resale arrangements with other strategic distributors to accelerate our market adoption. Reseller revenue in 2021 and 2020 was $1.0 million and $2.9 million, respectively. OpenNMS' partnerships extend globally. These are a mixture of Value-added resellers (VARs) and original equipment manufacturers (OEMs). These strategic relationships allow OpenNMS capabilities to be integrated with other propositions as we look to grow market share.

  We also maintain business relationships with individuals and organizations that promote or support our sales or services. We refer to these individuals and organizations as our channel partners. These channel partners generally do not make sales directly like our resale partners, but instead provide us with leads that we use to develop new business through our direct sales force. These relationships enable access to broader hospital and physician customers, leading software solutions and multiple cross-selling opportunities.

We complement our sales efforts with a marketing organization that plans and execute marketing and communication strategies that are centered on initiatives that drive awareness of our company and solutions. These initiatives include educating the market about our company broadly, as well as solutions-specific campaigns for lead generation. Marketing efforts also include participation in speaking engagements and strategic interfacing with key business and trade media personnel. We employ a broad array of specific events to facilitate these initiatives, including, but not limited to, sponsorship and partnership of key industry conferences such as the Healthcare Information and Management Systems Society ("HIMSS") and/or America's Health Insurance Plan ("AHIP") events and customer-focused programs such as key partner user groups.

Our sales cycle can vary significantly and typically ranges from 6 months to 18 months from initial contact to contract execution. The sales cycle significantly differs based on the domain, type of solution and size of the customer. Implementation, training and professional services are normally rendered based on a mutually agreed upon timetable.

Competition

The competitive landscape is highly fragmented, and to our knowledge, no single competitor currently offers similarly diverse capabilities and solution offerings. As a result, our primary competitors are characterized relative to each of our platforms or solutions:

- Payer-provider collaboration vendors, such as Availity, LLC, Change Healthcare, Inc., Experian Information Solutions, Inc. (including its Experian Health/Passport division), Zipari (formerly Healthx, Inc.), Cohere Health, and Health Trio, LLC;
- Payer-Provider Disease Treatment Decision Support vendors, including The Advisory Board Company, Evolent Health, eviCore Healthcare, HealthCatalyst, Inc., International Business Machines Corporation, or IBM, Inovalon Holdings, Inc., NCH Management Systems, Inc. (dba New Century Health), OncoHealth Oncology Analytics, Inc., and Truven Health Analytics (acquired by IBM).
- Network monitoring vendors, including Zabbix, LLC, LogicMonitor, Inc., SolarWinds Worldwide, LLC, SevOne, Splunk and Datadog, Inc.

The principal competitive factors in our industry include:

- Breadth and depth of application functionality;
- Ease of use and performance;
- Network strength and level of user adoption;
- Customer testimonials and recommendations;
- Breadth of customer base;
- Cloud-based delivery model;
- Competitive and understandable pricing;
- Ability to deliver actionable information in a relevant time period;
- Ability to demonstrate customer's ROI and improvements to clinical outcomes;
- Size and scope of payer clinical policy knowledge;
- Sales and marketing capabilities of vendor;
- Financial stability of vendor;
- Ability to integrate with legacy enterprise infrastructures and third-party applications; and
- Ability to innovate and respond rapidly to customer needs and regulatory changes.

We believe we will compete favorably despite competing against a broad, diverse set of businesses and with increasing competition as other established and emerging companies enter our industry, customer requirements evolve, and new products and technologies are introduced. Moreover, some of our actual and potential competitors have certain advantages over us, such as greater financial, technical, marketing, research and development and other resources, stronger brand and business user recognition, larger installed customer bases, larger intellectual property portfolios and broader global distribution and presence.

Research and Development

Our research and development efforts consist primarily of new product research and development, significant product improvements, the development of our knowledge base, the development of our online tools, such as our online portal and mobile applications, and the improvement and augmentation of our data and analytics infrastructure.

Our ability to compete and attract new customers depends, in large part, on our continuous commitment to rapidly introduce new applications, technologies, features, and functionality. Our research and development team is responsible for the design and development of our applications and software tools. We follow state-of-the-art practices in software development using modern programming languages, data storage systems, and other tools.

Research and development expenses were $19.7 million and $17.3 million for the years ended December 31, 2021 and 2020, respectively.

We expect that our overall research and development expenses will increase in absolute dollars as we continue to innovate our informational technology capabilities, develop additional products, and expand our data management resources.

Intellectual Property

We strive to protect and enhance the proprietary technology, inventions, and improvements that are commercially important to our business, including through a combination of patents, trade secrets, copyrights and trademarks, whether developed internally or acquired from third parties. Further, our commercial success may depend in part on our ability to obtain and maintain patent and other proprietary protection for our technology, inventions, and improvements; to preserve the confidentiality of our trade secrets; to defend and enforce our proprietary rights, and to operate without infringing on the valid and enforceable patents and other proprietary rights of third parties.

We have processes for protecting our intellectual property rights. Our policy is to seek to protect our proprietary position by, among other methods, filing patent and trademark applications and requiring our employees, consultants and other third parties to enter into confidentiality and proprietary rights agreements. We control access to software, documentation and other proprietary information that are important to the development and implementation of our business. We also rely on trade secrets and know-how relating to our proprietary technology, continuing innovation, and acquisition and in-licensing opportunities to develop, strengthen, and maintain our proprietary position in the field of and healthcare technology products and services.

We have developed and acquired patents and patent applications and we possess substantial know-how, copyrights and trade secrets relating to the development and commercialization of healthcare technology products and services. In January 2016, we acquired NaviNet, a leading payer-provider collaboration platform, and in February 2018 we acquired NantHealth Labs, Inc. (formerly Liquid Genomics, Inc.) a liquid tumor profiling company. As part of these and other acquisitions, we acquired patents and other intellectual property. As of December 31, 2021, our patent portfolio consisted of the following matters relating to our proprietary technology and inventions: (i) twenty (20) issued U.S. utility patents and two (2) issued U.S. design patents; (ii) eighteen (18) pending U.S. utility patent applications; (iii) eighteen (18) issued patents outside the United States; and (iv) three (3) patent applications pending in jurisdictions outside the United States. Five (5) of these assets are jointly owned. However, our patent applications may not result in issued patents, and, even if issued, the patents may be challenged and invalidated. Moreover, our patents and patent applications may not be sufficiently broad to prevent others from practicing our technologies or developing competing products.

We estimate that our issued U.S. patents will expire on dates ranging from 2022 to 2036. If patents are issued on our pending U.S. patent applications, the resulting patents are projected to expire on dates ranging from 2026 to 2040. However, the actual protection afforded by a patent varies on a product-by-product basis, from country-to-country, and depends upon many factors, including the type of patent, the scope of its coverage, the availability of legal remedies in a particular country, and the validity and enforceability of the patent.

We may also rely on trade secrets and copyrights to protect our technology. However, trade secrets and copyrights are difficult to protect. We seek to protect our technology and product candidates, in part, by entering into confidentiality agreements with those who have access to our confidential information and proprietary rights agreements with those who develop our technology, including our employees, contractors, consultants, collaborators, and advisors. We also seek to preserve the integrity and confidentiality of our proprietary technology and processes by maintaining physical security of our premises and physical and electronic security of our information technology systems. Although we have confidence in these individuals, organizations, and systems, agreements or security measures may be breached and we may not have adequate remedies for any breach. In addition, our trade secrets may otherwise become known or may be independently discovered by competitors. To the extent that our employees, contractors, consultants, collaborators, and advisors use intellectual property owned by others in their work for us, disputes may arise as to the rights in related or resulting know-how and inventions.

Despite our efforts to protect our proprietary technology and our intellectual property rights, unauthorized parties may attempt to copy or obtain and use our technology to develop applications with the same functionality as our applications. Policing unauthorized use of our technology and intellectual property rights is difficult, and protection of our rights through civil enforcement mechanisms may be expensive and time consuming.

Companies in our industry often own a number of patents, copyrights, trademarks, and trade secrets, and enter into litigation based on allegations of infringement, misappropriation, or other violations of intellectual property or other rights. We may face allegations in the future that we have infringed the patents, trademarks, copyrights, trade secrets, and other intellectual property rights of others. We expect that we and others in our industry will continue to be subject to third-party infringement claims as the functionality of applications in different industry segments overlaps. A third party might make a claim of infringement against us at any time.

For this and more comprehensive risks related to our proprietary technology, inventions, improvements and products, please see the section captioned “Risk Factors-Risks Related to Intellectual Property.”

Human Capital and Culture

Our key human capital management objectives are focused on attracting, retaining, and developing the highest quality talent. To support these objectives, our human resources programs are designed to develop talent to prepare them for critical roles and leadership positions for the future; reward and support employees through competitive pay, benefit, and recognition programs; enhance our culture through efforts aimed at making the workplace more engaging and inclusive; acquire talent and facilitate internal talent mobility to create a high-performing, diverse workforce; engage employees as brand ambassadors of our products and services; and evolve and invest in technology, tools, and resources to enable employees at work.

We view our employees and company culture as integral to the successful execution of our vision and mission. As a result, our leadership team prioritizes establishing trusting relationships with our customers, our partners, and each other. We encourage our employees to “rise up” to the challenge and believe that this collective mindset has enabled us to attract and retain some of the best minds in technology, bioscience and healthcare to build and advance our offering. Our core values, which we seek to reflect in our work are:

- **Clarity:** conveying our mission clearly, coherently and intelligibly, and empowering our stakeholders with information required to make good decisions.
- **Empathy:** understanding and sharing the feelings of others by putting yourself in another’s place.
- **Collaboration**: working with others to create solutions.
- **Pioneering:** exploring and developing original solutions that make a meaningful impact on our community, the market, or society at large.
- **Community:** creating a feeling of identity and fellowship with others resulting from common values and goals.
- **Integrity:** always being honest, honorable and accountable with adherence to moral and ethical principles.

As of December 31, 2021, we employed a total of 340 employees in the United States, Canada, and the United Kingdom. Our global workforce is comprised of approximately 96% full-time and 4% part-time employees. Employee engagement and retention are core tenets of our leadership focus and are monitored and measured as gauges of our corporate performance and organizational health.

None of our employees are represented by a labor union or covered by a collective bargaining agreement. We have not experienced any work stoppages, and we consider our relations with our employees to be good.

Government Regulation

The healthcare industry and the practice of medicine are governed by an extensive and complex framework of federal and state laws, which continue to evolve and change over time. The costs and resources necessary to comply with these laws are high. Our profitability depends in part upon our ability, and that of our affiliated providers and independent contractors, to operate in compliance with applicable laws and to maintain all applicable licenses. A review of our operations by courts or regulatory authorities could result in determinations that could adversely affect our operations, or the healthcare laws and regulations could change in a way that restricts our operations. To the extent any of our employees or third-party contractors engages in any misconduct or activity in violation of an applicable law, we may be subject to increased liability under the law or increased government scrutiny. If any such action is instituted against us, and we are not successful in defending ourselves or asserting our rights, such action could have a significant impact on our business, including the imposition of significant fines or other sanctions. Complying with any new legislation and regulations could be time-intensive and expensive, resulting in a material adverse effect on our business.

As a digital health company, our operations are subject to comprehensive United States federal, state and local and international regulation in the jurisdictions in which we do business. Our ability to operate profitably will depend in part upon our ability, and that of our affiliated providers, to maintain all necessary licenses, permits, certifications, or other regulatory authorizations and to operate in compliance with applicable laws and rules. Those laws and rules continue to evolve, and we therefore devote significant resources to monitoring developments in healthcare and medical practice regulation. As the applicable laws and rules change, we are likely to make conforming modifications in our business processes from time to time. In some jurisdictions where we operate, neither our current nor our anticipated business model has been the subject of formal judicial or administrative interpretation. There has been heightened governmental scrutiny over healthcare costs and healthcare fraud and abuse in the digital health, telehealth and telemedicine space, including recent notable enforcement actions involving electronic healthcare records service providers. We cannot be assured that a review of our business by courts or regulatory authorities will not result in determinations that could adversely affect our operations or that the healthcare regulatory environment will not change in a way that impacts our operations.

In response to the COVID-19 pandemic, state and federal regulatory authorities have temporarily loosened or waived certain regulatory requirements in order to increase the availability of telehealth services for the duration of the COVID-19 public health emergency. For example, many state governors issued executive orders permitting physicians and other health care professionals to practice in their state without any additional licensure or by using a temporary, expedited or abbreviated licensure or registration process so long as they hold a valid license in another state. In addition, changes were made to the Medicare and Medicaid programs (through waivers and other regulatory authority) to increase access to telehealth services by, among other things, increasing reimbursement, permitting the enrollment of out of state providers and eliminating prior authorization requirements. It is uncertain how long these COVID-19 related regulatory changes will remain in effect and whether they will continue beyond this public health emergency period. A return to the status quo could have a materially negative impact on any commercial agreements we have entered into during 2021 or any time before the termination of the COVID-19 public health emergency. For example, we may be required to change our operations or terminate certain services when the government reinstates certain healthcare regulatory requirements or restrictions that were in place before the COVID-19 public health emergency, including certain restrictions on the reimbursement of telehealth visits to Medicare beneficiaries and state licensure requirements for healthcare professionals who practice medicine across state lines.

The products and services that we provide are regulated by federal, state and foreign governmental authorities. Failure to comply with the applicable laws and regulations can subject us to significant administrative or enforcement actions by the government, government investigation, repayment of amounts previously paid to us, significant civil and criminal penalties, loss of licensure, certification, or accreditation, exclusion from government healthcare programs, corporate integrity agreements, or litigation. The significant areas of regulation are summarized below.

HIPAA and HITECH

Under the administrative simplification provisions of HIPAA, as amended by the HITECH Act, the HHS issued regulations that establish uniform standards governing the conduct of certain electronic healthcare transactions and protecting the privacy and security of protected health information used or disclosed by healthcare providers and other covered entities. Three principal regulations with which we are required to comply have been issued in final form under HIPAA: privacy regulations, security regulations, and standards for electronic transactions, which establish standards for common healthcare transactions. The privacy and security regulations were extensively amended in 2013 to incorporate requirements from the HITECH Act.

The privacy regulations cover the use and disclosure of protected health information by healthcare providers and other covered entities. They also set forth certain rights that an individual has with respect to his or her protected health information maintained by a covered entity, including the right to access or amend certain records containing protected health information, or to request restrictions on the use or disclosure of protected health information. The security regulations establish requirements for safeguarding the confidentiality, integrity, and availability of protected health information that is electronically transmitted or electronically stored. The HITECH Act, among other things, makes certain of HIPAA's privacy and security standards applicable to business associates of covered entities, and established certain protected health information security breach notification requirements. A covered entity must notify affected individual(s) and the HHS when there is a breach of unsecured protected health information. The HIPAA privacy and security regulations establish a uniform federal "floor" that covered entities and their business associates must meet and do not supersede state laws that are more stringent or provide individuals with greater rights with respect to the privacy or security of, and access to, their records containing protected health information. These laws contain significant fines and other penalties for wrongful use or disclosure of protected health information.

In addition to the federal privacy regulations, there are several state laws regarding the privacy and security of health information and personal data that are applicable to our operations. The compliance requirements of these laws, including additional breach reporting requirements, and the penalties for violation vary widely and new privacy and security laws in this area are evolving. Massachusetts, for example, has a state law that protects the privacy and security of personal information of Massachusetts residents that is more prescriptive than HIPAA. Requirements of these laws and penalties for violations vary widely. We believe that we have taken the steps required of us to comply with health information privacy and security statutes and regulations in all jurisdictions, both state and federal. However, we may not be able to maintain compliance in all jurisdictions where we do business. Failure to maintain compliance, or changes in state or federal laws regarding privacy or security, could result in civil and/or criminal penalties and could have a material adverse effect on our business.

Federal, State and Foreign Fraud and Abuse Laws

In the United States, there are various fraud and abuse laws with which we must comply and we are potentially subject to regulation by various federal, state and local authorities, including CMS, other divisions of the HHS (e.g., the Office of Inspector General), the U.S. Department of Justice, and individual U.S. Attorney offices within the Department of Justice, and state and local governments. We also may be subject to foreign fraud and abuse laws.

In the United States, the federal Anti-Kickback Statute prohibits, among other things, knowingly and willfully offering, paying, soliciting or receiving remuneration to induce, or in return for patient referrals for, or purchasing, leasing, ordering, recommending or arranging for the purchase, lease or order of, any healthcare item or service reimbursable under a governmental payer program. Courts have stated that a financial arrangement may violate the Anti-Kickback Statute if any one purpose of the arrangement is to encourage patient referrals or other federal healthcare program business, regardless of whether there are other legitimate purposes for the arrangement. The definition of "remuneration" has been broadly interpreted to include anything of value, including gifts, discounts, credit arrangements, payments of cash, consulting fees, waivers of co-payments, ownership interests, and providing anything at less than its fair market value. Recognizing that the Anti-Kickback Statute is broad and may technically prohibit many innocuous or beneficial arrangements within the healthcare industry, the HHS issued a series of regulatory "safe harbors." These safe harbor regulations set forth certain provisions, which, if met, will assure healthcare providers and other parties that they will not be prosecuted under the federal Anti-Kickback Statute. Although full compliance with these safe harbor provisions ensures against prosecution under the federal Anti-Kickback Statute, the failure of a transaction or arrangement to fit within a specific safe harbor does not necessarily mean that the transaction or arrangement is illegal or that prosecution under the federal Anti-Kickback Statute will be pursued. That said, non-compliance with all the requirements of a safe harbor can increase the risk of the transaction or arrangement and may increase the risk of government scrutiny. Many states also have anti-kickback statutes, some of which may apply to items or services reimbursed by any third-party payer, including commercial insurers.

In addition, federal false claims laws, including the federal civil False Claims Act, prohibit, among other things, any person or entity from knowingly presenting, or causing to be presented, a false claim for payment to, or approval by, the federal government or knowingly making, using, or causing to be made or used a false record or statement material to a false or fraudulent claim to the federal government. As a result of a modification made by the Fraud Enforcement and Recovery Act of 2009, a claim includes "any request or demand" for money or property presented to the U.S. government. Recently, several pharmaceutical and other healthcare companies have been prosecuted under these laws for allegedly providing free product to customers with the expectation that the customers would bill federal programs for the product. Other companies have been prosecuted for causing false claims to be submitted because of the companies' marketing of the product for unapproved, and thus generally non-reimbursable, uses. The civil monetary penalties statute imposes penalties against any person or entity who, among other things, is determined to have presented or caused to be presented a claim to a federal health program that the person knows or should know is for an item or service that was not provided as claimed or is false or fraudulent.

HIPAA created additional federal criminal statutes that prohibit knowingly and willfully executing, or attempting to execute, a scheme to defraud or to obtain, by means of false or fraudulent pretenses, representations or promises, any money or property owned by, or under the control or custody of, any healthcare benefit program, including private third-party payers and knowingly and willfully falsifying, concealing or covering up by trick, scheme or device, a material fact or making any materially false, fictitious or fraudulent statement in connection with the delivery of or payment for healthcare benefits, items or services.

In addition, various states have enacted false claim laws analogous to the federal False Claims Act, although many of these state laws apply where a claim is submitted to any third-party payer and not merely a governmental payer program. If our operations are found to be in violation of any of the federal and state healthcare laws described above or any other governmental regulations that apply to us, we may be subject to significant penalties, including without limitation, civil, criminal and/or administrative penalties, damages, fines, disgorgement, exclusion from participation in government programs, such as Medicare and Medicaid, injunctions, private "qui tam" actions brought by individual whistleblowers in the name of the government, or refusal to allow us to enter into government contracts, contractual damages, reputational harm, administrative burdens, diminished profits and future earnings, and the curtailment or restructuring of our operations, any of which could adversely affect our ability to operate our business and our results of operations. The costs of defending such claims, as well as any sanctions imposed, could significantly affect our financial performance.

Additionally, entities that perform prior authorization and utilization management functions as a delegated entity are subject to additional federal and state requirements, directly and indirectly, including, but not limited to, credentialing, accreditation or licensing requirements and standards (such as requirements of the National Committee for Quality Assurance), state prior authorization laws, Medicare and Medicaid regulations, manuals and policies, and other federal and state laws and standards related to delegation, prior authorization, and utilization management. Health plans and other healthcare organizations that contract with delegated entities typically flow down extensive federal and state requirements to delegated entities, which can increase the cost of operations and exposure to potential liabilities for such delegated entities. Delegated entities are also subject to audits and oversight by healthcare plans as well as federal and state regulatory authorities. To the extent federal and state government programs or regulatory authorities change current laws, regulations or policies, or the prior authorization process and related requirements, such changes could impact our business operations. Complying with new regulatory requirements or changes to current regulations could be time-intensive and expensive, resulting in a material adverse effect on our business.

If we or any third parties we may engage are slow or unable to adapt to changes in existing requirements or the adoption of new requirements or policies, or if we or such third parties are not able to maintain regulatory compliance, we may lose regulatory licensure or authorization for our products and services, be exposed to contractual liabilities, and we may not achieve or sustain profitability. Efforts to ensure compliance with applicable healthcare laws and regulations can involve substantial costs. Violations of healthcare laws can result in significant penalties, including the imposition of significant civil, criminal and administrative penalties, damages, monetary fines, disgorgement, individual imprisonment, possible exclusion from participation in Medicare, Medicaid and other U.S. healthcare programs, integrity oversight and reporting obligations, contractual damages, reputational harm, diminished profits and future earnings, and curtailment or restructuring of operations.

Foreign Corrupt Practices Act

The Foreign Corrupt Practices Act, or FCPA, prohibits any United States individual or business from paying, offering, or authorizing payment or offering of anything of value, directly or indirectly, to any foreign official, political party or candidate for the purpose of influencing any act or decision of the foreign entity in order to assist the individual or business in obtaining or retaining business. The FCPA also obligates companies whose securities are listed in the United States to comply with accounting provisions requiring us to maintain books and records that accurately and fairly reflect all transactions of the corporation, including international subsidiaries, if any, and to devise and maintain an adequate system of internal accounting controls for international operations.

In Europe, various countries have adopted anti-bribery laws providing for severe consequences, in the form of criminal penalties and/or significant fines, for individuals and/or companies committing a bribery offence. Violations of these anti-bribery laws, or allegations of such violations, could have a negative impact on our business, results of operations and reputation. For instance, in the United Kingdom, under the Bribery Act 2010, which went into effect in July 2011, a bribery occurs when a person offers, gives or promises to give a financial or other advantage to induce or reward another individual to improperly perform certain functions or activities, including any function of a public nature. Bribery of foreign public officials also falls within the scope of the Bribery Act 2010. Under the new regime, an individual found in violation of the Bribery Act 2010 faces imprisonment of up to 10 years. In addition, the individual can be subject to an unlimited fine, as can commercial organizations for failure to prevent bribery.

Corporate Practice of Medicine

Numerous states have enacted laws prohibiting business corporations, such as us, from practicing medicine and employing or engaging physicians to practice medicine, generally referred to as the prohibition against the corporate practice of medicine. Many states also have fee splitting laws that prohibit splitting or sharing medical professional fees with other persons or entities who did not perform the medical services unless an exception applies. These laws are designed to prevent interference in the medical decision-making process by anyone who is not a licensed physician. Violation of these corporate practice of medicine laws may result in civil or criminal fines, as well as sanctions imposed against us and/or the physician through licensure proceedings. Typically, such laws are only applicable to entities that conduct business or interact with patients located in that state. Additionally, claims that violate the corporate practice of medicine or other FDA or healthcare laws may increase our liability under the federal False Claims Act and comparable state false claims laws.

Healthcare Reform

The United States and some foreign jurisdictions are considering or have enacted several legislative and regulatory proposals designed to change the healthcare system in ways that could affect our business. In the United States, there is significant interest in promoting changes in the health care system with the stated goal of containing healthcare costs, improving quality or expanding access. For example, the Affordable Care Act ("ACA") contains certain measures that may be significant for our business. The ACA includes, among other things, provisions regarding initiatives to revise Medicare payment methodologies; the coordination and promotion of research on comparative clinical effectiveness of different technologies and procedures; and initiatives to promote quality indicators in payment methodologies.

There have been other health reform measures taken since the enactment of the ACA. For example, the Budget Control Act of 2011, among other things, created measures for spending reductions by Congress. Beginning April 1, 2013, Medicare payments to providers were reduced by 2% under the sequestration required by the Budget Control Act of 2011, which will remain in effect through 2031, with the exception of a temporary suspension from May 1, 2020 through March 31, 2022 due to the COVID-19 pandemic, unless additional Congressional action is taken. Under current legislation, the actual reduction in Medicare payments will vary from 1% in 2022 to up to 4% in the final fiscal year of this sequester. Furthermore, on January 2, 2013, the American Taxpayer Relief Act of 2012 was signed into law, which, among other things, increased the statute of limitations for the government to recover overpayments to providers from three years to five years.

Since its enactment, there have been judicial and Congressional challenges to certain aspects of the ACA. In June 2021, the United States Supreme Court held that Texas and other challengers had no legal standing to challenge the ACA, dismissing the case without specifically ruling on the constitutionality of the ACA. Accordingly, the ACA remains in effect in its current form. It is unclear how this Supreme Court decision, future litigation, or healthcare measures promulgated by the Biden administration will impact our business, financial condition and results of operations. Complying with any new legislation or changes in healthcare regulation could be time-intensive and expensive, resulting in material adverse effect on our business.

In the United States, there have been and continue to be a number of legislative initiatives to contain healthcare costs.The healthcare industry has been a particular focus of these efforts and has been significantly affected by major legislative initiatives. We face uncertainties that might result from legislative, executive, and administrative actions and future healthcare measures and agency rules implemented by at the federal and state levels. Any changes to the ACA or implementation of cost containment measures or other healthcare reforms are likely to have an impact on our results of operations and may have a material adverse effect on our results of operations, or may prevent us from being able to generate revenue or attain profitability. We cannot predict what other healthcare programs and regulations will ultimately be implemented at the federal or state level or the effect of any future legislation or regulation in the United States may have on our business.

Changes in healthcare policy could increase our costs and subject us to additional regulatory requirements that may interrupt commercialization of our current and future solutions. Changes in healthcare policy could increase our costs, decrease our revenues and impact sales of and reimbursement for our current and future solutions. The Affordable Care Act substantially changes the way healthcare is financed by both governmental and private insurers, and significantly impact our industry. The Act contains a number of provisions that impact our business and operations, some of which in ways we cannot currently predict, including those governing enrollments in federal healthcare programs and reimbursement changes.

Other Regulatory Requirements

To the extent we develop any products that implicate environmental, hazardous substances or emissions or other occupational safety laws, we may be subject to federal, state and local laws, rules, regulations and policies governing the use, generation, manufacture, storage, emission, effluent discharge, handling and disposal of certain hazardous and potentially hazardous substances used in connection with our operations.

Backlog

We have no material backlog of orders.

Geographic and Segment Information

During 2021, substantially all of our long-lived assets were located within the United States, Canada, and the United Kingdom.

Revenues from international markets were approximately 1% and 1% of our consolidated revenue for 2021 and 2020, respectively.

We operate in one segment. The Company has one business activity and does not segregate its business for internal reporting. Accordingly, management has determined that the Company operates in one reportable segment.

Seasonality

Our revenues are not seasonal in nature.

Corporate Information

We were founded in 2010 as a Delaware limited liability company under the name “About Advanced Health, LLC.” In 2011, our affiliates NantWorks, LLC, or NantWorks, and California Capital Equity, LLC, or Cal Cap, purchased certain assets from Abraxis Bioscience, LLC, which were subsequently contributed to us. We subsequently changed our name to “All About Advanced Health, LLC,” and then to “Nant Health, LLC.” On June 1, 2016, in connection with our initial public offering, we converted from a limited liability company into a Delaware corporation and changed our name from Nant Health, LLC to NantHealth, Inc., which we refer to as the “LLC Conversion.” In conjunction with the LLC Conversion, (a) all of our outstanding units were automatically converted into shares of our common stock, based on the relative rights of our pre-IPO equity holders as set forth in the Nant Health, LLC limited liability company agreement, or the LLC Agreement, and (b) we adopted and filed a certificate of incorporation with the Secretary of State of the State of Delaware and adopted bylaws. Our principal executive offices are located at 3000 RDU Center, Suite 200, Morrisville, North Carolina 27500 and our telephone number is (855) 949-6268. Our corporate website address is www.nanthealth.com. We make available on our website, free of charge, our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, and any amendments to those reports, as soon as reasonably practicable after we electronically file such material with, or furnish it to, the Securities and Exchange Commission, or SEC. Our SEC reports can be accessed through the investor relations page of our website located at http://ir.nanthealth.com/.

The contents of our website are not a part of, and are not incorporated by reference into, this Annual Report on Form 10-K or any other report or document we file with the SEC, and any references to our website are intended to be inactive textual references only.

Item 1A. Risk Factors

Investing in our common stock involves a high degree of risk. You should carefully consider the risks described below, as well as all other information included in this Annual Report on Form 10-K, including our financial statements and the related notes thereto and Item 7, “Management’s Discussion and Analysis of Financial Condition and Results of Operations”, any of which may be relevant to decisions regarding an investment in or ownership of our common stock. Our future operating results may vary substantially from anticipated results due to a number of risks and uncertainties, many of which are beyond our control. The risks and uncertainties described below are not the only ones we face. Additional risks and uncertainties that we are unaware of, or that we currently believe are not material, may also become important factors that affect us. The following discussion highlights some of these risks and uncertainties and the possible impact of these risks on future results of operations. If any of the following risks actually occurs, our business, financial condition, operating results, prospects and ability to accomplish our strategic objectives could be materially harmed. As a result, the trading price of our common stock could decline and you could lose all or part of your investment. Additional risks and uncertainties not presently known to us or that we currently deem immaterial may also impair our business operations and the market price of our common stock.

Risk Factor Summary

Risks related to our business approach

- We are an early, commercial-stage company attempting to integrate complex platforms and systems to address a wide range of healthcare issues, and we may not be successful in doing so.
- The success of NantHealth solutions is dependent upon the robustness of the information we and others input into our platforms and systems to achieve maximum network effects, and if we are unable to amass and input the requisite data to achieve these effects, our business will be adversely affected.
- We may be unable to appropriately allocate our financial and human resources across our broad array of product and service offerings.

Risks related to our financial condition and capital requirements:

- We have a limited operating history, which may make it difficult to evaluate our current business and predict our future performance.
- We have a history of significant losses, which we expect to continue, and we may never achieve or sustain profitability in the future.
- We may need to raise additional capital to fund our existing operations, develop our solutions, commercialize new products and expand our operations.

Risks related to our system infrastructure and software solutions business:

- The market for our systems infrastructure and software solutions is new and unproven and may not grow.
- The data and information that we provide to our customers and their constituents, could be inaccurate or incomplete, which could harm both patients and our business, financial condition and results of operations.
- Our use of open source technology could impose limitations on our ability to commercialize our offerings.

Risks related to our OpenNMS open source business:

- Our OpenNMS business incorporates third-party open source software, which could negatively affect our ability to sell our OpenNMS solutions and subject us to possible litigation.
- Because of the characteristics of open source software, there may be fewer technology barriers to entry in the open source market by new competitors and it may be relatively easy for new and existing competitors with greater resources than we have to compete with our OpenNMS business.

Risks related to our relationships with other companies:

- We rely on third-party computer hardware and software that may be difficult to replace or which could cause errors or failures of our service which could damage our reputation, harm our ability to attract and maintain customers and decrease our revenue.
- We are heavily dependent on our senior management, particularly Dr. Patrick Soon-Shiong, and a loss of a member of our senior management team in the future could harm our business.

Risks related to our business generally:

- We have in the past and may in the future acquire other companies or technologies, which could divert our management’s attention, result in dilution to our stockholders and otherwise disrupt our operations and adversely affect our operating results.
- Business disruptions, including from natural disasters and the COVID-19 pandemic, among other things, could seriously harm our future revenue and financial condition and increase our costs and expenses.
- Our marketing efforts depend significantly on our ability to receive positive references from our existing customers.
- Our estimates of market opportunity and forecasts of market growth may prove to be inaccurate, and even if the market in which we compete achieves the forecasted growth, our business could fail to grow at similar rates, if at all.

Risks related to intellectual property:

- We may be unable to adequately protect, and we may incur significant costs in enforcing, our intellectual property and other proprietary rights.
- Obtaining and maintaining our patent protection depends on compliance with various procedural, documentary, fee payment and other requirements imposed by governmental patent agencies, and our patent protection could be reduced or eliminated for non-compliance with these requirements.
- Litigation or other proceedings or third-party claims of intellectual property infringement could require us to spend significant time and money and could prevent us from selling our products and services.

Risks related to government regulation

- The healthcare industry is highly regulated, and thus, we are subject to several laws, regulations and industry initiatives, non-compliance with certain of which could materially adversely affect our operations or otherwise adversely affect our business, results of operations and financial condition.
- If we fail to comply with applicable health information privacy and security laws and other state and federal privacy and security laws, we may be subject to significant liabilities, reputational harm and other negative consequences, including decreasing the willingness of current and potential customers to work with us.
- If we, including our employees, suppliers, distributors, independent contractors, and agents acting on our behalf, fail to comply with federal and state healthcare laws and regulations, including those governing submissions of false or fraudulent claims to government healthcare programs and financial relationships with healthcare providers, we may be subject to significant civil and criminal penalties and/or loss of eligibility to participate in government healthcare programs.

Risks related to our convertible notes:

- Servicing our debt requires a significant amount of cash, and we may not have sufficient cash flow from our business to pay our substantial debt.
- The accounting method for convertible debt securities that may be settled in cash, such as the notes, could have a material effect on our reported financial results.

Risks related to our common stock:

- Dr. Soon-Shiong. our Chairman and Chief Executive Officer and our principal stockholder, and entities affiliated with him, collectively own a significant majority of our common stock and will exercise significant influence over matters requiring stockholder approval, regardless of the wishes of other stockholders.
- Dr. Soon-Shiong, has significant interests in other companies which may conflict with our interests.
- The trading price of our common stock has been and may continue to be volatile. This volatility may affect the price at which you could sell our common stock, the notes and any common stock you receive upon conversion of your notes.

Risks related to our business approach

We are an early, commercial-stage company attempting to integrate complex platforms and systems to address a wide range of healthcare issues, and we may not be successful in doing so.

We are an early, commercial-stage company with a business model based upon a novel approach to healthcare. NantHealth solutions are designed to address many of the key challenges healthcare constituents face by enabling them to move, interpret, and visualize complex and highly sensitive information, combine diagnostic inputs with phenotypic and cost data, analyze datasets and clinical research, securely deliver data to providers in a clinical setting to aid selection of the appropriate treatments, and demonstrate improved patient outcomes and costs. Integration across our systems infrastructure and platforms may take longer than we expect or may never occur at all.

We have engaged and may in the future engage in the acquisition or disposition of other companies, technologies, and businesses which could divert our management’s attention, result in additional dilution to our stockholders and otherwise disrupt our operations and harm our operating results.

Based on the above factors, it may take longer than we expect, or we may never be able, to fully integrate our system as planned. If our integration efforts are not successful, we may not be able to attract new customers and to expand our offerings to existing customers.

The success of NantHealth solutions is dependent upon the robustness of the information we and others input into our platforms and systems to achieve maximum network effects, and if we are unable to amass and input the requisite data to achieve these effects, our business will be adversely affected.

NantHealth solutions become more valuable as more accurate and clinically relevant information is integrated into them, and our ultimate outputs and recommendations to a patient, provider or payer are therefore highly dependent on the information that is input into our platforms and systems. As a result, we need to consistently and continuously have access to and integrate the most medically relevant and cutting-edge clinical data and research studies with patient-specific data. Further, to have access to certain other data points, we rely in part on third parties to supply or in some instances to generate more data to be integrated into NantHealth solutions. These third parties may never develop data interfaces or applications compatible with our software solutions or may develop them at a slower rate than our ability to address shifts in healthcare. In addition, if such third-party solutions are not produced to specification, are produced in accordance with modified specifications, or are defective, they may not be compatible with our systems. In such case, the reliability and performance of our products may be compromised. To the extent we are unable to amass sufficient data, keep an inflow of current and continuous data or integrate and access the data we currently have to continue to populate NantHealth solutions, the network effects we expect will not be fully realized and our business may be adversely affected.

We may be unable to appropriately allocate our financial and human resources across our broad array of product and service offerings.

We have a broad array of product and service offerings. Our management team is responsible for allocating resources across these products and services and may forego or delay pursuit of opportunities with certain products or services that later prove to have greater commercial potential. In July 2020, we acquired The OpenNMS Group, Inc. ("OpenNMS"), expanding our collective offerings to include networking monitoring solutions. These and other resource allocation decisions may cause us to fail to capitalize on attractive products or services or market opportunities. Our spending on current and future research and development programs and future products or services may not yield commercially viable products or services or may fail to optimize the anticipated network effects of NantHealth solutions. If our management team is unable to appropriately prioritize the allocation of our resources among our broad range of products and services in an efficient manner, our business may be adversely affected.

Risks related to our financial condition and capital requirements

We have a limited operating history, which may make it difficult to evaluate our current business and predict our future performance.

We were organized as a limited liability company in Delaware and began operations in 2010. In June 2016, we converted to a Delaware corporation. Additionally, our business has operated as part of the larger NantWorks, LLC ("NantWorks") group of affiliated companies. Our limited independent operating history, particularly in light of the increasingly complex and rapidly evolving healthcare and technology markets in which we operate, may make it difficult to evaluate our current business and predict our future performance. In addition, we have acquired numerous companies or businesses over the past five years, including certain assets of NaviNet, NantHealth Labs, and most recently OpenNMS. In addition, in August 2017, we sold our provider/patient engagement solutions business to Allscripts and in February 2020, we sold assets relating to our connected care business to Masimo. We have had limited experience operating these businesses as a whole and as such, it may be difficult to evaluate our current business and predict our future operating performance. In light of the foregoing, any assessment of our profitability or prediction about our future success or viability is subject to significant uncertainty. We have encountered and will continue to encounter risks and difficulties frequently experienced by early, commercial-stage companies in rapidly evolving industries. If we do not address these challenges successfully, our business results will suffer.

We have a history of significant losses, which we expect to continue, and we may never achieve or sustain profitability in the future.

We have incurred significant net losses in each fiscal year since inception and expect to continue to incur net losses for the foreseeable future. We experienced net losses of $58.5 million and $56.4 million during the years ended December 31, 2021 and 2020, respectively. As of December 31, 2021, we had an accumulated deficit of $1.1 billion. The losses and accumulated deficit were primarily due to the substantial investments we made to grow our business and enhance our systems infrastructure and platforms. We have grown our business through research and development and the acquisition of assets, businesses and customers. We anticipate that our operating expenses will increase substantially in the foreseeable future as we seek to continue to grow our business, including through strategic acquisitions, and build and further penetrate our customer base and develop our product and service offerings, including (i) expansion of the features and capabilities of our NaviNet and Eviti product lines and (ii) expanding the OpenNMS solutions through the creation of cloud solutions and the addition of hardware devices for edge monitoring. These efforts may prove more expensive than we currently anticipate, and we may not succeed in increasing our revenue sufficiently to offset these higher expenses.

Our prior losses, combined with our expected future losses, have had and will continue to have an adverse effect on our stockholders' deficit and working capital. We expect to continue to incur operating losses for the foreseeable future and may never become profitable on a quarterly or annual basis, or if we do, we may not be able to sustain profitability in subsequent periods. Our failure to achieve and sustain profitability in the future would negatively affect our business, financial condition, results of operations and cash flows, and could cause the market price of our common stock to decline.

We may need to raise additional capital to fund our existing operations, develop our solutions, commercialize new products and expand our operations.

Based on our current business plan, we believe our current cash, cash equivalents, marketable securities, and our ability to borrow from affiliated entities, will be sufficient to meet our anticipated cash requirements over at least the next 12 months. If our available cash balances and anticipated cash flow from operations are insufficient to satisfy our liquidity requirements, we may seek to sell common or preferred equity or convertible debt securities, enter into a credit facility or another form of third-party funding, or seek other debt financing.

We may consider raising additional capital in the future to expand our business, to pursue strategic investments, to take advantage of financing opportunities, or for other reasons, including to:

- increase our sales and marketing efforts to drive market adoption of NantHealth solutions;
- address competitive developments;
- fund development and marketing efforts of any future platforms and solutions;
- expand adoption of Eviti platform solutions into critical illnesses outside of oncology;
- acquire, license or invest in complimentary businesses, technologies or service offerings; and
- finance capital expenditures and general and administrative expenses.

Our present and future funding requirements will depend on many factors, including:

- our ability to achieve revenue growth;
- the cost of expanding our products and service offerings, including our sales and marketing efforts;
- our ability to achieve interoperability across all of our acquired businesses, technologies and service offerings to deliver networking effects to our customers;
- the effect of competing technological and market developments;
- costs related to international expansion; and
- the potential cost of and delays in product development as a result of any regulatory oversight applicable to our products.

The various ways we could raise additional capital carry potential risks. If we raise funds by issuing equity securities, dilution to our stockholders could result. Any equity securities issued also could provide for rights, preferences or privileges senior to those of holders of our common stock. If we raise funds by issuing debt securities, those debt securities would have rights, preferences and privileges senior to those of holders of our common stock. The terms of debt securities issued or borrowings pursuant to a credit agreement could impose significant restrictions on our operations.

Risks related to our system infrastructure and software solutions business

The market for our systems infrastructure and software solutions is new and unproven and may not grow.

We believe our future success will depend in large part on establishing and growing a market for our systems infrastructure and that our solutions and systems are able to provide operational intelligence, particularly designed to collect and index machine data. Our systems infrastructure and software solutions are designed to address interoperability challenges across the healthcare continuum. They integrate big data with real time resources and, for some functions and features apply machine learning algorithms to inform and optimize treatment decisions. In order to grow our business, we intend to expand the functionality of our offerings to increase acceptance and use by the broader market. In particular, our Eviti and NaviNet systems infrastructure and software solutions are targeted at those in the healthcare continuum that are transitioning from fee-for-service to a value-based reimbursement model. While we believe this to be the current trend in healthcare, this trend may not continue in the future. Our systems infrastructure and software solutions are less effective with a traditional fee-for-service model and if there is a reversion in the industry towards fee-for-service, or a shift to another model, we would need to update our offerings and we may not be able to do so effectively or at all. It is difficult to predict customer adoption and renewal rates, customer demand for our software, the size and growth rate of the market for our solutions, the entry of competitive products or the success of existing competitive products. Many of our potential customers may already be party to existing agreements for competing offerings that may have lengthy terms or onerous termination provisions, and they may have already made substantial investments into those platforms which would result in high switching costs. Any expansion in our market depends on several factors, including the cost, performance and perceived value associated with our solutions, particularly considering the shifting market dynamics. The rate of adoption of our systems infrastructure and software solutions, may slow or decline in the future, which would harm our business and operating results. In addition, while many large payers use our solutions, many of these entities use only certain of our offerings, and we may not be successful in driving broader adoption of our solutions among these existing users, which would limit our revenue growth.

If the market for our offerings does not achieve widespread adoption or there is a reduction in demand for our offerings caused by a lack of customer acceptance, technological challenges, lack of accessible machine data, competing technologies or products, decreases in corporate spending, weakening economic conditions, or otherwise, it could result in reduced customer orders, early terminations, reduced renewal rates or decreased revenues, any of which would adversely affect our business operations and financial results. You should consider our business and prospects in light of the risks and difficulties we may encounter in this new and unproven market.

The data and information that we provide to our customers and their constituents, could be inaccurate or incomplete, which could harm both patients and our business, financial condition and results of operations.

Some of our software solutions store and display data from a variety of third-party sources for use in treating patients and to search and compare options for healthcare services and treatments. As part of our Eviti platform, we provide up-to-date information regarding research in the diseases that our solutions support (e.g. cancer and autoimmune disease). along with a list of potential treatments and relevant clinical trials seeking enrollment. Most of this data comes from health plans, our customers, published guidelines, peer-reviewed journals and other third parties. Because data in the healthcare industry is often fragmented in origin, inconsistent in format and often incomplete, the overall quality of certain types of data we receive can be poor. If this data is incorrect or incomplete or if we make mistakes in the capture or input of their data, or in our interpretation or analysis of such data, adverse consequences, including patient death and serious injury, may occur and give rise to product liability and other claims against us. In addition, a court or government agency may take the position that our storage and display of health information exposes us to personal injury liability or other liability for wrongful delivery or handling of healthcare services or erroneous health information. While we maintain insurance coverage, we cannot assure that this coverage will prove to be adequate or will continue to be available on acceptable terms, if at all. Even unsuccessful claims could result in substantial costs, reputational damage, and diversion of management resources. A claim brought against us that is uninsured or under-insured could harm our business, financial condition and results of operations.

Our use of open source technology could impose limitations on our ability to commercialize our offerings.

Our offerings incorporate open source software components that are licensed to us under various public domain licenses. Some open source software licenses require users who distribute open source software as part of their software to publicly disclose all or part of the source code to such software or make available any derivative works of the open source code on unfavorable terms or at no cost. There is little or no legal precedent governing the interpretation of many of the terms of these licenses and therefore the potential impact of such terms on our business is not fully known or predictable. There is a risk that such licenses could be construed in a manner that imposes unanticipated conditions or restrictions on our ability to market our software products and services. While we monitor our use of open source software and try to ensure that none is used in a manner that would require us to disclose the source code of our proprietary solutions or that would otherwise breach the terms of an open source agreement, such use could inadvertently occur and we may be required to release our proprietary source code, pay damages for breach of contract, re-engineer one or more of our offerings, discontinue sales of one or more of our offerings in the event re-engineering cannot be accomplished on a timely basis or take other remedial action that may divert resources away from our development efforts, any of which could cause us to breach obligations to our customers, harm our reputation, result in customer losses or claims, increase our costs or otherwise adversely affect our business and operating results.

If we are not able to enhance our systems infrastructure or software solutions to achieve market acceptance and keep pace with technological developments, our business will be harmed.

Our ability to attract new subscribers and licensees, and increase revenue from existing subscribers and licensees, depends in large part on our ability to enhance and improve our existing offerings and to introduce new products and services, including products and services designed for a mobile user environment. To grow our business, we must develop products and services that reflect the changing nature of business management software and expand our offerings. The success of any enhancements to our offerings depends on several factors, including timely completion, adequate quality testing and sufficient demand. Any new product or service that we develop may not be introduced in a timely or cost-effective manner, may contain defects or may not achieve the market acceptance necessary to generate sufficient revenue. If we are unable to successfully develop new products or services, enhance our existing offerings to meet subscriber requirements or otherwise gain market acceptance, our business and operating results will be harmed.

In addition, because many of our offerings are available over the Internet, we need to continuously modify and enhance them to keep pace with changes in Internet-related hardware, software, communications and database technologies and standards. If we are unable to respond in a timely and cost-effective manner to these rapid technological developments and changes in standards, our offerings may become less marketable, less competitive or obsolete, and our operating results will be harmed. If new technologies emerge that are able to deliver competitive products and applications at lower prices, more efficiently, more conveniently or more securely, such technologies could adversely impact our ability to compete. Our offerings must also integrate with a variety of network, hardware, mobile, and software platforms and technologies, and we need to continuously modify and enhance them to adapt to changes and innovation in these technologies. Any failure of our offerings to operate effectively with future infrastructure platforms and technologies could reduce the demand for such offerings. If we are unable to respond to these changes in a cost-effective manner, our offerings may become less marketable, less competitive or obsolete, and our operating results may be adversely affected.

Our data suppliers might restrict our use of or refuse to license data, which could lead to our inability to provide certain products or services.

A portion of the data that we use is either purchased or licensed from third parties or is obtained from our customers for specific customer engagements. Although we typically enter into long-term contractual arrangements with many of these suppliers of data, at the time of entry into a new contract or renewal of an existing contract, suppliers may increase restrictions on our use of such data, increase the price they charge us for data or refuse altogether to license the data to us. In addition, during the term of any data supply contract, suppliers may fail to adhere to our data quality control standards or fail to deliver data. Further, although no single individual data supplier is material to our business, if a number of suppliers collectively representing a significant amount of data that we use for one or more of our services were to impose additional contractual restrictions on our use of or access to data, fail to adhere to our quality-control standards, repeatedly fail to deliver data or refuse to provide data, now or in the future, our ability to provide those services to our customers could be materially adversely impacted, which may harm our operating results and financial condition.

We believe that we have rights necessary to use the data that is incorporated into our offerings. However, in the future, data providers could withdraw their data from us if there is a competitive reason to do so, or if legislation is passed restricting the use of such data, or if judicial interpretations are issued restricting the use of the data that we currently use in our products and services. If a substantial number of data providers were to withdraw their data, our ability to provide our offerings to our customers could be materially adversely impacted.

For example, in order to deliver the full functionality offered by some of our solutions, we need access, on behalf of our customers, to sources of pricing and claims data, much of which is managed by a limited number of health plans and other third parties. We have developed various long-term and short-term data sharing relationships with certain health plans and other third parties, including some of the largest health plans in the United States. The health plans and other third parties that we currently work with may, in the future, change their position and limit or eliminate our access to pricing and claims data, increase the costs charged to us for access to data, provide data to us in more limited or less useful formats, or restrict our permitted uses of data. Furthermore, some health plans have developed or are developing their own proprietary price and quality estimation tools and may perceive continued cooperation with us as a competitive disadvantage and choose to limit or discontinue our access to pricing and claims data. Failure to continue to maintain and expand our access to pricing and claims data will adversely impact our ability to continue to serve existing customers and expand our offerings to new customers.

Failure by our customers to obtain proper permissions and waivers may result in claims against us or may limit or prevent our use of data which could harm our business.

We require our customers and business associates to provide necessary notices and to obtain necessary permissions and waivers for use and disclosure of the information that we receive, and we require contractual assurances from them that they have done so and will do so. If they do not obtain necessary permissions and waivers, then our use and disclosure of information that we receive from them or on their behalf may be limited or prohibited by state or federal privacy laws or other laws. This could impair our functions, processes and databases that reflect, contain or are based upon such data and may prevent use of such data. In addition, this could interfere with or prevent creation or use of rules, analyses or other data-driven activities that benefit us. Moreover, we may be subject to claims or liability for use or disclosure of information by reason of lack of valid notice, permission or waiver. These claims or liabilities could subject us to unexpected costs and adversely affect our operating results.

Our sales cycle can be lengthy and unpredictable, which may cause our revenue and operating results to fluctuate significantly.

Our sales cycle can be lengthy and unpredictable. Our sales efforts involve educating our customers about the use and benefits of our offerings and solutions, including the technical capabilities of our solutions and the potential cost savings and productivity gains achievable by deploying them. Additionally, many of our potential customers are typically already in long-term contracts with their current providers and face significant costs associated with transitioning to our offerings and solutions. As a result, potential customers typically undertake a significant evaluation process, which frequently involves not only NantHealth solutions and component systems infrastructure and platforms but also their existing capabilities and solutions and can result in a lengthy sales cycle. We spend substantial time, effort and money on our sales efforts without any assurance that our efforts will produce any sales. In addition, purchases of NantHealth solutions and component systems infrastructure are frequently subject to budget constraints, multiple approvals and unplanned administrative, processing and other delays. For example, currently, hospitals in the United States face significant uncertainty over the continuing impact of federal government budgets, and continuing changes in the implementation and deadlines for compliance with the Patient Protection and Affordable Care Act of 2010, or ACA, and other healthcare reform legislation, as well as potential future statutes and rulemaking. Many of our potential hospital customers have used all or a significant portion of their revenues to comply with federal mandates to adopt electronic medical records to maintain their Medicaid and Medicare reimbursement levels. In the event we are unable to manage our lengthy and unpredictable sales cycle, our business may be adversely affected.

We bill our customers and recognize revenue over the term of the contract for certain of our products. As a result, near term declines in new or renewed agreements for these products may not be reflected immediately in our operating results and may be difficult to discern.

A portion of our revenue in each quarter is derived from agreements entered with our customers during previous quarters. Consequently, a decline in new or renewed agreements in any one quarter may not be fully reflected in our revenue for that quarter. Such declines, however, would negatively affect our revenue in future periods and the effect of significant downturns in sales of and market demand for certain of our solutions, and potential changes in our rate of renewals or renewal terms, may not be fully reflected in our results of operations until future periods. In addition, we may be unable to adjust our cost structure rapidly, or at all, to take account for reduced revenue. Our subscription model for certain of our solutions also makes it difficult for us to increase our total revenue through additional sales in any quarterly period, as revenue from new customers for those products must be recognized over the applicable term of the agreement. Accordingly, the effect of changes in the industry impacting our business or changes we experience in our new sales may not be reflected in our short-term results of operations.

A large portion of our revenue is derived from a small group of our customers, and the loss of such customers could adversely affect our business.

During the year ended December 31, 2021 we derived 22.8% of our revenue through a single channel partner, who contracts with various health plans and other healthcare entities to manage the utilization of specialty health services for their covered members, and another 12.9% of our revenue through a customer of our NaviNet solution. We cannot guarantee that this channel partner and customer will continue to contract for our services or acquire new services. Additionally, the channel partner may not be successful in reselling our products to its covered members, or covered members may reduce their orders for our products for a number of reasons. If the agreements with this channel partner and customer do not renew or our channel partner is unsuccessful in reselling our solutions, our revenue could be greatly reduced, which would materially and adversely affect our business.

Three contracts with our largest NaviNet customers expired at the end the fiscal year ending December 31, 2020. Two of these customers renewed for additional terms. For the customer that elected not to renew its agreement, we continued to provide services through June 30, 2021 on a transition basis. This customer represented 14.9% of our consolidated revenue through December 31, 2020. Customer churn is a natural part of our business and, while there is no guarantee that we will be able to offset the loss of this customer in the short term, we continue to develop new product enhancements and offerings to help drive customer acquisition and expansion opportunities to replace this lost revenue in the long term.

If our existing customers do not continue or renew their agreements with us, renew at lower fee levels or decline to purchase additional applications and services from us, our business and operating results will suffer.

We expect to derive a significant portion of our revenue from renewal of existing customer agreements, and sales of additional applications and services to existing customers. As a result, achieving high customer satisfaction to keep existing customers and sell additional platform offerings is critical to our future operating results.

Factors that may affect the renewal rate for our offerings and our ability to sell additional solutions include:

- the price, performance and functionality of our offerings;
- the availability, price, performance and functionality of competing solutions;
- a customer's desire and ability to develop their own internal solution;
- our ability to develop complementary applications and services;
- our continued ability to access the pricing and claims data necessary to enable us to deliver reliable data in our cost estimation and price transparency offering to customers;
- the stability, performance and security of our SaaS infrastructure and services;
- changes in healthcare laws, regulations or trends; and
- the business environment of our customers, in particular, headcount reductions by our customers.

For our SaaS solutions, we typically enter into master services agreements with our customers. These agreements generally have stated terms of three to five years. Our customers have no obligation to renew their subscriptions for our offering after the term expires. In addition, our customers may negotiate terms less advantageous to us upon renewal, which may reduce our revenue from these customers. Factors that are not within our control may contribute to a reduction in our contract revenue. For instance, our customers may reduce their number of employees, which would result in a corresponding reduction in the number of employee users eligible for our offering and thus a lower aggregate monthly services fee. Our future operating results also depend, in part, on our ability to sell new solutions to our existing customers. If our customers fail to renew their agreements, renew their agreements upon less favorable terms or at lower fee levels, or fail to purchase new solutions from us, our revenue may decline, or our future revenue may be constrained.

In addition, a significant number of our customer agreements allow our customers to terminate such agreements for convenience at certain times, typically with one to three months advance notice. Any cancellations of such agreements would have a negative result on our business and results of operations.

If any new applications and services we may develop or acquire in the future are not adopted by our customers, or if we fail to continue to innovate and develop or acquire new applications and services that are adopted by customers, then our revenue and operating results will be adversely affected.

In addition to past investments made in NantHealth solutions, and component systems infrastructure and platforms, we have invested, and will continue to invest, significant resources in research and development and in acquisitions to enhance our existing offerings and introduce new high-quality applications and services. If existing customers are not willing to make additional payments for such new applications or services, or if new customers do not value such new applications or services, our business and operating results will be harmed. If we are unable to predict user preferences or our industry changes, or if we are unable to modify our offering and services on a timely basis, we might lose customers. Our operating results would also suffer if our innovations and acquisitions are not responsive to the needs of our customers, are not appropriately timed with market opportunity or are not effectively brought to market.

Security breaches and incidents, loss of data and other disruptions could compromise sensitive information related to our business and/or protected health information or prevent us from accessing critical information and expose us to liability, which could adversely affect our business and our reputation.

In the ordinary course of our business, we and our customers, consultants, contractors and business associates collect and store petabytes of sensitive data, including legally protected health information, personally identifiable information, intellectual property and proprietary business information owned or controlled by ourselves or our customers, payers, providers and partners. We manage and maintain our applications and data by utilizing a combination of on-site systems, managed data center systems, and cloud-based data center systems. These applications and data encompass a wide variety of business-critical information, including research and development information, commercial information and business and financial information. We face four primary risks relative to protecting this critical information, including loss of access risk, inappropriate disclosure risk, inappropriate modification risk and the risk of being unable to adequately monitor our controls over the first three risks.

The secure processing, storage, maintenance and transmission of this critical information is vital to our operations and business strategy, and we devote significant resources to protecting such information. Although we take measures to protect sensitive information from unauthorized access or disclosure, our information technology and infrastructure, and that of our third-party billing and collections provider and other third parties that maintain or otherwise process such information for us, may be vulnerable to attacks by hackers or viruses or breached or otherwise subject to security incidents due to employee error, malfeasance or other events. Any such breach or incident could result in a disruption or interruption to, or compromise, our networks and systems or those of our third-party service providers or partners, and the information stored or otherwise processed there could be publicly disclosed, accessed, rendered unavailable, used, modified, disclosed or otherwise processed without authorization, lost or stolen. Any such event, or the perception that any such event has occurred, could result in legal claims or proceedings (including regulatory investigations and enforcement actions), liability under laws that protect the privacy of personal information, such as the Health Insurance Portability and Accountability Act (“HIPAA”) and regulatory penalties. Although we have implemented security measures and a formal, dedicated enterprise security program in an effort to prevent unauthorized access to patient data, there is no guarantee we can continue to protect our online portal or will be able to protect our mobile applications from breach. Unauthorized access to, or unavailability, loss or dissemination of data, or unauthorized access to, interruptions or other disruptions to systems, whether maintained by us or by third parties performing services for us, could also disrupt our operations, including our ability to conduct our analyses, bill payers, providers or patients, process claims and appeals, provide customer assistance services, conduct research and development activities, collect, process and prepare company financial information, provide information about our products and other patient and physician education and outreach efforts through our website, manage the administrative aspects of our business and damage our reputation, any of which could adversely affect our business.

Additionally, ransomware attacks, including these from organized criminal threat actors, nation-states and nation-state supported actors, are becoming increasingly prevalent and severe and can lead to significant interruptions, delays, or outages in our operations, disruptions in our services, loss or unavailability of data, loss of income, significant extra expense to restore data or systems, reputational loss and the diversion of funds. To alleviate the financial, operational and reputational impact of a ransomware attack, it may be preferable to make extortion payments, but we may be unwilling or unable to do so (including, for example, if applicable laws or regulations prohibit such payments).

The U.S. Office of Civil Rights may impose penalties on us if we do not fully comply with requirements of HIPAA. Penalties will vary significantly depending on factors such as whether we knew or should have known of the failure to comply, or whether our failure to comply was due to willful neglect. These penalties include civil monetary penalties of $100 to $50,000 per violation, up to an annual cap of $1,500,000 for identical violations. A person who knowingly obtains or discloses individually identifiable health information in violation of HIPAA may face a criminal penalty of up to $50,000 per violation and up to one-year imprisonment. The criminal penalties increase to $100,000 per violation and up to five years imprisonment if the wrongful conduct involves false pretenses, and to $250,000 per violation and up to 10 years imprisonment if the wrongful conduct involves the intent to sell, transfer, or use identifiable health information for commercial advantage, personal gain, or malicious harm. The U.S. Department of Justice is responsible for criminal prosecutions under HIPAA. Furthermore, in the event of a breach as defined by HIPAA, we have specific reporting requirements to the Office of Civil Rights under the HIPAA regulations as well as to affected individuals, and we may also have additional reporting requirements to other state and federal regulators, including the Federal Trade Commission, and/or to the media. Issuing such notifications can be costly, time and resource intensive, and can generate significant negative publicity. Breaches of HIPAA may also constitute contractual violations, and such contractual violations or any other contractual violations relating to a security breach or incident, could lead to claims, damages, legal proceedings, and contractual damages, other liability or terminations.

In addition, the interpretation and application of consumer, healthcare privacy, data protection and cybersecurity laws in the United States, Europe and elsewhere are often uncertain, contradictory and in flux. It is possible that these laws may be interpreted and applied in a manner that is inconsistent with our practices. If so, this could result in claims, proceedings, damages, and liabilities, including government-imposed fines, and orders requiring that we change our practices, which could adversely affect our business. In addition, these laws and regulations vary between states, country and other jurisdictions, and may vary based on whether services or operations are performed in the jurisdiction. Complying with these various laws and regulations could cause us to incur substantial costs or require us to change our business practices and compliance procedures in a manner adverse to our business.

We rely on Internet infrastructure, bandwidth providers, data center providers, other third parties and our own systems for providing services to our users, and any failure or interruption in the services provided by these third parties or our own systems could expose us to litigation and negatively impact our relationships with customers, adversely affecting our brand and our business.

Our ability to deliver our Internet-based services is dependent on the development and maintenance of the infrastructure of the Internet and other telecommunications services by third parties, including bandwidth and telecommunications equipment providers. This includes maintenance of a reliable network connection with the necessary speed, data capacity and security for providing reliable Internet access and services. We exercise limited control over these third-party providers. As a result, our information systems require an ongoing commitment of significant resources to maintain and enhance existing systems and develop new systems in order to keep pace with continuing changes in IT, emerging cybersecurity risks and threats, evolving industry and regulatory standards and changing preferences of our customers.

Our services are designed to operate without perceptible interruption in accordance with our service level commitments. We have, however, experienced limited interruptions in these services in the past, and we expect that we will in the future experience interruptions and delays in services and availability from time to time. We rely on internal systems as well as third-party vendors, including data center providers and bandwidth providers, to provide our services. We store, process and transport petabytes of data and the nature of our business requires us to scale our storage capacity. In the event we are unable to scale appropriately, we may lose customers or fail to realize the network effects of our system and our business may be impaired. We do not currently maintain redundant systems or facilities for some of these services. Our operations and facilities are vulnerable to interruption and/or damage from a number of sources, many of which are beyond our control, including, without limitation: power loss and telecommunications failures; fire, flood, hurricane, tornado and other natural disasters; software and hardware errors, failures or crashes; and cyber and ransomware attacks, computer viruses, hacking, break-ins, sabotage, intentional acts of vandalism and other similar disruptive problems. The occurrence of any of these events could result in interruptions, delays or cessations in service to users of our services, which could impair or prohibit our ability to provide our services, reduce the attractiveness of our services to our customers and could have a material adverse impact on our business, results of operations or financial condition. If user access to our services is interrupted because of problems in our operations, we could be in breach of our agreements with customers and/or exposed to significant claims, particularly if the access interruption is associated with problems in the timely delivery of medical care. In the event of a catastrophic event with respect to one or more of these systems or facilities, we may experience an extended period of system unavailability, which could result in substantial cost to remedy such unavailability and negatively impact our relationship with our customers and our business. To operate without interruption, both we and our service providers must guard against:

- damage from fire, power loss and other natural disasters;
- communications failures;
- software and hardware errors, failures and crashes;
- security breaches, computer viruses and similar disruptive problems; and
- other potential interruptions.

Any disruption in the network access or co-location, hosting or cloud services provided by third-party providers or any failure of or by third-party providers or our own systems to handle current or higher volume of use could significantly harm our business. We exercise limited control over third-party vendors, which increases our vulnerability to problems with services they provide.

We also rely on a number of vendors, such as cloud service providers, to provide us with a variety of solutions and services, including cloud-based data hosting, telecommunications and data processing services necessary for our services and processing functions and software developers for the development and maintenance of certain software products we use to provide our solutions. We exercise limited control over vendors, which increases our vulnerability to problems with services they provide. Any errors, failures, interruptions or delays experienced in connection with third-party technologies and information services or our own systems could negatively impact our relationships with customers and adversely affect our business and could expose us to third-party liabilities. Although we maintain insurance for our business, the coverage under our policies may not be adequate to compensate us for all losses that may occur. In addition, we cannot provide assurance that we will continue to be able to obtain adequate insurance coverage at an acceptable cost. If vendors do not fulfill their contractual obligations, have system failures or choose to discontinue their products or services, our business and operations could be disrupted, our brand and reputation could be harmed, and our financial condition or results of operations could be adversely affected.

The reliability and performance of the Internet may be harmed by increased usage or by denial-of-service attacks. The Internet has experienced a variety of outages and other delays as a result of damages to portions of its infrastructure, and it could face outages and delays in the future. These outages and delays could reduce the level of Internet usage as well as the availability of the Internet to us for delivery of our internet-based services. Any failure to offer high-quality technical support services may adversely affect our relationships with our customers and harm our financial results.

Because of the complexity of the issues facing healthcare providers and payers and the inherent complexity of our solutions to such issues, our customers depend on our support organization to resolve any technical issues relating to our offerings. In addition, our sales process is highly dependent on the quality of our offerings, our business reputation and on strong recommendations from our existing customers. Any failure to maintain high-quality and highly responsive technical support, or a market perception that we do not maintain high-quality and highly responsive support, could harm our reputation, adversely affect our ability to sell our offerings to existing and prospective customers, and harm our business, operating results and financial condition.

We offer technical support services with our offerings and we may be unable to respond quickly enough to accommodate short-term increases in customer demand for support services, particularly as we increase the size of our customer base. We also may be unable to modify the format of our support services to compete with changes in support services provided by competitors. It is difficult to predict customer demand for technical support services and if customer demand increases significantly, we may be unable to provide satisfactory support services to our customers and their constituents. Additionally, increased customer demand for these services, without corresponding revenue, could increase costs and adversely affect our operating results.

If we cannot implement NantHealth solutions and component systems infrastructure and platforms for customers in a timely manner, we may lose customers and our reputation may be harmed.

Our customers have a variety of different data formats, enterprise applications and infrastructures, and NantHealth solutions and component systems infrastructure and platforms, must support our customers' data formats and integrate with complex enterprise applications and infrastructures. If our platforms do not currently support a customer's required data format or appropriately integrate with a customer's applications and infrastructure, then we must configure our systems infrastructure to do so, which increases our expenses. Additionally, we do not control our customers' implementation schedules. As a result, if our customers do not allocate internal resources necessary to meet their implementation responsibilities or if we face unanticipated implementation difficulties, the implementation may be delayed. Further, our implementation capacity has at times constrained our ability to successfully implement our offerings for our customers in a timely manner, particularly during periods of high demand. If the customer implementation process is not executed successfully or if execution is delayed, we could incur significant costs, customers could become dissatisfied and decide not to increase usage of our offerings, or not to use our offerings beyond an initial period prior to their term commitment or, in some cases, revenue recognition could be delayed. In addition, competitors with more efficient operating models with lower implementation costs could penetrate our customer relationships.

Additionally, large and demanding enterprise customers, who currently comprise most of our customer base, may request or require specific features or functions unique to their business processes, which increase our upfront investment in sales and deployment efforts and the revenue resulting from the customers under our typical contract length may not cover the upfront investments. If prospective large customers require specific features or functions that we do not offer, then the market for our offerings will be more limited and our business could suffer.

In addition, supporting large customers could require us to devote significant development services and support personnel and strain our personnel resources and infrastructure. Furthermore, if we are unable to address the needs of these customers in a timely fashion or further develop and enhance our offerings, or if a customer or its constituents are not satisfied with the quality of work performed by us or with the offerings delivered or professional services rendered, then we could incur additional costs to address the situation, we may be required to issue credits or refunds for pre-paid amounts related to unused services, the profitability of that work might be impaired and the customer's dissatisfaction with our offerings could damage our ability to expand the number of applications and services purchased by that customer. Furthermore, if a customer or its constituents do not opt into or need certain aspects of our offerings, there may not be enough demand for that aspect of our offering to warrant future purchases by that customer, or the customer may seek to terminate their relationship with us. These customers may not renew their agreements, seek to terminate their relationship with us or renew on less favorable terms. Moreover, negative publicity related to our customer relationships, regardless of its accuracy, may further damage our business by affecting our ability to compete for new business with current and prospective customers. If any of these were to occur, our revenue may decline, and our operating results could be adversely affected.

We face intense competition in our markets, and we may be unable to compete effectively for new customers.

Although our product offerings target the new and emerging market for evidence-based personalized healthcare technology solutions, we compete against a variety of large software vendors and smaller specialized companies, open source initiatives and custom development efforts, which provide solutions in the specific markets we address. Our principal competitors include:

- Payer-provider collaboration vendors, such as Availity, LLC, Change Healthcare, Inc., Experian Information Solutions, Inc. (including its Experian Health/Passport division), Zipari, Inc. (formerly Healthx), Cohere Health and Health-Trio, LLC;
- Payer-provider specialty care cost management vendors, including The Advisory Board Company healthcare business (acquired by Optum), Evolent Health, eviCore Healthcare, HealthCatalyst, Inc., International Business Machines Corporation, or IBM, Inovalon Holdings, Inc., NCH Management Systems, Inc. (dba New Century Health), Oncology Analytics, Inc. (dba OncoHealth) and Truven Health Analytics (acquired by IBM);
- Network monitoring vendors, including Zabbix, LLC, LogicMonitor, Inc., SolarWinds Worldwide, LLC, SevOne, Splunk and Datadog, Inc.

The principal competitive factors in our markets include product features, performance and support, product scalability and flexibility, ease of deployment and use, total cost of ownership and time to value. Some of our actual and potential competitors have advantages over us, such as longer operating histories, significantly greater financial, technical, marketing or other resources, stronger brand and business user recognition, larger intellectual property portfolios and broader global distribution and presence. Further, competitors may be able to offer products or functionality similar to ours at a more attractive price than we can by integrating or bundling their software products with their other product offerings. In addition, our industry is evolving rapidly and is becoming increasingly competitive. Larger and more established companies may focus on creating a learning system or solutions that could directly compete with one or more of our offerings. If companies move a greater proportion of their data and computational needs to the cloud, new competitors may emerge which offer services comparable to ours or that are better suited for cloud-based data, and the demand for one or more of our offerings may decrease. Smaller companies could also launch new products and services that we do not offer and that could gain market acceptance quickly.

In recent years, there have been significant acquisitions and consolidation by and among our actual and potential competitors. We anticipate this trend of consolidation will continue, which will present heightened competitive challenges to our business. In particular, consolidation in our industry increases the likelihood of our competitors offering bundled or integrated products, and we believe that it may increase the competitive pressures we face with respect to our solutions. If we are unable to differentiate one or more of our offerings from the integrated or bundled products of our competitors, such as by offering enhanced functionality, performance or value, we may see decreased demand for those solutions, which would adversely affect our business, results of operations, financial condition and cash flows. Further, it is possible that continued industry consolidation may impact our customers' and prospective customers' perceptions of the viability of smaller or even medium-sized software firms and, consequently, their willingness to use technology solutions from such firms. Similarly, if customers seek to concentrate their technology purchases in the product portfolios of a few large providers, we may be at a competitive disadvantage regardless of the performance and features of our offerings. We believe that in order to remain competitive at the large enterprise level, we will need to develop and expand relationships with resellers and large system integrators that provide a broad range of products and services. If we are unable to compete effectively, our business, results of operations, financial condition and cash flows could be materially and adversely affected.

The healthcare technology industry in which we operate is subject to rapidly changing technologies and trends, each of which could contribute to making our products obsolete.

The markets for cloud-based data platforms and internet-based business services such as NantHealth solutions and component systems infrastructure and platforms and their associated offerings are in the early stages of development, but the market is competitive even at this stage, and we expect it to attract increased competition, which could make it hard for us to succeed. We currently face competition for one or more of our offerings from a range of companies. In addition, large, well-financed health plans, with whom we cooperate and on whom we depend in order to obtain the pricing and claims data we need to deliver our offerings to customers have in some cases developed their own cost and quality estimation tools and provide these solutions to their customers at discounted prices or often for free. If enterprises do not perceive the benefits of our services, then the market for these services may not develop at all, or it may develop more slowly than we expect, either of which would materially adversely affect our operating results. In addition, as a new company in this unproven market, we have limited insight into trends that may develop and affect our business. We may make errors in predicting and reacting to relevant business trends, which could harm our business. If any of these risks occur, it could materially adversely affect our business, financial condition or results of operations.

Healthcare industry consolidation could impose pressure on our prices, reduce our potential customer base and reduce demand for one or more of our offerings.

Many hospitals, imaging centers and third-party payers have consolidated to create larger healthcare enterprises with greater market and purchasing power. In addition, group purchasing organizations and managed care organizations could increase pressure on providers of healthcare related services to reduce prices. If this consolidation trend continues, it could reduce the size of our potential customer base and give the resulting enterprises greater bargaining or purchasing power, which may lead to erosion of the prices for our software or decreased margins for our offerings.

Our offerings and solutions may experience design or manufacturing defects from time to time that can result in reduced network effects to NantHealth solutions and component systems infrastructure and platforms which could materially and adversely affect our business.

We sell and/or rely upon software and hardware solutions that could contain design or manufacturing defects in their materials, hardware, or software. These defects could include defective materials or components, or “bugs” that can unexpectedly interfere with the products’ intended operations or result in inaccurate data. Our online services may from time-to-time experience outages, service slowdowns, or errors. Defects may also occur in components and products we purchase from third parties. There can be no assurance we will be able to detect and fix all defects in the hardware, software and services third parties sell to us. Failure to detect, prevent, or fix defects could result in a variety of consequences, including returns of products, regulatory proceedings, product recalls, and litigation, which could harm our revenue and operating results. If our products fail to provide accurate measurements and data to users, then the network effects of our adaptive clinical learning system may be materially and adversely impacted.

Our solutions could give rise to product liability claims and product recall events that could materially and adversely affect our financial condition and results of operations.

The development, manufacturing and sale of hardware components in connection with some of our software solutions expose us to significant risk of product liability claims, product recalls and, occasionally, product failure claims. We face an inherent business risk of financial exposure to product liability claims if the use of our solutions or services, including companion hardware products, results in personal injury or death. Some of our solutions or services may become subject to product liability claims and/or product recalls. Future product liability claims and/or product recall costs may exceed the limits of our insurance coverages or such insurance may not continue to be available to us on commercially reasonable terms, or at all. In addition, a significant product liability claim, or product recall could significantly damage our reputation for producing safe, reliable and effective products, making it more difficult for us to market and sell our products in the future. Consequently, a product liability claim, product recall or other claim could have a material adverse effect on our business, financial condition, operating results and cash flows.

Risks related to our OpenNMS open source business

Our OpenNMS business incorporates third-party open source software, which could negatively affect our ability to sell our OpenNMS platform and subject us to possible litigation.

Our OpenNMS platform includes third-party open source software and we intend to continue to incorporate third-party open source software in our OpenNMS platform in the future. There is a risk that the use of third-party open source software in our OpenNMS platform could impose conditions or restrictions on our ability to monetize our software. Although we monitor the incorporation of open source software into our OpenNMS platform to avoid such restrictions, we cannot be certain that we have not incorporated open source software in our OpenNMS platform in a manner that is inconsistent with our licensing model. Certain open source projects also include other open source software and there is a risk that those dependent open source libraries may be subject to inconsistent licensing terms. This could create further uncertainties as to the governing terms for the open source software we incorporate.

In addition, the terms of certain open source licenses to which we are subject have not been interpreted by U.S. or foreign courts and there is a risk that open source software licenses could be construed in a manner that imposes unanticipated restrictions or conditions on our use of such software. Additionally, we may, from time to time, face claims from third parties claiming ownership of, or demanding release of, the software or derivative works that we developed using such open source software, which could include proprietary portions of our source code, or otherwise seeking to enforce the terms of the open source licenses. These claims could result in litigation and could require us to make those proprietary portions of our source code freely available, purchase a costly license or cease offering the implicated software or services unless and until we can re-engineer them to avoid infringement. This re-engineering process could require significant additional research and development resources and we may not be able to complete it successfully.

In addition to risks related to license requirements, use of third-party open source software can lead to greater risks than use of third-party commercial software, as open source licensors generally do not provide warranties. In addition, licensors of open source software included in our offerings may, from time to time, modify the terms of their license agreements in such a manner that those license terms may become incompatible with our licensing model and thus could, among other consequences, prevent us from incorporating the software subject to the modified license. Any of these risks could be difficult to eliminate or manage and if not addressed, could have a negative effect on our business, results of operations and financial condition.

Because of the characteristics of open source software, there may be fewer technology barriers to entry in the open source market by new competitors and it may be relatively easy for new and existing competitors with greater resources than we have to compete with our OpenNMS open source business.

One of the characteristics of open source software is that the governing license terms generally allow liberal modifications of the code and distribution thereof to a wide group of companies and/or individuals. As a result, others could easily develop new software products or services based upon those open source programs that compete with existing open source software that we support and incorporate into our OpenNMS platform. Such competition with use of the open source projects that we utilize can materialize without the same degree of overhead and lead time required by us, particularly if the customers do not value the differentiation of our proprietary components. It is possible for new and existing competitors, including those with greater resources than ours, to develop their own open source software or hybrid proprietary and open source software offerings, potentially reducing the demand for, and putting price pressure on, our OpenNMS services. In addition, some competitors make open source software available for free download or use or may position competing open source software as a loss leader. We cannot guarantee that we will be able to compete successfully against current and future competitors or that competitive pressure and/or the availability of open source software will not result in price reductions, reduced revenue and gross margins and loss of market share, any one of which could seriously harm our OpenNMS business.

We do not control and may be unable to predict the future course of open source technology development, including the ongoing development of open source components used in our OpenNMS platform, which could reduce the market appeal of our OpenNMS platform and services and damage our reputation.

We do not control many aspects of the development of the open source technology in our OpenNMS platform. Different groups of open source software programmers collaborate with one another to develop the software projects in our OpenNMS platform. Given the disparate inputs from various developers, we cannot control entirely how an open source project develops and matures. Also, different open source projects may overlap or compete with the ones that we incorporate into our OpenNMS platform. The technology developed by one group for one project may become more widely used than that developed by others. If we acquire or adopt a new technology and incorporate it into our OpenNMS platform but a competing technology becomes more widely used or accepted, the market appeal of our OpenNMS services may be reduced and that could harm our reputation, diminish our brand and result in decreased revenue.

If open source software programmers, many of whom we do not employ, or our own internal programmers do not continue to develop and enhance open source technologies, we may be unable to develop new technologies, adequately enhance our existing technologies or meet customer requirements for innovation, quality and price.

We rely to a significant degree on a number of open source software programmers, or committers and contributors, to develop and enhance components of our OpenNMS platform. Additionally, members of the corresponding open source project management committees, are primarily responsible for the oversight and evolution of the codebases of important components of the open source data management ecosystem. If the open source data management committers and contributors fail to adequately further develop and enhance open source technologies, or if the committees fail to oversee and guide the evolution of open source data management technologies in the manner that we believe is appropriate to maximize the market potential of our solutions, then we would have to rely on other parties, or we would need to expend additional resources, to develop and enhance our OpenNMS platform. We also must devote adequate resources to our own internal programmers to support their continued development and enhancement of open source technologies, and if we do not do so, we may have to turn to third parties or experience delays in developing or enhancing open source technologies. We cannot predict whether further developments and enhancements to these technologies would be available from reliable alternative sources. In either event, our development expenses could be increased and our technology release and upgrade schedules could be delayed. Delays in developing, completing or delivering new or enhanced components to our platform could cause our offerings to be less competitive, impair customer acceptance of our solutions and result in delayed or reduced revenue for our solutions.

Our use of open source software could subject us to possible litigation or could prevent us from offering products that include open source software or require us to obtain licenses on unfavorable terms.

A portion of the technologies we use incorporate “open source” software, and we may incorporate open source software in the future. Open source licenses may subject us to certain unfavorable conditions, including requirements that we offer our products that incorporate the open source software for no cost, that we make publicly available the source code for any modifications or derivative works we create based upon, incorporating or using the open source software, or that we license such modifications or derivative works under the terms of the particular open source license. We may license to others some of our software through open source projects which require us to make the source code publicly available, and therefore can affect our ability to protect our intellectual property rights with respect to that software. If an author or other third party that distributes open source software that we use or license were to allege that we had not complied with the conditions of the applicable license, we could be required to incur significant legal expenses defending against such allegations and could be subject to significant damages, enjoined from offering our products that contained the open source software, required to release proprietary source code, required to obtain licenses from third parties or otherwise required to comply with the unfavorable conditions unless and until we can re-engineer the product so that it complies with the open source license or does not incorporate the open source software. Any of the foregoing could disrupt our ability to offer our products and harm our business, revenue and financial results.

The acquisition of OpenNMS may not be successful and could disrupt our business and harm our financial condition.

On July 22, 2020, we acquired OpenNMS. We may not be able to successfully integrate the personnel, operations, businesses, products or technologies of the OpenNMS investment. Integration may be particularly challenging as we have limited experience in the business of network management software and services. We may find that we do not have adequate operations or expertise to manage the new business. The integration of OpenNMS may also divert management's time and resources from our core business, which could impair our relationships with our current employees, customers and strategic partners and disrupt our operations. Our OpenNMS platform also may not perform to our expectations for various reasons, including the loss of key personnel and/or customers. If we fail to integrate our OpenNMS business or realize the expected benefits, we may lose the return on this acquisition or incur additional transaction costs and our business and financial condition may be harmed as a result.

Risks related to our relationships with other companies

We rely on third-party computer hardware and software that may be difficult to replace or which could cause errors or failures of our service which could damage our reputation, harm our ability to attract and maintain customers and decrease our revenue.

We rely on computer hardware purchased or leased and software licensed from third parties in order to offer our service. These licenses are generally commercially available on varying terms; however, it is possible that this hardware and software may not continue to be available on commercially reasonable terms, or at all. Any loss of the right to use any of this hardware or software could result in delays in providing NantHealth solutions (including Eviti, and NaviNet apps) until equivalent technology is either developed by us, or, if available, is identified, obtained and integrated, which could harm our business. Any errors or defects in third-party hardware or software could result in errors or a failure of our service which could damage our reputation, harm our ability to attract and maintain customers and decrease our revenue.

We are heavily dependent on our senior management, particularly Dr. Patrick Soon-Shiong, and a loss of a member of our senior management team in the future could harm our business.

If we lose members of our senior management, we may not be able to find appropriate replacements on a timely basis, and our business could be adversely affected. Our existing operations and continued future development depend to a significant extent upon the continued performance and active participation of certain key individuals, including Dr. Soon-Shiong, our Chairman, Chief Executive Officer and our principal stockholder. Although we expect Dr. Soon-Shiong will continue to devote on average at least 20 hours per week to our company, he will continue to primarily focus on ImmunityBio, Inc., or ImmunityBio, a publicly-traded, clinical-stage immunotherapy company, of which he is Executive Chairman and Global Chief Scientific and Medical Officer. Dr. Soon-Shiong will also devote time to other companies operating under NantWorks, a collection of multiple companies in the healthcare and technology space that Dr. Soon-Shiong founded in 2011. We do not believe Dr. Soon-Shiong has any material conflicting obligations as a result of his involvement with other companies. Additionally, we are dependent on commercial relationships with various other parties affiliated with NantWorks and with Dr. Soon-Shiong and we may enter into additional relationships in the future. If Dr. Soon-Shiong was to cease his affiliation with us or with NantWorks, these entities may be unwilling to continue these relationships with us on commercially reasonable terms, or at all. The risks related to our dependence upon Dr. Soon-Shiong are particularly acute given his ownership percentage and role in our company. If we were to lose Dr. Soon-Shiong, we may not be able to find appropriate replacements on a timely basis and our financial condition and results of operations could be materially adversely affected. We have not entered into, nor do we intend to enter into, an employment agreement with Dr. Soon-Shiong.

We also face significant competition for employees from other healthcare-related companies and software businesses, which include both publicly-traded and privately-held companies, and we may not be able to hire new employees quickly enough to meet our needs. To induce valuable employees to remain at our company, in addition to salary and cash incentives, we have provided equity incentives that vest over time and, in some cases, upon the occurrence of certain events. The value to employees of these equity incentives that vest over time may be significantly affected by movements in our stock price that are beyond our control and may at any time be insufficient to counteract more lucrative offers from other companies. Although we may have employment agreements with certain of our key employees, these employment agreements provide for at-will employment, which means that any of our employees could leave our employment at any time, with or without notice. We do not maintain “key man” insurance policies on the lives of these individuals or the lives of any of our other employees.

Risks related to our business generally

We have in the past and may in the future acquire other companies or technologies, which could divert our management's attention, result in dilution to our stockholders and otherwise disrupt our operations and adversely affect our operating results.

Part of our business model is the acquisition of technologies and businesses that promote our transformational vision for personalized healthcare. We have in the past and may in the future seek to acquire or invest in additional businesses, applications, services and/or technologies that we believe complement or expand our offerings, enhance our technical capabilities or otherwise offer growth opportunities. The pursuit of potential acquisitions may divert the attention of management and cause us to incur various expenses in identifying, investigating and pursuing suitable acquisitions, whether or not they are consummated.

For example, in January 2016, we acquired NaviNet to bolster our payer platform and, in February 2018, we acquired NantHealth Labs to expand into the liquid tumor profiling market and sold a commercial liquid biopsy test product (marketed as Liquid GPS). In July 2020, we acquired OpenNMS to expand our software and SaaS service offerings for both the healthcare sector and other industries. In the second quarter of 2019, we ceased commercial sales of the Liquid GPS product. Realizing the benefits of these acquisitions and any future acquisition depend, in part, upon the successful integration into our existing operations, and we may not be able to integrate the acquired personnel, operations and technologies successfully, or effectively manage the combined business following the acquisition. We also may not realize the anticipated benefits from any acquired business due to several factors, including:

- inability to integrate or benefit from acquired technologies or services in a profitable manner;
- unanticipated costs or liabilities associated with the acquisition;
- difficulty integrating the accounting systems, operations and personnel of the acquired business;
- difficulties and additional expenses associated with supporting legacy products and hosting infrastructure of the acquired business;
- difficulty converting the customers of the acquired business onto our platform and contract terms, including disparities in the revenue, licensing, support or professional services model of the acquired company;
- difficulty in cross-selling our existing solutions and offerings to the acquired business' customers;
- diversion of management's attention from other business concerns;
- adverse effects to our existing business relationships with business partners and customers as a result of the acquisition;
- the potential loss of key employees;
- use of resources that are needed in other parts of our business; and
- use of substantial portions of our available cash to consummate the acquisition.

In addition, a significant portion of the purchase price of companies we acquire may be allocated to acquired goodwill and other intangible assets, which must be assessed for impairment at least annually. As of December 31, 2021, the total value of our goodwill and intangible assets, net of accumulated amortization was $137.4 million. If our acquisitions do not yield expected returns, we have in the past, and may in the future, be required to take charges to our operating results based on this impairment assessment process, which could adversely affect our results of operations.

Acquisitions could also result in dilutive issuances of equity securities or the incurrence of debt, which could adversely affect our operating results. In addition, if the acquisition of NaviNet, NantHealth Labs, OpenNMS, or any other business we may acquire in the future fails to meet our expectations, our operating results, business and financial position may suffer.

We cannot assure you that we will be successful in integrating certain assets of NaviNet, NantHealth Labs, OpenNMS, or any other businesses or technologies we may acquire in the future. The failure to successfully integrate these businesses could have a material adverse effect on our business, financial condition, or results of operations.

Business disruptions could seriously harm our future revenue and financial condition and increase our costs and expenses.

Our operations, and those of our contractors, consultants, customers, resellers or partners, could be subject to earthquakes, power shortages, telecommunications failures, water shortages, floods, hurricanes, typhoons, fires, extreme weather conditions, medical epidemics or pandemics, acts of terrorism, acts of war and other natural or man-made disasters or business interruptions, for which we are predominantly self-insured. For example, we have corporate offices in Los Angeles County, California near major earthquake faults and fire zones. We attempt to mitigate these risks through various means including redundant infrastructure, disaster recovery plans, separate test systems and change control and system security measures, but our precautions will not protect against all potential problems. If our customers' access is interrupted because of problems in the operation of our facilities, we could be exposed to significant claims by customers or their patients, particularly if the access interruption is associated with problems in the timely delivery of funds due to customers or medical information relevant to patient care. The occurrence of any of these business disruptions could seriously harm our operations and financial condition and increase our costs and expenses.

Also, in March 2020, the World Health Organization declared the novel coronavirus (COVID-19) a pandemic. In the same month, the President of the United States declared a State of National Emergency due to the COVID-19 outbreak, and the world has been and continues to be impacted by COVID-19 and its variants. As a result, many jurisdictions, particularly in North America (including the United States), Europe and Asia, including the U.S. states in which we operate, such as California, have adopted or are considering laws, rules, regulations or decrees intended to address the COVID-19 outbreak, including implementing travel restrictions, closing non-essential businesses and/or restricting daily activities. In addition, many communities have limited, and are considering to further limit, social mobility and gathering. To date, there has been no material adverse impact to our business from the COVID-19 pandemic. Given the unprecedented and evolving nature of the pandemic, the future impact of these changes and potential changes on us and our contractors, consultants, customers, resellers and partners is unknown at this time. Moreover, the extent of the impact of the COVID-19 pandemic on our business and operating results is uncertain and difficult to predict and will depend on factors outside of our control including the timing or effectiveness of the vaccine roll-out globally, the timing of easing of preventative or mitigation measures or mandates, the impact of any variants that emerge, or any impact of a global vaccine roll-out on the global economy. For example, the demand for our solutions among certain of our provider or payer customers could be impacted in the future, either through reduced transaction volume for solutions by which we derive revenue on a per transaction basis or through the delayed closing or signing of new or add-on contracts with customers that are dealing with impacts from the COVID-19 pandemic.

The COVID-19 pandemic has negatively impacted the global economy to date and is likely to cause further global economic disruption. While the duration and severity of the economic impacts of COVID-19 are unknown, it is possible that such economic impacts may be prolonged and have continued effects even after the widespread administration of vaccines. However, in light of the uncertainties regarding economic, business, social, health and geopolitical conditions, our revenues, earnings, liquidity, and cash flows could be adversely affected, whether on an annual or quarterly basis. Continued impacts of the COVID-19 pandemic could materially adversely affect our current and long-term account receivable collectability, as our negatively impacted customers from the COVID-19 pandemic may request temporary relief, delay, or not make scheduled payments. In addition, the deployment of our solutions may represent a large portion of our customers' investments in software technology. Decisions to make such an investment are impacted by the economic environment in which the customers operate. Uncertain global geopolitical, economic and health conditions and the lack of visibility or the lack of financial resources may cause some customers to reduce, postpone or terminate their investments, or to reduce or not renew ongoing paid services, adversely impacting our revenues or timing of revenue. Health conditions in some geographic areas where our customers operate could impact the economic situation of those areas. These conditions, including the COVID-19 pandemic, may present risks for health and limit the ability to travel for our employees, which could further lengthen our sales cycle and delay revenue and cash flows in the near-term. Moreover, the potential for future infections among our employees and/or consultants is possible even after the widespread administration of vaccines and such future infections (depending on the severity, variant type, scope and location) could impact our ability to continue operations in the ordinary course.

As of the date of this Annual Report on Form 10-K, we serve our customers primarily from third-party data hosting facilities. We do not control the operation of these third-party facilities, and they are vulnerable to damage or interruption from earthquakes, floods, fires, power loss, telecommunications failures and similar events. They are also subject to break-ins, sabotage, intentional acts of vandalism and similar misconduct. Despite precautions taken at these facilities, the occurrence of a natural disaster or a crime, a decision to close the facilities without adequate notice or other unanticipated problems at these facilities could result in lengthy interruptions in our service. Even with the disaster recovery arrangements, our service could be interrupted.

We may, from time to time, transition our data hosting to new or alternative providers. In connection with these transitions, we may be moving, transferring or installing some of our equipment, data and software to and in other facilities. Despite precautions taken during this process, any unsuccessful transfers may impair the delivery of our one or more of our offerings. Further, any damage to, or failure of, our systems generally could result in interruptions in one or more of our offerings. Interruptions in our service may reduce our revenue, cause us to issue credits or pay penalties, may cause customers to terminate one or more of our offerings and may adversely affect our renewal rates and our ability to attract new customers. Our business may also be harmed if our customers and potential customers believe one or more of our offerings are unreliable.

Our marketing efforts depend significantly on our ability to receive positive references from our existing customers.

Our marketing efforts depend significantly on our ability to call on our current customers to provide positive references to new, potential customers. Given our limited number of long-term customers, the loss or dissatisfaction of any customer could substantially harm our brand and reputation, inhibit the market adoption of our offerings and impair our ability to attract new customers and maintain existing customers. Any of these consequences could have a material adverse effect on our business, financial condition and results of operations.

Our estimates of market opportunity and forecasts of market growth may prove to be inaccurate, and even if the market in which we compete achieves the forecasted growth, our business could fail to grow at similar rates, if at all.

Our market opportunity estimates and growth forecasts are subject to significant uncertainty and are based on assumptions and estimates that may not prove to be accurate. Our estimates and forecasts regarding the size and expected growth of the healthcare information technology and network monitoring markets may prove to be inaccurate. Even if the markets in which we compete meet our size estimates and forecasted growth, our business could fail to grow at similar rates, if at all.

We have recently been involved in pending securities litigation, which were costly to us and harmful to our reputation, and we can not assure you that we will not be involved in additional legal proceedings in the future with similar, or worse, results.

We have been named as a defendant in lawsuits arising out of our initial public offering and later public statements. In March 2017, a number of putative class action securities complaints were filed in the U.S. District Court for the Central District of California, naming as defendants the Company and certain of our executive officers and directors. Certain plaintiffs also named, as defendants, investment banks who were underwriters in our initial public offering but the claims against the underwriters were dropped. The complaints generally allege that defendants made material misstatements and omissions in violation of the federal securities laws. The complaints were consolidated with the lead case captioned Deora v. NantHealth, Inc., 2:17-cv-01825 ("Deora"). In October 2019, the parties reached an agreement in principle to settle these federal class actions in their entirety for $16.5 million, which was included in accrued and other current liabilities in the Consolidated Balance Sheet at December 31, 2019. The Court granted preliminary approval of the settlement on January 31, 2020. A hearing for final approval of the settlement was scheduled for June 15, 2020, but on June 5, 2020, the Court decided to take the final approval motion on submission, and on July 17, 2020, the Court directed Plaintiff's counsel to submit evidence substantiating all costs incurred. The $16.5 million settlement was paid into a settlement fund prior to the payment deadline of March 2, 2020. The majority of the settlement amount was funded by our insurance carriers, and a portion was funded by us. On September 10, 2020, the Court entered an order granting final approval of the settlement, and the order and the settlement are now final. In May 2017, a putative class action complaint was filed in California Superior Court, Los Angeles County, asserting claims for violations of the Securities Act based on allegations similar to those in Deora. That case is captioned Bucks County Employees Retirement Fund v. NantHealth, Inc., BC 662330. At a case management conference on December 3, 2019, the parties informed the court of the pending settlement of the federal class action in the Deora action. During a status conference on February 4, 2021, the Court scheduled a further status conference for April 7, 2021 and stated that if Plaintiff did not voluntarily dismiss the action, the Court would entertain a motion to dismiss in light of the finalization of the Deora settlement. Plaintiff filed an unopposed request for voluntarily dismissal on March 15, 2021. On March 22, 2021, the court issued an order granting plaintiff's request and dismissing the action with prejudice. For additional information regarding this and other lawsuits in which we are involved, see Part II, Item 1, Legal Proceedings. We cannot assure you that we will not be involved in additional legal proceedings in the future, with similar, or worse, results which could harm our business, financial conditions and results of operations.

If we fail to develop widespread brand awareness, our business may suffer.

We believe that developing and maintaining widespread awareness of our brand is critical to achieving widespread adoption of our offering and attracting new customers. Brand promotion activities may not generate customer awareness or increase revenue, and even if they do, any increase in revenue may not offset the expenses we incur in building our brand. If we fail to successfully promote and maintain our brand, or incur substantial expenses in doing so, we may fail to attract or retain customers necessary to realize a sufficient return on our brand-building efforts, or to achieve the widespread brand awareness that is critical for broad customer adoption of our offerings.

If we become subject to product liability or other litigation, we may incur substantial liabilities and may be required to limit commercialization of our current and any future products.

We are from time to time subject to legal proceedings and claims that arise in the ordinary course of business, such as claims brought by our customers in connection with commercial disputes and employment claims made by our current or former employees. Litigation, regardless of merit, may result in substantial costs and may divert management's attention and resources, which may harm our business.

Our services, some of which involve recommendations and advice to healthcare providers regarding complex business and operational processes, regulatory and compliance issues and patient treatment options, may give rise to liability claims by our members or by third parties who bring claims against us. In addition, third parties, including former employees, have in the past, and may in the future, file lawsuits alleging non-compliance with government regulations. Investigating and defending such claims, even if they lack merit, may require significant time and resources and could damage our reputation and harm our business.

We maintain product and other insurance, but this insurance may not fully protect us from the financial impact of defending against product liability or other claims. Any product liability or other claim brought against us, with or without merit, could increase our insurance rates or prevent us from securing insurance coverage in the future. Additionally, any product liability lawsuit could damage our reputation, or cause current customers to terminate existing agreements and potential customers to seek other vendors, any of which could impact our results of operations.

We are subject to changes in and interpretations of financial accounting matters that govern the measurement of our performance, including our revenue, one or more of which could adversely affect our business.

Based on our reading and interpretations of relevant guidance, principles or concepts issued by, among other authorities, the American Institute of Certified Public Accountants, the Financial Accounting Standards Board and the SEC, we believe our current sales and licensing contract terms and business arrangements have been properly reported. However, this guidance involves interpretations, and there continue to be issued interpretations and guidance for applying the relevant standards to a wide range of sales and licensing contract terms and business arrangements that are prevalent in the software industry. For example, we must apply significant judgment to determine whether revenue should be recognized on a gross or net basis for our reseller arrangements, including recognizing revenue under our reseller agreement with NantOmics. Disagreement with the regulators as to our current interpretations and any future changes by the regulators of existing accounting standards or changes in our business practices could result in changes in our revenue recognition and/or other accounting policies and practices that could adversely affect our business.

Failure to manage our future growth effectively could increase our expenses, decrease our revenue and prevent us from implementing our business strategy.

To manage our anticipated future growth effectively, we must continue to maintain and may need to enhance our information technology infrastructure, financial and accounting systems and controls and manage expanded operations in geographically-diverse locations. We also must attract, train and retain a significant number of qualified sales and marketing personnel, professional services personnel, software engineers, technical personnel and management personnel. Failure to manage our rapid growth effectively could lead us to over invest or under invest in technology and operations, could result in weaknesses in our infrastructure, systems or controls, could give rise to operational mistakes, losses, loss of productivity or business opportunities, and could result in loss of employees and reduced productivity of remaining employees. Our growth could require significant capital expenditures and may divert financial resources from other projects, such as the development of new services. If our management is unable to effectively manage our growth, our expenses may increase more than expected, our revenue could decline or may grow more slowly than expected, and we may be unable to implement our business strategy.

The industry-and market-related estimates we rely upon are based on various assumptions and may prove to be inaccurate.

Industry-and market-related estimates we rely upon, including, without limitation, estimates related to our market size and industry data, are subject to uncertainty and are based on assumptions which may not prove to be accurate. This may have negative consequences, such as us overestimating our potential market opportunity.

We are exposed to risks related to our international operations and failure to manage these risks may adversely affect our operating results and financial condition.

We are a global company with operations both inside and outside the United States. For example, we have foreign wholly owned subsidiaries, including NaviNet Limited and OpenNMS Group Canada, Inc. As a result, a portion of our operations are conducted by and/or rely on entities outside the United States. We may therefore be denied access to our customers or suppliers as a result of economic, legislative, political and military conditions in such countries.

International operations are subject to several other inherent risks, and our future results could be adversely affected by several factors, including:

- requirements or preferences for domestic products or solutions, which could reduce demand for our products;
- differing existing or future regulatory and certification requirements;
- management communication and integration problems resulting from cultural and geographic dispersion;
- greater difficulty in collecting accounts receivable and longer collection periods;
- difficulties in enforcing contracts;
- difficulties and costs of staffing and managing non-U.S. operations;
- the uncertainty of protection for intellectual property rights in some countries;
- tariffs and trade barriers, export regulations and other regulatory and contractual limitations on our ability to sell our products;
- greater risk of a failure of foreign employees to comply with both U.S. and foreign laws, including export and antitrust regulations, the U.S. Foreign Corrupt Practices Act of 1977, as amended ("FCPA") and any trade regulations ensuring fair trade practices;
- heightened risk of unfair or corrupt business practices in certain geographies and of improper or fraudulent sales arrangements that may impact financial results and result in restatements of, or irregularities in, financial statements;
- potentially adverse tax consequences, including multiple and possibly overlapping tax structures;
- the impact of public health epidemics on our employees and suppliers as well as the global economy, including the COVID-19 pandemic; and
- political and economic instability, political unrest and terrorism.

In addition, the expansion of our existing international operations and entry into additional international markets has required, and will continue to require, significant management attention and financial resources. These factors and other factors could harm our ability to gain future revenues and, consequently, materially impact our business, financial condition and results of operations.

The United Kingdom's referendum to leave the European Union will continue to have uncertain effects and could adversely impact our business, results of operations and financial condition.

As a result of a referendum in June 2016, the UK withdrew from the European Union ("EU") on January 31, 2020 ("Brexit"). It began a transition period in which to negotiate a new trading relationship for goods and services that ended on December 31, 2020. During the time since the June 2016 referendum, there have been periods of significant volatility in the global stock markets and currency exchange rates, as well as challenging market conditions in the UK. On December 24, 2020, the UK and EU announced they had entered into a post-Brexit deal on certain aspects of trade and other strategic and political issues. We are continuing to evaluate our own risks and uncertainty related to ascertain what financial, trade, regulatory and legal implications this new Brexit trade deal could have on our business operations. This uncertainty also includes the impact on our customers' business operations and capital planning as well as the overall impact on the healthcare industry in the UK. While we have not experienced any direct material financial impact since the 2016 referendum, we cannot predict its future implications, and Brexit and its related effects could result in a negative impact on our operating results, financial condition and prospects.

Risks related to intellectual property

We may be unable to adequately protect, and we may incur significant costs in enforcing, our intellectual property and other proprietary rights.

Our success depends in part on our ability to enforce our intellectual property and other proprietary rights. We rely upon a combination of trademark, trade secret, copyright, patent and unfair competition laws, as well as license and access agreements and other contractual provisions, to protect our intellectual property and other proprietary rights. In addition, we attempt to protect our intellectual property and proprietary information by requiring certain of our employees and consultants to enter into confidentiality, noncompetition and assignment of inventions agreements. Any disclosure to or misappropriation by third parties of our confidential proprietary information could enable competitors to quickly duplicate or surpass our technological achievements, eroding our competitive position in the market. Moreover, we do not have any written contractual agreements with respect to any intellectual property and technology that relate to our business developed in the future by our Chairman and Chief Executive Officer, Dr. Soon-Shiong. In the event we are unable to protect our intellectual property and proprietary information, including in particular with respect to such property or information created by Dr. Soon-Shiong, our business would be adversely affected. In addition, our attempts to protect our intellectual property may be challenged by others or invalidated through administrative process or litigation.

We have developed, acquired, and licensed various patents and patent applications and we possess substantial know-how, copyrights and trade secrets relating to the development and commercialization of healthcare technology products and services. In January 2016, we acquired NaviNet, a leading payer-provider collaboration platform, and in February 2018 we acquired NantHealth Labs, Inc. (formerly Liquid Genomics, Inc.) a liquid tumor profiling company. As part of these and other acquisitions, we acquired patents and other intellectual property. As of December 31, 2021, our patent portfolio consisted of the following matters relating to our proprietary technology and inventions: (i) twenty (20) issued U.S. utility patents and two (2) issued U.S. design patents; (ii) eighteen (18) pending U.S. utility patent applications; (iii) eighteen (18) issued patents outside the United States; and (iv) three (3) patent applications pending in jurisdictions outside the United States. Five (5) of these assets are jointly owned. We believe we have intellectual property rights that are necessary to commercialize our healthcare technology products and services. However, our patent applications may not result in issued patents, and, even if issued, the patents may be challenged and invalidated. Moreover, our patents and patent applications may not be sufficiently broad to prevent others from practicing our technologies or developing competing products. We also face the risk that others may independently develop similar or alternative technologies or may design around our proprietary property.

If any patents are issued in the future, they may not provide us with any competitive advantages, or may be successfully challenged by third parties. Agreement terms that address non-competition are difficult to enforce in many jurisdictions and may not be enforceable in any particular case. To the extent that our intellectual property and other proprietary rights are not adequately protected, third parties might gain access to our proprietary information, develop and market products or services similar to ours, or use trademarks similar to ours, each of which could materially harm our business. Existing United States federal and state intellectual property laws offer only limited protection. Moreover, the laws of other countries in which we now, or may in the future, conduct operations or contract for services may afford little or no effective protection of our intellectual property. Further, our platforms incorporate open source software components that are licensed to us under various public domain licenses. While we believe we have complied with our obligations under the various applicable licenses for open source software that we use, there is little or no legal precedent governing the interpretation of many of the terms of certain of these licenses and therefore the potential impact of such terms on our business is somewhat unknown. The failure to adequately protect our intellectual property and other proprietary rights could materially harm our business.

The patent application process, also known as patent prosecution, is expensive and time consuming, and we and any current or future licensors and licensees may not be able to prepare, file and prosecute all necessary or desirable patent applications at a reasonable cost or in a timely manner. It is also possible that we or any current or future licensors or licensees, will fail to identify patentable aspects of inventions made in the course of development and commercialization activities before it is too late to obtain patent protection on them. Moreover, in some circumstances, we may not have the right to control the preparation, filing and prosecution of patent applications, or to maintain the patents, covering technology that we license from or license to third parties and are therefore reliant on our licensors or licensees. Therefore, these and any of our patents and applications may not be prosecuted and enforced in a manner consistent with the best interests of our business. Although we are unaware of any material defects that we believe would affect the validity or enforceability of our patents, defects of form in the preparation or filing of our patents or patent applications may exist, or may arise in the future, for example, with respect to proper priority claims, inventorship, and the like, although we are unaware of any such defects that we believe are of material importance. If we or any current or future licensors or licensees, fail to establish, maintain or protect such patents and other intellectual property rights, such rights may be reduced or eliminated. If any current or future licensors or licensees are not fully cooperative or disagree with us as to the prosecution, maintenance or enforcement of any patent rights, such patent rights could be compromised. If there are material defects in the form, preparation or prosecution of our patents or patent applications, such patents or applications may be invalid and unenforceable. Any of these outcomes could impair our ability to prevent competition from third parties, which may have an adverse impact on our business.

The strength of patent rights involves complex legal and scientific questions and can be uncertain. This uncertainty includes changes to the patent laws through either legislative action to change statutory patent law or court action that may reinterpret existing law or rules in ways affecting the scope or validity of issued patents. The patent applications that we own or license may fail to result in issued patents in the United States or foreign countries with claims that cover our products or services. Even if patents do successfully issue from the patent applications that we own or license, third parties may challenge the validity, enforceability or scope of such patents, which may result in such patents being narrowed, invalidated or held unenforceable. Any successful challenge to our patents could deprive us of exclusive rights necessary for the successful commercialization of our products and services. Furthermore, even if they are unchallenged, our patents may not adequately protect our products and services, provide exclusivity for our products and services, or prevent others from designing around our claims. If the breadth or strength of protection provided by the patents we hold or pursue with respect to our products and services is challenged, it could dissuade companies from collaborating with us to develop, or threaten our ability to commercialize, our products and services.

Patents have a limited term. In the United States, the natural expiration of a utility patent is generally 20 years after its earliest effective non-provisional filing date and the natural expiration of a design patent is generally 14 years after its issue date, unless the filing date occurred on or after May 13, 2015, in which case the natural expiration of a design patent is generally 15 years after its issue date. Various extensions may be available; however, the life of a patent, and the protection it affords, is limited. Without patent protection for our products and services, we may be open to competition. Further, if we encounter delays in our development efforts, the period of time during which we could market our products and services under patent protection may be reduced.

In addition to the protection afforded by patents, we also rely on trade secret protection to protect proprietary know-how that may not be patentable or that we elect not to patent, processes for which patents may be difficult to obtain or enforce, and any other elements of our products and services that involve proprietary know-how, information or technology that is not covered by patents. However, trade secrets can be difficult to protect. We cannot be certain that our trade secrets and other confidential proprietary information will not be disclosed despite having such confidentiality agreements. If the steps taken to maintain our trade secrets are deemed inadequate, we may have insufficient recourse against third parties for misappropriating any trade secrets. In addition, in some situations, any confidentiality agreement we may have with an employee, consultant, advisor, or others may conflict with, or be subject to, the rights of third parties with whom our employees, consultants, or advisors have previous employment or consulting relationships. To the extent that our employees, consultants, advisors, or contractors use any intellectual property owned by third parties in their work for us, disputes may arise as to the rights in any related or resulting know-how and inventions. Misappropriation or unauthorized disclosure of our trade secrets could significantly affect our competitive position and may have a material adverse effect on our business. Furthermore, trade secret protection does not prevent competitors from independently developing substantially equivalent information and techniques and we cannot guarantee that our competitors will not independently develop substantially equivalent information and techniques. The FDA, as part of its Transparency Initiative, is currently considering whether to make additional information of life science companies publicly available on a routine basis, including information that we may consider to be trade secrets or other proprietary information, and it is not clear at the present time how the FDA’s disclosure policies may change in the future, if at all.

Obtaining and maintaining our patent protection depends on compliance with various procedural, documentary, fee payment and other requirements imposed by governmental patent agencies, and our patent protection could be reduced or eliminated for non-compliance with these requirements.

The United States Patent and Trademark Office ("USPTO") and various foreign governmental patent agencies require compliance with a number of procedural, documentary, fee payment and other similar provisions during the patent prosecution process. Periodic maintenance fees and various other governmental fees on any issued patent and/or pending patent applications are due to be paid to the USPTO and foreign patent agencies in several stages over the lifetime of a patent or patent application. We have systems in place to remind us to pay these fees, and we employ an outside firm and rely on our outside counsel to pay these fees. While an inadvertent lapse may sometimes be cured by payment of a late fee or by other means in accordance with the applicable rules, there are many situations in which noncompliance can result in abandonment or lapse of the patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. If we fail to maintain the patents and patent applications directed to our products and services, our competitors might be able to enter the market earlier than should otherwise have been the case, which would have a material adverse effect on our business.

Litigation or other proceedings or third-party claims of intellectual property infringement could require us to spend significant time and money and could prevent us from selling our products and services.

Our commercial success depends in part on our avoiding infringement of the patents and proprietary rights of third parties, for example, the intellectual property rights of competitors. Our research, development and commercialization activities may be subject to claims that we infringe or otherwise violate patents owned or controlled by third parties. Numerous U.S. and foreign issued patents and pending patent applications, which are owned by third parties, exist in the fields in which we are developing our products and services. As the healthcare technology and network monitoring industries expand and more patents are issued, the risk increases that our activities related to our products and services may give rise to claims of infringement of the patent rights of others. We cannot assure you that our products and services will not infringe existing or future patents. The coverage of patents is subject to interpretation by the courts, and the interpretation is not always uniform. We may not be aware of patents that have already issued that a third party, for example, a competitor in our market, might assert are infringed by our products and services. It is also possible that patents of which we are aware, but which we do not believe are relevant to our products and services, could nevertheless be found to be infringed by our products and services. Nevertheless, we are not aware of any issued patents that we believe could prevent us from marketing our products and services. There may also be patent applications that have been filed but not published that, when issued as patents, could be asserted against us.

Third parties have asserted and may in the future assert that we are employing their proprietary technology without authorization. As we continue to commercialize our products and services in their current or updated forms, launch new products and services and enter new markets, we expect that competitors will claim that our products and services infringe their intellectual property rights as part of business strategies designed to impede our successful commercialization and entry into new markets. We occasionally receive letters from third parties inviting us to take licenses under, or alleging that we infringe, their patents or trademarks. Third parties may have obtained, and may in the future obtain, patents under which such third parties may claim that the use of our technologies constitutes patent infringement.

If we are sued for patent infringement, we would need to demonstrate that our products or services either do not infringe the patent claims of the relevant patent or that the patent claims are invalid or unenforceable, and we may not be able to do this. Proving that a patent is invalid and/or unenforceable is difficult. For example, in the United States, proving invalidity requires a showing of clear and convincing evidence to overcome the presumption of validity enjoyed by issued patents. We could incur substantial costs and divert the attention of our management and technical personnel in defending ourselves or our licensors against any of these claims. Defense of these claims, regardless of their merit, would cause us to incur substantial expenses and, would be a substantial diversion of employee resources from our business. Any adverse ruling or perception of an adverse ruling in defending ourselves against these claims could have a material adverse impact on our business. Furthermore, parties making claims against us may be able to obtain injunctive or other relief, which could block our ability to develop, commercialize, and sell products or services, and could result in the award of substantial damages against us, potentially including treble damages and attorneys' fees if we are found to have willfully infringed a patent. In the event of a successful claim of infringement or misappropriation against us, we may be required to pay damages and obtain one or more licenses from third parties, pay royalties to the third party, redesign any infringing product, or be prohibited from selling certain products or services, all of which could have a material adverse impact on our business. Redesigning any infringing products may be commercially impractical, not readily feasible, and/or require substantial time and monetary expenditure. Further, we cannot predict whether any required license would be available at all or whether it would be available on commercially reasonable terms.

In addition, we may be unable to obtain these licenses at a reasonable cost, if at all. We could therefore incur substantial costs related to royalty payments for licenses obtained from third parties, which could negatively affect our gross margins. Even if we were able to obtain a license, it could be non-exclusive, thereby giving our competitors access to the same technologies licensed to us. Ultimately, we could be prevented from commercializing a product, or be forced to cease some aspect of our business operations, if, as a result of actual or threatened patent infringement claims, we are unable to enter into licenses on acceptable terms. Moreover, we could encounter delays in product or service introductions while we attempt to develop alternative products or services. Defense of any lawsuit or failure to obtain any of these licenses on favorable terms could prevent us from commercializing products and services, and the prohibition of sale of any of our products and services would materially affect our ability to grow and maintain profitability and have a material adverse impact on our business.

Defending ourselves in litigation is very expensive, particularly for a company of our size, and time-consuming. In addition to infringement claims against us, we may become a party to other patent litigation and other proceedings, including interference, derivation, or post-grant proceedings, such as, ex parte review, inter parties review, or post grant review, declared or granted by the USPTO and similar proceedings in foreign countries, regarding intellectual property rights with respect to our current or future products. The cost to us of any patent litigation or other proceeding, even if resolved in our favor, could be substantial. Some of our competitors may be able to sustain the costs of litigation or administrative proceedings more effectively than we can because of greater financial resources. Patent litigation and other proceedings may also absorb significant management time. Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could impair our ability to compete in the marketplace. The occurrence of any of the foregoing could have a material adverse effect on our business, financial condition, or results of operations.

We may become involved in lawsuits to protect or enforce our patents or other intellectual property, or the patents of our licensors, which could be expensive, time consuming and ultimately unsuccessful.

Competitors may infringe or misappropriate our patents, trademarks, copyrights or other intellectual property, including our existing patents or patents that may issue to us in the future, or the patents of our licensors to which we have a license. To counter infringement or unauthorized use, we may be required to file infringement or inventorship claims to stop third party infringement, unauthorized use, or to correct inventorship, which can be expensive and time consuming and divert the time and attention of our management and scientific personnel. Any claims that we assert against perceived infringers could provoke these parties to assert counterclaims against us alleging that we infringe their patents, in addition to counterclaims asserting that our patents are invalid or unenforceable, or both. These competitors may further challenge the scope, validity or enforceability of our licensors' patents, requiring our licensors to engage in complex, lengthy and costly litigation or other proceedings. In any patent infringement proceeding, there is a risk that a court will decide that a patent of ours or of our licensors' is invalid or unenforceable, in whole or in part, and that we do not have the right to stop the other party from using the invention at issue. There is also a risk that, even if the validity of such patents is upheld, the court will construe the patent's claims narrowly or decide that we do not have the right to stop the other party from using the invention at issue on the grounds that our patent claims do not cover the invention. An adverse outcome in a litigation or proceeding involving our patents could limit our ability to assert our patents against those parties or other competitors and may curtail or preclude our ability to exclude third parties from making and selling similar or competitive products. Any of these occurrences could adversely affect our competitive business position, business prospects and financial condition. Similarly, if we assert trademark infringement claims, a court may determine that the marks we have asserted are invalid or unenforceable, or that the party against whom we have asserted trademark infringement has superior rights to the marks in question. In this case, we could ultimately be forced to cease use of such trademarks. An adverse determination of any litigation or other proceedings could put one or more of our patents at risk of being invalidated, held unenforceable or interpreted narrowly and could put our patent applications at risk of not issuing.

Interference, derivation or other proceedings, brought at the USPTO or any foreign patent authority may be necessary to determine the priority or patentability of inventions with respect to our patent applications or those our collaborators. Litigation or USPTO proceedings brought by us may fail. An unfavorable outcome in any such proceeding could require us to cease using the related technology or to attempt to license rights to it from the prevailing party or could cause us to lose valuable intellectual property rights. Our business could be harmed if the prevailing party does not offer us a license on commercially reasonable terms, if any license is offered at all. Even if we are successful, domestic or foreign litigation, or USPTO or foreign patent office proceedings may result in substantial costs and distraction to our management. We may not be able, alone or with collaborators, to prevent misappropriation of our trade secrets, confidential information or proprietary rights, particularly in countries where the laws may not protect such rights as fully as in the United States.

Even if we establish infringement, the court may decide not to grant an injunction against further infringing activity and instead award only monetary damages, which may or may not be an adequate remedy. Moreover, there can be no assurance that we will have sufficient financial or other resources to file and pursue such infringement claims, which often last for years before they are concluded. Even if we ultimately prevail in such claims, the monetary cost of such litigation and the diversion of the attention of our management and scientific personnel could outweigh any benefit we receive as a result of the proceedings.

Enforcing our intellectual property rights through litigation is very expensive, particularly for a company of our size, and time-consuming. Some of our competitors may be able to sustain the costs of litigation or administrative proceedings more effectively than we can because of greater financial resources. Patent litigation and other proceedings may also absorb significant management time. Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could impair our ability to compete in the marketplace. The occurrence of any of the foregoing could have a material adverse effect on our business, financial condition, or results of operations.

Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation or administrative proceedings, there is a risk that some of our confidential information could be comprised by disclosure. In addition, during the course of litigation or administrative proceedings, there could be public announcements of the results of hearings, motions, or other interim proceedings or developments or public access to related documents. If investors perceive these results to be negative, the market price for our common stock could be significantly harmed.

We may not be able to protect our intellectual property rights throughout the world.

Third parties may attempt to commercialize competitive products or services in foreign countries where we do not have any patents or patent applications where legal recourse may be limited. This may have a significant commercial impact on our foreign business operations.

Filing, prosecuting and defending patents on our products and services in all countries throughout the world would be prohibitively expensive, and our intellectual property rights in some countries outside the United States can be less extensive than those in the United States. The requirements for patentability may differ in certain countries, particularly developing countries. For example, Europe has a heightened requirement for patentability of software inventions. Thus, even in countries where we do pursue patent protection, there can be no assurance that any patents will issue with claims that cover our products. In addition, the laws of some foreign countries do not protect intellectual property rights to the same extent as laws in the United States and in some cases may even force us to grant a compulsory license to competitors or other third parties. Consequently, we may not be able to prevent third parties from practicing our inventions in all countries outside the United States or from selling or importing products concerning our healthcare technology into the United States or other jurisdictions. Competitors may use our technologies in jurisdictions where we have not obtained patent protection to develop their own products and services and further, may export otherwise infringing products and services to territories where we have patent protection, but enforcement on infringing activities is inadequate. These products or services may compete with ours, and our patents or other intellectual property rights may not be effective or sufficient to prevent them from competing.

Many companies have encountered significant problems in protecting and defending intellectual property rights in foreign jurisdictions. The legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents and other intellectual property protection, which could make it difficult for us to stop the infringement of our patents or marketing of competing products in violation of our proprietary rights generally. Proceedings to enforce our patent rights in foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business, could put our patents at risk of being invalidated or interpreted narrowly and our patent applications at risk of not issuing, and could provoke third parties to assert claims against us. We may not prevail in any lawsuits that we initiate and the damages or other remedies awarded, if any, may not be commercially meaningful. In addition, certain countries in Europe and certain developing countries, including India and China, have compulsory licensing laws under which a patent owner may be compelled to grant licenses to third parties. In those countries, we may have limited remedies if our patents are infringed or if we are compelled to grant a license to our patents to a third party, which could materially diminish the value of those patents. This could limit our potential revenue opportunities. Accordingly, our efforts to enforce our intellectual property rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we own or license. Finally, our ability to protect and enforce our intellectual property rights may be adversely affected by unforeseen changes in foreign intellectual property laws.

Developments in U.S. patent law could have a negative impact on our business.

As is the case with other healthcare technology companies, our success is in part dependent on intellectual property, particularly on obtaining and enforcing patents. Obtaining and enforcing patents in the healthcare technology industry involves both technological and legal complexity, and therefore, is costly, time consuming, and inherently uncertain. In addition, the United States has recently enacted and has now implemented wide-ranging patent reform legislation. Further, recent United States Supreme Court rulings have either narrowed the scope of patent protection available in certain circumstances and weakened the rights of patent owners in certain situations. In addition to increasing uncertainty with regard to our ability to obtain patents in the future, this combination of events has created uncertainty with respect to the value of patents once obtained. Changes in U.S. patent law could diminish the value of patents in general, thereby impairing our ability to protect our products and services.

For our United States patent applications containing a claim not entitled to priority before March 16, 2013, there is a greater level of uncertainty in the patent law. In September 2011, the Leahy-Smith America Invents Act, or the America Invents Act, or AIA, was signed into law. The AIA includes a number of significant changes to United States patent law, including provisions that affect the way patent applications will be prosecuted and enforced in any patent litigation. The USPTO developed regulations and procedures to govern administration of the AIA, and many of the substantive changes to patent law associated with the AIA. It is not clear what other, if any, impact the AIA will have on the operation of our business. Moreover, the AIA and its implementation could increase the uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of our issued patents, all of which could have a material adverse effect on our business and financial condition.

An important change introduced by the AIA is that, as of March 16, 2013, the United States transitioned to a “first-to-file” system for deciding which party should be granted a patent when two or more patent applications are filed by different parties claiming the same invention. A third party that files a patent application in the USPTO on or after March 16, 2013 before us could therefore be awarded a patent covering an invention of ours even if we were the first to conceive of the invention. This will require us to be cognizant going forward of the time from invention to filing of a patent application. Furthermore, our ability to obtain and maintain valid and enforceable patents depends on whether the differences between our technology and the prior art allow our technology to be patentable over the prior art. Because patent applications in the United States and many other countries are confidential for a period of time after filing, we cannot be certain that we were the first to either file any patent application related to our products or services or invent any of the inventions claimed in our patents or patent applications.

Among some of the other changes introduced by the AIA are changes that limit where a patentee may file a patent infringement suit and provide opportunities for third parties to challenge any issued patent in the USPTO. This applies to all of our United States patents, even those issued before March 16, 2013. Because of a lower evidentiary standard in USPTO proceedings necessary to invalidate a patent claim compared to the evidentiary standard in United States federal court, a third party could potentially provide evidence in a USPTO proceeding sufficient for the USPTO to hold a claim invalid even though the same evidence may be insufficient to invalidate the claim if first presented in a district court action.

Two cases, one involving diagnostic method claims and the other involving “gene patents” were decided by the Supreme Court. On March 20, 2012, the Supreme Court issued a decision in *Mayo* Collaborative v. Prometheus Laboratories, or Prometheus, a case involving patent claims directed to optimizing the amount of drug administered to a specific patient. According to that decision, Prometheus’ claims failed to incorporate sufficient inventive content above and beyond mere underlying natural correlations to allow the claimed processes to qualify as patent-eligible processes that apply natural laws. On June 13, 2013, the Supreme Court subsequently decided *Association* for Molecular Pathology v. Myriad Genetics, or Myriad, a case brought by multiple plaintiffs challenging the validity of patent claims held by Myriad Genetics, Inc. relating to the breast cancer susceptibility genes BRCA1 and BRCA2, holding that isolated genomic DNA that exists in nature, such as the DNA constituting the BRCA1 and BRCA2 genes, is not patentable subject matter, but that cDNA, which is an artificial construct created from RNA transcripts of genes, may be patent eligible.

On July 3, 2012, the USPTO issued a memorandum to patent examiners providing interim guidelines for examining process claims for patent eligibility in view of the Supreme Court decision in Prometheus. The guidance indicates that claims directed to a law of nature, a natural phenomenon, or an abstract idea that do not meet the eligibility requirements should be rejected as non-statutory subject matter. Furthermore, a case involving financial software was even more recently decided by the Supreme Court. On June 19, 2014, the Supreme Court issued a decision in Alice Corp. Pty. Ltd. v. CLS Bank Int'l, or Alice, a case involving patent claims directed to methods of exchanging obligations as between parties so as to mitigate settlement risk in financial transactions, computer systems configured to carry out the method, and computer-readable media containing program code for performing the method. In Alice, the Court applied the analytic framework from Prometheus and extended its application to all types of claims. According to that decision, Alice Corp.'s claims failed to incorporate sufficient inventive content above and beyond the mere idea of intermediated transaction to allow the claimed processes to qualify as patent-eligible processes that apply the idea in a particular way to solve a problem. On December 16, 2014, the USPTO issued interim guidelines for examining claims for patent eligibility in view of the Supreme Court decision in Alice. The guidance indicates that claims reciting an abstract idea that do not include significantly more than the idea itself should be rejected as non-statutory subject matter. We cannot assure you that our efforts to seek patent protection for our technology, products, and services will not be negatively impacted by the decision in Alice, rulings in other cases, or changes in guidance or procedures issued by the USPTO. Since then, the USPTO has issued several memoranda on the topic of patent eligible subject matter, including those dated May 4, 2016, May 19, 2016, July 14, 2016, and November 2, 2016.

More specifically, we cannot fully predict what impact the Supreme Court's decisions in Prometheus, Myriad and Alice may have on the ability of healthcare technology companies or other entities to obtain or enforce patents relating to genomic discoveries, diagnostic products and services or computer-implemented inventions in the future. Despite the USPTO's guidance described above, these contours of when certain claims allegedly directed to laws of nature, natural phenomenon or abstract ideas meet the patent eligibility requirements are not clear and may take many years to develop via interpretation in the courts.

There are many patents claiming diagnostic methods based on similar or related correlations that issued before Prometheus, and although some of these patents may be invalid under the standard set forth in Prometheus, until successfully challenged, these patents are presumed valid and enforceable, and certain third parties could allege that we infringe, or request that we obtain a license to, these patents. Whether based on patents issued prior to or after Prometheus, we could have to defend ourselves against claims of patent infringement, or choose to license rights, if available, under patents claiming such methods. Similarly, there are many patents claiming software and/or business methods that include an abstract idea that issued before Alice, and although some of these patents may be invalid under the standard set forth in Prometheus and Alice, until successfully challenged, these patents are presumed valid and enforceable, and certain third parties could allege that we infringe, or request that we obtain a license to, these patents. Whether based on patents issued prior to or after Alice, we could have to defend ourselves against claims of patent infringement, or choose to license rights, if available, under patents claiming such software or business methods. In any of the foregoing or in other situations involving third-party intellectual property rights, if we are unsuccessful in defending against claims of patent infringement, we could be forced to pay damages or be subjected to an injunction that would prevent us from utilizing the patented subject matter in question if we are unable to obtain a license on reasonable terms. Such outcomes could materially affect our ability to offer our products and have a material adverse impact on our business. Even if we are able to obtain a license or successfully defend against claims of patent infringement, the cost and distraction associated with the defense or settlement of these claims could have a material adverse impact on our business. Moreover, one or more of our pending United States patent applications may be rejected based on the changes in the law and the standards set forth in Prometheus, Myriad, Alice, or other cases. Our ability to secure United States patent rights could be impaired if we cannot overcome such rejections, which could have a material adverse impact on our business. In addition, one or more of our issued United States patents could be challenged on the basis of the law and the standards set forth in Prometheus, Myriad, Alice, or other cases, which could have a material adverse impact on our business. Further, on July 30, 2015, in response to the public comment on the Interim Eligibility Guidance, the USPTO issued an update pertaining to the Interim Eligibility Guidance. The Updated Eligibility Guidance includes additional examples from the case law and is intended to assist examiners in applying the Interim Eligibility Guidance during the patent examination process.

If we fail to comply with our obligation in any of the agreements under which we license intellectual property rights from third parties or otherwise experience disruptions to our business relationships with our licensors, we could lose license rights that are important to our business.

Licensing of intellectual property rights is important to our business and involves complex legal, business and scientific issues.

Disputes may arise between us and our licensors regarding intellectual property rights subject to a license agreement, including:

- the scope of rights granted under the license agreement and other interpretation-related issues;
- our right to sublicense intellectual property rights to third parties under collaborative development relationships; and
- our diligence obligations with respect to the use of the licensed technology in relation to our development and commercialization of our product candidates, and what activities satisfy those diligence obligations.

While we would expect to exercise all rights and remedies available to us, including seeking to cure any breach by us, and otherwise seek to preserve our rights under the intellectual property licensed to us, we may not be able to do so in a timely manner, at an acceptable cost or at all. Generally, the loss of any one of our current licenses, or any other license we may acquire in the future, could materially harm our business, prospects, financial condition and results of operations.

Confidentiality agreements with employees and others may not adequately prevent disclosure of our trade secrets and other proprietary information and may not adequately protect our intellectual property, which could limit our ability to compete.

Because we operate in the highly technical field of research and development, we rely in part on trade secret protection in order to protect our proprietary trade secrets and unpatented know-how. However, trade secrets are difficult to protect, and we cannot be certain that others will not develop the same or similar technologies on their own. Enforcing a claim that a party illegally obtained and is using our trade secrets or know-how is difficult, expensive and time consuming, and the outcome is unpredictable. In addition, courts outside the United States may be less willing to protect trade secrets or know-how. The failure to obtain or maintain trade secret protection could adversely affect our competitive position.

We may be subject to claims that our employees, consultants or independent contractors have wrongfully used or disclosed confidential information of third parties.

We have received confidential and proprietary information from third parties. In addition, we employ individuals who were previously employed at other healthcare companies. We may be subject to claims that we or our employees, consultants or independent contractors have inadvertently or otherwise improperly used or disclosed confidential information of these third parties or our employees' former employers. Further, we may be subject to ownership disputes in the future arising, for example, from conflicting obligations of consultants or others who are involved in developing our products and services. We may also be subject to claims that former employees, consultants, independent contractors or other third parties have an ownership interest in our patents or other intellectual property. Litigation may be necessary to defend against these and other claims challenging our right to and use of confidential and proprietary information. If we fail in defending any such claims, in addition to paying monetary damages, we may lose our rights therein. Such an outcome could have a material adverse effect on our business. Even if we are successful in defending against these claims, litigation could result in substantial cost and be a distraction to our management and employees.

We rely in part on trademarks to distinguish our products and services from those of other entities. Trademarks may be opposed or cancelled, and we may be involved in lawsuits or other proceedings to protect or enforce our trademarks.

We rely on trademarks, in the United States and in certain foreign jurisdictions, to distinguish our products and services in the minds of our customers and our business partners from those of other entities. Third parties may challenge our pending trademark applications through opposition proceedings in the United States, or comparable proceedings in foreign jurisdictions, in which they seek to prevent registration of a mark. Our registered trademarks may be subject to cancellation proceedings in the United States, or comparable proceedings in foreign jurisdictions, in which a third party seeks to cancel an existing registration. To enforce our trademark rights, we may be involved in lawsuits or other proceedings which could be expensive, time-consuming and uncertain.

Our corporate name, NantHealth, and the names of our products and services have not been trademarked in each market where we operate and plan to operate. Our trademark applications for our products and services may not be allowed for registration, and our registered trademarks may not be maintained or enforced. During trademark registration proceedings, we may receive rejections, which we may be unable to overcome in our responses. If we do not secure registrations for our trademarks, we may encounter more difficulty in enforcing them against third parties than we otherwise would.

Risks related to government regulation

The healthcare industry is highly regulated, and thus, we are subject to several laws, regulations and industry initiatives, non-compliance with certain of which could materially adversely affect our operations or otherwise adversely affect our business, results of operations and financial condition.

As a participant in the health care industry, our operations and relationships, and those of our clients, are regulated by several U.S. federal, state, local and foreign governmental entities. The impact of these regulations on us is both direct, to the extent that we are subject to these laws and regulations, and also indirect, in terms of government program requirements applicable to our clients for the use of health information technology. Even though we may not be directly regulated by specific healthcare laws and regulations, our products must be capable of being used by our clients in a way that complies with those laws and regulations. There are a number of regulations in the United States, such as regulations in the areas of healthcare fraud and abuse, information blocking, prior authorization, utilization review and practice management solutions, the security and privacy of patient data and interoperability standards, that may be directly or indirectly applicable to our operations and relationships or the business practices of our clients.

U.S. federal and state governments continue to enhance regulation of and increase their scrutiny over practices involving healthcare fraud, waste and abuse perpetuated by healthcare providers and professionals whose services are reimbursed by Medicare, Medicaid and other government health care programs. Our healthcare provider clients, as well as our provision of products to government entities, subject our business to laws and regulations on fraud and abuse which, among other things, prohibit the direct or indirect payment or receipt of any remuneration for patient referrals, or arranging for or recommending referrals or other business paid for in whole or in part by these federal or state healthcare programs. U.S. federal enforcement personnel have substantial powers and remedies to pursue suspected or perceived fraud and abuse. The effect of this government regulation on our clients is difficult to predict. Many of the regulations applicable to our clients and that may be applicable to us, including those relating to marketing incentives offered in connection with sale of products or services and information blocking, are vague or indefinite and have not been fully interpreted by the courts. They may be interpreted or applied by prosecutors, regulatory or judicial authorities in a manner that could broaden their applicability to us or require our clients to make changes in their operations or the way in which they deal with us. If we fail to comply with any applicable laws and regulations, we could be subject to significant civil and criminal penalties, sanctions or other liability, including exclusion from government healthcare programs or from providing certain products to our clients who participate in such programs, which could have a material adverse effect on our business, results of operations and financial condition. Even an unsuccessful challenge by a regulatory authority of our activities could result in adverse publicity, require a costly response from us and adversely affect our business, results of operations and financial condition.

Our products include technology solutions related to claim status and management, utilization management and prior authorization. While we do not submit claims to payors, claims submitted by our clients using our technology solutions are governed by U.S. federal and state laws, which can impact our operations indirectly. U.S. federal law provides civil liability to any persons that knowingly submit, or cause to be submitted, a claim to a payor, including Medicare, Medicaid and private health plans, seeking payment for any services or items that overbills or bills for services or items that have not been provided to the patient. U.S. federal law may also impose criminal penalties for intentionally submitting such false claims. In addition, federal and state law regulates the collection of debt and may impose monetary penalties for violating those regulations. The Health Insurance Portability and Accountability Act of 1996 (“HIPAA”) security, privacy and transaction standards, as discussed below, also have a potentially significant effect on our claims-related technology solutions because those solutions must be structured and provided in a way that supports our clients' HIPAA compliance obligations. In connection with these laws, we may be subjected to U.S. federal or state government investigations and possible penalties may be imposed upon us; false claims actions may have to be defended; private payers may file claims against us; and we may be excluded from Medicare, Medicaid or other government-funded health care programs. Any investigation or proceeding related to these laws, even if unwarranted or without merit, may have a material adverse effect on our business, results of operations and financial condition.

U.S. federal, state and local laws and foreign legislation govern the confidentiality of personal information, how that information may be used, and the circumstances under which such information may be released. These regulations govern both the disclosure and use of confidential personal and patient medical record information and require the users of such information to implement specified security and privacy measures. U.S. regulations currently in place governing electronic health data transmissions continue to evolve and are often unclear and difficult to apply. Laws in non-U.S. jurisdictions are also evolving and may have similar or even stricter requirements related to the treatment of personal or patient information. Data protection regulations impact how businesses, including both us and our clients, can collect and process the personal data of individuals. The costs of compliance with, and other burdens imposed by, such laws, regulations and policies, or modifications thereto, that are applicable to us may limit the use and adoption of our technology solutions and could have a material adverse impact on our business, results of operations and financial condition. Furthermore, we incur development, resource, and capital costs in delivering, updating, and supporting solutions to enable our clients to comply with these varying and evolving standards. If we fail to comply with any applicable laws or regulations or fail to deliver compliant products and solutions, we could be subject to civil penalties, sanctions and contract liability. Enforcement investigations, even if meritless, could have a negative impact on our reputation, cause us to lose existing clients or limit our ability to attract new clients. Furthermore, our failure to maintain confidentiality of sensitive personal information in accordance with the applicable regulatory requirements could damage our reputation and expose us to claims, fines and penalties.

Our commercial and government clients continue to be subject to requirements to adopt interoperable health information technology which requires that our products and solutions to be interoperable with other third-party health information technology providers. Market forces and governmental or regulatory authorities create software interoperability standards that may apply to our products and solutions. For applicable products, these interoperability standards are the basis of certification requirements that our products must meet, and, in turn, many of our clients must meet prerequisite or participation requirements for many federal health insurance programs, including Medicare and Medicaid Fee for Service programs, for alternative payment models under the Innovation Center of CMS and for other federal or state health insurance or reimbursement programs. These expectations for interoperability are supported by the information blocking prohibitions of the Cures Act. If our products are not consistent with those requirements, we could be forced to incur substantial additional development costs to conform. The Office of the National Coordinator for Health Information Technology (“ONC”) is also charged under the Cures Act with developing a Trusted Exchange Framework that establishes governance requirements for trusted health information exchange in the United States. ONC has developed the U.S. Common Data Set for Interoperability which may lay the groundwork for iterative expansion of future data exchange requirements for trusted exchange. ONC continues to modify and refine these standards. We may incur increased software development and administrative expenses and delays in delivering such products if we need to update our products to conform to these varying and evolving requirements. In addition, delays in interpreting these standards may result in postponement or cancellation of our clients' decisions to purchase our products. If our products are not compliant with these evolving standards, our market position and sales could be impaired, and we may have to invest significantly in changes to our products.

Various U.S. federal, state and non-government agencies continue to generate requirements for the use of certified health information technology, or certified electronic health record technology (“CEHRT”). In many cases, these requirements have become conditions for receiving payment for health care services to beneficiaries of federal health insurance programs. The Cures Act has tied CEHRT to its policy goals of reducing barriers to the exchange of health information data blocking, encouraging nationwide interoperability, consumer access to health information and improving health information availability between consumers and their care teams. The regulations establishing the certification standards for CEHRT will continue to be updated to support these government policy goals with greater emphasis on interoperability, consumer engagement, patient safety and health information privacy and security. The ONC has finalized additional regulations under the Cures Act to enforce the Act's policy directives relating to data blocking and interoperability. Along with recent CMS actions taken for Medicare and Medicaid, these regulations will also mandate adoption of updated and expanded certified capabilities of CEHRT that some of our clients must adopt to remain able to participate in the federal programs. In addition, the ONC has increased its surveillance activities concerning vendor compliance with respect to CEHRT requirements, which could expose us to greater liability and increased cost of compliance.

Our delegated services and offerings with health plans could subject us to audits by health plans and governmental payors and increase our exposure to liabilities under federal and state health care fraud and abuse laws, including claims under the False Claims Act.

Our contracts with health plans or qualified health plan (QHP) partners for delegated services obligate us and any contractors or agents we use for such delegated services to comply with additional regulatory and contractual requirements and standards as a delegated entity, [including 45 CFR Parts 155 and 156,] which increase our exposure to additional liabilities under health care fraud and abuse laws, require us to maintain a more robust healthcare compliance program, as well as obtain and comply with applicable licensing and credentialing requirements. We are subject to stringent regulatory and contractual oversight, including audits by our health plan partners, CMS, and other regulatory authorities. Negative results of any such audit could have a material adverse effect on our business, financial condition, results of operations or prospects and could damage our reputation. Changes in regulations, standards, and contractual obligations can increase our compliance costs, expose us to greater liability, or materially impact our profitability.

In particular, entities that perform prior authorization and utilization management functions as a delegated entity are subject to additional federal and state requirements, including, but not limited to, credentialing, accreditation or licensing requirements and standards (such as requirements of the National Committee for Quality Assurance), state prior authorization laws, Medicare and Medicaid regulations, manuals and policies, and other federal and state laws and standards related to delegation, prior authorization, and utilization management. Health plans and other healthcare organizations that contract with delegated entities flow down extensive federal and state requirements to delegated entities, which can increase the cost of operations and exposure to potential liabilities for such delegated entities. Delegated entities are also subject to audits and oversight by healthcare plans as well as federal and state regulatory authorities. To the extent federal and state government programs or regulatory authorities change current laws, regulations or policies, or the prior authorization process and related requirements, such changes could impact our business operations. Complying with new regulatory requirements or changes to current regulations could be time-intensive and expensive, resulting in a material adverse effect on our business. If we or any third parties we may engage are slow or unable to adapt to changes in existing requirements or the adoption of new requirements or policies, or if we or such third parties are not able to maintain regulatory compliance, we may lose regulatory licensure or authorization for our products and services, be exposed to contractual liabilities, and we may not achieve or sustain profitability. Efforts to ensure compliance with applicable healthcare laws and regulations can involve substantial costs. Violations of healthcare laws can result in significant penalties, including the imposition of significant civil, criminal and administrative penalties, damages, monetary fines, disgorgement, individual imprisonment, possible exclusion from participation in Medicare, Medicaid and other U.S. healthcare programs, integrity oversight and reporting obligations, contractual damages, reputational harm, diminished profits and future earnings, and curtailment or restructuring of operations.

If we fail to comply with applicable health information privacy and security laws and other state and federal privacy and security laws, we may be subject to significant liabilities, reputational harm and other negative consequences, including decreasing the willingness of current and potential customers to work with us.

We are subject to data privacy and security regulation by both the federal government and the states in which we conduct our business. HIPAA established uniform federal standards for certain “covered entities,” which include certain healthcare providers, healthcare clearinghouses, and health plans, governing the conduct of specified electronic healthcare transactions and protecting the security and privacy of protected health information ("PHI"). The Health Information Technology for Economic and Clinical Health Act, "HITECH Act") which became effective on February 17, 2010, makes HIPAA’s security standards directly applicable to “business associates,” which are independent contractors or agents of covered entities that create, receive, maintain, or transmit PHI in connection with providing a service for or on behalf of a covered entity. The HITECH Act also increased the civil and criminal penalties that may be imposed against covered entities, business associates and certain other persons, and gave state attorneys general new authority to file civil actions for damages or injunctions in federal courts to enforce HIPAA’s requirements and seek attorney’s fees and costs associated with pursuing federal civil actions.

A portion of the data that we obtain and handle for or on behalf of our customers is considered PHI, subject to HIPAA. We are also required to maintain similar business associate agreements with our subcontractors that have access to PHI of our customers in rendering services to us or on our behalf. Under HIPAA and our contractual agreements with our HIPAA-covered entity health plan customers, we are considered a “business associate” to those customers and are required to maintain the privacy and security of PHI in accordance with HIPAA and the terms of our business associate agreements with our customers, including by implementing HIPAA-required administrative, technical and physical safeguards. We have incurred, and will continue to incur, significant costs to establish and maintain these safeguards and, if additional safeguards are required to comply with HIPAA, other laws or regulations relating to health information privacy or security, or our customers’ requirements, our costs could increase further, which would negatively affect our operating results. Furthermore, we cannot guarantee that such safeguards have been and will continue to be adequate. If we have failed, or fail in the future, to maintain adequate safeguards, or we or our agents or subcontractors use or disclose PHI in a manner prohibited or not permitted by HIPAA or other laws or regulations relating to health information privacy or security, our subcontractor business associate agreements, or our business associate agreements with our customers, or if the privacy or security of PHI that we obtain and handle is otherwise compromised, or if any of the foregoing is perceived or believed to have occurred, we could be subject to significant liabilities and consequences, including, without limitation:

- actual or asserted breach of our contractual obligations to customers, which may cause our customers to terminate their relationship with us and may result in potentially significant financial obligations to our customers;
- investigation by the federal and state regulatory authorities empowered to enforce HIPAA and other data privacy and security laws, which include the U.S. Department of Health and Human Services, or HHS, the Federal Trade Commission and state attorneys general, and the possible imposition of civil and criminal penalties;
- private claims and litigation, including by individuals adversely affected by any misuse of their personal health information for which we are or are asserted to be responsible; and
- negative publicity, which may decrease the willingness of current and potential future customers to work with us and negatively affect our sales and operating results.

Further, we publish statements to end users of our services that describe how we handle and protect personal information. If federal or state regulatory authorities or private litigants consider any portion of these statements to be untrue, we may be subject to claims of deceptive practices, which could lead to significant liabilities and consequences, including, without limitation, damage to our reputation and costs of responding to investigations, defending against litigation, settling claims and complying with regulatory or court orders.

Federal or state governmental authorities may impose additional data security standards or additional privacy or other restrictions on the collection, use, maintenance, transmission and other disclosures of health information. Legislation has been proposed at various times at both the federal and the state level that would limit, forbid or regulate the use or transmission of medical information outside of the United States. Such legislation, if adopted, may render our use of off-shore partners for work related to such data impracticable or substantially more expensive. Alternative processing of such information within the United States may involve substantial delay in implementation and increased cost.

We may be, or may become, subject to laws and regulations relating to privacy, data protections and cybersecurity, and our failure to comply with such laws and regulations could lead to government enforcement actions and significant penalties against us, and adversely impact our operating results.

The regulatory framework for privacy, data protection, and cybersecurity issues worldwide is rapidly evolving and is likely to remain uncertain for the foreseeable future. The U.S. federal and various state, local and foreign government bodies and agencies have adopted or are considering adopting laws and regulations limiting, or laws and regulations regarding, the collection, distribution, use, disclosure, storage, security, and other processing of data relating to individuals.

For example, the California Consumer Privacy Act of 2018 ("CCPA"), which went into effect on January 1, 2020, requires covered businesses to provide substantial disclosures to California residents and honor such residents’ data protection and privacy rights, including the right to opt-out of certain sales of personal information. The CCPA provides for civil penalties for violations, as well as a private right of action for certain data breaches that result in the compromise of highly sensitive personal information, which may increase the likelihood of, and risks associated with, data breach litigation. The CCPA has been amended several times, including by the California Privacy Rights Act ("CPRA"), a ballot initiative that passed in November 2020 that, among other things, created a new state agency vested with authority to implement and enforce the CCPA and the CPRA. Effective in most material aspects starting on January 1, 2023, the CPRA will, among other things, expand California residents’ rights with respect to certain sensitive personal information and give California residents’ a right to opt out of the sharing of certain personal information for targeted online advertising.

The CCPA and other similar laws could impact our business activities, depending on their interpretation. Additionally, other state legislatures have enacted or are currently contemplating, and may pass, their own comprehensive data privacy and security laws, with potentially greater penalties and more rigorous compliance requirements relevant to our business. For example, in March 2021, Virginia enacted the Virginia Consumer Data Protection Act ("CDPA"), a comprehensive privacy statute that becomes effective on January 1, 2023 and shares similarities with the CCPA, the CPRA, and legislation proposed in other states. Similarly, in June 2021, Colorado enacted the Colorado Privacy Act ("CPA"), which takes effect on July 1, 2023.

The EU has adopted data protection laws and regulations which may apply to us in certain circumstances, or in the future. The collection and use of health data and other personal data is governed in the EU by the General Data Protection Regulation ("GDPR"), which extends the geographical scope of EU data protection law to entities and operations outside of the EU under certain conditions and imposes substantial obligations upon companies and new rights for individuals, and by certain EU member state-level legislation. The GDPR, which is wide-ranging in scope and applicability, imposes several requirements relating to the consent of the individuals to whom the personal data relates, the information provided to the individuals, the security and confidentiality of the personal data, data breach notification and the use of third party processors in connection with the processing of personal data, including clinical trials. The GDPR also imposes strict rules on the transfer of personal data out of the EU to the U.S., provides an enforcement authority and imposes large penalties for noncompliance, including the potential for fines of up to €20 million or 4% of the annual global revenues of the noncompliant company, whichever is greater.

Further, Brexit has created uncertainty with regard to data protection regulation in the United Kingdom ("UK"). Specifically, the UK exited the EU on January 1, 2020, subject to a transition period that ended on December 31, 2020. On June 28, 2021, the European Commission issued an adequacy decision in respect of the UK's data protection framework, allowing personal data transfers from EU member states to the UK to continue without requiring additional contractual or other measures in order to lawfully transfer personal data between the territories. This decision is subject to renewal after four years, however, and may be revisited by the European Commission at any time. The UK has implemented legislation similar to the GDPR, referred to as the UK GDPR, which provides for fines of up to the greater of £17.5 million or 4% of global turnover. In the medium and longer terms, however, the relationship between the UK and EU in relation to aspects of data protection law remains unclear, including with respect to cross-border data transfers and the role of the UK Information Commissioner's Office with respect to the EU, which exposes us to further compliance risk. We may incur liabilities, expenses, costs, and other operational losses relating to the GDPR, the UK GDPR, and other laws and regulations in the EU and UK relating to privacy and data protection, including those of applicable EU Member States in connection with any measures we take to comply with them. We may in the future be required to put in place additional mechanisms in an effort to comply with these laws and regulations, which could divert management's attention and increase our cost of doing business.

In addition, other new regulation or legislative actions regarding data privacy and security (together with applicable industry standards) may increase our costs of doing business. In this regard, we expect that there will continue to be new proposed laws, regulations and industry standards relating to privacy and data protection in the United States, the EU, the UK and other jurisdictions, and we cannot determine the impact such future laws, regulations and standards may have on our business. With the GDPR, UK GDPR, CCPA, CPRA, CDPA, CPA, and other laws, regulations and other obligations relating to privacy, data protection, and cybersecurity imposing new and relatively burdensome obligations, and with substantial uncertainty over the interpretation and application of these and other obligations, we may face challenges in addressing their requirements and making necessary changes to our policies and practices, and may incur significant costs and expenses in an effort to do so. Additionally, if third parties we work with, such as vendors or service providers, violate applicable laws or regulations or our policies, such violations may also put our or our customers' data at risk and could in turn have an adverse effect on our business. Any failure or perceived failure by us or our service providers to comply with our applicable policies or notices relating to privacy, data protection, or cybersecurity, our contractual or other obligations to third parties, or any of our other legal obligations relating to privacy, data protection, or cybersecurity, may result in governmental investigations or enforcement actions, litigation, claims and other proceedings, harm our reputation, and could result in significant liability.

To the extent we contract with government entities, such government contracts could expose us to additional risks inherent in the government contracting environment.

To the extent we contract with any government entities, such government contracts carry various risks inherent in contracting with government entities. These risks include, but are not limited to, the following:

- Government entities, particularly in the United States, often reserve the right to audit our contracts and conduct reviews, inquiries and investigations of our business practices and performance with respect to government contracts. If a government client discovers improper conduct during its audits or investigations, we may become subject to various civil and criminal penalties, including those under the civil U.S. False Claims Act, and administrative sanctions, which may include termination of contracts, suspension of payments, fines and civil money penalties, and suspensions or debarment from doing business with other government agencies.
- U.S. government contracting regulations impose strict compliance and disclosure obligations and our failure to comply with these obligations could be a basis for suspension or debarment, or both, from federal government contracting in addition to breach of the specific contract.

- Government contracts are subject to heightened reputational and contractual risks compared to contracts with commercial clients and often involve more extensive scrutiny and publicity. Negative publicity, including allegations of improper or illegal activity, poor contract performance, or information security breaches, regardless of accuracy, may adversely affect our reputation.
- Terms and conditions of government contracts also tend to be more onerous, are often more difficult to negotiate and involve additional costs. We must comply with specific procurement regulations and a variety of other socio-economic requirements, as well as various statutes, regulations and requirements related to employment practices, recordkeeping and accounting. Our failure to comply with a variety of complex procurement rules and regulations could result in our liability for penalties, including termination of our government contracts, disqualification from bidding on future government contracts and suspension or debarment from government contracting.
- Government entities typically fund projects through appropriated monies, which can be impacted by changes in presidential administration and budget priorities.
- Government entities reserve the right to change the scope of or terminate these projects at their convenience for lack of approved funding or other reasons, which could limit our recovery of reimbursable expenses or investments. In addition, government contracts may be protested, which could result in administrative procedures and litigation, result in delays in performance and payment, be expensive to defend and be incapable of prompt resolution.
- It is common in contracting with governments for there to be a prime contractor with privity of contract to the government client and one or more subcontractors. There are inherent risks in being a subcontractor, including without limitation, reliance on the performance of the prime contractor for the execution of the contract to the satisfaction of the client. Additionally, when we serve as the prime contractor, we rely on our subcontractors to fulfill certain contractual obligations under our agreements with government clients. A failure by the prime contractor to perform under an agreement under which we serve as a subcontractor, or a failure by a subcontractor to perform under an agreement under which we serve as a prime contractor, could have a material adverse impact on our business, results of operations and financial condition.

The occurrences or conditions described above could affect not only our business with government entities involved, but also our business with other entities of the same or other governmental bodies or with certain commercial clients and could have a material adverse effect on our business, results of operations and financial condition.

If we, including our employees, suppliers, distributors, independent contractors, and agents acting on our behalf, fail to comply with federal and state healthcare laws and regulations, including those governing submissions of false or fraudulent claims to government healthcare programs and financial relationships with healthcare providers, we may be subject to significant civil and criminal penalties and/or loss of eligibility to participate in government healthcare programs.

We are subject to certain federal and state laws and regulations designed to protect patients, governmental healthcare programs, and private health plans from fraudulent and abusive activities. These laws include anti-kickback restrictions and laws prohibiting the submission of false or fraudulent claims. These laws are complex and their application to our specific products, services and relationships may not be clear and may be applied to our business in ways that we do not anticipate. Federal and state regulatory and law enforcement authorities have recently increased enforcement activities with respect to Medicare and Medicaid fraud and abuse regulations and other reimbursement laws and rules. From time to time in the future, we may receive inquiries or subpoenas to produce documents in connection with such activities. We could be required to expend significant time and resources to comply with these requests, and the attention of our management team could be diverted to these efforts. Furthermore, third parties have in the past alleged, and may in the future allege that we have sought federal funding in a manner that may violate federal or state law. Though we dispute such allegations, if we are found to be in violation of any federal or state fraud and abuse laws, we could be subject to civil and criminal penalties, and we could be excluded from participating in federal and state healthcare programs such as Medicare and Medicaid. The occurrence of any of these events could significantly harm our business and financial condition.

Provisions in Title XI of the Social Security Act, commonly referred to as the federal Anti-Kickback Statute, prohibit the knowing and willful offer, payment, solicitation or receipt of remuneration, directly or indirectly, in cash or in kind, in return for or to reward the referral of patients or arranging for the referral of patients, or in return for the recommendation, arrangement, purchase, lease or order of items or services that are covered, in whole or in part, by a federal healthcare program such as Medicare or Medicaid. The definition of "remuneration" has been broadly interpreted to include anything of value such as gifts, discounts, rebates, waiver of payments or providing anything inconsistent with the fair market value. Many states have adopted similar prohibitions against kickbacks and other practices that are intended to induce referrals which are applicable to all patients regardless of whether the patient is covered under a governmental health program or private health plan. We attempt to scrutinize our business relationships and activities to comply with the federal Anti-Kickback Statute and similar laws and we attempt to structure our sales and group purchasing arrangements in a manner that is consistent with the requirements of applicable safe harbors to these laws. We cannot assure you, however, that our arrangements will be protected by such safe harbors or that such increased enforcement activities will not directly or indirectly have an adverse effect on our business, financial condition or results of operations. Any determination by a state or federal agency that any of our activities or those of our vendors or customers violate any of these laws could subject us to civil or criminal penalties, monetary fines, disgorgement, individual imprisonment, contractual damages, reputational harm, diminished profits and future earnings and curtailment of our operations, could require us to change or terminate some portions of operations or business, could disqualify us from providing services to healthcare providers doing business with government programs and, thus, could have an adverse effect on our business.

Our business is also subject to numerous federal and state laws, including without limitation the civil False Claims Act, that prohibits the knowing submission or "causing the submission" of false or fraudulent information or the failure to disclose information in connection with the submission and payment of claims for reimbursement to Medicare, Medicaid, federal healthcare programs or private health plans. Analogous state laws and regulations may apply to our arrangements and claims involving healthcare items or services reimbursed by non-governmental third-party payers. Additionally, HIPAA also imposes criminal and civil liability for, among other things, executing a scheme to defraud any healthcare benefit program or making false statements relating to healthcare matters.

These laws and regulations may change rapidly, and it is frequently unclear how they apply to our business. Errors created by our products or consulting services that relate to entry, formatting, preparation or transmission of claim or cost report information may be determined or alleged to be in violation of these laws and regulations. Any failure of our products or services to comply with these laws and regulations could result in substantial civil or criminal liability, monetary fines, disgorgement, individual imprisonment, contractual damages, reputational harm, diminished profits and future earnings and curtailment of our operations, could adversely affect demand for our one or more of our offerings, could invalidate all or portions of some of our customer contracts, could require us to change or terminate some portions of our business, could require us to refund portions of our services fees, could cause us to be disqualified from serving customers doing business with government payers and could have an adverse effect on our business.

Our activities are also subject to state and federal self-referral laws, including the federal Physician Self-referral Law, commonly known as the Stark Law, which prohibits physicians from referring Medicare or Medicaid patients to providers of "designated health services" with whom the physician or a member of the physician's immediate family has an ownership interest or compensation arrangement, unless a statutory or regulatory exception applies, and similar state equivalents that may apply regardless of payer. Our failure to abide by these state and federal laws could result in substantial fines and penalties.

Because of the far-reaching nature of these laws, we may be required to alter or discontinue one or more of our business practices to be in compliance with these laws. If we fail to adequately mitigate our operational risks or if we or our agents fail to comply with any of those regulations, laws and/or requirements, a range of actions could result, including, but not limited to restrictions on our products or manufacturing processes, withdrawal of our products from the market, significant fines, exclusion from government healthcare programs or other sanctions or litigation. Such occurrences could have a material and adverse effect on our product sales, business and results of operations.

The scope and enforcement of these laws is uncertain and subject to rapid change in the current environment of healthcare reform, especially in light of the lack of applicable precedent and regulations. Federal or state regulatory authorities might challenge our current or future activities under these laws. Any such challenge could have a material adverse effect on our reputation, business, results of operations and financial condition. In addition, efforts to ensure that our business arrangements with third parties will comply with these laws and regulations and will involve substantial costs. Any state or federal regulatory review of us or the third parties with whom we contract, regardless of the outcome, would be costly and time-consuming. Further, it is not always possible to identify and deter misconduct by employees and third parties, and the precautions we take to detect and prevent misconduct may not be effective in controlling unknown or unmanaged risks or losses or in protecting us from governmental investigations or other actions or lawsuits stemming from a failure to be in compliance with applicable healthcare laws. If any such actions are instituted against us, and we are not successful in defending ourselves or asserting our rights, those actions could have a significant impact on our business, including the imposition of significant fines or other sanctions.

Healthcare policy changes, including legislation reforming the U.S. healthcare system, may have a material adverse effect on our financial condition, results of operations and cash flows.

Changes in political, economic and regulatory influences could impact the purchasing practices and operations of our clients and increase our costs to deliver products and solutions that enable our clients to meet their compliance requirements. The demand for our products and solutions is subject to changes in new regulatory requirements and compliance deadlines, which could impact our financial results. We cannot predict whether or when future health care reform initiatives at the federal or state level or other initiatives affecting our business will be proposed, enacted or implemented, or what impact those initiatives may have on our business, results of operations and financial condition.

In March 2010, the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act of 2010 (collectively, the “ACA”) was enacted in the United States, which made a number of substantial changes in the way healthcare is financed by both governmental and private insurers. Among other things, the ACA, creates initiatives to promote quality indicators in payment methodologies and the coordination and promotion of research on comparative clinical effectiveness of different technologies and procedures.

We cannot predict whether future healthcare initiatives will be implemented at the federal or state level, or how any future legislation or regulation may affect us. The taxes imposed by the new federal legislation and the expansion of government’s role in the U.S. healthcare industry, as well as changes to the reimbursement amounts paid by payers for our current and future offerings, may reduce our profits and have a materially adverse effect on our business, financial condition, results of operations, and cash flows.

Furthermore, since its enactment, there have been judicial and Congressional challenges to certain aspects of the ACA. In June 2021, the United States Supreme Court held that Texas and other challengers had no legal standing to challenge the ACA, dismissing the case without specifically ruling on the constitutionality of the ACA. Accordingly, the ACA remains in effect in its current form. It is unclear how this Supreme Court decision, future litigation, or healthcare measures promulgated by the Biden administration will impact our business, financial condition and results of operations. Complying with any new legislation or changes in healthcare regulation could be time-intensive and expensive, resulting in material adverse effect on our business.

In the United States, there have been and continue to be a number of legislative initiatives to contain healthcare costs. We face uncertainties that might result from legislative, executive, and administrative actions and future healthcare measures and agency rules implemented by at the federal and state levels. Any changes to the ACA or implementation of cost containment measures or other healthcare reforms are likely to have an impact on our results of operations and may have a material adverse effect on our results of operations, or may prevent us from being able to generate revenue or attain profitability. We cannot predict what other healthcare programs and regulations will ultimately be implemented at the federal or state level or the effect of any future legislation or regulation in the United States may have on our business. Changes in healthcare policy could increase our costs and subject us to additional regulatory requirements that may interrupt commercialization of our current and future solutions.

We are subject to U.S. and foreign anti-corruption and anti-money laundering laws with respect to our operations and non-compliance with such laws can subject us to criminal and/or civil liability and harm our business.

We are subject to the U.S. Foreign Corrupt Practices Act of 1977, as amended ("FCPA"), the U.S. domestic bribery statute contained in 18 U.S.C. § 201, the U.S. Travel Act, the USA PATRIOT Act, and possibly other state and national anti-bribery and anti-money laundering laws in countries in which we conduct activities. Anti-corruption laws are interpreted broadly and prohibit companies and their employees, agents, third-party intermediaries, joint venture partners and collaborators from authorizing, promising, offering, or providing, directly or indirectly, improper payments or benefits to recipients in the public or private sector. We currently engage in business and sales with select government and state-owned entities outside of the United States. In addition, we engage third-party intermediaries to promote and sell certain of our products and solutions abroad and/or to obtain necessary permits, licenses, and other regulatory approvals. We or our third-party intermediaries may have direct or indirect interactions with officials and employees of government agencies or state-owned or affiliated entities. We can be held liable for the corrupt or other illegal activities of these third-party intermediaries, our employees, representatives, contractors, partners, and agents, even if we do not explicitly authorize or have actual knowledge of such activities.

We have adopted an anti-corruption policy that, mandates compliance with the FCPA and other anti-corruption laws applicable to our business throughout the world. However, we cannot assure you that our employees and third-party intermediaries will comply with this policy or such anti-corruption laws. Noncompliance with anti-corruption and anti-money laundering laws could subject us to whistleblower complaints, investigations, sanctions, settlements, prosecution, other enforcement actions, disgorgement of profits, significant fines, damages, other civil and criminal penalties or injunctions, suspension and/or debarment from contracting with certain persons, the loss of export privileges, reputational harm, adverse media coverage, and other collateral consequences. If any subpoenas, investigations, or other enforcement actions are launched, or governmental or other sanctions are imposed, or if we do not prevail in any possible civil or criminal litigation, our business, financial condition and results of operations could be materially harmed. In addition, responding to any action will likely result in a materially significant diversion of management's attention and resources and significant defense and compliance costs and other professional fees. In certain cases, enforcement authorities may even cause us to appoint an independent compliance monitor which can result in added costs and administrative burdens.

We are subject to governmental export and import controls that could impair our ability to compete in international markets due to licensing requirements and subject us to liability if we are not in compliance with applicable laws.

Our products and solutions are subject to export control and import laws and regulations, including the U.S. Export Administration Regulations, U.S. Customs regulations, and various economic and trade sanctions regulations administered by the U.S. Treasury Department's Office of Foreign Assets Controls. Exports of our products and solutions outside of the United States must be made in compliance with these laws and regulations. If we fail to comply with these laws and regulations, we and certain of our employees could be subject to substantial civil or criminal penalties, including the possible loss of export or import privileges, fines, which may be imposed on us and responsible employees or managers and, in extreme cases, the incarceration of responsible employees or managers.

In addition, changes in our products or solutions or changes in applicable export or import laws and regulations may create delays in the introduction, provision, or sale of our products and solutions in international markets, prevent customers from using our products and solutions or, in some cases, prevent the export or import of our products and solutions to certain countries, governments or persons altogether. Any limitation on our ability to export, provide, or sell our products and solutions could adversely affect our business, financial condition and results of operations.

We may be subject to fines, penalties or legal liability, if it is determined that we are practicing medicine without a license through our Eviti solutions.

State laws prohibit the practice of medicine without a license. Our Eviti reports delivered to physicians provide information regarding FDA-approved therapies and clinical trials that oncologists may use in making treatment decisions for their patients. We make members of our organization available to clinicians to discuss the information provided in the report. Our customer service representatives provide support to our customers, including assistance in interpreting the results of our Eviti solution. A governmental authority or third party could allege that the identification of available therapies and clinical trials in our reports and the related customer service we provide constitute the practice of medicine. A state may seek to have us discontinue the inclusion of certain aspects of our reports or the related services we provide or subject us to fines, penalties, or licensure requirements. Any determination that we are practicing medicine without a license may result in significant liability to us and harm to our reputation and/or our Eviti business.

Errors, misconduct, or illegal activity on the part of our customers may result in claims against us.

We rely on our customers, and we contractually obligate them, to provide us with accurate and appropriate data and directives for our actions. We rely upon our customers, as users of our solutions and systems infrastructure, for key activities to produce proper claims for reimbursement. Failure of customers to provide these data and directives or to perform these activities may result in claims against us that our reliance was misplaced.

Our services present the potential for embezzlement, identity theft or other similar illegal behavior by our employees or subcontractors with respect to third parties.

Our services also involve the use and disclosure of personal and business information that could be used to impersonate third parties or otherwise gain access to their data or funds. If any of our employees or subcontractors takes, converts or misuses such funds, documents or data, we could be liable for damages, and our business reputation could be damaged or destroyed.

Risks related to our convertible notes

Servicing our debt requires a significant amount of cash, and we may not have sufficient cash flow from our business to pay our substantial debt.

Our ability to make scheduled payments of the principal of, to pay interest on or to refinance our indebtedness, including the 2021 Notes, depends on our future performance, which is subject to economic, financial, competitive and other factors beyond our control. For example, on April 13, 2021 we and our wholly owned subsidiary, NaviNet, as guarantor, entered into a note purchase agreement with Highbridge Capital Management, LLC and certain other buyers, including Nant Capital, LLC, ("Nant Capital") to issue and sell $137.5 million in aggregate principal amount of our 2021 Notes in a private placement pursuant to an exemption from registration under Section 4(a)(2) of the Securities Act. The 2021 Notes were issued on April 27, 2021. In addition, under the terms of the 2021 Notes, we may be required to repurchase the notes of such series at a price equal to 100% of the principal amount of such notes to be repurchased, plus accrued and unpaid interest, upon the occurrence of a fundamental changes (as defined in the indenture governing the 2021 Notes). For example, in connection with the issuance of the 2021 Notes and the related amended and restated promissory notes on April 27, 2021, we provided a notice of fundamental change (as defined in the indenture governing our 5.5% senior convertible notes due 2021 (the "2016 Notes")) and an offer to repurchase all of the outstanding 2016 Notes. On May 25, 2021, we purchased approximately $55.6 million of the outstanding 2016 Notes ("Fundamental Change Repurchase") and paid approximately $1.4 million of accrued and unpaid interest thereon.

Our business may not continue to generate cash flow from operations in the future sufficient to service our debt, including the 2021 Notes, and make necessary capital expenditures. If we are unable to generate such cash flow, we may be required to adopt one or more alternatives, such as selling assets, restructuring debt or obtaining additional equity capital on terms that may be onerous or highly dilutive. Our ability to refinance our indebtedness will depend on the capital markets and our financial condition at such time. We may not be able to engage in any of these activities or engage in these activities on desirable terms, which could result in a default on our debt obligations.

The accounting method for convertible debt securities that may be settled in cash, such as the notes, could have a material effect on our reported financial results.

In August 2020, the FASB issued ASU 2020-06, Debt—Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging—Contracts in Entity's Own Equity (Subtopic 815-40): Accounting for Convertible Instruments and Contracts in an Entity's Own Equity. We early adopted this standard on January 1, 2021, and thus, the accounting for our convertible notes was transitioned to the application of this standard as of January 1, 2021. Upon the adoption of ASU 2020-06, the cash conversion model was eliminated, and we will no longer separate our convertible notes into liability and equity components. As a result, there is no longer an associated debt discount or subsequent amortization to be recognized as interest expense due to bifurcation. The elimination of these separation models will reduce our non-cash interest expense, and thereby reduce our net loss. In addition, ASU 2020-06 requires the use of the if-converted method to calculate our diluted shares outstanding for all convertible instruments, which could adversely affect our diluted earnings per share.

The note holders will not be entitled to any rights with respect to our common stock, but will be subject to all changes made with respect to our common stock.

Holders of notes will not be entitled to any rights with respect to our common stock (including, without limitation, voting rights and rights to receive any dividends or other distributions on our common stock), but note holders will be subject to all changes affecting our common stock. For example, if an amendment is proposed to our certificate of incorporation requiring stockholder approval and the record date for determining the stockholders of record entitled to vote on the amendment occurs prior to the relevant conversion date, such holder will not be entitled to vote on the amendment to our certificate of incorporation, although such holder will nevertheless be subject to any changes in the powers, preferences or special rights of our common stock.

Risks related to our common stock

Dr. Soon-Shiong, our Chairman and Chief Executive Officer and our principal stockholder, and entities affiliated with him, collectively own a significant majority of our common stock and will exercise significant influence over matters requiring stockholder approval, regardless of the wishes of other stockholders.

As of February 25, 2022, our Chairman and Chief Executive Officer and our principal stockholder, Dr. Soon-Shiong, and entities affiliated with him, collectively beneficially own approximately 62% of the voting power of our common stock. As a result, Dr. Soon-Shiong and his affiliates have significant influence over management and significant control over matters requiring stockholder approval, including the annual election of directors and significant corporate transactions, such as a merger or other sale of our company or assets, for the foreseeable future. This concentrated control will limit stockholders' ability to influence corporate matters and, as a result, we may take actions that our stockholders do not view as beneficial. As a result, the market price of our common stock could be adversely affected.

Dr. Soon-Shiong, has significant interests in other companies which may conflict with our interests.

Dr. Soon-Shiong, is the founder of NantWorks. The various NantWorks companies are currently exploring opportunities in the immunotherapy, infectious disease and inflammatory disease fields. As a result, they or other companies affiliated with Dr. Soon-Shiong may compete with us for business opportunities or, in the future, develop products that are competitive with ours. As a result, Dr. Soon-Shiong's interests may not be aligned with the interests of our other stockholders, and he may from time to time be incentivized to take certain actions that benefit his other interests and that our other stockholders do not view as being in their interest as investors in our company. Moreover, even if they do not directly relate to us, actions taken by Dr. Soon-Shiong and the companies and charitable organizations with which he is involved could have a negative impact on our business.

Our certificate of incorporation contains a waiver of the corporate opportunities doctrine for NantWorks and its affiliates, which includes our Chairman and Chief Executive Officer, and therefore covered persons have no obligations to make opportunities available to us.

NantWorks, which is controlled by our Chairman and Chief Executive Officer, and its affiliates, beneficially owns approximately 62% of the voting power of our common stock as of February 25, 2022.

NantWorks and its affiliates engage in a broad spectrum of activities across the life science, biopharmaceutical, healthcare information technology and technology sectors. In the ordinary course of their business activities, NantWorks and its affiliates may from time to time acquire and hold interests in businesses that compete directly or indirectly with us. Our certificate of incorporation provides that none of NantWorks, any of its affiliates and all of their respective partners, principals, directors, officers, members, managers and/or employees, including any of the foregoing who serve as officers or directors of our company, to the fullest extent permissible by law, have any duty to bring business opportunities to our attention or to refrain from engaging, directly or indirectly, in the same business activities or similar business activities or lines of business in which we operate. NantWorks or its affiliates may also pursue acquisition opportunities that may be complementary to our business and, as a result, those acquisition opportunities may not be available to us. In addition, NantWorks may have an interest in pursuing acquisitions, divestitures and other transactions that, in its judgment, could enhance its investment, even though such transactions might involve risks to you.

We can provide no assurances that we will be able to maintain an active, liquid and orderly trading market for our common stock or what the market price of our common stock will be and as a result it may be difficult for you to sell your common stock.

Prior to our initial public offering in June 2016, there was no public market for our common stock. Although our common stock is listed on The Nasdaq Global Select Market (Nasdaq"), the market for our shares has demonstrated varying levels of trading activity. Further, because a significant amount of our common stock following our initial public offering is and is expected to continue to be held by our Chairman and Chief Executive Officer, Dr. Soon-Shiong, and entities affiliated with him, we have relatively small historic trading volumes. As a result of these and other factors, you may not be able to sell your common stock quickly or at or above the price you purchased your stock or at all. Further, an inactive market may also impair our ability to raise capital by selling additional common stock and may impair our ability to enter into strategic collaborations or acquire companies or products by using our common stock as consideration.

The trading price of our common stock has been and may continue to be volatile. This volatility may affect the price at which you could sell our common stock, the notes and any common stock you receive upon conversion of your notes.

The trading price of our common stock has been and may continue to be volatile and could be subject to wide fluctuations in response to various factors. The trading price of our common stock may fluctuate widely in response to various factors, some of which are beyond our control, including:

- announcements by us or our competitors of new products, significant contracts, commercial relationships or capital commitments and the timing of these introductions or announcements;
- adverse regulatory or reimbursement announcements;
- announcements by us or our competitors of significant acquisitions, strategic collaborations, joint ventures or capital commitments;
- the results of our efforts to develop additional offerings;
- our dependence on our customers, partners and collaborators;
- regulatory or legal developments in the United States or other countries;
- developments or disputes concerning patent applications, issued patents or other proprietary rights;
- the recruitment or departure of key management or other personnel;
- our ability to successfully commercialize our future products;
- the level of expenses related to any of our products;
- actual or anticipated changes in estimates as to financial results, development timelines or recommendations by securities analysts;
- actual or anticipated quarterly variations in our financial results or those of our competitors;
- any change to the composition of the board of directors or key personnel;
- sales of common stock by us or our stockholders in the future, as well as the overall trading volume of our common stock;
- commencement of, or our involvement in, litigation, including claims by our equity holders pertaining to our conversion from a Delaware limited liability company into a Delaware corporation or the pending class action litigation;
- general economic, industry and market conditions and other factors that may be unrelated to our operating performance or the operating performance of our competitors, including changes in market valuations of similar companies; and
- the other factors described in this “Risk Factors” section.

In addition, the stock market in general, and the Nasdaq and the healthcare industry in particular, have from time to time experienced volatility that often has been unrelated to the operating performance of the underlying companies. These broad market and industry fluctuations may adversely affect the market price of our common stock or the notes, regardless of our operating performance. In several recent situations where the market price of a stock has been volatile, holders of that stock have instituted securities class action litigation against the company that issued the stock. If any of our stockholders were to bring a lawsuit against us, the defense and disposition of the lawsuit could be costly and divert the time and attention of our management and would harm our business operating results or financial condition.

If we are unable to maintain effective internal controls over financial reporting, our investors may lose confidence in us and the market price of our common stock may be adversely affected. If our internal controls over financial reporting are not effective, we may not be able to accurately report our financial results or prevent fraud.

We are required, pursuant to Section 404 ("Section 404") of the Sarbanes-Oxley Act of 2002 (the "Sarbanes-Oxley Act"), to furnish a report by management on the effectiveness of our internal control over financial reporting. This assessment includes disclosure of any material weaknesses identified by our management in our internal control over financial reporting. We are required to comply with, among other requirements, the auditor attestation requirements of Section 404. If we have a material weakness, we would receive an adverse opinion regarding our internal control over financial reporting from our independent registered accounting firm.

Our compliance with Section 404 requires that we incur substantial accounting expense and expend significant management efforts. We have engaged outside consultants who function in the capacity of an internal audit group, and we will continue to hire additional consultants, accounting and financial staff with appropriate public company experience and technical accounting knowledge as we maintain the system and process documentation necessary to perform the evaluation needed to comply with Section 404.

We are continuing to develop and refine our disclosure controls and other procedures that are designed to ensure that information required to be disclosed by us in the reports that we file with the SEC is recorded, processed, summarized and reported within the time periods specified in SEC rules and forms, and that information required to be disclosed in reports under the Securities Exchange Act of 1934, as amended (the "Exchange Act") is accumulated and communicated to our principal executive and financial officers. Our current controls and any new controls that we develop may become inadequate and weaknesses in our internal control over financial reporting may be discovered in the future.

We cannot assure you that the measures we have taken, or will take, to remediate the material weakness and significant deficiencies will continue to be effective or that we will be successful in implementing them. Moreover, we cannot assure you that we have identified all significant deficiencies or material weaknesses or that we will not in the future have additional significant deficiencies or material weaknesses, in particular as we seek to transition to a more developed internal control environment and continue to grow as a company in terms of size, complexity of business and potentially in connection with future strategic transactions. Our independent registered public accounting firm has not evaluated any of the measures we have taken to address these significant deficiencies or the material weakness discussed above.

Any failure to maintain internal control over financial reporting could severely inhibit our ability to accurately report our financial condition or results of operations. If we are unable to conclude that our internal control over financial reporting is effective, or if our independent registered public accounting firm determines we have a material weakness in our internal control over financial reporting, we may be late with the filing of our periodic reports, we could lose investor confidence in the accuracy and completeness of our financial reports, the market price of our common stock could decline, and we could be subject to sanctions or investigations by Nasdaq, the SEC or other regulatory authorities, and become subject to litigation from investors and stockholders, which could harm our reputation, financial condition or divert financial and management resources from our core business and would have a material adverse effect on our business, financial condition and results of operations. Failure to remedy our current and any future material weakness in our internal control over financial reporting, or to implement or maintain other effective control systems required of public companies, could also restrict our future access to the capital markets.

In addition, our independent registered public accounting firm did not perform an evaluation of our internal control over financial reporting during any period in accordance with the provisions of the Sarbanes-Oxley Act. Had our independent registered public accounting firm performed an evaluation of our internal control over financial reporting in accordance with the provisions of the Sarbanes-Oxley Act, additional control deficiencies amounting to significant deficiencies or material weaknesses may have been identified. We cannot assure you that there will not be material weaknesses or significant deficiencies in our internal controls in the future. If we are unable to assert that our internal control over financial reporting is effective, we could lose investor confidence in the accuracy and completeness of our financial reports, which could have a material adverse effect on the price of our common stock.

Our common stock may be delisted from The Nasdaq Global Select Market if we cannot regain compliance with Nasdaq's continued listing requirements.

In order to maintain our listing on Nasdaq, we are required to comply with the Nasdaq requirements, which includes maintaining a minimum bid price and a minimum public float. In particular, we are required to maintain a minimum bid price of $1.00 per share. On February 18, 2022, we received a notice from Nasdaq stating that we were not in compliance with Nasdaq Listing Rule 5450(a)(1) (the "Minimum Bid Price Rule") because our common stock failed to maintain a minimum closing bid price of $1.00 for 30 consecutive business days. This notice had no immediate effect on the Nasdaq listing or trading of our common stock.

We have a compliance period for the Minimum Bid Price Rule of 180 calendar days, or until August 17, 2022, in which to regain compliance, pursuant to Nasdaq Marketplace Rule 5810(c)(3)(A). If, at any time before that date the bid price of our common stock closes at $1.00 per share or more for a minimum of 10 consecutive business days, Nasdaq will notify us that we have achieved compliance with the Rule.

If we do not achieve compliance with the Minimum Bid Price Rule during the initial 180 calendar day period, we may be eligible for an additional 180 calendar day compliance period. To qualify, we would need to transfer the listing of our common stock to the Nasdaq Capital Market, provided that it meets the continued listing requirement for market value of publicly held shares and all other initial listing standards of the Nasdaq Capital Market, with the exception of the Minimum Bid Price Rule. In addition, the Company would also be required to notify Nasdaq of its intent to cure the minimum bid price deficiency, which may include, if necessary, implementing a reverse stock split. However, if it appears to the Staff that we will not be able to cure the deficiency, or if we do not meet the other listing standards, the Staff could provide notice that the common stock will become subject to delisting. In the event we receive notice that our common stock is being delisted, Nasdaq rules permit us to appeal any delisting determination by the Staff to a Hearings Panel (the "Panel"). We expect that our common stock would remain listed pending the Panel's decision. However, there can be no assurance that, if we do appeal the delisting determination by the Staff to the Panel, that such appeal would be successful, or that we will be able to regain compliance with the Minimum Bid Price Rule or maintain compliance with the other listing requirements.

If we fail to effect a reverse stock split, thus regaining compliance with the Minimum Bid Price Rule, our common stock may be delisted. Delisting from the Nasdaq Global Select Market or any Nasdaq market could make trading our common stock more difficult for investors, potentially leading to declines in our share price and liquidity. In addition, without a Nasdaq market listing, stockholders may have a difficult time getting a quote for the sale or purchase of our common stock, the sale or purchase of our common stock would likely be made more difficult and the trading volume and liquidity of our common stock could decline. Delisting from Nasdaq could also result in negative publicity and could also make it more difficult for us to raise additional capital. The absence of such a listing may adversely affect the acceptance of our common stock as currency or the value accorded by other parties. Further, if we are delisted, we would also incur additional costs under state blue sky laws in connection with any sales of our securities. These requirements could severely limit the market liquidity of our common stock and the ability of our stockholders to sell our common stock in the secondary market. If our common stock is delisted by Nasdaq, our common stock may be eligible to trade on an over-the-counter quotation system, such as the OTCQB market, where an investor may find it more difficult to sell our common stock or obtain accurate quotations as to the market value of our common stock. We cannot assure you that our common stock, if delisted from Nasdaq, will be listed on another national securities exchange or quoted on an over-the counter quotation system. If our common stock is delisted, it may come within the definition of "penny stock" as defined in the Exchange Act, and would be covered by Rule 15g-9 of the Exchange Act. That Rule imposes additional sales practice requirements on broker-dealers who sell securities to persons other than established customers and accredited investors. For transactions covered by Rule 15g-9, the broker-dealer must make a special suitability determination for the purchaser and receive the purchaser's written agreement to the transaction prior to the sale. Consequently, Rule 15g-9, if it were to become applicable, would affect the ability or willingness of broker-dealers to sell our securities, and accordingly would affect the ability of stockholders to sell their securities in the public market. These additional procedures could also limit our ability to raise additional capital in the future.

We have incurred and will continue to incur costs as a result of operating as a public company and our management has been and will be required to devote substantial time to public company compliance initiatives.

As a public company, listed in the United States, and increasingly after we no longer qualify as a "smaller reporting company," we have incurred and will continue to incur significant additional legal, accounting and other expenses as a result of operating as a public company. In addition, changing laws and regulations and standards relating to corporate governance and public disclosure, including compliance with the Sarbanes-Oxley Act, as well as rules implemented by the SEC and Nasdaq, may increase legal and financial compliance costs and make some activities more time consuming. These laws, regulations and standards are subject to varying interpretations and, as a result, their application in practice may evolve over time as new guidance is provided by regulatory and governing bodies. If, notwithstanding our efforts to comply with new laws, regulations and standards, we fail to comply, regulatory authorities may initiate legal proceedings against us and our business may be harmed.

Stockholder activism, the current political environment, and the current high level of government intervention and regulatory reform may lead to substantial new regulations and disclosure obligations, which may lead to additional compliance costs and impact, in ways we cannot currently anticipate, the manner in which we operate our business. Our management and other personnel have and will continue to devote a substantial amount of time to these compliance programs and monitoring of public company reporting obligations and, as a result of the new corporate governance and executive compensation related rules, regulations, and guidelines prompted by the Dodd-Frank Wall Street Reform and Consumer Protection Act (the "Dodd-Frank Act") and further regulations and disclosure obligations expected in the future, we will likely need to devote additional time and costs to comply with such compliance programs and rules. New laws and regulations, as well as changes to existing laws and regulations affecting public companies, including provisions of the Sarbanes-Oxley Act, Dodd-Frank Act and rules adopted by the SEC and Nasdaq, will likely result in increased costs to us as we respond to their requirements. We are currently evaluating and monitoring developments with respect to these rules and regulations, and we cannot predict or estimate the amount of additional costs we may incur or the timing of such costs.

New legislation that would change U.S. or foreign taxation of international business activities or other tax-reform policies, including the imposition of tax based on gross income, could seriously harm our business.

Reforming the taxation of international businesses has been a priority for politicians, and a wide variety of potential changes have been proposed. Some proposals, several of which have been enacted, impose incremental taxes on gross revenue, regardless of profitability. Any changes in the taxation of such activities may increase our worldwide effective tax rate and the amount of taxes we pay and seriously harm our business.

For example, the Tax Cuts and Jobs Act of 2017 ("Tax Act") was enacted on December 22, 2017 and significantly reformed the Code. The Tax Act lowered the U.S. federal corporate income tax rate, changed the utilization of net operating loss carryforwards arising in tax years beginning after December 31, 2017, allowed for the expensing of certain capital expenditures, and put into effect sweeping changes to U.S. taxation of international business activities. As a result, our net U.S. deferred tax assets and corresponding valuation allowances were revalued at the new U.S. corporate rate. We continue to examine the impact this tax reform legislation may have on our business. The impact of this tax reform on us and on holders of our common stock is uncertain and could seriously harm our business.

Our ability to use our net operating loss carryforwards to offset future taxable income may be subject to certain limitations.

In general, under Section 382 of the Code, a corporation that undergoes an "ownership change" is subject to annual limitations on its ability to use its pre-change net operating loss ("NOL") carryforwards or other tax attributes, to offset future taxable income or reduce taxes. We believe that we have undergone one or more ownership changes and accordingly, our ability to use our NOL carryforwards may be limited.

Additionally, the Tax Act, which was enacted on December 22, 2017, significantly reformed the Code, including changes to the rules governing NOL carryforwards. For NOL carryforwards arising in tax years beginning after December 31, 2017, the Tax Act limited a taxpayer's ability to utilize such carryforwards to 80% of taxable income. In addition, NOL carryforwards arising in tax years ending after December 31, 2017 can be carried forward indefinitely, but carryback is generally prohibited. NOL carryforwards generated by us before January 1, 2018 will not be subject to the taxable income limitation and will continue to have a twenty-year carryforward period. However, the changes in the carryforward and carryback periods as well as the new limitation on use of NOLs may significantly impact our ability to use NOL carryforwards generated after December 31, 2017, as well as the timing of any such use, and could seriously harm our business.

We do not anticipate paying any cash dividends on our common stock in the foreseeable future.

We do not currently intend to pay any cash dividends on our common stock in the foreseeable future. We currently intend to retain all of our future earnings, if any, to finance the growth and development of our business. In addition, the terms of any future debt agreements may preclude us from paying dividends. As a result, capital appreciation, if any, of our common stock may be investors' sole source of gain for the foreseeable future.

We are a "smaller reporting company" and the reduced disclosure requirements applicable to smaller reporting companies could make our common stock less attractive to investors.

Although we no longer qualify as an emerging growth company, we qualify as a "smaller reporting company" during fiscal year 2022, which allows us to take advantage of many of the same exemptions from disclosure requirements, including reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements. These exemptions include:

- being permitted to provide only two years of audited financial statements, in addition to any required unaudited interim financial statements, with correspondingly reduced "Management's discussion and analysis of financial condition and results of operations" disclosure;
- not being required to comply with the auditor attestation requirements in the assessment of our internal control over financial reporting; and
- reduced disclosure obligations regarding executive compensation.

Investors may find our common stock less attractive as a result of our reliance on these exemptions. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock and the market price of our common stock may be reduced or more volatile.

Because we are relying on the exemptions from corporate governance requirements as a result of being a "controlled company" within the meaning of the Nasdaq listing standards, you do not have the same protections afforded to stockholders of companies that are subject to such requirements.

Our Chairman and Chief Executive Officer, Dr. Soon-Shiong, and entities affiliated with him, control a majority of our common stock. As a result, we are a "controlled company" within the meaning of Nasdaq listing standards. Under these rules, a company of which more than 50% of the voting power is held by an individual, a group or another company is a "controlled company" and may elect not to comply with certain Nasdaq corporate governance requirements, including (1) the requirement that a majority of the board of directors consist of independent directors and (2) the requirement that we have a nominating and corporate governance committee that is composed entirely of independent directors with a written charter addressing the committee's purpose and responsibilities. We have elected to rely on certain of these exemptions, and do not have a nominating and corporate governance committee. Accordingly, you will not have the same protections afforded to stockholders of companies that are subject to all of the Nasdaq corporate governance requirements.

If securities or industry analysts do not publish research or publish inaccurate or unfavorable research about our business, our share price and trading volume could decline.

The trading market for our common stock will depend on the research and reports that securities or industry analysts publish about us or our business. We do not have any control over these analysts. There can be no assurance that analysts will cover us or provide favorable coverage. If one or more of the analysts who cover us downgrade our stock or change their opinion of our stock, our share price would likely decline. If one or more of these analysts cease coverage of our company or fail to regularly publish reports on us, we could lose visibility in the financial markets, which could cause our share price or trading volume to decline.

We are not subject to the provisions of Section 203 of the Delaware General Corporation Law, which could negatively affect your investment.

We elected in our amended and restated certificate of incorporation to not be subject to the provisions of Section 203 of the Delaware General Corporation Law, or Section 203. In general, Section 203 prohibits a publicly held Delaware corporation from engaging in a "business combination" with an "interested stockholder" for a period of three years after the date of the transaction in which the person became an interested stockholder, unless the business combination is approved in a prescribed manner. A "business combination" includes a merger, asset sale or other transaction resulting in a financial benefit to the interested stockholder. An "interested stockholder" is a person who, together with affiliates and associates, owns (or, in certain cases, within three years prior, did own) 15% or more of the corporation's voting stock. Our decision not to be subject to Section 203 will allow, for example, Dr. Soon-Shiong, our Chairman and Chief Executive Officer (who, with entities affiliated with him, beneficially own approximately 62% of the voting power of our common stock, as of February 25, 2022), to transfer shares in excess of 15% of our voting stock to a third-party free of the restrictions imposed by Section 203. This may make us more vulnerable to takeovers that are completed without the approval of our board of directors and/or without giving us the ability to prohibit or delay such takeovers as effectively.

Some provisions of our charter documents and Delaware law may have anti-takeover effects that could discourage an acquisition of us by others, even if an acquisition would be beneficial to our stockholders, and may prevent attempts by our stockholders to replace or remove our current management.

Provisions in our amended and restated certificate of incorporation and amended and restated bylaws, as well as provisions of Delaware law, could make it more difficult for a third party to acquire us or increase the cost of acquiring us, even if doing so would benefit our stockholders. These provisions include:

- a requirement that special meetings of stockholders be called only by the board of directors, the president or the chief executive officer;
- advance notice requirements for stockholder proposals and nominations for election to our board of directors; and
- the authority of the board of directors to issue preferred stock on terms determined by the board of directors without stockholder approval and which preferred stock may include rights superior to the rights of the holders of common stock.

These anti-takeover provisions and other provisions in our amended and restated certificate of incorporation and amended and restated bylaws could make it more difficult for stockholders or potential acquirers to obtain control of our board of directors or initiate actions that are opposed by the then-current board of directors and could also delay or impede a merger, tender offer or proxy contest involving our company. These provisions could also discourage proxy contests and make it more difficult for you and other stockholders to elect directors of your choosing or cause us to take other corporate actions you desire. Any delay or prevention of a change of control transaction or changes in our board of directors could cause the market price of our common stock to decline.

Claims for indemnification by our directors and officers may reduce our available funds to satisfy successful third-party claims against us and may reduce the amount of money available to us.

Our amended and restated certificate of incorporation and amended and restated bylaws provide that we will indemnify our directors and officers, in each case to the fullest extent permitted by Delaware law. In addition, as permitted by Section 145 of the Delaware General Corporation Law, our amended and restated bylaws and our indemnification agreements that we have entered into with our directors and officers provide that:

- We will indemnify our directors and officers for serving us in those capacities or for serving other business enterprises at our request, to the fullest extent permitted by Delaware law. Delaware law provides that a corporation may indemnify such person if such person acted in good faith and in a manner such person reasonably believed to be in or not opposed to the best interests of the registrant and, with respect to any criminal proceeding, had no reasonable cause to believe such person's conduct was unlawful.
- We may, in our discretion, indemnify employees and agents in those circumstances where indemnification is permitted by applicable law.
- We are required to advance expenses, as incurred, to our directors and officers in connection with defending a proceeding, except that such directors or officers shall undertake to repay such advances if it is ultimately determined that such person is not entitled to indemnification.
- We will not be obligated pursuant to our amended and restated bylaws to indemnify a person with respect to proceedings initiated by that person against us or our other indemnitees, except with respect to proceedings authorized by our board of directors or brought to enforce a right to indemnification.
- The rights conferred in our amended and restated bylaws are not exclusive, and we are authorized to enter into indemnification agreements with our directors, officers, employees and agents and to obtain insurance to indemnify such persons.
- We may not retroactively amend our bylaw provisions to reduce our indemnification obligations to directors, officers, employees and agents.

To the extent that a claim for indemnification is brought by any of our directors or officers, it would reduce the amount of funds available for use in our business.

Our amended and restated certificate of incorporation designates the Court of Chancery of the State of Delaware as the sole and exclusive forum for certain types of actions and proceedings that may be initiated by our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers or other employees.

Our amended and restated certificate of incorporation provides that, unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware shall be the sole and exclusive forum for (i) any derivative action or proceeding brought on our behalf, (ii) any action asserting a claim of breach of a fiduciary duty owed by any of our directors, officers or other employees to us or our stockholders, (iii) any action asserting a claim arising pursuant to any provision of the Delaware General Corporation Law, our amended and restated certificate of incorporation or our amended and restated bylaws, or (iv) any action asserting a claim against us governed by the internal affairs doctrine. Any person or entity purchasing or otherwise acquiring any interest in shares of our capital stock shall be deemed to have notice of and consented to the provisions of our amended and restated certificate of incorporation described above. This choice of forum provision may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers or other employees, which may discourage such lawsuits against us and our directors, officers and other employees. Alternatively, if a court were to find these provisions of our amended and restated certificate of incorporation inapplicable to, or unenforceable in respect of, one or more of the specified types of actions or proceedings, we may incur additional costs associated with resolving such matters in other jurisdictions, which could adversely affect our business, financial condition or results of operations.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

Our corporate headquarters are located in Morrisville, North Carolina and we also have offices in El Segundo, California, where we occupy facilities totaling approximately 8,000 square feet on a month-to-month basis pursuant to a Shared Services Agreement with NantWorks. We use these facilities for administration, sales and marketing, research and development, engineering, customer support, and professional services. In addition, we have two U.S. locations across two states and two international locations. Our key facilities include the following:

- United States
  - Boston, Massachusetts
  - Philadelphia, Pennsylvania

- International
  - Belfast, Northern Ireland
  - Ottawa, Canada

We believe that our facilities are adequate to meet our needs in the near term, and that, if needed, suitable additional space will be available to accommodate any expansion of our operations.

The following table outlines our facilities location, square footage, and use:

City	State	Country	Sq ft	Type	Business Nature/Use
Boston	MA	USA	31,752	Lease	Administrative, sales, customer support, R&D, engineering, professional services
Belfast	NI	UK	15,500	Lease	R&D, engineering, administrative
Philadelphia	PA	USA	14,183	Lease	Administrative, sales, customer support, R&D, engineering, professional services
Ottawa	ON	CA	4,202	Lease	Administrative, sales, customer support, R&D, engineering, professional services
			65,637		

Item 3. Legal Proceedings

We are, from time to time, subject to claims and litigation that arise in the ordinary course of our business. Except as discussed in Note 14 to the accompanying Consolidated Financial Statements, in the opinion of management, the ultimate outcome of proceedings of which management is aware, even if adverse to us, would not have a material adverse effect on our consolidated financial condition or results of operations. Regardless of the outcome, litigation can have an adverse impact on us because of defense and settlement costs, diversion of management resources and other factors. See Note 14 to the accompanying Consolidated Financial Statements for a discussion of our legal proceedings.

Item 4. Mine Safety Disclosures

Not applicable.

PART II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Market Information for Common Stock

Our common stock trades on the Nasdaq Global Select Market under the symbol "NH".

Holders of Record

As of February 24, 2022, we had approximately 108 holders of record of our common stock. We believe the actual number of stockholders is greater than the number of record holders and includes stockholders who are beneficial owners but whose shares are held in street name by brokers and other nominees. This number of holders of record also does not include stockholders whose shares may be held in trust or by other entities.

Dividend Policy

No cash dividends were declared for our common stock during the fiscal years ended in 2021 and 2020. We currently intend to retain all available funds and any future earnings for use in the operation of our business and do not anticipate paying any dividends on our common stock in the foreseeable future. Any future determination to declare dividends will be made at the discretion of our board of directors and will depend on, among other factors, our financial condition, operating results, capital requirements, general business conditions and other factors that our board of directors may deem relevant.

Recent Sales of Unregistered Securities

None.

Repurchases of Equity Securities by the Issuer

We did not make any stock repurchases during the twelve months ended December 31, 2021.

Item 6. Reserved

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

The following is a discussion and analysis of our financial condition and the results of operations as of and for the periods presented below. The following discussion and analysis should be read in conjunction with the "Consolidated Financial Statements" and notes thereto included elsewhere in this Annual Report on Form 10-K, or Annual Report. This discussion contains forward-looking statements that are based on the beliefs, assumptions, and information currently available to our management, and are subject to known and unknown risks, uncertainties, and other factors that may cause our actual results to differ materially from those expressed or implied by such forward-looking statements. These risks, uncertainties, and other factors include, among others, those described in greater detail elsewhere in this Annual Report, particularly in Item 1A, "Risk Factors."

Overview

NantHealth, Inc. ("NantHealth" or the "Company") provides enterprise solutions that help businesses transform complex data into actionable insights. By offering efficient ways to move, interpret, and visualize complex and highly sensitive information, we help our customers in healthcare, life sciences, logistics, telecommunications, and other industries, to automate, understand, and act on data while keeping it secure and scalable.

NantHealth's product portfolio comprises the latest technology in payer/provider collaboration platforms for real-time coverage decision support (NaviNet and Eviti), and data solutions that include multi-data analysis, reporting and professional services offerings (Quadris). In addition, The OpenNMS Group, Inc. ("OpenNMS"), a NantHealth subsidiary, helps businesses monitor and manage network health and performance. Altogether, we generally derive revenue from SaaS subscription fees, support services, professional services, molecular analysis services, and revenue sharing through collaborations with complementary businesses.

We market certain of our solutions as a comprehensive integrated solution that includes our clinical decision support, payer engagement solutions, data analysis and network monitoring and management. We also market our clinical decision support, payer engagement solutions, data analysis and network monitoring and management on a stand-alone basis. To accelerate our commercial growth and enhance our competitive advantage, we intend to continue to:

- introduce new marketing, education and engagement efforts and foster relationships across the health care community to drive adoption of NantHealth products and services;
- strengthen our commercial organization to increase our NantHealth solutions customer base and to broaden usage of our solutions by existing customers;
- develop new features and functionality for NantHealth solutions to address the needs of current and future healthcare provider and payer, self-insured employer and biopharmaceutical company customers, as well as logistics, telecommunications and other customers through OpenNMS; and
- publish scientific and medical advances.

The acquisition of OpenNMS, an enterprise-grade open-source network management company, expands and diversifies NantHealth's software portfolio and service offerings, adding AI technologies, and enhancing cloud and SaaS capabilities. We believe OpenNMS will provide NantHealth customers with a new set of services to maintain reliable network connections for critical data flows that enable patient data collaboration and decision making at the point of care.

Since our inception, we have devoted substantially all our resources to the development and commercialization of NantHealth solutions. To complement our internal growth and expertise, we have made several strategic acquisitions of companies, products and technologies. We have incurred significant losses since our inception and, as of December 31, 2021, our accumulated deficit was approximately $1.1 billion. We expect to continue to incur operating losses over the near term as we expand our commercial operations and invest further in NantHealth solutions.

We plan to (i) continue investing in our infrastructure, including but not limited to solution development, sales and marketing, implementation and support, (ii) continue efforts to make infrastructure investments within an overall context of maintaining reasonable expense discipline, (iii) add new customers through maintaining and expanding sales, marketing and solution development activities, (iv) expand our relationships with existing customers through delivery of add-on and complementary solutions and services and (v) continue our commitment of service in support of our customer satisfaction programs.

Purchase, Exchange and Prepayment of Convertible Notes

On April 13, 2021, we and our wholly owned subsidiary, NaviNet (the "Guarantor") entered into a note purchase agreement (the "Note Purchase Agreement") with Highbridge Capital Management, LLC and one of its affiliates ("Highbridge") and Nant Capital, an entity affiliated with Dr. Patrick Soon-Shiong, the Company's Executive Chairman, to issue and sell $137.5 million in aggregate principal amount of our 4.5% convertible senior notes due 2026 (the "2021 Notes") in a private placement pursuant to an exemption from the registration requirements of the Securities Act afforded by Section 4(a)(2) of the Securities Act. The Note Purchase Agreement includes customary representations, warranties and covenants by us. Under the terms of the Note Purchase Agreement, we have agreed to indemnify the buyers against certain liabilities. The 2021 Notes were issued on April 27, 2021. The 2021 Notes will mature on April 15, 2026, unless earlier repurchased, redeemed or converted.

On April 13, 2021, we entered into a transaction with Highbridge to exchange $5.0 million of its $36.9 million in existing 5.5% convertible senior notes due 2021 (the "2016 Notes") and with Cambridge Equities, L.P. ("Cambridge"), an entity affiliated with Dr. Soon-Shiong, to exchange $5.0 million of its $10.0 million in existing 2016 Notes for shares of our common stock, par value $0.0001 (the "Common Stock"), pursuant to an exchange agreement dated as of April 13, 2021 (the "Exchange Agreement").

On April 27, 2021, concurrent with the 2021 Notes issuance, the Company used the proceeds to prepay the remaining $31.9 million principal amount of the 2016 Notes held by Highbridge, including $0.6 million of accrued interest on such 2016 Notes.

On April 27, 2021, in connection with the issuance of the 2021 Notes, we entered into a Third Amended and Restated Promissory Note which amends and restates our promissory note, dated January 4, 2016, as amended on May 9, 2016, and on December 15, 2016, between us and Nant Capital, to, among other things, extend the maturity date of the promissory note to October 1, 2026 and to subordinate the promissory note in right of payment to the 2021 Notes.

On April 27, 2021, in connection with the issuance of the 2021 Notes, we entered into a Second Amended and Restated Promissory Note which amends and restates our promissory note, dated August 8, 2018, as amended on December 31, 2020, between us and Nant Capital, to, among other things, extend the maturity date of the promissory note to December 31, 2026 and to subordinate the Second Promissory Note in right of payment to the 2021 Notes.

On April 27, 2021, in connection with the issuance of the 2021 Notes and the amended and restated promissory notes, we provided a notice of a fundamental change (as defined in the indenture governing the 2016 Notes) and an offer to repurchase all our outstanding 2016 Notes. On May 25, 2021, the Company purchased $55.6 million of the outstanding 2016 Notes, including accrued and unpaid interest thereon.

Acquisition of The OpenNMS Group, Inc.

On July 22, 2020, we entered into an assignment agreement (the "Assignment Agreement") with Cambridge to acquire approximately 91% of OpenNMS for $5.6 million in cash. Contemporaneously with the closing of the Assignment Agreement, OpenNMS issued call options to the Company consisting of, when exercised, cash payment of $0.3 million and issuance of 56,769 shares of the Company's common stock in exchange for the 9% of the shares of OpenNMS common stock held by the remaining shareholders. These call options expired unexercised on September 30, 2020.

In August 2021, the Company purchased the remaining 9%, or 241,485 shares of outstanding OpenNMS common stock held by the remaining shareholders, for $0.6 million in cash. As of August 24, 2021, the Company owns 100% of the outstanding common stock of OpenNMS.

COVID-19 Pandemic

In March 2020, the World Health Organization declared the novel coronavirus (COVID-19) a pandemic. In the same month, the President of the United States declared a State of National Emergency due to the COVID-19 outbreak. The COVID-19 pandemic has resulted in intermittent worldwide government restrictions on the movement of people, goods, and services resulting in increased volatility in and disruptions to global markets. To date, there has been no material adverse impact to our business from the COVID-19 pandemic. Given the unprecedented and evolving nature of the pandemic, the future impact of these changes and potential changes on the Company and our contractors, consultants, customers, resellers and partners is unknown at this time.

However, in light of the uncertainties regarding economic, business, social, health and geopolitical conditions, our revenues, earnings, liquidity, and cash flows could be adversely affected, whether on an annual or quarterly basis. Continued impacts of the COVID-19 pandemic could materially adversely affect our current and long-term account receivable collectability, as our negatively impacted customers from the pandemic may request temporary relief, delay, or not make scheduled payments. In addition, the deployment of our solutions may represent a large portion of our customers' investments in software technology. Decisions to make such an investment are impacted by the economic environment in which the customers operate. Uncertain global geopolitical, economic and health conditions and the lack of visibility or the lack of financial resources may cause some customers to reduce, postpone or terminate their investments, or to reduce or not renew ongoing paid services, adversely impacting our revenues or timing of revenue. Health conditions in some geographic areas where our customers operate could impact the economic situation of those areas. These conditions, including the COVID-19 pandemic, may present risks for health and limit the ability to travel for our employees, which could further lengthen our sales cycle and delay revenue and cash flows in the near-term.

Nasdaq Delisting

On February 18, 2022, we received a notice (the “Notice”) from The Nasdaq Stock Market LLC (‘Nasdaq”) informing us that for the last 30 consecutive business days, the bid price of our common stock had closed below $1.00 per share, which is the minimum required closing bid price for continued listing on Nasdaq pursuant to Listing Rule 5450(a)(1) (the “Bid Price Requirement”). The Notice has no immediate effect on our Nasdaq listing or trading of our common stock. We have 180 calendar days, or until August 17, 2022, to regain compliance. To regain compliance, the closing bid price of our common stock must be at least $1.00 per share for a minimum of ten consecutive business days. If we do not regain compliance by August 17, 2022, we may be eligible for additional time to regain compliance or if we are otherwise not eligible, we may request a hearing before a Hearings Panel.

2020 Sale of the Connected Care Business

On January 13, 2020, we entered into an asset purchase agreement (the “Purchase Agreement”) with Masimo Corporation (“Masimo”), VCCB Holdings, Inc., a wholly owned subsidiary of Masimo (collectively with Masimo, the “Purchaser”), and, solely with respect to certain provisions of the Purchase Agreement, NantWorks, LLC ("NantWorks"), an affiliate of ours. Pursuant to the Purchase Agreement, we agreed to sell to the Purchaser certain of our assets related to our “Connected Care” business, including the products known as DCX (formerly DeviceConX), VCX (formerly VitalsConX), HBox and Shuttle Cable (collectively, the “Connected Care Business”). On February 3, 2020, we completed the sale of the Connected Care Business for $47.3 million of cash consideration in exchange for assets primarily related to the Connected Care Business (as defined under the terms of the Purchase Agreement). The cash consideration was subject to adjustment based upon the final amount of working capital as of the closing date.

The sale of the Connected Care Business qualified as a discontinued operation because it comprised operations and cash flows that could be distinguished, operationally and for financial reporting purposes, from the rest of the Company. The disposal of the Connected Care Business represented a strategic shift in our operations as the sale enables us to focus on molecular analysis, clinical decision support, payer engagement, and data analytics.

2017 Asset Purchase Agreement with Allscripts

On August 3, 2017, we entered into an asset purchase agreement, which we refer to as the "APA," with Allscripts Healthcare Solutions, Inc., or “Allscripts”, pursuant to which we agreed to sell to Allscripts substantially all of the assets of our provider/patient engagement solutions business, including our FusionFX solution and components of its NantOS software connectivity solutions (the “Business”). On August 25, 2017, we and Allscripts completed the sale pursuant to the APA.

Allscripts conveyed to us 15,000,000 shares of our common stock at par value of $0.0001 per share that were previously owned by Allscripts as consideration for the transaction. We retired the shares of stock. Allscripts also paid $1.7 million of cash consideration to us as an estimated working capital payment, and we recorded a receivable of $1.0 million related to final working capital adjustments. We are also responsible for paying Allscripts for fulfilling certain customer service obligations of the business post-closing.

Concurrent with the closing and as contemplated by the APA, we and Allscripts modified the amended and restated mutual license and reseller agreement dated June 26, 2015, which was further amended on December 30, 2017, such that, among other things, the Company committed to deliver a minimum of $95.0 million of total bookings over a ten-year period ("Bookings Commitment") from referral transactions and sales of certain Allscripts products under this agreement (see Note 12 of the Consolidated Financial Statements). We also agreed that Allscripts shall receive at least $0.5 million per year in payments from bookings (the "Annual Minimum Commitment"). If the total payments received by Allscripts from bookings during such period are less than the Annual Minimum Commitment, we shall pay to Allscripts the difference between the Annual Minimum Commitment and the total amount received by Allscripts from bookings during such period. In the event of a Bookings Commitment shortfall at the end of the ten-year period, we may be obligated to pay 70% of the shortfall, subject to certain credits. We will earn 30% commission from Allscripts on each software referral transaction that results in a booking with Allscripts. We account for the Bookings Commitment at its estimated fair value over the life of the agreement. The total estimated liability was $35.7 million and $33.9 million as of December 31, 2021 and 2020, respectively.

Non-GAAP Net Loss from Continuing Operations and Non-GAAP Net Loss Per Share from Continuing Operations

Adjusted net loss from continuing operations and adjusted net loss per share from continuing operations are financial measures that are not prepared in conformity with United States generally accepted accounting principles (U.S. GAAP). Our management believes that the presentation of Non-GAAP financial measures provides useful supplementary information regarding operational performance, because it enhances an investor's overall understanding of the financial results for our core business. Additionally, it provides a basis for the comparison of the financial results for our core business between current, past and future periods. Other companies may define these measures in different ways. Non-GAAP financial measures should be considered only as a supplement to, and not as a substitute for or as a superior measure to, financial measures prepared in accordance with U.S. GAAP.

Non-GAAP net loss from continuing operations excludes the effects of (1) loss from equity method investments including impairment losses, (2) stock-based compensation expense, (3) loss on exchange and prepayment of the 2016 Notes, (4) change in fair value of the derivatives liability, (5) change in fair value of the Bookings Commitment, (6) noncash interest expense related to the convertible notes, (7) intangible assets amortization, (8) impairment of intangible assets, including internal-use software, (9) securities litigation costs, and (10) the impacts of certain income tax benefits and provisions from noncash activity.

The following table reconciles Net loss from continuing operations attributable to NantHealth to Net loss from continuing operations attributable to NantHealth - Non-GAAP for the years ended December 31, 2021 and 2020:

(Dollars in thousands, except per share amounts)	Year Ended December 31, 2021	2020
Net loss from continuing operations attributable to NantHealth	$ (58,282)	$ (88,3
Adjustments to GAAP net loss from continuing operations attributable to NantHealth:		
Loss from related party equity method investment	—	31,7
Stock-based compensation expense from continuing operations	3,879	2,7
Loss on Exchange and Prepayment of 2016 Notes	742	
Change in fair value of derivatives liability	(4)	
Change in fair value of Bookings Commitment	2,323	11,1
Noncash interest expense related to convertible notes	622	6,4
Intangible amortization from continuing operations	8,880	8,3
Impairment of intangible assets, including internal-use software	—	7
Securities litigation costs	—	(1
Tax provision (benefit) resulting from certain noncash tax items	(60)	2
Total adjustments to GAAP net loss from continuing operations attributable to NantHealth	16,382	61,3
Net loss from continuing operations attributable to NantHealth - Non-GAAP	$ (41,900)	$ (26,9
Weighted average basic common shares outstanding	114,148,604	110,954,8
Net loss per common share from continuing operations attributable to NantHealth - Non-GAAP	**$ (0.37)**	**$ (0.**

The following table reconciles Net loss per common share from continuing operations attributable to NantHealth to Net loss per common share from continuing operations attributable to NantHealth - Non-GAAP for the years ended December 31, 2021 and 2020:

	Year Ended December 31, 2021	2020
Net loss per common share from continuing operations attributable to NantHealth	$ (0.51)	$ (0.80)
Adjustments to GAAP net loss per common share from continuing operations attributable to NantHealth:		
Loss from related party equity method investment	—	0.29
Stock-based compensation expense from continuing operations	0.04	0.02
Loss on Exchange and Prepayment of 2016 Notes	0.01	—
Change in fair value of derivatives liability	—	—
Change in fair value of Bookings Commitment	0.01	0.10
Noncash interest expense related to convertible notes	—	0.06
Intangible amortization from continuing operations	0.08	0.08
Impairment of intangible assets, including internal-use software	—	0.01
Securities litigation costs	—	—
Tax provision (benefit) resulting from certain noncash tax items	—	—
Total adjustments to GAAP net loss per common share from continuing operations attributable to NantHealth	0.14	0.56
Net loss per common share from continuing operations attributable to NantHealth - Non-GAAP	**$ (0.37)**	**$ (0.24)**

Components of Our Results of Operations

Revenue

We generate our revenue from the sale of SaaS, maintenance, and services. Our systems infrastructure and platforms support the delivery of both personalized comprehensive sequencing and molecular analysis, the implementation of value-based care models across the healthcare continuum, and maintenance of reliable network connections. We generate revenue from the following sources:

Software-as-a-service related - SaaS related revenue is generated from our customers' access to and usage of our hosted software solutions on a subscription basis for a specified contract term. In SaaS arrangements, the customer cannot take possession of the software during the term of the contract and generally only has the right to access and use the software and receive any software upgrades published during the subscription period. Solutions sold under a SaaS model include our Eviti platform solutions and NaviNet.

Maintenance - Maintenance revenue includes technical support or maintenance on OpenNMS software during the contract term. Our networking monitoring solutions typically consist of a term-based subscription to the OpenNMS software license and maintenance, which entitle customers to unspecified software updates and upgrades on a when-and-if-available basis. Revenue is recognized over the maintenance or support term.

Professional services - Professional services revenue is generated from consulting services to help customers install, integrate and optimize OpenNMS, sponsored development, and training to assist customers deploy and use OpenNMS solutions. Sponsored development relates to professional services to build customer specific functionality, features, and enhancements into the OpenNMS open source platform. Typically, revenue is recognized over time using direct labor hours as a measure of progress.

Cost of Revenue

Cost of revenue includes associated salaries and fringe benefits, stock-based compensation, consultant costs, direct reimbursable travel expenses, depreciation related to software developed for internal use, depreciation related to lab equipment, and other direct engagement costs associated with the design, development, sale and installation of systems, including system support and maintenance services for customers. System support includes ongoing customer assistance for software updates and upgrades, installation, training and functionality. All service costs, except development of internal use software and deferred implementation costs, are expensed when incurred. Amortization of deferred implementation costs are also included in cost of revenue. Cost of revenue associated with each of our revenue sources consists of the following types of costs:

Software-as-a-service related - SaaS related cost of revenue includes personnel-related costs, amortization of deferred implementation costs, amortization of internal-use software, and other direct costs associated with the delivery and hosting of our subscription services.

Maintenance - Maintenance cost of revenue includes personnel-related costs, amortization of internal-use software, and other direct costs associated with the ongoing support or maintenance provided to our customers.

Professional services - Professional services cost of revenue include personnel-related costs and other direct costs associated with consulting, sponsored development, and training provided to our customers.

We plan to continue to expand our capacity to support our growth, which will result in higher cost of revenue in absolute dollars. We expect cost of revenue to decrease as a percentage of revenue over time as we expand NantHealth solutions and realize economies of scale.

Operating Expenses

Our operating expenses consist of selling, general and administrative, research and development, amortization of acquisition-related assets, and impairment of intangible assets, including internal-use software.

Selling, general and administrative

Selling, general and administrative expense consists primarily of personnel-related expenses for our sales and marketing, finance, legal, human resources, and administrative associates, stock-based compensation, advertising and marketing promotions of NantHealth solutions, and corporate shared services fees from NantWorks. This includes amortization of deferred commission costs. It also includes trade show and event costs, sponsorship costs, point of purchase display expenses and related amortization as well as legal costs, facility costs, consulting and professional fees, insurance and other corporate and administrative costs.

We continue to review our other selling, general and administrative investments and expect to drive cost savings through greater efficiencies and synergies across our company. Additionally, we expect to continue to incur additional costs for legal, accounting, insurance, investor relations and other costs associated with operating as a public company including costs associated with other regulations governing public companies as well as increased costs for directors' and officers' liability insurance and an enhanced investor relations function. However, we expect our selling, general and administrative expense to decrease as a percentage of revenue over the long term as our revenue increases and we realize economies of scale.

Research and development

Research and development expenses consist primarily of personnel-related costs for associates working on development of solutions, including salaries, benefits and stock-based compensation. Also included are non-personnel costs such as consulting and professional fees to third-party development resources.

Substantially all our research and development expenses are related to developing new software solutions and improving our existing software solutions.

We expect our research and development expenses to continue to increase in absolute dollars and as a percentage of revenue as we continue to make investments in developing new solutions and enhancing the functionality of our existing solutions. However, we expect our research and development expenses to decrease as a percentage of revenue over the long term as we realize economies of scale from our developed technology.

Amortization of acquisition-related assets

Amortization of acquisition-related assets consists of noncash amortization expense related to our non-revenue generating technology as well as amortization expense that we recognize on intangible assets that we acquired through our investments.

Impairment of intangible assets, including internal use software

Impairment of intangible assets consists of the impairment loss from the NantHealth Labs definite-lived intangible asset and certain internal-use software.

Interest Expense, Net

Interest expense, net primarily consists of interest expense associated with our outstanding borrowings, including coupon interest expense, amortization of debt discounts and amortization of deferred financing offering cost, offset by interest income earned on our cash and cash equivalents.

Other Expense, Net

Other expense, net consists primarily of foreign currency gains (losses), changes in the fair value of the Bookings Commitment, changes in the fair value of our derivative liability, and other non-recurring items.

Loss from Related Party Equity Method Investment

Loss from related party equity method investment consists of our pro rata share of losses of a company that we have an ownership interest in and account for under the equity method of accounting, amortization of basis differences, and other-than-temporary impairments in the value of our investment. We regularly evaluate our investment, which is not carried at fair value, for other-than-temporary-impairment in accordance with U.S. GAAP.

Provision for Income Taxes

Provision for income taxes consists of U.S. federal and state and foreign income taxes. We are required to allocate the provision for income taxes between continuing operations and other categories of earnings, such as discontinued operations. To date, we have no significant U.S. federal, state and foreign cash income taxes because of our current and accumulated net operating losses ("NOLs").

We record a valuation allowance when it is more likely than not that some portion or all of a deferred tax asset will not be realized. In making such a determination, we consider all the available positive and negative evidence, including future reversals of existing taxable temporary differences, projected future taxable income, and ongoing prudent and feasible tax planning strategies in assessing the amount of the valuation allowance. When we establish or reduce the valuation allowance against the deferred tax assets, our provision for income taxes will increase or decrease, respectively, in the period such determination is made.

Income from Discontinued Operations, Net of Tax, Attributable to NantHealth

Income from discontinued operations, net of tax, attributable to NantHealth consists of earnings or losses related to the disposition of components of our business.

Net Loss Attributable to Noncontrolling Interests

Net loss attributable to noncontrolling interests consists of earnings or losses related to minority ownership of components of our business.

Results of Operations

The following table sets forth our Consolidated Statements of Operations data for each of the periods indicated:

(Dollars in thousands)	Year Ended December 31, 2021	2020
Revenue		
Software-as-a-service related	$ 60,402	$ 72,198
Maintenance	1,717	677
Professional services	507	86
Total software-related revenue	62,626	72,961
Other	23	211
Total net revenue	62,649	73,172
Cost of Revenue		
Software-as-a-service related	21,503	23,056
Maintenance	1,174	361
Professional services	14	16
Amortization of developed technologies	4,988	4,755
Total software-related cost of revenue	27,679	28,188
Other	128	1,038
Total cost of revenue	27,807	29,226
Gross Profit	34,842	43,946
Operating Expenses		
Selling, general and administrative	52,092	48,534
Research and development	19,707	17,274
Amortization of acquisition-related assets	3,942	3,676
Impairment of intangible assets, including internal-use software	—	729
Total operating expenses	75,741	70,213
Loss from operations	(40,899)	(26,267)
Interest expense, net	(14,481)	(19,199)
Other expense, net	(3,089)	(10,824)
Loss from related party equity method investment	—	(31,702)
Loss from continuing operations before income taxes	(58,469)	(87,992)
Provision for income taxes	97	447
Net loss from continuing operations	(58,566)	(88,439)
Income from discontinued operations, net of tax, attributable to NantHealth	23	31,993
Net loss	(58,543)	(56,446)
Net loss attributable to noncontrolling interests	(284)	(120)
Net loss attributable to NantHealth	$ (58,259)	$ (56,326)

The following table sets forth our Consolidated Statements of Operations data as a percentage of revenue for each of the periods indicated (Unaudited):

	Year Ended December 31,	
	2021	2020
Revenue		
Software-as-a-service related	96.5 %	98.7 %
Maintenance	2.7 %	0.9 %
Professional services	0.8 %	0.1 %
Total software-related revenue	100.0 %	99.7 %
Other	0.0 %	0.3 %
Total net revenue	100.0 %	100.0 %
Cost of Revenue		
Software-as-a-service related	34.3 %	31.5 %
Maintenance	1.9 %	0.5 %
Professional services	0.0 %	0.0 %
Amortization of developed technologies	8.0 %	6.5 %
Total software-related cost of revenue	44.2 %	38.5 %
Other	0.2 %	1.4 %
Total cost of revenue	44.4 %	39.9 %
Gross Profit	55.6 %	60.1 %
Operating Expenses		
Selling, general and administrative	83.1 %	66.3 %
Research and development	31.5 %	23.6 %
Amortization of acquisition-related assets	6.3 %	5.0 %
Impairment of intangible assets, including internal-use software	0.0 %	1.1 %
Total operating expenses	120.9 %	96.0 %
Loss from operations	(65.3)%	(35.9)%
Interest expense, net	(23.1)%	(26.2)%
Other expense, net	(4.9)%	(14.8)%
Loss from related party equity method investment	0.0 %	(43.4)%
Loss from continuing operations before income taxes	(93.3)%	(120.3)%
Provision for income taxes	0.2 %	0.6 %
Net loss from continuing operations	(93.5)%	(120.9)%
Income from discontinued operations, net of tax, attributable to NantHealth	0.0 %	43.7 %
Net loss	(93.5)%	(77.2)%
Net loss attributable to noncontrolling interests	(0.5)%	(0.2)%
Net loss attributable to NantHealth	(93.0)%	(77.0)%

Comparison of the years ended December 31, 2021 and 2020

Revenue

(Dollars in thousands)	Year Ended December 31,		Period-To-Period Change	
	2021	2020	2021 vs. 2020	
	Amount	Amount	Amount	Percentage
Software-as-a-service related	$ 60,402	$ 72,198	$ (11,796)	(16.3) %
Maintenance	1,717	677	1,040	153.6 %
Professional services	507	86	421	489.5 %
Total software-related revenues	62,626	72,961	(10,335)	(14.2) %
Other	23	211	(188)	(89.1) %
Total net revenue	$ 62,649	$ 73,172	$ (10,523)	(14.4) %

Total revenue decreased $10.5 million, or 14.4%, from $73.2 million for the year ended December 31, 2020 to $62.6 million for the year ended December 31, 2021. The total decline in revenue was driven primarily by a decrease in our SaaS revenue.

The decrease in SaaS revenue was primarily attributable to a decrease of $7.6 million in Statement of Works ("SOWs") on professional implementation services that became fully amortized as of December 31, 2020, and two customer contracts that ended in June 2020 and June 2021, which contributed to a $2.4 million and $3.8 million decrease, respectively. These decreases were partially offset by a $1.4 million increase in other SaaS revenues and higher revenues of $1.2 million from our Eviti platform driven by an expansion in covered lives on our largest customer.

Maintenance and professional services revenue increased $1.5 million due to a full year of revenues recognized on the acquisition of OpenNMS in July 2020.

We believe that significant opportunities exist for expanded cross-selling across our products and across our existing customer base, including Eviti, NaviNet, and OpenNMS customer bases.

Cost of Revenue

(Dollars in thousands)	Year Ended December 31,		Period-To-Period Change	
	2021	2020	2021 vs. 2020	
	Amount	Amount	Amount	Percentage
Software-as-a-service related	$ 21,503	$ 23,056	$ (1,553)	(6.7) %
Maintenance	1,174	361	813	225.2 %
Professional services	14	16	(2)	(12.5) %
Amortization of developed technologies	4,988	4,755	233	4.9 %
Total software-related cost of revenue	27,679	28,188	(509)	(1.8) %
Other	128	1,038	(910)	(87.7) %
Total cost of revenue	$ 27,807	$ 29,226	$ (1,419)	(4.9) %

Cost of revenue decreased $1.4 million, or 4.9%, from $29.2 million in the year ended December 31, 2020 to $27.8 million for the year ended December 31, 2021. The decrease in cost of revenue was primarily driven by a decrease in our SaaS solutions.

The decrease in SaaS related cost of revenue was primarily attributable to lower amortization of internal-use software of $1.2 million as internally developed assets became fully amortized, and $1.0 million decrease in personnel costs driven by higher capitalization of labor costs for the development of internal-use software. These decreases were partially offset by an increase in software and licensing costs of $0.3 million.

Maintenance and professional services related costs of revenue increased $0.8 million due to a full year of cost of revenues recognized on the acquisition of OpenNMS. The increase in amortization of developed technologies of $0.2 million was also attributed to the acquisition of OpenNMS.

Other cost of revenue decreased $0.9 million and was primarily attributable to lower amortization of internal-use software that was impaired in December of 2020.

Selling, General and Administrative

(Dollars in thousands)	Year Ended December 31,		Period-To-Period Change	
	2021	2020	2021 vs. 2020	
	Amount	Amount	Amount	Percentage
Selling, general and administrative	$ 52,092	$ 48,534	$ 3,558	7.3 %

Selling, general and administrative expenses increased $3.6 million, or 7.3%, from $48.5 million for the year ended December 31, 2020 to $52.1 million for the year ended December 31, 2021. The increase was primarily attributable to $3.8 million of higher costs due to a full year of selling, general and administrative expenses recognized from OpenNMS, which was acquired in July of 2020. These increases were partially offset by a $0.6 million decline in personnel related costs in other product lines.

Research and Development

(Dollars in thousands)	Year Ended December 31,		Period-To-Period Change	
	2021	2020	2021 vs. 2020	
	Amount	Amount	Amount	Percentage
Research and development	$ 19,707	$ 17,274	$ 2,433	14.1 %

Research and development expenses increased $2.4 million, or 14.1%, from $17.3 million for the year ended December 31, 2020 to $19.7 million for the year ended December 31, 2021. The increase was primarily attributable to $2.2 million of higher costs due to a full year of research and development expenses recognized on the acquisition of OpenNMS.

Amortization of Acquisition-related Assets

(Dollars in thousands)	Year Ended December 31,		Period-To-Period Change	
	2021	2020	2021 vs. 2020	
	Amount	Amount	Amount	Percentage
Amortization of acquisition-related assets	$ 3,942	$ 3,676	$ 266	7.2 %

Amortization of acquisition-related assets increased $0.3 million, or 7.2%, from $3.7 million for the year ended December 31, 2020 to $3.9 million for the year ended December 31, 2021, as a result of a full year of amortization recognized on the acquisition of OpenNMS.

Interest Expense, Net

(Dollars in thousands)	Year Ended December 31,		Period-To-Period Change	
	2021	2020	2021 vs. 2020	
	Amount	Amount	Amount	Percentage
Interest expense, net	$ 14,481	$ 19,199	$ (4,718)	(24.6) %

Interest expense, net decreased by $4.7 million, from $19.2 million for the year ended December 31, 2020 to $14.5 million for the year ended December 31, 2021. On January 1, 2021, the Company early adopted Accounting Standards Update ("ASU') No. 2020-06, *Debt - Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging - Contracts in Entity's Own Equity (Subtopic 815-40),* resulting in $5.7 million of less noncash interest expense. This decrease was partially offset by $0.7 million in higher convertible debt interest driven by the convertible notes issued in 2021, and an increase in additional interest on the Nant Capital Note of $0.3 million.

Refer to the section entitled "Liquidity and Capital Resources" below and Note 11, and Note 19 to our Consolidated Financial Statements included in Item 8 of this Annual Report on Form 10-K for further discussion of our Convertible Notes and the Nant Capital Note.

Other Expense, Net

(Dollars in thousands)	Year Ended December 31,		Period-To-Period Change	
	2021	2020	2021 vs. 2020	
	Amount	Amount	Amount	Percentage
Other expense, net	$ 3,089	$ 10,824	$ (7,735)	(71.5) %

Other expense, net decreased by $7.7 million, from $10.8 million for the year ended December 31, 2020 to $3.1 million for the year ended December 31, 2021. The expense during 2021 was primarily attributable to a $2.3 million increase in the fair value of the Bookings Commitment liability, as a result of changes in the cost of debt due to macroeconomic factors and the passage of time. In addition, we recognized a $0.7 million loss resulting from the exchange and prepayment of the convertible notes issued in 2016. The expense during 2020 was mainly driven by a $11.2 million increase in the fair value of the Bookings Commitment liability, partially offset by income from transition services provided to Masimo related to the sale of the Connected Care Business.

Loss from Related Party Equity Method Investment

(Dollars in thousands)	Year Ended December 31,		Period-To-Period Change	
	2021	2020	2021 vs. 2020	
	Amount	Amount	Amount	Percentage
Loss from related party equity method investment	$ —	$ 31,702	$ (31,702)	(100.0) %

The 2020 loss from related party equity method investment is related to our pro rata share of losses from our investment in NantOmics, amortization of the basis difference in the investment, and impairment losses. The loss in 2020 was primarily due to an other-than-temporary impairment of the full carrying value of our investment in NantOmics of $28.2 million at June 30, 2020 (see Note 10 to the accompanying Consolidated Financial Statements).

Income from Discontinued Operations, Net of Tax, Attributable to NantHealth

(Dollars in thousands)	Year Ended December 31,		Period-To-Period Change	
	2021	2020	2021 vs. 2020	
	Amount	Amount	Amount	Percentage
Income from discontinued operations, net of tax, attributable to NantHealth	$ 23	$ 31,993	$ (31,970)	(99.9) %

For the year ended December 31, 2020, income from discontinued operations, net of tax, attributable to NantHealth was primarily related to the gain on sale of the Connected Care Business (see Note 4 to the accompanying Consolidated Financial Statements).

Liquidity and Capital Resources

Sources of Liquidity

As of December 31, 2021, we had cash and cash equivalents of $29.1 million, compared to $22.8 million as of December 31, 2020, of which $0.8 million and $0.4 million, respectively, related to foreign subsidiaries.

We believe our existing cash and cash equivalents will be sufficient to fund operations through at least 12 months following the issuance date of the financial statements. We also continue to have our Chairman and CEO's intent and ability to support our operations with additional funds as required, including our ability to borrow on the $125.0 million promissory note with Nant Capital (see Note 19 to the accompanying Consolidated Financial Statements). We may also seek to sell additional equity, through one or more follow-on public offerings or in separate financings, or sell additional debt securities, or obtain a credit facility. However, we may not be able to secure such financing in a timely manner or on favorable terms. We may also consider selling off components of our business. Without additional funds, we may choose to delay or reduce our operating or investment expenditures. Further, because of the risk and uncertainties associated with the commercialization of our existing products as well as products in development, we may need additional funds to meet our needs sooner than planned. To date, the Company's primary sources of capital have been the private placement of membership interests prior to its IPO, debt financing agreements, including promissory notes with Nant Capital and affiliates, convertible notes, the sale of its common stock, and proceeds from the sale of components of its business.

Convertible Notes

On April 13, 2021, we and our wholly owned subsidiary, NaviNet entered into a Note Purchase Agreement with Highbridge and Nant Capital and issued $137.5 million in aggregate principal amount of our 2021 Notes in a private placement. The 2021 Notes were issued on April 27, 2021. The total net proceeds from this offering were approximately $136.8 million, after deducting Highbridge's debt issuance costs of $0.1 million and $0.6 million in debt issuance costs paid to third parties in connection with the 2021 Notes offering. The 2021 Notes will mature on April 15, 2026, unless earlier repurchased, redeemed or converted.

On April 27, 2021, concurrent with the 2021 Notes issuance, the Company used the proceeds to prepay the remaining $31.9 million of principal amount of the 2016 Notes held by Highbridge and $0.6 million of accrued interest on such 2016 Notes. On April 27, 2021, in connection with the issuance of the 2021 Notes, we provided a notice of a fundamental change (as defined in the indenture governing the 2016 Notes) and an offer to repurchase all our outstanding 2016 Notes. On May 25, 2021, the Company purchased $55.6 million of the outstanding 2016 Notes, including accrued and unpaid interest thereon. On December 15, 2021, the maturity date of the 2016 notes, the Company paid the remaining $9.5 million of the outstanding principal balance on the 2016 Notes, including accrued and unpaid interest thereon.

Open Market Sale Agreement

On November 12, 2021, we entered into an Open Market Sale Agreement (the "Sale Agreement") with Jefferies LLC (the "Sales Agent") under which it may offer and sell up to $30.0 million of shares of our common stock, par value $0.0001 per share (the "Shares"), from time to time through the Sales Agent. The sales and issuances of the Shares under the Sale Agreement will be made pursuant to the Company's effective shelf registration statement on Form S-3 (the "Registration Statement") that was declared effective on May 6, 2021.

The Sales Agent is not required to sell any specific amount of securities, but will act as our sales agent using commercially reasonable efforts to sell the Shares from time to time, consistent with their normal trading and sales practices, applicable state and federal laws, rules and regulations and the rules of The Nasdaq Stock Market LLC, based upon instructions from the Company (including any price, time or size limits or other customary parameters or conditions the Company may impose). The Company has agreed to pay the Sales Agent a commission of 3.0% of the aggregate gross proceeds from each sale of Shares pursuant to the Sale Agreement and to provide the Sales Agent with customary indemnification and contribution rights, including for liabilities under the Securities Act of 1933, as amended.

Nant Capital Notes

In January 2016, we executed a demand promissory note with Nant Capital (the "Nant Capital Note"), a personal investment vehicle for Dr. Soon-Shiong. As of December 31, 2021, the total advances made by Nant Capital to us pursuant to the note was approximately $112.7 million. The Nant Capital Note bears interest at a per annum rate of 5.0% compounded annually and computed on the basis of the actual number of days in the year. When a repayment is made, Nant Capital has the option, but not the obligation, to require us to repay any such amount in cash, Series A-2 units of NantOmics (based on a per unit price of $1.484) held by us, shares of our common stock based on a per share price of $18.6126 (if such equity exists at the time of repayment), or any combination of the foregoing at the sole discretion of Nant Capital. On April 27, 2021, in connection with the issuance of the 2021 Notes, we entered into a Third Amended and Restated Promissory Note which amends and restates its promissory note, dated January 4, 2016, as amended on May 9, 2016, and on December 16, 2016, between the Company and Nant Capital, to, among other things, extend the maturity date of the promissory note to October 1, 2026 and to subordinate the promissory note in right of payment to the 2021 Notes.

On August 8, 2018, we executed a promissory note in favor of Nant Capital, with a maturity date of June 15, 2022. On December 31, 2020, we executed an agreement with Nant Capital to amend and restate the original promissory note, allowing us to request advances up a maximum commitment of $125.0 million that bears interest at a per annum rate of 5.5%, extended the maturity date to December 31, 2023, and created an option for the securitization of the debt under the promissory note upon full repayment of the 2016 Notes. Interest payments on outstanding amounts are due on December 15th of each calendar year. On April 27, 2021, in connection with the issuance of the 2021 Notes, we and Nant Capital entered into a Second Amended and Restated Promissory Note which amends and restates its promissory note, dated August 8, 2018, as amended on December 31, 2020, between the Company and Nant Capital, to, among other things, extend the maturity date of the promissory note to December 31, 2026 and to subordinate the promissory note in right of payment to the 2021 Notes. The promissory note includes customary negative covenants. No advances have currently been made under the promissory note. At December 31, 2021, we were in compliance with the covenants.

If we raise additional funds by issuing equity securities or securities convertible into equity, our stockholders could experience dilution. Additional debt financing, if available, may involve covenants restricting our operations or our ability to incur additional debt. Any additional debt financing or additional equity that we raise may contain terms that are not favorable to us or our stockholders and require significant debt service payments, which diverts resources from other activities. Additional financing may not be available at all, or in amounts or on terms acceptable to us. If we are unable to obtain additional financing, we may be required to delay the development, commercialization and marketing of our products and scale back our business and operations.

Capital Expenditures

Our principal material cash requirements consist of obligations under our outstanding debt obligations related to the Convertible Notes and Nant Capital Note, Bookings Commitment, and non-cancelable leases for our office space. Refer to Note 11, Note 12, Note 13, and Note 19, respectively, to the accompanying Consolidated Financial Statements.

Additionally, our estimated non-cancelable contractual obligations for our enterprise resource planning implementation project through the shared services agreement with NantWorks total approximately $0.8 million. See Note 14 and Note 19 to the accompanying Consolidated Financial Statements.

Off-Balance Sheet Arrangements

During the periods presented, we did not have any off-balance sheet arrangements.

Cash Flows

The following table sets forth our primary sources and uses of cash for the periods indicated:

(Dollars in thousands)	Year Ended December 31, 2021	2020
Cash provided by (used in):		
Operating activities	$ (27,689)	$ (16,854)
Investing activities	(5,637)	35,254
Financing activities	40,577	(555)
Effect of exchange rate changes on cash, cash equivalents and restricted cash	(11)	(62)
Net increase in cash, cash equivalents and restricted cash	$ 7,240	$ 17,783

To date, our operations have been primarily financed through the proceeds from related party promissory notes, including the 2016 and 2021 Notes, the sale of components of our business, and through equity issuances, including net cash proceeds from our IPO. In June 2016, we sold 6,900,000 shares of common stock at a price of $14.00 per share, which includes 400,000 shares sold to the underwriter upon exercise of their overallotment option to purchase additional shares of our Company. We raised net proceeds of $83.6 million from our IPO, after underwriting fees, discounts and commissions of $4.9 million and other offering costs of $8.1 million. In December 2016, we issued convertible notes to a related party and others for aggregate net proceeds of $102.7 million, $9.9 million from Cambridge, and $92.8 million from others, after deducting underwriting discounts and commissions and offering costs of $4.3 million. In February 2020, we received $47.3 million in proceeds from the sale of our Connected Care Business. In April 2021, we issued convertible notes to a related party and others for aggregate net proceeds of $136.8 million, $62.2 million from Nant Capital, and $74.6 million from Highbridge, after deducting offering costs of $0.7 million.

Operating Activities

Our cash flows from operating activities have been driven by rate of revenue, billings, and collections, the timing and extent of spending to support product development efforts and enhancements to existing services, the timing of general and administrative expenses, and the continuing market acceptance of our solutions.

In addition, our net loss in the year ended December 31, 2021 has been greater than our use of cash for operating activities due to the inclusion of noncash charges.

Cash used in operating activities of $27.7 million in the year ended December 31, 2021 was a result of our continued investments in enhancements to current products, research and development, sales and marketing, and expenses incurred as a public company, including costs associated with public company reporting and corporate governance requirements. In the year ended December 31, 2021, $23.3 million, or 40%, of our net loss of $58.5 million consisted of noncash items, including $15.7 million of depreciation and amortization expense, $3.9 million in stock-based compensation expense, a $2.3 million increase in the fair value of the Bookings Commitment liability, a $0.7 million loss on Exchange and Prepayment of the 2016 Notes, and $0.6 million amortization of debt discounts and deferred financing offering costs.

Changes in working capital increased cash by $7.5 million in the year ended December 31, 2021. The change in cash was primarily attributable to a $1.3 million increase in accrued and other current liabilities, a $8.1 million increase in related party payables, net, a $2.9 million increase in deferred revenues, offset by a $2.7 million increase in accounts receivable and a $1.9 million decrease in accounts payable.

Cash used in operating activities of $16.9 million in the year ended December 31, 2020 was a result of our continued investments in enhancements to current products, research and development, sales and marketing, and expenses incurred as a public company, including costs associated with public company reporting and corporate governance requirements. In the year ended December 31, 2020, $37.4 million, or 66%, of our net loss of $56.4 million consisted of noncash items, including $16.8 million of depreciation and amortization expense, a $31.7 million loss from our related party equity method investment, a $11.2 million increase in the fair value of the Bookings Commitment liability, $6.5 million amortization of debt discounts and deferred financing offering costs, $2.6 million in stock-based compensation expense, and a $0.7 million impairment of intangible assets related to internal-use software, partially offset by a $32.2 million gain on sale of our Connected Care Business (see Note 4 to the accompanying Consolidated Financial Statements).

Changes in working capital increased cash by $2.2 million in the year ended December 31, 2020. The change in cash was primarily attributable to a $19.0 million reduction in accrued and other current liabilities, a $15.1 million reduction in prepaid expenses and other current assets, a $7.0 million increase in related party payables, net, a $7.4 million reduction in deferred revenues, and a $4.8 million reduction in accounts receivable.

Investing Activities

For the year ended December 31, 2021, net cash used in investing activities was comprised of $5.1 million for the purchase of property and equipment, including internal-use software and $0.6 million of investment to purchase the non-controlling interest of OpenNMS.

Our primary investing activities for the year ended December 31, 2020 consisted of the sale of our Connected Care Business (see Note 4 to the accompanying Consolidated Financial Statements) and capital expenditures to develop our software as well as to purchase computer equipment and furniture and fixtures in support of expanding our infrastructure. We received $35.3 million of cash from investing activities in the year ended December 31, 2020, comprised of $46.4 million of net proceeds from the sale of our Connected Care Business (see Note 4 to the accompanying Consolidated Financial Statements), offset by $5.5 million net cash paid for the acquisition of OpenNMS (see Note 19 to the accompanying Consolidated Financial Statements) and $5.7 million of investment used for the purchase of property and equipment, including internal-use software.

Financing Activities

Cash provided by financing activities for the year ended December 31, 2021 was $40.6 million, primarily related to the issuance of the 2021 Notes of $137.5 million, offset by payments on the 2016 Notes of $97.0 million (see Note 11 to the accompanying Consolidated Financial Statements).

Cash used in financing activities during the year ended December 31, 2020 were primarily attributed to proceeds from, net of repayments of, an insurance promissory note and proceeds from exercises of stock options, offset by payments to tax authorities on the employees' behalf to satisfy withholding requirements on income earned from vested shares of the Nant Health, LLC Phantom Unit Plan (the “Phantom Unit Plan”) and restricted stock units.

New Accounting Pronouncements

See Note 2, “Summary of Significant Accounting Policies” to the accompanying Consolidated Financial Statements for a discussion of new accounting standards.

Related Party Transactions

See Note 19 to the accompanying Consolidated Financial Statements for a discussion of related party transactions.

Critical Accounting Policies and Significant Judgments and Estimates

This Management's Discussion and Analysis of our Results of Operations and Liquidity and Capital Resources is based on our Consolidated Financial Statements, which we have prepared in accordance with accounting principles generally accepted in the United States. The preparation of our financial statements requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of our financial statements, as well as the reported revenues and expenses during the reported periods. We evaluate these estimates and judgments on an ongoing basis. We base our estimates on historical experience and on various other factors that we believe are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions. We consider policies relating to the following matters to be critical accounting policies:

- Revenue from Contracts with Customers;
- Stock-Based Compensation;
- Change in fair value of Bookings Commitment;
- Income Taxes;
- Leases;
- Business Combinations;
- Software Developed for Internal Use;
- Goodwill and Intangible Assets; and

For a discussion of each of our critical accounting policies, including information and analysis of estimates and assumptions involved in their application, and other significant accounting policies, see Note 2, "Summary of Significant Accounting Policies," to the accompanying Consolidated Financial Statements.

Smaller Reporting Company Status

Currently, we qualify as a smaller reporting company. As a smaller reporting company, we are eligible and have taken advantage of certain exemptions from various reporting requirements that are not available to public reporting companies that do not qualify for this classification, including, but not limited to:

- An opportunity for reduced disclosure obligations regarding executive compensation in our periodic and annual reports, including without limitation exemption from the requirement to provide a compensation discussion and analysis describing compensation practices and procedures,
- An opportunity for reduced financial statement disclosure in registration statements and in annual reports on Form 10-K, which only requires two years of audited financial statements rather than the three years of audited financial statements that are required for other public companies,
- An opportunity for reduced audit and other compliance expenses as we are not subject to the requirement to obtain an auditor's report on internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act of 2002, and
- An opportunity to utilize the non-accelerated filer time-line requirements beginning with our annual report for the year ending December 31, 2021 and quarterly filings thereafter.

For as long as we continue to be a smaller reporting company, we expect that we will take advantage of both the reduced internal control audit requirements and the disclosure obligations available to us as a result of this classification.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

Interest Rate Risk

As of December 31, 2021, we had $29.1 million in cash and cash equivalents which were held for working capital purposes. Our cash and cash equivalents are comprised primarily of mutual funds listed on active exchanges, U.S. treasury securities, money market funds, and cash held in FDIC - insured institutions. Our investments are made for capital preservation purposes. We do not enter into investments for trading or speculative purposes. Primarily all our investments are denominated in U.S. dollars. If overall interest rates had decreased by 10% during the periods presented, our interest income would not have been materially affected.

Credit Risk

Our cash equivalents are subject to market risk due to changes in interest rates. Fixed rate securities may have their market value adversely affected due to a rise in interest rates, while floating rate securities may produce less income than expected if interest rates fall. Due in part to these factors, our future investment income may fall short of expectations due to changes in interest rates or we may suffer losses in principal if we are forced to sell securities that decline in market value due to changes in interest rates.

Foreign Currency Risk

We maintain offices and bank accounts in the United Kingdom and Canada. However, due to the low volume of activity outside the United States, the foreign currency risk is minimal. The effect of a 10% adverse change in exchange rates on foreign currency denominated cash and payables as of December 31, 2021 would not have been material. However, fluctuations in currency exchange rates could harm our business in the future.

Item 8. Financial Statements and Supplementary Data

NantHealth, Inc.
Consolidated Financial Statements
Years Ended December 31, 2021 and 2020
(Dollars in thousands, except per share amounts)

Report of Independent Registered Public Accounting Firm

To the Stockholders and the Board of Directors of NantHealth, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of NantHealth, Inc. (the Company) as of December 31, 2021 and 2020, the related consolidated statements of operations, comprehensive loss, stockholders' deficit and cash flows for each of the two years in the period ended December 31, 2021, and the related notes (collectively referred to as the “consolidated financial statements”). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2021 and 2020, and the results of its operations and its cash flows for each of the two years in the period ended December 31, 2021, in conformity with U.S. generally accepted accounting principles.

Adoption of ASU No. 2020-06

As discussed in Note 2 to the consolidated financial statements, the Company changed its method of accounting for convertible debt in the year ended December 31, 2021 due to the adoption of Accounting Standards Update (ASU) No. *2020-06, Debt - Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging - Contracts in Entity's Own Equity (Subtopic 815-40)*.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company’s financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matter

The critical audit matter communicated below is a matter arising from the current period audit of the financial statements that was communicated or required to be communicated to the audit committee and that: (1) relates to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective or complex judgments. The communication of the critical audit matter does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

Related party transactions

Description of the Matter

As discussed in Note 19 to the consolidated financial statements, the Company has entered into multiple transactions with related parties, each of which are controlled by Dr. Patrick Soon-Shiong.

As a result of the volume and the significance of related party transactions, assessing the sufficiency of procedures performed to identify related parties and related party transactions as well as to audit identified related party transactions was a critical audit matter.

How We Addressed the Matter in Our Audit

The audit procedures we performed to address this critical audit matter included testing the completeness and accuracy of the listing of significant related party transactions provided by management, testing the manner in which related party transactions were recorded, presented and disclosed, and performing searches for payments and other transactions with identified related parties. We also inspected questionnaires received from the Company's directors and officers, read employment and compensation contracts, proxy statements and other relevant filings with the Securities and Exchange Commission and other regulatory agencies that relate to the Company's financial relationships and transactions with the Company's executive officers and with other entities controlled by Dr. Patrick Soon-Shiong. We confirmed related party transactions and balances with the counterparty. We made inquiries of management as well as members of the Company's audit committee regarding the completeness of the identified related party transactions, and assessed the adequacy of financial statement footnote disclosure pertaining to related party transactions.

/s/ Ernst & Young l

We have served as the Company's auditor since 2013.

Los Angeles, California
February 25, 2022

NantHealth, Inc.
Consolidated Balance Sheets
(Dollars in thousands, except per share amounts)

	December 31,	
	2021	**2020**
Assets		
Current assets		
Cash and cash equivalents	$ 29,084	$ 22,787
Accounts receivable, net	5,810	3,273
Related party receivables, net	506	1,031
Prepaid expenses and other current assets	4,010	3,504
Total current assets	39,410	30,595
Property, plant, and equipment, net	12,366	13,102
Goodwill	98,333	98,333
Intangible assets, net	39,039	47,969
Related party receivable, net of current	1,012	823
Operating lease right-of-use assets	6,048	7,539
Other assets	1,620	1,927
Total assets	$ 197,828	$ 200,288
Liabilities and Stockholders' Equity		
Current liabilities		
Accounts payable	$ 3,204	$ 5,122
Accrued and other current liabilities	16,358	13,975
Deferred revenue	2,440	1,166
Related party payables, net	5,161	4,238
Notes payable	782	268
Related party convertible note, net	—	9,411
Convertible notes, net	—	90,578
Total current liabilities	27,945	124,758
Deferred revenue, net of current	2,024	393
Related party liabilities	38,278	31,091
Related party promissory note	112,666	112,666
Related party convertible note, net	62,268	—
Convertible notes, net	74,603	—
Deferred income taxes, net	1,775	1,853
Operating lease liabilities	6,248	8,170
Other liabilities	34,013	32,757
Total liabilities	359,820	311,688
Commitments and Contingencies (Note 14)		
Stockholders' deficit		
Common stock, $0.0001 par value per share, 750,000,000 shares authorized; 115,505,244 and 111,284,733 shares issued and outstanding at December 31, 2021 and 2020, respectively	12	11
Additional paid-in capital	891,105	891,583
Accumulated deficit	(1,052,897)	(1,003,210)
Accumulated other comprehensive loss	(212)	(168)
Total NantHealth stockholders' deficit	(161,992)	(111,784)
Noncontrolling interests	—	384
Total stockholders' deficit	(161,992)	(111,400)
Total liabilities and stockholders' deficit	$ 197,828	$ 200,288

The accompanying notes are an integral part of these Consolidated Financial Statements.

NantHealth, Inc.
Consolidated Statements of Operations
(Dollars in thousands, except per share amounts)

	Year Ended December 31,	
	2021	**2020**
Revenue		
Software-as-a-service related	$ 60,402	$ 72,1
Maintenance	1,717	6
Professional services	507	
Total software-related revenue	62,626	72,9
Other	23	2
Total net revenue	62,649	73,1
Cost of Revenue		
Software-as-a-service related	21,503	23,0
Maintenance	1,174	3
Professional services	14	
Amortization of developed technologies	4,988	4,7
Total software-related cost of revenue	27,679	28,1
Other	128	1,0
Total cost of revenue	27,807	29,2
Gross Profit	34,842	43,9
Operating Expenses		
Selling, general and administrative	52,092	48,5
Research and development	19,707	17,2
Amortization of acquisition-related assets	3,942	3,6
Impairment of intangible assets, including internal-use software	—	7
Total operating expenses	75,741	70,2
Loss from operations	(40,899)	(26,2
Interest expense, net	(14,481)	(19,1
Other expense, net	(3,089)	(10,8
Loss from related party equity method investment	—	(31,7
Loss from continuing operations before income taxes	(58,469)	(87,9
Provision for income taxes	97	4
Net loss from continuing operations	(58,566)	(88,4
Income from discontinued operations, net of tax, attributable to NantHealth	23	31,9
Net loss	(58,543)	(56,4
Net loss attributable to noncontrolling interests	(284)	(1
Net loss attributable to NantHealth	$ (58,259)	$ (56,3
Basic and diluted net loss per share attributable to NantHealth:		
Continuing operations - common stock	$ (0.51)	$ (0.
Discontinued operations - common stock	$ —	$ 0.
Total net loss per share - common stock	$ (0.51)	$ (0.
Weighted average shares outstanding		
Basic and diluted - common stock	114,148,604	110,954,8

The accompanying notes are an integral part of these Consolidated Financial Statements.

NantHealth, Inc.
Consolidated Statements of Comprehensive Loss
(Dollars in thousands)

	Year Ended December 31,	
	2021	**2020**
Net loss	$ (58,543)	$ (56,4
Other comprehensive income (loss), net of tax		
Foreign currency translation adjustments	(44)	
Total other comprehensive income (loss)	(44)	
Comprehensive loss	(58,587)	(56,3
Less: Comprehensive loss attributable to noncontrolling interests	(284)	(1
Comprehensive loss attributable to NantHealth	$ (58,303)	$ (56,2

The accompanying notes are an integral part of these Consolidated Financial Statements.

NantHealth, Inc.
Consolidated Statements of Stockholders' Deficit
(Dollars in thousands)

	Common Stock		Additional Paid-In Capital	Accumulated Deficit	Accumulated Other Comprehensive Loss	Total NantHealth Stockholders' Deficit	Noncontrolling interests	Total Stockholders Deficit
	Shares	Amount						
Balance at December 31, 2019	110,619,678	$ 11	$ 889,955	$ (946,884)	$ (218)	$ (57,136)	$ —	$ (57,136)
Stock-based compensation expense	—	—	2,725	—	—	2,725	—	2,725
Shares issued in connection with employee stock plans, net of shares withheld for employee taxes	665,055	—	(568)	—	—	(568)	—	(568)
Assignment of OpenNMS (see Note 19)	—	—	(529)	—	—	(529)	503	(26)
Other comprehensive income	—	—	—	—	50	50	1	51
Net loss	—	—	—	(56,326)	—	(56,326)	(120)	(56,446)
Balance at December 31, 2020	111,284,733	11	891,583	(1,003,210)	(168)	(111,784)	384	(111,400)
Modified retrospective adjustment on adoption of ASU 2020-06 (Note 2)	—	—	(14,318)	8,572	—	(5,746)	—	(5,746)
Stock-based compensation expense	—	—	4,005	—	—	4,005	—	4,005
Shares issued in connection with employee stock plans, net of shares withheld for employee taxes	604,541	—	291	—	—	291	—	291
Stock issued on Exchange of 2016 Notes	3,615,970	1	10,000	—	—	10,001	—	10,001
Purchase of noncontrolling interest	—	—	(456)	—	—	(456)	(100)	(556)
Other comprehensive loss	—	—	—	—	(44)	(44)	—	(44)
Net loss	—	—	—	(58,259)	—	(58,259)	(284)	(58,543)
Balance at December 31, 2021	115,505,244	$ 12	$ 891,105	$ (1,052,897)	$ (212)	$ (161,992)	$ —	$ (161,992)

The accompanying notes are an integral part of these Consolidated Financial Statements.

NantHealth, Inc.
Consolidated Statements of Cash Flows
(Dollars in thousands)

	Year Ended December 31,	
	2021	**2020 [2]**
Cash flows from operating activities		
Net loss	$ (58,543)	$ (56,4
Adjustments to reconcile net loss to net cash used in operating activities:		
Gain on sale of businesses	—	(32,2
Depreciation and amortization	15,723	16,7
Amortization of debt discounts and deferred financing offering cost	623	6,4
Change in fair value of derivatives liability	(4)	
Impairment of intangible assets, including internal-use software	—	
Change in fair value of Bookings Commitment	2,323	11,
Stock-based compensation	3,887	2,(
Deferred income taxes, net	(78)	
Provision for bad debt expense	123	
Loss on Exchange and Prepayment of 2016 Notes	742	
Loss from related party equity method investment	—	31,7
Changes in operating assets and liabilities		
Accounts receivable, net	(2,660)	4,7
Inventories	—	
Related party receivables, net	336	
Prepaid expenses and other current assets	(104)	15,
Accounts payable	(1,914)	1,4
Accrued and other current liabilities	1,324	(19,(
Deferred revenue	2,905	(7,3
Related party payables, net	8,066	6,9
Change in operating lease right-of-use assets and liabilities	(422)	(2
Other assets and liabilities	(16)	4
Net cash used in operating activities	(27,689)	(16,8
Cash flows from investing activities		
Net proceeds from sale of business	—	46,4
Assignment of OpenNMS, net of cash acquired (see Note 19)	—	(5,4
Purchases of property and equipment, including internal-use software	(5,081)	(5,(
Purchase of noncontrolling interest	(556)	
Net cash provided by (used in) investing activities	(5,637)	35,2
Cash flows from financing activities		
Proceeds from insurance promissory note	2,324	1,8
Repayments of insurance promissory note and notes payable	(1,810)	(1,8
Proceeds from exercises of stock options	291	
Payment of deferred financing costs, related party	(277)	
Payment of deferred financing costs	(451)	
Proceeds from related party convertible notes	62,500	
Proceeds from convertible notes	75,000	
Payment of convertible notes	(97,000)	
Tax payments related to stock issued, net of stock withheld, for vested equity awards	—	(7
Net cash provided by (used) in financing activities	40,577	(9
Effect of exchange rate changes on cash, cash equivalents and restricted cash	(11)	
Net increase in cash, cash equivalents and restricted cash	7,240	17,7
Cash, cash equivalents and restricted cash, beginning of period [1]	24,162	6,4
Cash, cash equivalents and restricted cash, end of period [1]	$ 31,402	$ 24,1

NantHealth, Inc.
Consolidated Statements of Cash Flows
(Dollars in thousands)

	Year Ended December 31,	
	2021	**2020**
Supplemental disclosure of cash flow information		
Income taxes paid	$ 400	$ 1
Interest paid	5,628	5,9
Interest received	—	
Noncash transactions:		
Purchases of property and equipment, including internal-use software	118	3
Common stock issued in Exchange for 2016 Notes	10,000	

(1) Cash and cash equivalents included restricted cash of $2,318, $1,375, and $1,136 at December 31, 2021, 2020, and 2019, respectively. At December 31, 2021, restricted cash of $1,180 is included in prepaid expenses and other current assets and $1,138 is included in other assets. At December 31, 2020, restricted cash of $237 is included in prepaid expenses and other current assets and $1,138 is included in other assets. At December 31, 2019, restricted cash of $1,136 is included in other assets. Restricted cash consists of funds that are contractually restricted as to usage or withdrawal related to the Company's security deposits in the form of standby letters of credit for leased facilities and funds held in an escrow account related to the sale of the Connected Care Business (see Note 4). No amounts have been drawn upon the letters of credit as of December 31, 2021.

(2) The statements for the year ended December 31, 2020 includes the Connected Care Business (see Note 4).

The accompanying notes are an integral part of these Consolidated Financial Statements.

Note 1. Description of Business and Basis of Presentation

Nature of Business

Nant Health, LLC was formed on July 7, 2010, as a Delaware limited liability company. On June 1, 2016, Nant Health, LLC converted into a Delaware corporation (the “LLC Conversion”) and changed its name to NantHealth, Inc. (“NantHealth”). NantHealth, together with its subsidiaries (the “Company”), is a healthcare IT company converging science and technology. The Company works to transform clinical delivery with actionable clinical intelligence at the moment of decision, enabling clinical discovery through real-time machine learning systems. The Company markets certain of its solutions as a comprehensive integrated solution that includes its clinical decision support, payer engagement solutions, data analysis and network monitoring and management. The Company also markets its clinical decision support, payer engagement solutions, data analysis and network monitoring and management on a stand-alone basis. NantHealth is a majority-owned subsidiary of NantWorks, LLC (“NantWorks”), which is a subsidiary of California Capital Equity, LLC (“Cal Cap”). The three companies were founded by and are led by Dr. Patrick Soon-Shiong.

On February 3, 2020, the Company sold certain of its assets related to its Connected Care Business (see Note 4).

This divestiture enables the Company to focus on its core competencies of clinical decision support, payer engagement and data analytics.

On July 22, 2020, the Company acquired The OpenNMS Group, Inc. ("OpenNMS") pursuant to an assignment agreement with Cambridge Equities, L.P. ("Cambridge"), a related party (see Note 19). In August 2021, the Company purchased the remaining 9%, or 241,485 shares of outstanding OpenNMS common stock held by the remaining shareholders.

The Company is integrating OpenNMS with NantHealth’s software portfolio and service offerings, as well as expanding the Company’s capabilities in cloud, SaaS, and AI technologies, providing customers with services to maintain reliable network connections for critical data flows that enable patient data collaboration and decision making at the point of care. At the same time, this transaction will allow the Company to expand penetration of OpenNMS services in the healthcare industry.

As of December 31, 2021, the Company conducted the majority of its operations in the United States, Canada, and the United Kingdom.

COVID-19 Pandemic

In March 2020, the World Health Organization declared the novel coronavirus (COVID-19) a pandemic. In the same month, the President of the United States declared a State of National Emergency due to the COVID-19 outbreak. The COVID-19 pandemic has resulted in intermittent worldwide government restrictions on the movement of people, goods, and services resulting in increased volatility in and disruptions to global markets. To date, there has been no material adverse impact to our business from the COVID-19 pandemic. Given the unprecedented and evolving nature of the pandemic, the future impact of these changes and potential changes on the Company and our contractors, consultants, customers, resellers and partners is unknown at this time.

However, in light of the uncertainties regarding economic, business, social, health and geopolitical conditions, the Company’s revenues, earnings, liquidity, and cash flows could be adversely affected, whether on an annual or quarterly basis. Continued impacts of the COVID-19 pandemic could materially adversely affect the Company’s current and long-term accounts receivable collectability, as its negatively impacted customers from the pandemic may request temporary relief, delay, or not make scheduled payments. In addition, the deployment of the Company’s solutions may represent a large portion of its customers' investments in software technology. Decisions to make such an investment are impacted by the economic environment in which the customers operate. Uncertain global geopolitical, economic and health conditions and the lack of visibility or the lack of financial resources may cause some customers to reduce, postpone or terminate their investments, or to reduce or not renew ongoing paid services, adversely impacting the Company’s revenues or timing of revenue. Health conditions in some geographic areas where the Company’s customers operate could impact the economic situation of those areas. These conditions, including the COVID-19 pandemic, may present risks for health and limit the ability to travel for Company employees, which could further lengthen the Company’s sales cycle and delay revenue and cash flows in the near-term.

Basis of Presentation and Principles of Consolidation

The accompanying Consolidated Financial Statements include the accounts of NantHealth and its subsidiaries. All intercompany accounts and transactions have been eliminated in consolidation. These Consolidated Financial Statements have been prepared in accordance with accounting principles generally accepted in the United States of America ("GAAP"). The results of operations of the entities disposed of are included in the Consolidated Financial Statements up to the date of disposal and, where appropriate, these operations have been reflected as discontinued operations.

The Company has incurred significant losses and negative cash flows from operations. As of December 31, 2021, the Company had cash and cash equivalents of $29,084 and an accumulated deficit of $1,052,897. The Company had a net loss of $58,543 and used cash of $27,689 for operating activities for the year ended December 31, 2021.

The Company believes its existing cash and cash equivalents will be sufficient to fund operations through at least 12 months following the issuance date of the financial statements. The Company continues to have its Chairman and CEO’s intent and ability to support the Company’s operations with additional funds as required, including our ability to borrow on the $125,000 promissory note with Nant Capital, LLC ("Nant Capital") (see Note 19). The Company may also seek to sell additional equity, through one or more follow-on public offerings or in separate financings, or sell additional debt securities, or obtain a credit facility. However, the Company may not be able to secure such financing in a timely manner or on favorable terms. The Company may also consider selling off components of its business. Without additional funds, the Company may choose to delay or reduce its operating or investment expenditures. Further, because of the risk and uncertainties associated with the commercialization of the Company's existing products as well as products in development, the Company may need additional funds to meet its needs sooner than planned. To date, the Company's primary sources of capital have been the private placement of membership interests prior to its IPO, debt financing agreements, including promissory notes with Nant Capital and affiliates, convertible notes, the sale of its common stock, and proceeds from the sale of components of its business.

Note 2. Summary of Significant Accounting Policies

Use of Estimates

The preparation of Consolidated Financial Statements in conformity with GAAP requires management to make estimates and assumptions that affect the amounts reported in the Consolidated Financial Statements and accompanying notes. Actual results may differ from those estimates. The estimates and assumptions used in the accompanying Consolidated Financial Statements are based upon management’s evaluation of the relevant facts and circumstances at the balance sheet date. On an ongoing basis, the Company evaluates its estimates, including those related to revenue recognition, accounts receivable allowance, useful lives of long-lived assets and intangible assets, income taxes, stock-based compensation, impairment of long-lived assets and intangible assets, and the expected performance against minimum reseller commitments. The Company bases its estimates on historical experience and on various other assumptions that are believed to be reasonable, the results of which can affect the reported amounts of assets and liabilities as of the date of the financial statements, as well as the reported amounts of revenue and expenses during the periods presented.

Segment Reporting

The chief operating decision maker for the Company is its Chief Executive Officer. The Chief Executive Officer reviews financial information presented on a consolidated basis for purposes of allocating resources and evaluating financial performance. The Company has one business activity and there are no segment managers who are held accountable for operations, operating results, or plans for levels or components below the consolidated unit level. Accordingly, management has determined that the Company operates in one reportable segment.

Revenue from Contracts with Customers

Revenue is recognized upon transfer of control of promised products or services to customers in an amount that reflects the consideration the Company expects to receive in exchange for those products or services. Revenue is recognized net of sales taxes collected from customers, which are subsequently remitted to governmental authorities. The Company's revenue is generated from the following sources:

- **Software-as-a-service ("SaaS") related** - SaaS related revenue is generated from customers' access to and usage of the Company's hosted software solutions on a subscription basis for a specified contract term. In SaaS arrangements, the customer cannot take possession of the software during the term of the contract and generally has the right to access and use the software and receive any software upgrades published during the subscription period.

  SaaS contracts are accounted for as a single performance obligation, as implementation and hosting services are not distinct. As a result, the Company recognizes all fees, including any up front initial system implementation service fees, or other fees, ratably over time from when the system implementation or deployment services are completed, and where necessary accepted by the customer, over the contract term, as stated, or with consideration of termination for convenience clauses as discussed below.

- **Maintenance** - Maintenance revenue includes technical support and maintenance on OpenNMS software during the contract term. Revenue is recognized over the maintenance or support term.

  The Company's networking monitoring solutions typically consist of a term-based subscription to the OpenNMS software license and maintenance, which entitle customers to unspecified software updates and upgrades on a when-and-if-available basis. The Company has determined that its promises to transfer the software license and the related maintenance are not separately identifiable because the licensed software and the software updates and upgrades are highly interdependent and highly interrelated, working together to deliver a continuously updated networking monitoring solution. The Company therefore considers the software license and related maintenance obligations to represent a single, combined performance obligation with revenue recognized over the subscription period.

- **Professional services** - Professional services revenue is generated from consulting services to help customers install, integrate and optimize OpenNMS, sponsored development, and training to assist customers deploy and use OpenNMS solutions. Sponsored development relates to professional services to build customer specific functionality, features, and enhancements into the OpenNMS open source platform.

  Revenue is recognized over time for most of the Company's contracts as performance obligations are satisfied, as the Company is continuously transferring control to the customer. Typically, revenue is recognized over time using direct labor hours as a measure of progress. If any significant obligations to the customer remain post-delivery, typically involving obligations relating to acceptance by the customer, revenue recognition is deferred until such obligations have been fulfilled.

  Customers are generally billed as the Company satisfies its performance obligations. Billings under certain fixed-price contracts may be based upon the achievement of specified milestones.

Management assesses whether contracts entered into at, or near, the same time, should be combined, based on evaluation of the commercial objectives of the contracts.

Certain of the Company's customer contracts allow for termination for convenience, with advanced notice, without substantive termination penalty. In these cases, the Company has concluded the contract term is equal to the remaining non-cancelable period. Such termination rights do not allow for refunds other than prepaid services. These provisions do not affect when the Company commences revenue recognition.

Contracts with Multiple Promises for Goods and Services

The Company engages in various contracts with promises for multiple goods and services, which may generate revenue across any of the sources noted above.

In certain contracts, the Company recognizes its proprietary software, software license, technical support, maintenance, consulting services, sponsored development services, training, certain professional services, and other software-related services as distinct performance obligations.

Standalone selling prices ("SSP") are required to be allocated and revenue recognized for each distinct performance obligation within each contract. Judgment is required to determine the SSP for each distinct performance obligation. The SSP for each performance obligation is determined by considering contracts in which the good or service is sold separately and other factors, including market conditions and the Company's experience selling similar goods and services, as well as costs and margins achieved. In some cases, to estimate the SSP, the Company first estimates the selling price of each performance obligation for which an SSP is observable and then estimates the SSP of the remaining performance obligation as the residual contractual amount.

Generally, consulting and sponsored development professional services do not involve significant integration or customization of the OpenNMS software. As such, consulting and sponsored development are considered distinct performance obligations.

The Company has reseller arrangements, and for each promised good or service, the Company evaluates whether it is a principal or an agent. The Company assesses control in terms of relevant indicators of performance, inventory, and pricing risk, such as which party negotiates pricing with the end customer and which party is ultimately responsible for fulfilling services, transferring goods and services, and ensuring support.

Cost of Revenue

Cost of revenue includes associated salaries and fringe benefits, stock-based compensation, consultant costs, direct reimbursable travel expenses, depreciation related to software developed for internal use, depreciation related to lab equipment, and other direct engagement costs associated with the design, development, sale and installation of systems, including system support and maintenance services for customers. System support includes ongoing customer assistance for software updates and upgrades, installation, training and functionality. All service costs, except development of internal use software and deferred implementation costs, are expensed when incurred. Amortization of deferred implementation costs are also included in cost of revenue. Cost of revenue associated with each of the Company's revenue sources consists of the following types of costs:

- **Software-as-a-service related** - SaaS related cost of revenue includes personnel-related costs, amortization of deferred implementation costs, amortization of internal-use software, and other direct costs associated with the delivery and hosting of the Company's subscription services.
- **Maintenance** - Maintenance cost of revenue includes personnel-related costs, amortization of internal-use software, and other direct costs associated with the ongoing support or maintenance provided to the Company's customers.
- **Professional services** - Professional services cost of revenue include personnel-related costs and other direct costs associated with consulting, sponsored development, and training provided to the Company's customers.

Selling, General and Administrative Expenses

Selling, general and administrative expense consists primarily of personnel-related expenses for the Company's sales and marketing, finance, legal, human resources, administrative personnel, stock-based compensation, advertising and marketing promotions of NantHealth solutions, and corporate shared services fees from NantWorks. This includes amortization of deferred commission costs. It also includes trade show and event costs, sponsorship costs, point of purchase display expenses and related amortization as well as legal costs, facility costs, consulting and professional fees, insurance and other corporate and administrative costs.

Research and Development Expenses

Research and development ("R&D") costs incurred to establish the technological feasibility of software to be sold are expensed as incurred. These expenses include the costs of the Company's proprietary R&D efforts, as well as costs incurred in connection with certain licensing arrangements.

Research and development expenses consist primarily of personnel-related costs for employees working on development of solutions, including salaries, benefits, and stock-based compensation. Also included are non-personnel costs such as consulting and professional fees to third-party development resources.

Substantially all of the Company's research and development expenses are related to developing new software solutions and improving its existing software solutions.

These costs incurred in the research and development of new software products and maintenance to existing software products are expensed as incurred. These costs are associated with both the preliminary project stage and post-implementation stage of internal-use software. Qualifying costs associated with the application development stage are capitalized.

Stock-Based Compensation

The Company accounts for stock-based compensation arrangements granted to employees in accordance with ASC 718, *Compensation–Stock Compensation,* by measuring the grant date fair value of the award and recognizing the resulting expense over the period during which the employee is required to perform service in exchange for the award.

The Company accounts for stock-based compensation arrangements issued to nonemployees using the fair value approach prescribed by ASC 505-50, *Equity-Based Payments to Non-Employees.* Prior to January 1, 2019 when the Company adopted ASU No. 2018-07, *Improvement to nonemployee share-based payment accounting*, the value of nonemployee stock-based compensation was re-measured at the end of each reporting period until the award vests and is recognized as stock-based compensation expense over the period during which the nonemployee provides the services. After the adoption of ASU No. 2018-07, the value of nonemployee stock-based compensation is measured at the grant date fair value of the award and the resulting expense is recognized over the period during which the nonemployee provides the services.

Stock-based compensation expense for both employee and nonemployee awards is recognized on a straight-line basis over the appropriate service period for awards that are only subject to service conditions and is recognized using the accelerated attribution method for awards that are subject to performance conditions. Stock-based compensation expense is only recognized for awards subject to performance conditions if it is probable that the performance condition will be achieved.

All excess tax benefits and tax deficiencies are recognized as income tax benefit or expense in the income statement as discrete items in the reporting period in which they occur, and such tax benefits and tax deficiencies are not included in the estimate of an entity’s annual effective tax rate, applied on a prospective basis. The recognition of excess tax benefits is deferred until the benefit is realized through a reduction to taxes payable. When the Company applies the treasury stock method in calculating diluted earnings per share, excess tax benefits, if applicable, and deficiencies from the calculation of assumed proceeds are excluded since such amounts are recognized in the income statement. Excess tax benefits if applicable, are classified as operating activities in the same manner as other cash flows related to income taxes on the statement of cash flows.

The Company has elected to account for forfeitures when they occur. Cash paid by the Company when directly withholding shares for tax withholding purposes is classified as a financing activity in the Consolidated Statements of Cash Flows (see Note 15 and Note 17).

For information regarding the Company's Phantom Unit Plan and 2016 Equity Incentive Plan, see Note 17.

Change in Fair Value of Bookings Commitment

The Company has classified the Bookings Commitment assumed upon the disposal of the provider/patient engagement solutions business described in Note 12 as part of accrued and other current liabilities and other liabilities in the Consolidated Balance Sheets. This liability is subject to re-measurement at each balance sheet date, and the Company recognizes any changes in fair value within other income/expense, net. The fair value of the liability is estimated using a Monte Carlo Simulation model to calculate average payments due under the Bookings Commitment, based on management's estimate of its performance in securing bookings and resulting annual payments, discounted at the cost of debt based on a yield curve. The change in the fair value of this liability is primarily due to changes in the costs of debt based on a yield curve and the passage of time (see Note 12).

Management believes the assumptions used on projected financial information is reasonable, but those assumptions require judgment and are forward looking in nature. However, actual results may differ materially from those projections. The fair value of the Bookings Commitment is most sensitive to management's estimate of the discount rate applied to present value the liability. If the discount rate applied was 2% lower at December 31, 2021, the fair value of the liability would increase by $3,890.

Income Taxes

The Company records the federal and state tax provision of the consolidated group and foreign tax provision of its foreign subsidiaries.

ASC 740, *Income Taxes*, provides the accounting treatment for uncertainty in income taxes recognized in an enterprise's financial statements. ASC 740 prescribes a recognition threshold and measurement attribute for the financial statement recognition and measurement of a tax position taken or expected to be taken in a tax return. ASC 740 also provides guidance on derecognizing, classification, interest and penalties, accounting in interim periods, disclosure, and transition.

As part of the process of preparing its Consolidated Financial Statements, the Company is required to estimate its provision for income taxes in each of the tax jurisdictions in which the Company conducts business. This process involves estimating the actual current tax expense in conjunction with the evaluation and measurement of temporary differences resulting from differing treatment of certain items for tax and accounting purposes. These temporary differences result in the establishment of deferred tax assets and liabilities, which are recorded on a net basis and included in the Company's Consolidated Balance Sheets. The Company then evaluates on a periodic basis the probability that the net deferred tax assets will be recovered and therefore realized from future taxable income and to the extent the Company believes that recovery is not more likely than not, a valuation allowance is established to address such risk resulting in an additional related provision for income taxes during the period.

Significant management judgment is required in determining its provision for income taxes, its deferred tax assets and liabilities, tax contingencies, unrecognized tax benefits, and any required valuation allowance, including taking into consideration the probability of the tax contingencies being incurred. Management assesses this probability based upon information provided by its tax advisers, its legal advisers and similar tax cases. If at a later time its assessment of the probability of these tax contingencies changes, its accrual for such tax uncertainties may increase or decrease.

The Company has a valuation allowance due to management's overall assessment of risks and uncertainties related to its future ability to realize and, hence, utilize certain deferred tax assets, primarily consisting of net operating losses ("NOLs"), carry forward temporary differences and future tax deductions.

The effective tax rate for annual and interim reporting periods could be impacted if uncertain tax positions that are not recognized are settled at an amount which differs from the Company's estimate. Finally, if the Company is impacted by a change in the valuation allowance resulting from a change in judgment regarding the realizability of deferred tax assets, such effect will be recognized in the interim period in which the change occurs.

Net Loss Per Share

Basic net loss per common share attributable to NantHealth is computed by dividing the net loss attributable to NantHealth by the weighted average number of shares of common stock outstanding during the respective periods, without consideration of common stock equivalents. Diluted net loss per common share attributable to NantHealth is computed by dividing the net loss attributable to NantHealth by the weighted average number of shares of common stock outstanding during the respective periods, adjusted to give effect to potentially dilutive securities. However, potentially dilutive securities are excluded from the computation of diluted net loss per common share attributable to NantHealth to the extent that their effect is anti-dilutive. If there is a net loss from continuing operations attributable to NantHealth, diluted net loss per share attributable to NantHealth is computed in the same manner as basic net loss per share attributable to NantHealth is computed, even if the Company reports net income as a result of discontinued operations attributable to NantHealth. The Company applies treasury method in calculating weighted average dilutive number of shares for its stock plans. The convertible notes will be reflected in diluted loss per share using the if-converted method until the Company makes an irrevocable settlement election requiring the future settlement of the convertible notes to have the principal amount settled in cash.

Foreign Currency Translation

The Company has operations and holds assets in various foreign countries. The local currency is the functional currency for the Company's subsidiaries in the United Kingdom and Canada. Assets and liabilities are translated at end-of-period exchange rates while revenues and expenses are translated at the average exchange rates in effect during the period. Equity is translated at historical rates and the resulting cumulative translation adjustments are included as a component of accumulated other comprehensive income/loss until the translation adjustments are realized.

Leases

The Company determines if an arrangement is a lease at inception. Operating leases are included in operating lease right-of-use ("ROU") assets, other current liabilities, and operating lease liabilities in the Consolidated Balance Sheets. Finance leases are included in property, plant, and equipment, net, other current liabilities, and other liabilities in the Consolidated Balance Sheets. The Company currently does not have any finance leases.

Operating lease ROU assets and operating lease liabilities are recognized based on the present value of the future minimum lease payments over the lease term at commencement date. The Company's leases do not provide an implicit rate; therefore, the Company uses the incremental borrowing rate based on the information available at commencement date, or at January 1, 2019 for the Company's leases on transition to ASC 842, in determining the present value of future payments. The operating lease ROU asset excludes lease incentives and initial direct costs incurred. The lease terms may include options to extend or terminate the lease when it is reasonably certain that the Company will exercise that option. Lease expense for minimum lease payments is recognized on a straight-line basis over the lease term.

The Company has lease agreements with lease and non-lease components. For data center leases and real estate leases, the Company accounts for the lease and non-lease components as a single lease component.

The Company treats data center leases with lease terms of less than one year as short-term leases and recognizes the lease expense straight-line over the lease term.

Business Combinations

Business combinations are accounted for using the acquisition method of accounting. Under the acquisition method, assets acquired and liabilities assumed are recorded at their respective fair values as of the acquisition date. Any excess of the purchase price over the estimated fair values of the net assets acquired is recorded as goodwill. Management routinely monitors the factors impacting the acquired assets and liabilities. Transaction related costs are expensed as incurred. The operating results of the acquired business are reflected in the Company's Consolidated Financial Statements as of the acquisition date.

Fair Value of Financial Instruments

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. Fair value measurements are classified and disclosed in one of the following three categories:

- Level 1—Quoted prices for identical assets or liabilities in active markets;
- Level 2—Quoted prices for similar assets or liabilities in active markets or quoted prices for identical or similar assets or liabilities in markets that are not active or are directly or indirectly observable; and
- Level 3—Unobservable inputs that reflect estimates and assumptions.

The carrying amounts reported in the Consolidated Balance Sheets for cash and cash equivalents, accounts receivable, accounts payable, notes payable, deferred revenue, and other current monetary assets and liabilities approximate fair value because of the immediate or short-term maturity of these financial instruments.

In accordance with this guidance, the Company measures its cash equivalents at fair value. The Company's cash equivalents are classified within Level 1.

The Company's fair value estimate of the Bookings Commitment and convertibles notes are based on Level 3 inputs.

Cash and Cash Equivalents

The Company considers all unrestricted, highly liquid investments with an initial maturity of three months or less to be cash equivalents. These amounts are stated at cost, which approximates fair value. At December 31, 2021 and 2020, cash equivalents were deposited in financial institutions and consisted of immediately available fund balances. Cash and cash equivalents are maintained at stable financial institutions, generally at amounts in excess of federally insured limits, which represents a concentration of credit risk. The Company has not experienced any losses on deposits of cash and cash equivalents to date.

(Dollars in thousands, except per share amounts)

Accounts Receivable and Allowance for Doubtful Accounts

Accounts receivable are recorded at the invoiced amount, net of allowances for doubtful accounts. The allowance for doubtful accounts is based on management's assessment of the collectability of accounts. The Company regularly reviews the adequacy of the allowance for doubtful accounts by considering the age of each outstanding invoice and the collection history of each customer to determine whether a specific allowance is appropriate. Accounts receivable deemed uncollectible are charged against bad debt expense when identified.

Concentrations of Risk

The following table summarizes the number of customers that individually comprise greater than 10% of revenues and/or 10% of accounts receivable, and their aggregate percentages of total revenues and total billed and unbilled accounts receivable:

Period	Significant Customers	Percentage of Total Revenues				Percentage of Total Accounts Receivable			
		A	B	C	E	A	B	D	G
Year Ended December 31, 2021	3	22.8 %	12.9 %	[1]	[1]	26.2 %	12.2 %	13.7 %	[1]
Year Ended December 31, 2020	6	17.5 %	15.5 %	14.9 %	11.2 %	[1]	20.7 %	23.3 %	10.6 %

[1] Amounts less than 10% are not disclosed.

Insurance Recoveries

The Company records probable insurance recoveries gross of related liabilities. The income and expense related to these amounts are recorded net in selling, general and administrative expenses. If the recoveries exceed the loss recognized in the financial statements, such recoveries are recorded in other expense, net, once any contingencies relating to the insurance claim have been resolved.

Property, Plant and Equipment, net

Property, plant and equipment received in connection with business combinations are recorded at fair value. Property, plant and equipment acquired in the normal course of business are recorded at cost. Depreciation is computed on a straight-line basis over the estimated useful lives of the related assets (see Note 7). Maintenance and repairs are charged to expense as incurred while expenditures for refurbishments and improvements that significantly add to the productive capacity or extend the useful life of an asset are capitalized. Property, plant and equipment is tested for impairment, and depreciation estimates and methods are reviewed, whenever events or changes in circumstances indicate that its carrying amount may not be recoverable.

Internal-Use Software

The Company accounts for the costs of computer software obtained or developed for internal use in accordance with ASC 350, *Intangibles—Goodwill and Other*. Computer software development costs are expensed as incurred, except for internal-use software costs that qualify for capitalization, and include employee related expenses, including salaries, benefits and stock-based compensation expenses; costs of computer hardware and software; and costs incurred in developing features and functionality. These capitalized costs are included in property and equipment in the Consolidated Balance Sheets. The Company expenses costs incurred in the preliminary project and post implementation stages of software development and capitalizes qualifying costs incurred in the application development stage and costs associated with significant enhancements to existing internal-use software applications. Software costs are amortized using the straight-line method over an estimated useful life of three years commencing when the software project is ready for its intended use. Internal-use software is tested for impairment where assets are grouped at the lowest level for which there are identifiable cash flows that are largely independent of the cash flows of other groups of assets whenever events or changes in circumstances indicate that its carrying amount may not be recoverable.

Goodwill and Intangible Assets

Goodwill acquired in a business combination and determined to have an indefinite useful life is not amortized but is tested for impairment annually as of October 1 or between annual tests when an impairment indicator exists. In the event there is a change in reporting units or segments, the Company will test for impairment at the reporting unit. A component of an operating segment is a reporting unit if the component constitutes a business for which discrete financial information is available and segment management regularly reviews the operating results of that component.

As part of the annual impairment test, the Company may conduct an assessment of qualitative factors to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying amount. In a qualitative assessment, the Company would consider the macroeconomic conditions, including any deterioration of general conditions, industry and market conditions, including any deterioration in the environment where the reporting unit operates, increased competition, changes in the products/services and regulator and political developments; cost of doing business; overall financial performance, including any declining cash flows and performance in relation to planned revenues and earnings in past periods; other relevant reporting unit specific facts, such as changes in management or key personnel or pending litigation, and events affecting the reporting unit, including changes in the carrying value of net assets.

If an optional qualitative goodwill impairment assessment is not performed, the Company is required to determine the fair value of each reporting unit. If a reporting unit's carrying value is in excess of its fair value, such excess is recorded as an impairment loss. Under the accounting guidance, there is no requirement to perform a qualitative assessment for reporting units with zero or negative carrying values.

Accounting guidance requires that definite-lived intangible assets be amortized over their respective estimated useful lives and reviewed for impairment whenever events or changes in circumstances indicate that their carrying amounts may not be recoverable. Amortization of finite-lived intangible assets is provided over their estimated useful lives on a straight-line basis or the pattern in which economic benefits are consumed, if reliably determinable. If the estimates of the useful lives change, the Company amortizes the remaining book value over the remaining useful lives or, if an asset is deemed to be impaired, a write-down of the value of the asset to its fair value may be required at such time. The Company reviews its finite-lived intangible assets for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable.

Investment in Related Party

Investment in and advances to a related party in which the Company has a substantial ownership interest of approximately 20% to 50%, or for which the Company exercises significant influence but not control over policy decisions, are accounted for by the equity method. An investment in a limited liability company that is similar to a partnership is also accounted for under the equity method if more than minor influence over the operation of the investee exists (generally through more than 3-5% ownership). As part of that accounting, the Company recognizes gains and losses that arise from the issuance of stock by a related party that results in changes in the Company's proportionate share of the dollar amount of the related party's equity.

Investment in related party is assessed for possible impairment when events indicate that the fair value of the investment may be below the Company's carrying value. When such a condition is deemed to be other than temporary, the carrying value of the investment is written down to its fair value, and the amount of the write-down is included in net loss. In making the determination as to whether a decline is other than temporary, the Company considers such factors as the duration and extent of the decline, the investee's financial performance, and the Company's ability and intention to retain its investment for a period that will be sufficient to allow for any anticipated recovery in the investment's market value. The new cost basis of investments in these equity investees is not changed for subsequent recoveries in fair value.

As of June 30, 2020, the Company determined that other-than-temporary impairments in the full remaining carrying value of the investment in NantOmics have occurred (see Note 10). After the Company's equity method investment in NantOmics was reduced to zero, the Company no longer applies the equity method to record additional losses until NantOmics subsequently reports net income and that net income equals the share of net losses not recognized during the period the equity method was suspended.

Deferred Revenue

The Company records deferred revenue when it receives cash from customers prior to meeting the applicable revenue recognition criteria. The Company uses judgment in determining the period over which the deliverables are recognized as revenue. As of December 31, 2021 and 2020, current and non-current deferred revenue are comprised of deferrals for fees related to SaaS arrangements, technical support and maintenance, services and other revenue. Non-current deferred revenue as of December 31, 2021 is expected to be recognized in a period more than 12 months after that date.

Recently Adopted Accounting Pronouncements

In August 2020, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU') No. 2020-06, *Debt - Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging - Contracts in Entity's Own Equity (Subtopic 815-40)*. This update simplifies the accounting for convertible instruments by eliminating the cash conversion and beneficial conversion feature models which require separate accounting for embedded conversion features. This update also amends the guidance for the derivatives scope exception for contracts in an entity's own equity to reduce form-over-substance-based accounting conclusions and requires the application of the if-converted method for calculating diluted earnings per share. ASU No. 2020-06 is effective for fiscal periods beginning after December 15, 2023. The Company early adopted ASU 2020-06 on a modified retrospective basis on January 1, 2021. The cumulative effect of the adoption on accumulated deficit and additional paid-in capital was a decrease of $8,572 and $14,318, respectively, on January 1, 2021. Under the new guidance, the Company will record less noncash interest expense going forward as the cash conversion model that was previously applied is now eliminated.

Upcoming Accounting Standard Pronouncements

In June 2016, the FASB issued ASU No. 2016-13, *Measurement of Credit Losses on Financial Instruments*, which changes how companies measure credit losses on most financial instruments measured at amortized cost, such as loans, receivables and held-to-maturity debt securities. Rather than generally recognizing credit losses when it is probable that the loss has been incurred, the revised guidance requires companies to recognize an allowance for credit losses for the difference between the amortized cost basis of a financial instrument and the amount of amortized cost that the Company expects to collect over the instrument's contractual life. ASU No. 2016-13 is effective for fiscal periods beginning after December 15, 2022 and must be adopted as a cumulative effect adjustment to retained earnings. Early adoption is permitted. The Company is still evaluating the effects of this ASU.

Other recent accounting pronouncements issued by the FASB (including its Emerging Issues Task Force), the American Institute of Certified Public Accountants, and the SEC did not have, nor are believed by management to have, a material impact on the Company's present or future Consolidated Financial Statements.

Note 3. Revenue Recognition

Contract Balances

The Company records deferred revenue when cash payments are received, or payment is due, in advance of its fulfillment of performance obligations. There were revenues of $1,408 and $7,105 recognized during the years ended December 31, 2021 and 2020, respectively, that were included in the deferred revenue balance at the beginning of the period.

Assets Recognized from the Costs to Obtain a Contract with a Customer

The Company recognizes an asset for the incremental costs to obtain a contract with a customer, where the stated contract term, with expected renewals, is longer than one year. The Company amortizes these assets over the expected period of benefit. These costs are generally employee sales commissions, with amortization of the balance recorded in selling, general and administrative expenses. The value of these assets was $810 and $1,321 at December 31, 2021 and December 31, 2020, respectively, and amortization during the years ended December 31, 2021 and 2020 was $860 and $934, respectively.

Where management is not able to conclude that the costs of a contract will be recovered, costs to obtain the contract are expensed as incurred.

Performance Obligations

As of December 31, 2021, the Company has allocated a total transaction price of $4,004 to unfulfilled performance obligations that are expected to be fulfilled within nine years. Excluded from this amount are contracts of less than one year and variable consideration that relates to the value of services provided.

(Dollars in thousands, except per share amounts)

Note 4. Discontinued Operations and Divestitures

Discontinued Operations

Sale of Connected Care Business

On January 13, 2020, the Company entered into an asset purchase agreement (the "Purchase Agreement") with Masimo Corporation ("Masimo"), VCCB Holdings, Inc., a wholly owned subsidiary of Masimo (collectively with Masimo, the "Purchaser"), and, solely with respect to certain provisions of the Purchase Agreement, NantWorks, LLC, an affiliate of the Company. Pursuant to the Purchase Agreement, the Company agreed to sell to the Purchaser certain of its assets related to its Connected Care business, including the products known as DCX (formerly DeviceConX), VCX (formerly VitalsConX), HBox and Shuttle Cable (collectively, the "Connected Care Business").

On February 3, 2020, the Company completed the sale of the Connected Care Business for $47,250 of cash consideration in exchange for assets primarily related to the Connected Care Business (as defined under the terms of the Purchase Agreement). The cash consideration is subject to adjustment based upon the final amount of working capital as of the closing date.

The sale of the Connected Care Business qualified as a discontinued operation because it comprised operations and cash flows that could be distinguished, operationally and for financial reporting purposes, from the rest of the Company. The disposal of the Connected Care Business, which represented the Company's medical device interoperability solutions, represented a strategic shift in the Company's operations as the sale enables the Company to focus on clinical decision support, payer engagement, and molecular analysis.

The total gain on sale of the Connected Care Business consisted of the following:

Cash received as consideration	$	47,250
Less: Costs to sell		(849)
Less: Carrying value of net assets sold		(14,190)
Gain on sale of the Connected Care Business	$	32,211

The operating results of the Company's discontinued operation are as follows:

	Year Ended December 31, 2020
Major classes of line items constituting pretax income of discontinued operations	
Net revenue	$ 1,165
Cost of revenue	(467)
Selling, general and administrative	(532)
Research and development	(601)
Other expense, net	(5)
Pretax loss from discontinued operations related to major classes of pretax loss	(440)
Pretax gain on sale of the Connected Care Business	32,211
Total pretax income from discontinued operations	31,771
Benefit from income taxes	(262)
Total income from discontinued operations, net of tax	$ 32,033

(Dollars in thousands, except per share amounts)

The significant operating and investing cash and noncash items of the discontinued operation included in the Consolidated Statements of Cash Flows for the Year Ended December 31, 2020 was as follows:

	Year Ended December 31, 2020
Cash flows from operating activities:	
Depreciation and amortization	$ 10
Gain on sale of the Connected Care Business	32,211
Cash flows from investing activities:	
Net proceeds from sale of the Connected Care Business	46,401
Purchases of property and equipment, including internal-use software	76

Note 5. Accounts Receivable, net

Accounts receivable are included in the Consolidated Balance Sheets net of the allowance for doubtful accounts. A summary of activity in the allowance for doubtful accounts for the years ended December 31, 2021 and 2020 is as follows:

	Balance at beginning of the period	Additions to expense	(Write offs) / Recoveries	Balance at end of the period
Year ended December 31, 2021	$ 44	28	(70)	$ 2
Year ended December 31, 2020	$ 95	40	(91)	$ 44

Note 6. Prepaid Expenses and Other Current Assets and Accrued and Other Current Liabilities

Prepaid expenses and other current assets as of December 31, 2021 and 2020 consisted of the following:

	December 31, 2021	December 31, 2020
Prepaid expenses	$ 2,256	$ 2,268
Restricted cash	1,180	238
Other current assets	574	998
Prepaid expenses and other current assets	$ 4,010	$ 3,504

Accrued and other current liabilities of December 31, 2021 and 2020 consisted of the following:

	December 31, 2021	December 31, 2020
Payroll and related costs	$ 8,545	$ 7,247
Accrued liabilities	2,640	1,455
Booking Commitment (see Note 12)	1,661	1,662
Interest payable	703	289
Operating lease liabilities	1,912	1,900
Other accrued and other current liabilities	897	1,422
Accrued and other current liabilities	$ 16,358	$ 13,975

(Dollars in thousands, except per share amounts)

Note 7. Property, Plant and Equipment, net

Property, plant and equipment, net as of December 31, 2021 and 2020 consisted of the following:

	Useful life (in years)	December 31, 2021	December 31, 2020
Computer equipment and software	3 - 5	$ 9,267	$ 12,332
Furniture and equipment	5 - 7	1,060	1,168
Leasehold and building improvements [1]		3,821	4,282
Property, plant, and equipment, excluding internal-use software		14,148	17,782
Less: Accumulated depreciation and amortization		(10,857)	(12,837)
Property, plant and equipment, excluding internal-use software, net		3,291	4,945
Internal-use software	3	43,314	38,488
Construction in progress - Internal-use software		1,082	1,616
Less: Accumulated depreciation and amortization - internal-use software		(35,321)	(31,947)
Internal-use software, net		9,075	8,157
Property, plant and equipment, net		$ 12,366	$ 13,102

[1] Useful lives for leasehold and building improvements represent the term of the lease or the estimated life of the related improvements, whichever is shorter.

Depreciation expense from continuing operations was $5,932 and $7,394 for the years ended December 31, 2021 and 2020, respectively, of which $4,027 and $5,743, respectively, related to internal-use software costs.

Amounts capitalized to internal-use software related to continuing operations for the years ended December 31, 2021 and 2020 were $4,727 and $3,437, respectively.

In the fourth quarter of 2020, the Company's discussions with and exploration of potential opportunities for its sequencing and molecular analysis solutions indicated that certain internal-use software developed by the Company related to its GPS Cancer product would not be utilized in those arrangements. As a result, the Company determined that the carrying value of these internal-use software assets was not recoverable as of December 31, 2020 and recorded an impairment loss of $729 within impairment of intangible assets, including internal-use software.

Note 8. Intangible Assets, net

The Company's definite-lived intangible assets as of December 31, 2021 and 2020 consisted of the following:

	December 31, 2021				
	Customer Relationships	Developed Technologies	Trade Name	Installed User Base	Total
Gross carrying amount	$ 53,000	$ 34,500	$ 3,300	$ 1,400	$ 92,200
Accumulated amortization	(21,161)	(28,331)	(3,163)	(506)	(53,161)
Intangible assets, net	$ 31,839	$ 6,169	$ 137	$ 894	$ 39,039

	December 31, 2020				
	Customer Relationships	Developed Technologies	Trade Name	Installed User Base	Total
Gross carrying amount	$ 53,000	$ 34,500	$ 3,300	$ 1,400	$ 92,200
Accumulated amortization	(17,528)	(23,343)	(3,088)	(272)	(44,231)
Intangible assets, net	$ 35,472	$ 11,157	$ 212	$ 1,128	$ 47,969

(Dollars in thousands, except per share amounts)

Amortization of definite-lived intangible assets is provided over their estimated useful lives on a straight-line basis or the pattern in which economic benefits are consumed, if reliably determinable. The Company reviews its definite-lived intangible assets for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Amortization expense from continuing operations was $8,930 and $8,431 for the years ended December 31, 2021 and 2020, respectively.

At July 22, 2020, the Company recorded $5,200 of definite-lived intangible assets and accumulated amortization of $647 related to the assignment of OpenNMS (see Note 19). These intangible assets are amortized over a period of 4 to 6 years.

The estimated future amortization expense over the next five years and thereafter for the intangible assets that exist as of December 31, 2021 is as follows:

	Amounts
2022	$ 8,930
2023	4,346
2024	4,283
2025	4,147
2026	3,467
Thereafter	13,866
Total future intangible amortization expense	$ 39,039

Note 9. Goodwill

Goodwill as of both December 31, 2021 and 2020 was $98,333, net of goodwill allocated to discontinued operations of $18,623 during 2020. On July 22, 2020, the Company recognized $1,026 of goodwill related to the assignment of OpenNMS (see Note 19). The Company did not record any goodwill impairments in either 2021 or 2020.

Note 10. Investments

Equity method investment

Investment in NantOmics

In 2015, the Company purchased a total of 169,074,539 Series A-2 units of NantOmics, a related party of the Company, for an aggregate purchase price of $250,774. The Series A-2 units do not have any voting rights and, at the time of purchase, represented approximately 14.28% of NantOmics' issued and outstanding membership interests. NantOmics is majority owned by NantWorks and delivers molecular diagnostic capabilities with the intent of providing actionable intelligence and molecularly driven decision support for cancer patients and their providers at the point of care.

At February 28, 2018, the Company transferred 9,088,362 of the Series A-2 units to NantOmics as consideration for the assignment of NantHealth Labs (see Note 19). An additional 564,779 units were transferred by May 31, 2018. This reduced NantHealth's ownership of NantOmics to approximately 13.58%.

The Company applied the equity method to account for its investment in NantOmics as the interest in the equity is similar to a partnership interest. Further, the Company has the ability to exert significant influence over the operating and financial policies of the entity since NantWorks controls both NantHealth and NantOmics. The difference between the carrying amount of the investment in NantOmics and the Company's underlying equity in NantOmics' net assets relate to both definite and indefinite-lived intangible assets. At the time of the purchase, the Company attributed $28,195 and $14,382 of these differences to NantOmics' developed technologies and its reseller agreement with the Company, respectively, prior to the application of developed technology intangibles included in NantOmics net assets, and the remaining basis differences were attributed to goodwill. The Company amortizes the basis differences related to the definite-lived intangible assets over the assets' estimated useful lives and records these amounts as a reduction in the carrying amount of its investment and an increase in its equity method loss.

(Dollars in thousands, except per share amounts)

At June 30, 2020, the Company determined that an other-than-temporary-impairment of $28,227, the full remaining carrying value of the Company's investment in NantOmics, had occurred, through observation of Level 3 inputs predominantly attributed to (i) limited progress by NantOmics in completing revenue generating transactions for paid molecular analysis services for the research and pharmaceutical industries; (ii) limited progress in completing licensing transactions for proprietary molecular analysis technologies and/or intellectual property of NantOmics; and (iii) the Company's decision to shift future laboratory operations in-house related to the GPS Cancer and Omics Core products to better control the supply chain and CMS reimbursement process, which the Company expects to result in reduced fees to NantOmics. Refer to Note 2 for the accounting policy for the assessment of the fair value and determination of other-than-temporary-impairments of the Company's investment in related party.

Pertaining to the Company's share of NantOmics' income or loss, amortization of basis differences, and other-than-temporary impairments, for the year ended December 31, 2020, the Company recognized a loss of $31,702. The Company did not recognize any income or losses during the year ended December 31, 2021.

The Company reports its share of NantOmics' income or loss and the amortization of basis differences using a one quarter lag. As the Company's equity method investment in NantOmics was reduced to zero during the second quarter of 2020, the Company no longer applies the equity method as NantOmics continued to generate net losses.

The Company used the following summarized financial information for NantOmics for the trailing twelve months ended September 30, 2020 to record its equity investment method losses, as applicable, for the year ended December 31, 2020.

	Twelve Months Ended September 30, 2020
Revenues	$ 349
Gross loss	(1,641)
Loss from operations	(7,806)
Impairments on equity investments	—
Net loss	(2,618)
Net loss attributable to NantOmics	(2,559)
Other comprehensive income	—

Note 11. Convertible Notes

2016 5.5% Convertible Senior Notes ("2016 Notes")

In December 2016, the Company entered into the Purchase Agreement with J.P. Morgan Securities LLC and Jefferies LLC, as representatives of the several initial purchasers named therein (collectively, the "Initial Purchasers"), to issue and sell $90,000 in aggregate principal amount of its 5.5% senior convertible notes due 2021 ("2016 Notes") in a private placement to qualified institutional buyers pursuant to Rule 144A under the Securities Act of 1933, as amended (the "Securities Act"), and to non-U.S. persons pursuant to Regulation S under the Securities Act. In December 2016, the Company entered into a purchase agreement (the "Cambridge Purchase Agreement") with Cambridge, an entity affiliated with Dr. Soon-Shiong, the Company's Chairman and Chief Executive Officer, to issue and sell $10,000 in aggregate principal amount of the 2016 Notes in a private placement pursuant to an exemption from the registration requirements of the Securities Act afforded by Section 4(a)(2) of the Securities Act. In December 2016, pursuant to the exercise of the overallotment by the Initial Purchasers, the Company issued an additional $7,000 principal amount of the 2016 Notes. The total net proceeds from this offering were approximately $102,714, comprised of $9,917 from Cambridge and $92,797 from the Initial Purchasers, after deducting the Initial Purchasers' discount and debt issuance costs of $4,286 in connection with the Convertible Notes offering. The interest rate on the 2016 Notes was fixed at 5.5% per year, payable semi-annually on June 15th and December 15th of each year, beginning on June 15, 2017. The 2016 Notes matured on December 15, 2021.

The Company adopted ASU No. 2020-06 on January 1, 2021 through a modified retrospective method of transition, which eliminated the separation model for convertible debt with a cash conversion feature, resulting in less noncash interest expense going forward (see Note 2). The cumulative effect of the adoption on January 1, 2021 was a decrease of $5,746 to unamortized debt discount and deferred financing offering costs. The debt discounts and deferred financing offering costs on the 2016 Notes were amortized to interest expense over the contractual terms of the 2016 Notes, using the effective interest method at an effective interest rate of 6.78%.

On April 13, 2021, NantHealth entered into a transaction with Highbridge Capital Management, LLC and one of its affiliates (“Highbridge”) to exchange $5,000 principal amount of its $36,945 in existing 2016 Notes and with Cambridge to exchange $5,000 principal amount of its $10,000 in existing 2016 Notes for shares of the Company’s common stock pursuant to an exchange agreement dated as of April 13, 2021 (the “Exchange Agreement”).

On April 13, 2021, in connection with the Exchange Agreement, the Company paid Cambridge $91 for accrued and unpaid interest and issued 1,689,189 shares of the Company’s common stock at $2.96 per share, representing the closing price of the Company’s common stock on April 13, 2021. The Company recorded a loss on exchange of the 2016 Notes with Cambridge and a decrease to unamortized debt discount and deferred financing offering costs of $18.

On April 14, 2021, in connection with the Exchange Agreement, the Company paid Highbridge $92 for accrued and unpaid interest and issued 1,926,781 shares of the Company’s common stock at $2.595 per share, representing the closing price of the Company’s common stock on April 14, 2021. The Company recorded a loss on exchange of the 2016 Notes with Highbridge and a decrease to unamortized debt discount and deferred financing offering costs of $44.

On December 15, 2021, the Company paid the remaining outstanding principal balance of the 2016 Notes of $9,500 plus accrued interest through that date.

2021 4.5% Convertible Senior Notes ("2021 Notes")

On April 13, 2021, the Company and its wholly owned subsidiary, NaviNet (the "Guarantor") entered into a note purchase agreement (the “Note Purchase Agreement”) with Highbridge and certain other buyers, including Nant Capital, LLC (“Nant Capital”) to issue and sell $137,500 in aggregate principal amount of its 4.5% convertible senior notes in a private placement pursuant to an exemption from the registration requirements of the Securities Act afforded by Section 4(a)(2) of the Securities Act. The 2021 Notes were issued on April 27, 2021. The total net proceeds from this offering were approximately $136,772, comprised of $62,223 from Nant Capital and $74,549 from Highbridge, after deducting the Highbridge’s debt issuance costs of $118 and $610 in debt issuance costs paid to third parties in connection with the 2021 Notes offering.

The Company used part of the proceeds from the 2021 Notes issuance to repurchase the remaining $31,945 of principal amount of the 2016 Notes held by Highbridge (“Repurchased Notes”) and pay $644 of accrued and unpaid interest. The Company recorded a loss on repurchase of the 2016 Notes with Highbridge and a decrease to unamortized debt discount and deferred financing offering costs of $267.

On April 27, 2021, in connection with the issuance of the 2021 Notes, the Company provided a notice of a fundamental change (as defined in the indenture governing the Company's 2016 Notes) and an offer to repurchase all the outstanding 2016 Notes. On May 25, 2021, the Company purchased $55,555 of the outstanding 2016 Notes ("Fundamental Change Repurchase") and paid $1,358 of accrued and unpaid interest thereon. The Company recorded a loss on repurchase of the 2016 Notes with other investors and a decrease to unamortized debt discount and deferred financing offering costs of $412.

On April 27, 2021, the 2021 Notes were issued to the investors under an indenture (the “2021 Indenture”) dated April 27, 2021 entered into between the Company and U.S. Bank National Association (the “Trustee”).

The interest rates are fixed at 4.5% per year, payable semi-annually on October 15th and April 15th of each year, beginning on October 15, 2021. The 2021 Notes will mature on April 15, 2026, unless earlier repurchased by the Company or converted pursuant to their terms.

The deferred financing offering costs on the 2021 Notes are being amortized to interest expense over the contractual terms of the 2021 Notes, using the effective interest method at an effective interest rate of 4.61%.

The initial conversion rate of the 2021 Notes is 259.8753 shares of common stock per $1 principal amount of 2021 Notes (which is equivalent to an initial conversion price of approximately $3.85 per share). The conversion rate will be subject to adjustment upon the occurrence of certain specified events in accordance with the terms of the 2021 Indenture but will not be adjusted for accrued and unpaid interest.

Holders of the 2021 Notes may convert all or a portion of their 2021 Notes, in multiples of $1 principal amount, at any time prior to the close of business on the business day immediately preceding the maturity date. Upon conversion, the 2021 Notes will be settled in cash, shares of the Company's common stock or any combination thereof at the Company's option. As of December 31, 2021 the remaining life of the 2021 Notes is approximately 52 months.

(Dollars in thousands, except per share amounts)

The 2021 Notes are the Company's general unsecured obligations and are initially guaranteed on a senior unsecured basis by the Guarantor.

The Company may not redeem the 2021 Notes prior to April 20, 2024. The Company may redeem for cash all or any portion of the 2021 Notes, at its option, on or after April 20, 2024, if the last reported sale price of the common stock has been at least 130% of the conversion price then in effect for at least 20 trading days (whether or not consecutive) during any 30 consecutive trading day period (including the last trading day of such period) ending on and including, the trading day immediately preceding the date on which the Company provides notice of redemption at a redemption price equal to 100% of the principal amount of the 2021 Notes to be redeemed, plus any accrued and unpaid special interest up to, but excluding, the redemption date. No sinking fund is provided for the 2021 Notes, which means that the Company is not required to redeem or retire the 2021 Notes periodically. If the Company exercises this option to redeem the 2021 Notes owned by Highbridge and Highbridge is unable to convert such 2021 Notes as a result of the application of the beneficial ownership limitations, at the request of Highbridge, the Company shall convert such 2021 Notes into the number of shares of the Company's Series 1 Preferred Stock equal to the number of shares that the 2021 Notes are convertible into pursuant to the Conversion Option (as defined in the 2021 Indenture) into common stock.

Upon the occurrence of a fundamental change (as defined in the 2021 Indenture), holders may require the Company to purchase all or a portion of the 2021 Notes in principal amounts of $1 or an integral multiple thereof, for cash at a price equal to 100% of the principal amount of the 2021 Notes to be purchased plus any accrued and unpaid interest to, but excluding, the fundamental change purchase date.

For so long as at least $25,000 principal amount of the 2021 Notes are outstanding, the 2021 Indenture restricts the Company or any of its subsidiaries from creating, assuming, or incurring any indebtedness owing to any of the Company's affiliates (other than intercompany indebtedness between the Company and its subsidiaries and other than any of the Company's 2021 Notes), or prepaying any such indebtedness, subject to certain exceptions, unless certain conditions described in the 2021 Indenture have been satisfied. Under the 2021 Indenture, the Company may incur affiliate debt if there is (i) no default or event of default at the time of such incurrence or would occur as a consequence of such incurrence; (ii) such affiliate debt is unsecured and subordinated to the 2021 Notes; and (iii) no principal of such affiliate debt is scheduled to mature earlier than the date that is 181 days after April 15, 2026, the maturity date of the 2021 Notes.

See Note 14 Commitments and Contingencies for default provisions.

The following table summarizes the parties involved in the issuance of the convertible notes and their respective balances in the Company's Consolidated Balance Sheets as of December 31, 2021 and 2020:

	Related party	Others	Total
2021 Notes:			
Balance as of December 31, 2021			
Gross proceeds	$ 62,500	$ 75,000	$ 137,500
Unamortized debt discounts and deferred financing offering costs	(232)	(397)	(629)
Net carrying amount	$ 62,268	$ 74,603	$ 136,871
2016 Notes:			
Balance as of December 31, 2020			
Gross proceeds	$ 10,000	$ 97,000	$ 107,000
Unamortized debt discounts and deferred financing offering costs	(589)	(6,422)	(7,011)
Net carrying amount	$ 9,411	$ 90,578	$ 99,989

(Dollars in thousands, except per share amounts)

The following table sets forth the Company's interest expense incurred for the years ended December 31, 2021 and 2020:

	Year Ended December 31,					
	2021			2020		
	Related party	Others	Total	Related party	Others	Total
Accrued coupon interest expense	$ 1,898	$ 2,278	$ 4,176	$ 550	$ 5,335	$ 5,885
Amortization of debt discounts	21	119	140	533	5,197	5,730
Amortization of deferred financing offering costs	57	426	483	14	733	747
Total convertible notes interest expense	$ 1,976	$ 2,823	$ 4,799	$ 1,097	$ 11,265	$ 12,362

Note 12. Fair Value Measurements

Liabilities measured at fair value on a recurring basis as of December 31, 2021 and 2020 consisted of the following:

	December 31, 2021			
	Total fair value	Quoted price in active markets for identical assets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)
Liabilities				
Bookings Commitment	$ 34,474	$ —	$ —	$ 34,474

	December 31, 2020			
	Total fair value	Quoted price in active markets for identical assets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)
Liabilities				
Bookings Commitment	$ 32,651	$ —	$ —	$ 32,651
Interest make-whole derivative	4	$ —	$ —	$ 4

The Company’s intangible assets and goodwill are initially measured at fair value and any subsequent adjustment to the initial fair value occurs only if an impairment charge is recognized.

Level 2 and 3 Inputs

Bookings Commitment

On August 3, 2017, the Company entered into an asset purchase agreement (the “APA”) with Allscripts Healthcare Solutions, Inc. (“Allscripts”), pursuant to which the Company agreed to sell to Allscripts substantially all of the assets of the Company’s provider/patient engagement solutions business, including the Company’s FusionFX solution and components of its NantOS software connectivity solutions (the “Business”). On August 25, 2017, the Company and Allscripts completed the sale of the Business (the "Disposition") pursuant to the APA.

Concurrent with the closing of the Disposition and as contemplated by the APA, (a) the Company and Allscripts modified the amended and restated mutual license and reseller agreement dated June 26, 2015, which was further amended on December 30, 2017, such that, among other things, the Company committed to deliver a minimum of $95,000 of total bookings over a ten-year period ("Bookings Commitment") from referral transactions and sales of certain Allscripts products; (b) the Company and Allscripts each licensed certain intellectual property to the other party pursuant to a cross license agreement; (c) the Company agreed to provide certain transition services to Allscripts pursuant to a transition services agreement; and (d) the Company licensed certain software and agreed to sell certain hardware to Allscripts pursuant to a software license and supply agreement. The Company also agreed that Allscripts shall receive at least $500 per year in payments from bookings (the "Annual Minimum Commitment"). If the total payments received by Allscripts from bookings during such period are less than the Annual Minimum Commitment, the Company shall pay to Allscripts the difference between the Annual Minimum Commitment and the total amount received by Allscripts from bookings during such period. As of both December 31, 2021 and December 31, 2020, the accrued Annual Minimum Commitment was $1,200. In the event of a Bookings Commitment shortfall at the end of the ten-year period, the Company may be obligated to pay 70% of the shortfall, subject to certain credits. The Company will earn 30% commission from Allscripts on each software referral transaction that results in a booking with Allscripts. The Company accounts for the Bookings Commitment at its estimated fair value over the life of the agreement.

The Company values the Bookings Commitment, assumed upon the disposal of the provider/patient engagement solutions business, using a Monte Carlo Simulation model to calculate average payments due under the Bookings Commitment, based on management's estimate of its performance in securing bookings and resulting annual payments, discounted at the cost of debt based on a yield curve. The cost of debt used for discounting was 11% at December 31, 2021 and between 10% and 11% at December 31, 2020. The change in fair value is recorded within other expense, net in the Company's Consolidated Statements of Operations.

The fair value of the Bookings Commitment is dependent on management's estimate of the probability of success on individual opportunities and the cost of debt applied in discounting the liability. The higher the probability of success on each opportunity, the lower the fair value of the Bookings Commitment liability. The lower the cost of debt applied, the higher the value of the liability.

Convertible Note derivative liability

In December 2016, the Company issued $107,000 in aggregate principal amount of 2016 Notes due December 15, 2021, of which $10,000 issued to a related party (see Note 11). The 2016 Notes include an interest make-whole feature whereby if a noteholder converts any of the Convertible Notes one year after the last date of original issuance of the 2016 Notes, they are entitled, in addition to the other consideration payable or deliverable in connection with such conversion, to an interest make-whole payment equal to the sum of the present values of the scheduled payments, computed using a discount rate equal to 2.0%, of interest that would have been made on the 2016 Notes to be converted had such 2016 Notes remained outstanding from the conversion date through the earlier of (i) the date that is three years after the conversion date and (ii) the maturity date if the 2016 Notes had not been so converted. The Company may pay any interest make-whole payment either in cash or in shares of its common stock, at the Company's election as described in the Indenture. The Company has determined that this feature is an embedded derivative.

The fair value of the derivative liability includes the estimated volatility and risk-free rate. The higher/lower the estimated volatility, the higher/lower the value of the liability. The higher/lower the risk-free interest rate, the higher/lower the value of the liability. As of December 15, 2021, the 2016 Notes were fully repaid.

The fair market value for level 3 securities may be highly sensitive to the use of unobservable inputs and subjective assumptions. Generally, changes in significant unobservable inputs may result in significantly lower or higher fair value measurements.

(Dollars in thousands, except per share amounts)

The following tables set forth a summary of changes in the fair value of Level 3 liabilities for the years ended December 31, 2021 and 2020:

	December 31, 2020	Transfers in (out)[1]	Change in fair value recognized in earnings	December 31, 2021
Liabilities				
Interest make-whole derivative - related party and others	$ 4	$ —	$ (4)	$ —
Bookings Commitment	32,651	(500)	2,323	34,474
	$ 32,655	$ (500)	$ 2,319	$ 34,474

	December 31, 2019	Transfers in (out)[1]	Change in fair value	December 31, 2020
Liabilities				
Interest make-whole derivative - related party and others	$ —	$ —	$ 4	$ 4
Bookings Commitment	21,983	(500)	11,168	32,651
	$ 21,983	$ (500)	$ 11,172	$ 32,655

[1] Transfers out of the Bookings Commitment fair value liability relates to the Annual Minimum Commitment, which was recorded in accrued and other current liabilities.

Fair Value of Convertible Notes held at amortized cost

As of December 31, 2021 and 2020, the fair value and carrying value of the Company's convertible notes were:

	Fair value	Carrying value	Face value
2021 Notes			
Balance as of December 31, 2021			
Related party	$ 51,466	$ 62,268	$ 62,500
Others	61,760	74,603	75,000
	$ 113,226	$ 136,871	$ 137,500

	Fair value	Carrying value	Face value
2016 Notes			
Balance as of December 31, 2020			
Related party	$ 9,553	$ 9,411	$ 10,000
Others	92,660	90,578	97,000
	$ 102,213	$ 99,989	$ 107,000

The fair value of the 2021 Notes was determined by using unobservable inputs that are supported by minimal non-active market activity and that are significant to determining the fair value of the debt instrument. The fair value is level 3 in the fair value hierarchy.

Note 13. Leases

The Company has operating leases for corporate offices, data centers, and certain equipment. The Company's leases have lease terms of 1 year to 11 years, some of which include options to extend the leases for up to 5 years, and some of which include options to terminate the leases within 1 year. Options to extend are included in the lease term where the Company is reasonably certain to exercise the options. Variable payments on the Company's leases are expensed as incurred, as they do not depend on an index or rate. The Company concluded certain leases for data centers had a term of less than 1 year at inception, as arrangements are only renewed following marketplace assessments and negotiations with vendors.

(Dollars in thousands, except per share amounts)

The Company's leases do not indicate the rate implicit in the lease. As such, the Company has used its incremental borrowing rate, determined based on market indications of the rate at which the Company could borrow, adjusted for the term, value and payment schedule of individual leases, at the effective date for ASC 842 or at the lease commencement date for leases entered into after January 1, 2019.

Lease expense, charged to selling, general and administrative expense, for the year ended December 31, 2021 and 2020 consisted of:

	Year Ended December 31,	
	2021	**2020**
Operating lease cost	$ 2,308	$ 2,4
Short-term lease cost	738	9
Variable cost	590	5
Sublease income	(74)	(2
Total lease cost	$ 3,562	$ 3,6

Other information regarding the Company's leases:

	Year Ended December 31,	
	2021	**2020**
Operating cash flows for operating leases	$ (2,717)	$ (2,76
Right-of-use assets obtained in exchange for new operating lease liabilities	$ —	$ 31
Operating lease liabilities arising from obtaining right-of-use assets	$ —	$ 38
Weighted average remaining lease term - operating leases	4.3 years	5.0 ye
Weighted average discount rate - operating leases	11 %	1

As of December 31, 2021 and 2020, the Company had no finance leases. As of December 31, 2021, the remaining lives of the Company's operating leases ranged from one to eight years.

Maturities of the Company's operating leases at December 31, 2021 were as follows:

	Amounts
2022	$ 2,6
2023	2,6
2024	2,5
2025	6
2026	6
Thereafter	1,0
Total future minimum lease payments	10,2
Less: imputed interest	(2,1
Total	$ 8,1
As reported in the Consolidated Balance Sheet	
Accrued and other current liabilities	$ 1,9
Operating lease liabilities	6,2
	$ 8,1

Note 14. Commitments and Contingencies

The Company's principal commitments consist of obligations under its outstanding debt obligations, noncancellable leases for its office space and certain equipment and vendor contracts to provide research services, and purchase obligations under license agreements and reseller agreements.

Related Party Promissory Note

On January 4, 2016, the Company executed a $112,666 demand promissory note in favor of Nant Capital, LLC ("Nant Capital") to fund the acquisition of NaviNet (see Note 19). On May 9, 2016 and December 16, 2016, the Nant Capital Note was amended and restated to provide that all outstanding principal and accrued and unpaid interest is due and payable on June 30, 2021, and not on demand. On April 27, 2021, in connection with the issuance of the 2021 Notes, we entered into a Third Amended and Restated Promissory Note which amends and restates its promissory note, dated January 4, 2016, as amended on May 9, 2016, and on December 16, 2016, between the Company and Nant Capital, to, among other things, extend the maturity date of the promissory note to October 1, 2026 and to subordinate the promissory note in right of payment to the 2021 Notes (see Note 11).

Indenture Obligations Under 2016 and 2021 Notes

On December 21, 2016, the Company entered into the Indenture relating to the issuance of the 2016 Notes, by and between the Company and U.S. Bank National Association the Trustee. The interest rates are fixed at 5.5% per year, payable semi-annually on June 15th and December 15th of each year, beginning on June 15, 2017. The 2016 Notes matured on December 15, 2021 and were fully repaid (see Note 11).

On April 27, 2021, the Company and the Guarantor entered into an indenture (the “2021 Indenture”) by and among NantHealth, the Guarantor and U.S. Bank National Association, as trustee (the “Trustee”), pursuant to which the Company issued the 2021 Notes. The 2021 Notes will bear interest at a rate of 4.5% per year, payable semi-annually on April 15 and October 15 of each year, beginning on October 15, 2021. The 2021 Notes will mature on April 15, 2026, unless earlier repurchased, redeemed or converted.

The following events are considered “events of default” with respect to the 2021 Notes, which may result in the acceleration of the maturity of the 2021 Notes:

(1) the Company defaults in any payment of interest on the 2021 Notes when due and payable and the default continues for a period of 30 days;

(2) the Company defaults in the payment of principal on the 2021 Notes when due and payable at the stated maturity, upon redemption, upon any required repurchase, upon declaration of acceleration or otherwise;

(3) failure by the Company to comply with its obligation to convert the 2021 Notes in accordance with the 2021 Indenture upon exercise of a holder’s conversion right and such failure continues for a period of five business days;

(4) failure by the Company to give a fundamental change notice or notice of a specified corporate transaction when due with respect to the 2021 Notes;

(5) failure by the Company to comply with its obligations under the 2021 Indenture with respect to consolidation, merger and sale of assets of the Company;

(6) failure by the Company to comply with any of its other agreements contained in the 2021 Notes or the 2021 Indenture, for a period 60 days after written notice from the Trustee or the holders of at least 25% in principal amount of the 2021 Notes then outstanding has been received;

(7) default by the Company or any of its significant subsidiaries (as defined in the 2021 Indenture) with respect to any mortgage, agreement or other instrument under which there may be outstanding, or by which there may be secured or evidenced, any indebtedness for money borrowed in excess of $17,500 (or its foreign currency equivalent) in the aggregate of the Company and/or any such subsidiary, whether such indebtedness now exists or shall hereafter be created (i) resulting in such indebtedness becoming or being declared due and payable or (ii) constituting a failure to pay the principal of any such indebtedness when due and payable at its stated maturity, upon required repurchase, upon declaration of acceleration or otherwise, and, in the case of clauses (i) and (ii), such default is not rescinded or annulled or such failure to pay or default shall not have been cured or waived, such acceleration is not rescinded or such indebtedness is not discharged, as the case may be, within 30 days after notice to the Company by the Trustee or to the Company and the Trustee by holders of at least 25% in aggregate principal amount of 2021 Notes then outstanding in accordance with the 2021 Indenture; or

(8) certain events of bankruptcy, insolvency, or reorganization of the Company or any of its significant subsidiaries (as defined in the 2021 Indenture).

If such an event of default, other than an event of default described in clause (8) above with respect to the Company, occurs and is continuing, the Trustee by notice to the Company, or the holders of at least 25% in principal amount of the outstanding 2021 Notes by notice to the Company and the Trustee, may, and the Trustee at the request of such holders shall, declare 100% of the principal of and accrued and unpaid interest, if any, on all the 2021 Notes to be due and payable. In case of certain events of bankruptcy, insolvency or reorganization involving the Company, 100% of the principal of and accrued and unpaid interest on the 2021 Notes will automatically become due and payable. Upon such a declaration of acceleration, such principal and accrued and unpaid interest on the 2021 Notes, if any, will be due and payable immediately.

Unconditional Purchase Obligations

In 2020, NantWorks entered into agreements with various vendors related to an enterprise resource planning (“ERP”) implementation project on behalf of its subsidiaries, including NantHealth. NantWorks bills the Company for its portion of these expenses through the Shared Services Agreement (see Note 19). As of December 31, 2021, the Company’s estimated unconditional purchase obligations total approximately $653 in 2022 and $144 in 2023. During the year ended December 31, 2021, the Company made payments of approximately $430 for the amount purchased related to the unconditional purchase obligations for the ERP implementation project.

Regulatory Matters

The Company is subject to regulatory oversight by the U.S. Food and Drug Administration and other regulatory authorities with respect to the development, manufacturing, and sale of some of the solutions. In addition, the Company is subject to the Health Insurance Portability and Accountability Act (“HIPAA”), the Health Information Technology for Economic and Clinical Health Act and related patient confidentiality laws and regulations with respect to patient information. The Company reviews the applicable laws and regulations regarding effects of such laws and regulations on its operations on an on-going basis and modifies operations as appropriate. The Company believes it is in substantial compliance with all applicable laws and regulations. Failure to comply with regulatory requirements could have a significant adverse effect on the Company’s business and operations.

Legal Matters

The Company is, from time to time, subject to claims and litigation that arise in the ordinary course of its business. Except as discussed below, in the opinion of management, the ultimate outcome of proceedings of which management is aware, even if adverse to the Company, would not have a material adverse effect on the Company’s consolidated financial condition or results of operations. Regardless of the outcome, litigation can have an adverse impact on the Company because of defense and settlement costs, diversion of management resources and other factors.

Securities and Derivative Litigation

In March 2017, a number of putative class action securities complaints were filed in U.S. District Court for the Central District of California, naming as defendants the Company and certain of our current or former executive officers and directors. These complaints have been consolidated with the lead case captioned Deora v. NantHealth, Inc., 2:17-cv-01825 ("Deora"). In June 2017, the lead plaintiffs filed an amended consolidated complaint, which generally alleges that defendants violated federal securities laws by making material misrepresentations in NantHealth's IPO registration statement and in subsequent public statements. In particular, the complaint refers to various third-party articles in alleging that defendants misrepresented NantHealth's business with the University of Utah, donations to the university by non-profit entities associated with the Company's founder Dr. Soon-Shiong, and orders for GPS Cancer. The lead plaintiffs seek unspecified damages and other relief on behalf of putative classes of persons who purchased or acquired NantHealth securities in the IPO or on the open market from June 1, 2016 through May 1, 2017. In March 2018, the Court largely denied Defendants' motion to dismiss the consolidated amended complaint. On July 30, 2019, the Court certified the case as a class action. On October 23, 2019, the parties notified the Court that they had reached a settlement in principle to resolve the action on a class wide basis in the amount of $16,500, which was included in accrued and other current liabilities in the Consolidated Balance Sheet at December 31, 2019. The Court granted preliminary approval of the settlement on January 31, 2020. A hearing for final approval of the settlement was scheduled for June 15, 2020, but on June 5, 2020, the Court decided to take the final approval motion on submission, and on July 17, 2020, the Court directed Plaintiff's counsel to submit evidence substantiating all costs incurred. The $16,500 settlement was paid into a settlement fund prior to the payment deadline of March 2, 2020. The majority of the settlement amount was funded by the Company's insurance carriers, and a portion was by the Company. On September 10, 2020, the Court entered an order granting final approval of the settlement, and the order and settlement are now final.

In May 2017, a putative class action complaint was filed in California Superior Court, Los Angeles County, asserting claims for violations of the Securities Act based on allegations similar to those in Deora. That case is captioned Bucks County Employees Retirement Fund v. NantHealth, Inc., BC 662330. At a case management conference on December 3, 2019, the parties informed the court of the pending settlement of the federal class action in the Deora action. During a status conference on February 4, 2021, the Court scheduled a further status conference for April 7, 2021 and stated that if Plaintiff did not voluntarily dismiss the action, the Court would entertain a motion to dismiss in light of the finalization of the Deora settlement. Plaintiff filed an unopposed request for voluntarily dismissal on March 15, 2021. On March 22, 2021, the court issued an order granting plaintiff's request and dismissing the action with prejudice.

In April 2018, two putative shareholder derivative actions, captioned Engleman v. Soon-Shiong, Case No. 2018-0282-AGB, and Petersen v. Soon-Shiong, Case No. 2018-0302-AGB were filed in the Delaware Court of Chancery. The plaintiff in the Engleman action previously filed a similar complaint in California Superior Court, Los Angeles County, which was dismissed based on a provision in the Company's charter requiring derivative actions to be brought in Delaware. The Engleman and Petersen complaints contain allegations similar to those in the Deora action but asserted causes of action on behalf of NantHealth against various of the Company's current or former executive officers and directors for alleged breaches of fiduciary duty, abuse of control, gross mismanagement, waste of corporate assets, and unjust enrichment. The Company is named solely as a nominal defendant. In July 2018, the court issued an order consolidating the Engleman and Petersen actions as In re NantHealth, Inc. Stockholder Litigation, Lead C.A.No. 2018-0302-AGB, appointing Petersen as lead plaintiff, and designating the Petersen complaint as the operative complaint. On September 20, 2018, the defendants moved to dismiss the complaint. In October 2018, in response to the motion to dismiss, Petersen filed an amended complaint. In November 2018, the defendants moved to dismiss the amended complaint, which asserts claims for breach of fiduciary duty, waste of corporate assets (which Petersen subsequently withdrew), and unjust enrichment. On January 14, 2020, the court issued an order granting in part and denying in part the defendants' motion to dismiss. The court dismissed all claims except one claim against Dr. Soon-Shiong for breach of fiduciary duty. Dr. Soon-Shiong and the Company filed answers to the amended complaint on March 30, 2020. Discovery commenced and the action remains pending. On June 29, 2021, the Court granted the Unopposed Motion to Substitute Lead Plaintiff, following Plaintiff Petersen's sale of his NantHealth stock, and appointed Engleman as Lead Plaintiff

In April 2018, a putative shareholder derivative action captioned Shen v. Soon-Shiong was filed in U.S. District Court for the District of Delaware. In November 2018, a putative shareholder derivative action captioned Manuel v. Soon-Shiong was filed in the U.S. District Court for the District of Delaware. The complaints contain allegations similar to those in the Deora action but also asserted causes of action on behalf of NantHealth against various of the Company's current or former executive officers and directors for alleged breaches of fiduciary duty and unjust enrichment, as well as alleged violations of the federal securities laws based on alleged misstatements or omissions in the Company's 2017 proxy statement. The Company is named solely as a nominal defendant. On January 15, 2019, the Shen and Manuel actions were consolidated in a case captioned In re NantHealth, Inc. Stockholder Derivative Litigation. The parties agreed to stay the consolidated case pending a decision on defendants' motion to dismiss in the derivative action in the Delaware Court of Chancery. The stay was lifted after the Delaware Court of Chancery's January 14, 2020 decision granting in part and denying in part the motion to dismiss. On October 5, 2020, an amended consolidated complaint was filed which brings claims only against Dr. Soon-Shiong for alleged violations of the federal securities laws and breach of fiduciary duty based on alleged misstatement or omissions in the Company's 2017 and 2018 proxy statements and other public filings. On December 4, 2020, defendant moved to dismiss the amended complaint. On February 2, 2021, plaintiffs filed an answering brief in opposition to defendant's motion to dismiss. On March 18, 2021, defendant filed a reply brief in further support of his motion to dismiss the amended complaint. On May 12, 2021, the court issued an order dismissing the amended complaint with prejudice.

(Dollars in thousands, except per share amounts)

Note 15. Income Taxes

The amount of loss before taxes from continuing operations is as follows:

	Year Ended December 31,	
	2021	2020
U.S. loss before taxes	(58,928)	(88,360)
Foreign income before taxes	459	368
Loss before income taxes	(58,469)	(87,992)

The components of the provision for income taxes are presented in the following table:

	Year Ended December 31,	
	2021	2020
Current:		
Federal	$ —	$ (13
State	89	170
Foreign	68	66
Total current provision	157	223
Deferred:		
Federal	(2)	(80
State	(45)	46
Foreign	(13)	(3
Total deferred benefit	(60)	(37
Less: (Benefit from) provision for income taxes from discontinued operations, net	—	(261
Provision for (benefit from) income taxes from continuing operations, net	$ 97	$ 447

The provision for income taxes differs from the amount of income tax determined by applying the applicable U.S. statutory federal income tax rate to pretax loss as a result of the following differences:

	Year Ended December 31,	
	2021	2020
United States federal tax at statutory rate	21.00 %	21.00
Items affecting federal income tax rate:		
State tax, net of federal benefit	6.51 %	3.44
Valuation allowance	(37.34)%	(23.07)
R&D Credit	9.47 %	—
NOL Expiration	(1.69)%	(0.41)
Other adjustments	1.89 %	(1.47)
Effective income tax rate	(0.16)%	(0.51)

On June 29, 2020, the state of California enacted Assembly Bill No. 85 ("AB 85") suspending California net operating loss utilization and imposing a cap on the amount of business incentive tax credits companies can utilize, effective for tax years 2020, 2021 and 2022. There was no material impact from the provisions of AB 85 for the years ended December 31, 2021 and 2020.

As of December 31, 2021 and 2020, the Company had an immaterial amount of unremitted earnings related to certain foreign subsidiaries. The Company intends to continue to reinvest its foreign earnings indefinitely and does not expect to incur any significant taxes related to such amounts.

(Dollars in thousands, except per share amounts)

Significant components of the Company's deferred tax assets and liabilities as of December 31, 2021 and 2020 are as follows:

	December 31,	
	2021	2020
Deferred income tax assets:		
Accounts payable and accrued expenses	$ 10,786	$ 9,899
163(j) interest limitation	10,693	6,903
Deferred revenue	159	88
Allowance for doubtful accounts	83	92
Property, plant and equipment, net	396	1,044
Intangibles	125	95
Investments	60,185	58,779
Stock-based compensation	1,612	713
Other	—	59
Operating lease liabilities	2,249	2,565
Research and development tax credits	5,533	—
Net operating loss carryforwards	119,486	110,536
Less: Valuation allowance	(187,075)	(163,719)
Total deferred income tax assets	24,232	27,054
Deferred income tax liabilities:		
State taxes	(7,867)	(6,750)
Intangible assets, net	(15,535)	(17,446)
Convertible notes	—	(1,549)
Deferred costs to obtain a customer contract	(226)	(351)
Capitalized labor costs	(344)	(520)
Other	(361)	(394)
Operating lease right-of-use assets	(1,674)	(1,897)
Total deferred income tax liabilities	(26,007)	(28,907)
Deferred income taxes, net	$ (1,775)	$ (1,853)

The realization of deferred income tax assets may be dependent on the Company's ability to generate sufficient income in future years in the associated jurisdiction to which the deferred tax assets relate. The Company considers all available positive and negative evidence, including scheduled reversals of deferred income tax liabilities, projected future taxable income, tax planning strategies, and recent financial performance. Based on the review of all positive and negative evidence, including a three-year cumulative pre-tax loss, the Company concluded that except for the deferred tax liability recorded on amortization of certain goodwill due to its indefinite life and deferred tax liability in excess of deferred tax asset for certain separate state and city jurisdictions, it should record a full valuation allowance against all other net deferred income tax assets at December 31, 2021 and 2020 as none of these deferred income tax assets were more likely than not to be realized as of the balance sheet dates. However, the amount of the deferred income tax assets considered realizable may be adjusted if estimates of future taxable income during the carryforward period are increased or if objective negative evidence in the form of cumulative losses is no longer present. Based on the level of historical operating results the Company has recorded a valuation allowance of $187,075 and $163,719 as of December 31, 2021 and 2020, respectively. The change in the valuation allowance for the years ended December 31, 2021 and 2020 were increases of $23,356 and $10,366, respectively, which were mainly driven by losses from which the Company cannot benefit. The portion of the valuation allowance for deferred tax assets for which subsequently recognized tax benefits will be credited directly to contributed capital is $354.

As of December 31, 2021, the Company had federal and state NOL carryforwards of $451,010 and $321,735, respectively, available to offset taxable income in tax year 2022 and thereafter. Of the $451,010 in Federal NOL carryforwards, $96,949 can be carried forward indefinitely and the remaining NOL carryforwards start to expire in 2022. Of the $321,735 in state NOL carryforwards $21,799 can be carried forward indefinitely and the remaining start to expire in 2022.

(Dollars in thousands, except per share amounts)

As of December 31, 2021, the Company also had Federal research tax credit carryforwards of $6,700. The Federal research tax credit carryforwards expire beginning in 2037.

The Company is no longer subject to income tax examination by the U.S. federal, state or local tax authorities for years ended December 31, 2016 or prior; however, its tax attributes, such as NOL carryforwards and tax credits, are still subject to examination in the year they are used.

Federal and state laws impose restrictions on the utilization of net operating loss carryforwards and research and development credit carryforwards in the event of a change in ownership of the Company as defined by Internal Revenue Code Section 382 and 383. The Company experienced an ownership change in the past that impacts the availability of its net operating losses and tax credits. The amounts indicated in the above tables reflect the reduction of net operating losses and credit carryforwards as a result of previous ownership changes that the Company experienced. Should there be additional ownership changes in the future, the Company's ability to utilize existing carryforwards could be substantially restricted.

A summary of changes to the amount of unrecognized tax benefits is as follows:

	2021
Unrecognized tax benefits as of December 31, 2020	$ —
Increases related to prior year tax positions taken during the current year	1,037
Increases related to current year tax positions taken during the current year	86
Unrecognized tax benefits as of December 31, 2021	$ 1,123

The Company records a tax benefit from uncertain tax positions only if it is more likely than not the tax position will be sustained with the taxing authority having full knowledge of all relevant information. The Company records a reduction to deferred tax assets for unrecognized tax benefits from uncertain tax positions as discrete tax adjustments in the first period that the more-likely-than-not threshold is not met. As of December 31, 2020, the Company did not record any unrecognized tax benefits in its financial statements. For the year ended December 31, 2021, the Company recorded unrecognized tax benefits of $1,123 related to Federal Research and Development tax credits recognized in 2021.

The reversal of the uncertain tax benefits would not affect the effective tax rate to the extent that the Company continues to maintain a full valuation allowance against its deferred tax assets. The Company does not anticipate any significant changes to unrecognized tax benefits over the next 12 months. The Company has not incurred any material interest or penalties as of the current reporting period with respect to income tax matters.

The Company’s policy is to recognize interest and penalties related to uncertain tax positions in income tax expense. As of December 31, 2021 and 2020, there were no material interest and penalties associated with unrecognized tax benefits recorded in the Company's Consolidated Statements of Operations or Consolidated Balance Sheets. Any changes to unrecognized tax benefits recorded as of December 31, 2021 that are reasonably possible to occur within the next 12 months are not expected to be material.

Note 16. Stockholders’ Equity

In accordance with the Company’s amended and restated certificate of incorporation, which was filed immediately following the closing of its IPO, the Company is authorized to issue 750,000,000 shares of common stock, with a par value of $0.0001 per share, and 20,000,000 shares of undesignated preferred stock, with a par value of $0.0001 per share. Holders of the Company’s common stock are entitled to one vote for each share held on all matters submitted to a vote of its stockholders. Holders of the Company’s common stock have no cumulative voting rights. Further, as of December 31, 2021 and 2020, holders of the Company’s common stock have no preemptive, conversion, redemption or subscription rights and there are no sinking fund provisions applicable to the Company’s common stock. Upon liquidation, dissolution or winding-up of the Company, holders of the Company’s common stock are entitled to share ratably in all assets remaining after payment of all liabilities and the liquidation preferences of any outstanding shares of preferred stock. Subject to preferences that may be applicable to any outstanding shares of preferred stock, holders of the Company’s common stock are entitled to receive dividends, if any, as may be declared from time to time by the Company’s board of directors. As of December 31, 2021 and 2020, there were no outstanding shares of preferred stock.

On April 13, 2021, the Company exchanged with Cambridge and Highbridge, $10,000 principal of the 2016 Notes ($5,000 with each party, respectively), for 1,689,189 and 1,926,781 common shares, respectively (See Note 11).

(Dollars in thousands, except per share amounts)

On November 12, 2021, the Company entered into a certain Open Market Sale Agreement (the "Sale Agreement") with Jefferies LLC ("Jefferies") relating to shares of our common stock, $0.0001 par value per share, offered pursuant to an effective shelf registration statement on Form S-3 that was declared effective on May 6, 2021. In accordance with the terms of the Sale Agreement, we may offer and sell shares of our common stock having an aggregate offering price of up to $30,000 from time to time through Jefferies acting as our agent.

Note 17. Stock-Based Compensation

The following table reflects the components of stock-based compensation expense recognized in the Company's Consolidated Statements of Operations:

	Year Ended December 31,	
	2021	**2020**
Phantom units:		
Cost of revenue	—	27
Selling, general and administrative	—	(23)
Research and development	—	36
Total phantom units stock-based compensation expense	—	40
Stock options:		
Cost of revenue	188	100
Selling, general and administrative	3,012	1,688
Research and development	424	246
Total stock options stock-based compensation expense	3,624	2,034
Restricted stock units:		
Cost of revenue	—	9
Selling, general and administrative	128	621
Research and development	—	23
Total restricted stock units stock-based compensation expense	128	653
Related party share based payments		
Selling, general and administrative	67	—
Research and development	68	—
Total related party stock-based compensation expense	135	—
Discontinued operations	—	(79)
Total stock-based compensation expense	3,887	2,648
Amount capitalized to internal-use software	118	97
Total stock-based compensation cost	$ 4,005	$ 2,745

(Dollars in thousands, except per share amounts)

Phantom Unit Plan

On March 31, 2015, the Company approved the NantHealth, LLC Phantom Unit Plan (the "Phantom Unit Plan"). The maximum number of phantom units that may be issued under the Phantom Unit Plan is equal to 11,590,909 minus the number of issued and outstanding Series C units of the Company. The grant date fair value of the phantom units is determined based on the closing price of the Company's common stock on the NASDAQ Composite Index on the date of grant. All phantom units under the Phantom Unit Plan were fully vested as of December 31, 2020. Each grant of phantom units made to a participant under the Phantom Unit Plan vests over a requisite service period of 1 to 4 years, subject to completion of a liquidity event, and is subject to forfeiture upon termination of the participant's continuous service to the Company for any reason. The Company's IPO satisfied the liquidity event condition and the phantom units now entitle their holders to cash or noncash payments in an amount equal to the number of vested units held by that participant multiplied by the fair market value of one share of the Company's common stock on the date each phantom unit vests. After the Company's IPO, the Company will no longer issue any units under the Phantom Unit Plan.

The Company settled all vested phantom unit payments held by United States-based participants in shares of the Company's common stock and classified these awards as equity awards in its Consolidated Balance Sheets. Awards held by participants who are based outside of the United States were settled in cash and are classified within accrued and other current liabilities in the Consolidated Balance Sheets as of December 31, 2020. In order to satisfy payroll withholding tax obligations triggered by the issuance of shares of common stock to holders of vested phantom units, the Company issued recipients a net lower number of shares of common stock to satisfy tax withholding obligations and remitted a cash payment for the related withholding taxes.

The following table summarizes the activity related to the unvested phantom units during the year ended December 31, 2020.

	Number of Units	Weighted-Average Grant-Date Fair Value
Unvested phantom units outstanding - December 31, 2019	120,562	$ 11.49
Vested	(111,699)	$ 11.32
Forfeited	(8,863)	$ 14.26
Unvested phantom units outstanding - December 31, 2020	—	$ —

The total fair value of phantom units that vested during the year ended December 31, 2020 totaled $279.

The Company previously granted phantom units to employees of related companies who are providing services to the Company under the Shared Services Agreement with NantWorks (see Note 19) as well as certain consultants of the Company. No phantom units were granted during the years ended December 31, 2021 and 2020. All other grants of phantom units have been made to employees of the Company. Stock-based compensation expense for the phantom units issued to participants who are based outside of the United States is re-measured at the end of each reporting period until the awards vest. The Company used the accelerated attribution method to recognize expense for all phantom units since the awards' vesting was subject to the completion of a liquidity event. The grant date fair value of the phantom units granted prior to LLC Conversion was estimated using both an option pricing method and a probability weighted expected return method.

During the years ended December 31, 2021 and 2020, the Company issued 0 and 64,048 shares, respectively, of common stock to participants of the Phantom Unit Plan based in the United States, after withholding approximately 0 and 36,238 shares, respectively, to satisfy tax withholding obligations. The Company made a cash payment of $0 and $100 to cover employee withholding taxes upon the settlement of these vested phantom units during the years ended December 31, 2021 and 2020, respectively.

2016 Equity Incentive Plan

In May and June of 2016, the Company's Board of Directors adopted and the Company's stockholders approved the 2016 Equity Incentive Plan (the "2016 Plan") in connection with the Company's IPO. The 2016 Plan provides for the grant of incentive stock options, non-statutory stock options, restricted stock, restricted stock units, stock appreciation rights, performance units and performance shares to employees, directors and consultants.

(Dollars in thousands, except per share amounts)

In April 2018, the Company's Board of Directors adopted and, in June 2018, the Company's stockholders approved an amendment to the 2016 Plan, to reserve a further 6,800,000 shares of common stock for issuance pursuant to the 2016 Plan. In May 2020, the Company's stockholders approved an amendment to the 2016 Plan, to reserve a further 12,000,000 shares of common stock for issuance pursuant to the 2016 Plan. Following the approval of the amendments, a total of 24,800,000 shares of common stock were reserved for issuance pursuant to the 2016 Plan.

The Company intends to settle all vested restricted stock unit payments held by United States-based participants, except for certain awards to the Chief Operating Officer, in shares of the Company's common stock and the Company classify these awards as equity awards in its Consolidated Balance Sheets. Awards held by participants who are based outside of the United States, and those awards agreed with participants to be settled in cash, will be settled in cash and are classified within accrued and other current liabilities in the Consolidated Balance Sheets as of December 31, 2021 and 2020. In order to satisfy payroll withholding tax obligations triggered by the issuance of shares of common stock to holders of restricted stock units, the Company issues recipients a net lower number of shares of common stock to satisfy tax withholding obligations and remitted a cash payment for the related withholding taxes.

Stock Options

Stock-based compensation expense is calculated based on the grant date fair value of the award and the attribution of that cost is being recognized ratably over requisite service periods of 1 to 4 years. Stock options expire ten years from the date of grant. The Company has utilized the Black-Scholes option-pricing model to determine the fair value of stock options based on the closing price of the Company's common stock on the NASDAQ Composite Index on the date of grant.

The following table summarizes the weighted-average assumptions used to value stock options at their grant date and the weighted-average grant-date fair value per share:

	Year Ended December 31,	
	2021	2020
Expected volatility	70.37 %	71.94 %
Expected term to exercise from grant date	6.0 years	6.2 years
Risk-free rate	0.94 %	0.41 %
Expected dividend yield	— %	— %
Weighted-average grant-date fair value per share of options	$ 1.24	$ 2.39

The following table summarizes the activity related to stock options during the year ended December 31, 2021:

	Number of Shares	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Life	Aggregate Intrinsic Valu
Stock options outstanding - December 31, 2019	5,815,724	$ 0.56		
Granted	5,195,000	$ 3.76		
Exercised	(260,600)	$ 0.55		$ 78
Forfeited	(725,000)	$ 1.03		
Stock options outstanding - December 31, 2020	10,025,124	$ 2.19	9.1 years	$ 13,37
Granted	7,090,000	$ 2.00		
Exercised	(504,488)	$ 0.55		$ 91
Forfeited	(2,135,000)	$ 2.80		$ 74
Stock options outstanding - December 31, 2021	14,475,636	$ 2.06	8.8 years	$ 1,98
Stock options exercisable - December 31, 2021	4,469,386	$ 1.40	7.9 years	$ 1,56

As of December 31, 2021, the number, weighted-average exercise price, weighted-average remaining contractual term, and aggregate intrinsic value of the Company's aggregate stock options that either had vested or are expected to vest approximate the corresponding amounts for stock options outstanding.

(Dollars in thousands, except per share amounts)

As of December 31, 2021, the Company had $12,752 of unrecognized stock-based compensation expense related to the stock options. This cost is expected to be recognized over a weighted-average period of 2.1 years.

The Company settles all exercised stock options by issuing shares of the Company's common stock without netting down the portion related to payroll withholding tax obligations.

Restricted Stock Units

The grant date fair value of the restricted stock units is determined based on the closing price of the Company's common stock on the NASDAQ Composite Index on the date of grant. Each grant of restricted stock units made to a participant vests over a requisite service period of 1 to 4 years. The Company intends to settle all vested restricted stock unit payments held by United States-based participants in shares of the Company's common stock and classifies these awards as equity awards in its Consolidated Balance Sheets. Awards held by participants who are based outside of the United States will be settled in cash and are classified within accrued and other current liabilities in the Consolidated Balance Sheets as of December 31, 2021 and 2020.

The following table summarizes the activity related to the unvested restricted stock units during the years ended December 31, 2021 and 2020:

	Number of Units	Weighted-Average Grant-Date Fair Value
Unvested restricted stock units outstanding - December 31, 2019	705,415	$ 2.68
Granted	179,558	$ 1.81
Vested	(540,711)	$ 3.10
Forfeited	(90,954)	$ 1.41
Unvested restricted stock units outstanding - December 31, 2020	253,308	$ 1.64
Vested	(118,603)	$ 1.52
Forfeited	(15,000)	$ 1.23
Unvested restricted stock units outstanding - December 31, 2021	119,705	$ 1.81

Unrecognized compensation expense related to unvested restricted stock units was $129 at December 31, 2021, which is expected to be recognized as expense over the weighted-average period of 1.2 years.

The total fair value of RSUs that vested during the years ended December 31, 2021 and 2020 was $385 and $1,516, respectively.

During the years ended December 31, 2021 and 2020, the Company issued 100,053 and 391,738 shares, respectively, of common stock to participants of the 2016 Plan based in the United States, after withholding approximately 18,550 and 249,249 shares, respectively, to satisfy tax withholding obligations. The Company made a cash payment of $50 and $698 to cover employee withholding taxes upon the settlement of these vested restricted stock units during the years ended December 31, 2021 and 2020, respectively.

(Dollars in thousands, except per share amounts)

Note 18. Net Loss Per Share

The following table sets forth reconciliations of the numerators and denominators used to compute basic and diluted net loss per share of common stock attributable to NantHealth for the years ended December 31, 2021 and 2020:

	Year Ended December 31,	
	2021	2020
Net loss per share numerator:		
Net loss from continuing operations	$ (58,566)	$ (88,439)
Net loss attributable to noncontrolling interests	(284)	(120)
Net loss from continuing operations attributable to NantHealth	(58,282)	(88,319)
Income from discontinued operations, net of tax, attributable to NantHealth	23	31,993
Net loss for basic and diluted net loss per share	$ (58,259)	$ (56,326)
Weighted-average shares for basic net loss per share	114,148,604	110,954,858
Effect of dilutive securities	—	—
Weighted-average shares for dilutive net loss per share	114,148,604	110,954,858
Basic and diluted net loss per share attributable to NantHealth:		
Continuing operations - common stock	$ (0.51)	$ (0.80)
Discontinued operations - common stock	$ —	$ 0.29
Total net loss per share - common stock	$ (0.51)	$ (0.51)

The following number of potential common shares at the end of each period were excluded from the calculation of diluted net loss per share attributable to common stockholders because their effect would have been anti-dilutive for the periods presented:

	Year Ended December 31,	
	2021	2020
Unexercised stock options	14,475,636	10,025,124
Unvested restricted stock units	119,705	253,308
Convertible notes	35,732,853	8,815,655

Note 19. Related Party Transactions

NantWorks Shared Services Agreement

In October 2012, the Company entered into a shared services agreement with NantWorks that provides for ongoing services from NantWorks in areas such as public relations, information technology and cloud services, human resources and administration management, finance and risk management, environmental health and safety, sales and marketing services, facilities, procurement and travel, and corporate development and strategy (the "Shared Services Agreement"). The Company is billed quarterly for such services at cost, without mark-up or profit for NantWorks, but including reasonable allocations of employee benefits, facilities and other direct or fairly allocated indirect costs that relate to the associates providing the services. NantHealth also bills NantWorks and affiliates for services such as information technology and cloud services, finance and risk management, and facilities management, on the same basis. During the years ended December 31, 2021 and 2020, the Company recognized an expense of $561 and income of $162, respectively, in selling, general and administrative expenses for services provided to the Company by NantWorks and affiliates, net of services provided to NantWorks and affiliates.

(Dollars in thousands, except per share amounts)

Nant Capital Note Purchase Agreement

On April 13, 2021, the Company entered into a Note Purchase Agreement with Nant Capital to issue and sell $62,500 in aggregate principal amount of its 2021 Notes (see Note 11). The accrued and unpaid interest on the 2021 Notes held by Nant Capital was $586 at December 31, 2021, and was included as part of current related party payables, net in the Consolidated Balance Sheets.

Related Party Receivables and Payables

As of December 31, 2021 and 2020, the Company had related party receivables, net of related party payables, of $1,518 and $1,854, respectively, primarily consisting of a receivable from Ziosoft KK of $1,144 and $1,477, respectively, which was related to the sale of Qi Imaging. As of December 31, 2021 and 2020, the Company had related party payables, net of related party receivables, and related party liabilities of $43,439 and $35,329, respectively, which primarily relate to interest payable on the $112,666 promissory note in favor of Nant Capital and amounts owed to NantWorks pursuant to the Shared Services Agreement. The balance of the related party receivables and payables represent amounts paid by affiliates on behalf of the Company or vice versa.

Assignment of The OpenNMS Group, Inc.

On July 22, 2020, the Company entered into an assignment agreement (the “Assignment Agreement”) with Cambridge to acquire approximately 91% of The OpenNMS Group, Inc. for $5,577 in cash. Contemporaneously with the closing of the Assignment Agreement, OpenNMS issued call options to the Company consisting of, when exercised, cash payment of $278 and issuance of 56,769 shares of the Company's common stock in exchange for the 9% of the shares of OpenNMS common stock held by the remaining shareholders. These call options expired unexercised on September 30, 2020.

As the Company and Cambridge are controlled by the Company's Chairman and CEO, the acquisition was treated as a transaction between entities under common control. The Company recognized the assets and liabilities transferred under the Assignment Agreement at their carrying amounts on July 22, 2020 based on Cambridge's historical cost, including the effects of purchase accounting from the November 1, 2019 acquisition of OpenNMS by Cambridge. The transaction did not cause a material change in the reporting entity, and the Company has not retrospectively adjusted its previously issued financial statements. The consolidation of OpenNMS at July 22, 2020 increased the Company's revenue by $763 and net loss by $1,311 for the year ended December 31, 2020.

The intangible assets acquired are amortized over the weighted-average useful life of 5.9 years. These definite-lived intangible assets include developed technology of $2,500 (6-year useful life), installed user base of $1,400 (6-year useful life), customer relationship of $1,000 (6-year useful life), and trade name of $300 (4-year useful life).

The table below shows the asset and liabilities recorded from the consolidation of the acquisition of OpenNMS.

	Amounts
Total cash consideration	$ 5,577
Assets and liabilities of OpenNMS at assignment:	
Cash and cash equivalents	102
Goodwill	1,026
Intangible asset, net	4,553
Other assets	1,097
Other liabilities assumed	(1,227)
Net assets acquired at assignment	5,551
Noncontrolling interests	(503)
Recorded as distribution from additional paid-in capital	$ 529

In August 2021, the Company purchased the remaining 9%, or 241,485 shares of outstanding OpenNMS common stock held by the remaining shareholders for $556 in cash. The Company recognized the difference between the $556 purchase price and the $100 carrying value of the non-controlling interest acquired as a reduction to additional paid in capital of $456. As of August 24, 2021, the Company owns 100% of the outstanding common stock of OpenNMS.

Amended Reseller Agreement

On June 19, 2015, the Company entered into a five and a half year exclusive Reseller Agreement with NantOmics for sequencing and bioinformatics services (the "Original Reseller Agreement"). NantOmics is a majority owned subsidiary of NantWorks and is controlled by the Company's Chairman and CEO. On May 9, 2016, the Company and NantOmics executed an Amended and Restated Reseller Agreement (the “Amended Reseller Agreement”), pursuant to which the Company received the worldwide, exclusive right to resell NantOmics’ quantitative proteomic analysis services, as well as related consulting and other professional services, to institutional customers (including insurers and self-insured healthcare providers) throughout the world. The Company retained its existing rights to resell NantOmics’ molecular analysis and bioinformatics services. Under the Amended Reseller Agreement, the Company is responsible for various aspects of delivering its sequencing and molecular analysis solutions, including patient engagement and communications with providers such as providing interpretations of the reports delivered to the physicians and resolving any disputes, ensuring customer satisfaction, and managing billing and collections. On September 20, 2016, the Company and NantOmics further amended the Amended Reseller Agreement (the "Second Amended Reseller Agreement"). The Second Amended Reseller Agreement permits the Company to use vendors other than NantOmics to provide any or all of the services that are currently being provided by NantOmics and clarifies that the Company is responsible for order fulfillment and branding.

The Second Amended Reseller Agreement grants to the Company the right to renew the agreement (with exclusivity) for up to three renewal terms, each lasting three years, if the Company achieves projected volume thresholds, as follows: (i) the first renewal option can be exercised if the Company completes at least 300,000 tests between June 19, 2015 and June 30, 2020; (ii) the second renewal option can be exercised if the Company completes at least 570,000 tests between July 1, 2020 and June 30, 2023; and (iii) the third renewal option can be exercised if the Company completes at least 760,000 tests between July 1, 2023 and June 30, 2026. If the Company does not meet the applicable volume threshold during the initial term or the first or second exclusive renewal terms, the Company can renew for a single additional three-year term, but only on a non-exclusive basis.

The Company paid NantOmics noncancellable annual minimum fees of $2,000 per year for each of the calendar years from 2016 through 2020 and, subject to the Company exercising at least one of its renewal options described above. The Company was also required to pay annual minimum fees from 2021 through 2029. These annual minimum fees are no longer applicable with the execution of Amendment No. 3 to the Second Amended Reseller Agreement.

On December 18, 2017, the Company and NantOmics executed Amendment No. 1 to the Second Amended Reseller Agreement. The Second Amended Reseller Agreement was amended to allow fee adjustments with respect to services completed by NantOmics between the amendment effective date of October 1, 2017 to June 30, 2018.

On April 23, 2019, the Company and NantOmics executed Amendment No. 2 to the Second Amended Reseller Agreement. The Second Amended Reseller Agreement was amended to set a fixed fee with respect to services completed by NantOmics between the amendment effective date and the end of the Initial Term, December 31, 2020.

On December 31, 2020, the Company and NantOmics executed Amendment No. 3 to the Second Amended Reseller Agreement to automatically renew at the end of December 2020 for a non-exclusive renewal term and to waive the annual minimum fee for the 2020 calendar year and calender years 2021 through 2023.

As of December 31, 2021 and 2020, the Company had $0 and $3, respectively, outstanding related party payables under the Second Amended Reseller Agreement. During the years ended December 31, 2021 and 2020, direct costs of $0 and $51, respectively, were recorded as cost of revenue related to the Second Amended Reseller Agreement.

Cambridge Purchase Agreement

On December 15, 2016, the Company entered into the Cambridge Purchase Agreement with Cambridge, an entity affiliated with the Company's Chairman and CEO, Dr. Soon-Shiong, to issue and sell $10,000 in aggregate principal amount of the 2016 Notes in a private placement pursuant to an exemption from the registration requirements of the Securities Act afforded by Section 4(a)(2) of the Securities Act. The Cambridge Purchase Agreement includes customary representations, warranties and covenants by the Company and customary closing conditions (see Note 11).

On April 13, 2021, NantHealth entered into a transaction as part of the Exchange Agreement with Cambridge to exchange $5,000 principal amount of its $10,000 in existing 2016 Notes for shares of the Company’s common stock (see Note 11). On December 15, 2021, the Company paid the remaining $5,000 principal and accrued interest of $138.

Related Party Promissory Notes

In January 2016, we executed a demand promissory note with Nant Capital (the "Nant Capital Note"), a personal investment vehicle for Dr. Soon-Shiong, our Chairman and CEO. As of December 31, 2021, the total advances made by Nant Capital to us pursuant to the note was approximately $112,666. On May 9, 2016, the Nant Capital Note was amended and restated to provide that all outstanding principal and accrued and unpaid interest is due and payable on June 30, 2021, and not on demand. On December 15, 2016, in connection with the offering of the 2016 Notes, we entered into a Second Amended and Restated Promissory Note which amended and restated the Amended and Restated Promissory Note, dated May 9, 2016, between us and Nant Capital, to, among other things, extend the maturity date of the Nant Capital Note to June 15, 2022 and to subordinate the Nant Capital Note in right of payment to the 2016 Notes. The Nant Capital Note bears interest at a per annum rate of 5.0% compounded annually and computed on the basis of the actual number of days in the year. When a repayment is made, Nant Capital has the option, but not the obligation, to require us to repay any such amount in cash, Series A-2 units of NantOmics (based on a per unit price of $1.484) held by us, shares of our common stock based on a per share price of $18.6126 (if such equity exists at the time of repayment), or any combination of the foregoing at the sole discretion of Nant Capital. On April 27, 2021, in connection with the issuance of the 2021 Notes, we entered into a Third Amended and Restated Promissory Note which amends and restates its promissory note, dated January 4, 2016, as amended on May 9, 2016, and on December 16, 2016, between the Company and Nant Capital, to, among other things, extend the maturity date of the promissory note to October 1, 2026 and to subordinate the promissory note in right of payment to the 2021 Notes.

On March 3, 2017, NantHealth Labs (formerly Liquid Genomics, Inc.), executed a promissory note with NantWorks. The principal amount of the advance made by NantWorks totaled $250,000 as of December 31, 2021. On June 30, 2017, the promissory note was amended and restated to provide that all outstanding principal and accrued and unpaid interest is due on demand. The note bears interest at a per annum rate of 5.0%, compounded annually. As of December 31, 2021, the total interest outstanding on this note amounted to $66 and is included in related party payables, net.

On August 8, 2018, we executed a promissory note in favor of Nant Capital, with a maturity date of June 15, 2022. On December 31, 2020, we executed an agreement with Nant Capital to amend and restate the original promissory note, allowing us to request advances up a maximum commitment of $125,000 that bears interest at a per annum rate of 5.5%, extended the maturity date to December 31, 2023, and created an option for the securitization of the debt under the promissory note upon full repayment of the 2016 Notes. Interest payments on outstanding amounts are due on December 15th of each calendar year. The promissory note includes customary negative covenants. On April 27, 2021, in connection with the issuance of the 2021 Notes, we and Nant Capital entered into a Second Amended and Restated Promissory Note which amends and restates its promissory note, dated August 8, 2018, as amended on December 31, 2020, between the Company and Nant Capital, to, among other things, extend the maturity date of the promissory note to December 31, 2026 and to subordinate the promissory note in right of payment to the 2021 Notes. No advances have been made under the promissory note. As of December 31, 2021, the Company was in compliance with the covenants.

Related Party Share-based Payments

On December 21, 2020, ImmunityBio, Inc. (formerly known as NantKwest, Inc.) ("ImmunityBio"), NantCell, and Nectarine Merger Sub, Inc., a wholly owned subsidiary of ImmunityBio, entered into an Agreement and Plan of Merger, which was completed on March 9, 2021 (the "Merger"). The newly merged entity is majority owned by entities controlled by Dr. Soon-Shiong, Chairman and Chief Executive Officer of the Company. On March 4, 2021, prior to the Merger, NantCell awarded restricted stock units to its employees and employees, including certain NantHealth employees of Immunity Bio, which vest over defined service periods, subject to completion of a liquidity event. At the effective time of the Merger on March 9, 2021, the performance condition was met and each share of common stock of NantCell that was issued and outstanding immediately prior to the Merger was automatically converted into the right to receive as consideration newly issued common shares of ImmunityBio. The Company accounts for these awards as compensation cost at its estimated fair value over the vesting period with a corresponding credit to equity to reflect a capital contribution from, or on behalf of, the common controlling entity, to the extent that those services provided by its employees associated with these awards benefit NantHealth. The fair value is dependent on management's estimate of the benefit to NantHealth. The higher the estimate of benefit to the Company, the higher the fair value of compensation cost. The compensation cost attributed to NantHealth associated with these awards was $135 for the year ended December 31, 2021.

Note 20. Employee Retirement Plan

The Company has a qualified defined contribution plan (the "NantHealth 401(k) Plan") under Section 401(k) of the Internal Revenue Code covering eligible associates, including associates at certain of its subsidiaries. Associate contributions to the NantHealth 401(k) Plan are voluntary. The Company contributes a 100% match up to 3.0% of the participant's eligible annual compensation, which contribution fully vests after three years of service. Participants' contributions are limited to their annual tax deferred contribution limit as allowed by the Internal Revenue Service. For the years ended December 31, 2021 and 2020, the Company's total matching contributions to the NantHealth 401(k) Plan were $608 and $1,098, respectively.

Note 21. Subsequent Event

On February 18, 2022, we received a notice from Nasdaq stating that we were not in compliance with Nasdaq Listing Rule 5450(a)(1) (the "Minimum Bid Price Rule") because our common stock failed to maintain a minimum closing bid price of $1.00 for 30 consecutive business days. If we fail to regain compliance with the minimum bid price requirement, our stock may be delisted.

Item 9. Changes in and Disagreements With Accountants on Accounting and Financial Disclosure

None.

Item 9A. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

Under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, we conducted an evaluation of the effectiveness of our disclosure controls and procedures (as such term is defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act) as of the end of the period covered by this report. Our disclosure controls and procedures are designed to ensure that information required to be disclosed in the reports we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms and that such information is accumulated and communicated to management, including the Chief Executive Officer and Chief Financial Officer, to allow timely decisions regarding required disclosure. Management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives and management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Based on this evaluation, our Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective at the reasonable assurance level as of December 31, 2021.

Management’s Annual Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting. Internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with U.S. generally accepted accounting principles (“GAAP”). Internal control over financial reporting includes policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the Company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with GAAP, and that receipts and expenditures of the Company are transacted in accordance with authorizations of management and directors of the Company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the Company’s assets that could have a material effect on the financial statements.

Our management, under the supervision of our Chief Executive Officer and Chief Financial Officer, conducted an assessment of the effectiveness of its internal control over financial reporting as of December 31, 2021 based on the criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (“COSO”). Based on this assessment, management concluded that our internal control over financial reporting was effective as of December 31, 2021.

Changes in Internal Control Over Financial Reporting

There were no changes to our internal control over financial reporting identified in connection with the evaluation required by Rule 13a-15(d) and 15d-15(d) of the Exchange Act that occurred during the quarter ended December 31, 2021 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Inherent Limitations in the Effectiveness of Controls

Management recognizes that a control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. Further, the design of a control system must reflect the fact that there are resource constraints and that management is required to apply its judgment in evaluating the benefits of possible controls and procedures relative to their costs. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud or error, if any, have been detected. These inherent limitations include the realities that judgments in decision making can be faulty, and that breakdowns can occur because of a simple error or mistake. Additionally, controls can be circumvented by the individual acts of some persons, by collusion of two or more people, or by management override of the controls. The design of any system of controls also is based in part upon certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions; over time, controls may become inadequate because of changes in conditions, or the degree of compliance with policies or procedures may deteriorate. Because of the inherent limitations in a cost-effective control system, misstatements due to error or fraud may occur and not be detected.

Item 9B. Other Information

None.

Item 9C. Disclosures Regarding Foreign Jurisdictions That Prevent Inspections

None

PART III

Item 10. Directors, Executive Officers and Corporate Governance

The information required by this item will be contained in our definitive proxy statement to be filed with the Securities and Exchange Commission on Schedule 14A in connection with our 2022 Annual Meeting of Stockholders (the "Proxy Statement"), which is expected to be filed not later than 120 days after the end of our fiscal year ended December 31, 2021 and is incorporated herein by reference.

Item 11. Executive Compensation

The information required by this item will be contained in the Proxy Statement under the heading “Executive Compensation" and "Director Compensation” and is incorporated herein by reference.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

The information required by this item will be contained in the Proxy Statement under the headings “Security Ownership of Certain Beneficial Owners and Management” and “Equity Compensation Plan Information” and is incorporated herein by reference.

Item 13. Certain Relationships and Related Transactions, and Director Independence

The information required by this item will be contained in the Proxy Statement under the headings “Security Ownership of Certain Beneficial Owners and Management” and “Equity Compensation Plan Information” and is incorporated herein by reference.

Item 14. Principal Accounting Fees and Services

The information required by this item will be contained in the Proxy Statement under the heading “Principal Accounting Fees and Services” and is incorporated herein by reference.

PART IV

Item 15. Exhibits, Financial Statement Schedules

(a) The consolidated financial statements schedules and exhibits filed as part of this Annual Report on Form 10-K are as follows:

(1) Consolidated financial statements

Reference is made to the consolidated financial statements identified in the “Index to Financial Statements” under Part II, Item 8 of this Annual Report.

(2) Financial Statement Schedules

All other schedules not listed above have been omitted because the information required to be set forth therein is not applicable or is otherwise in the consolidated financial statements or notes thereto.

(3) Exhibits

The documents listed in the Exhibit Index of this Annual Report are incorporated by reference or are filed with this Annual Report, in each case as indicated therein (numbered in accordance with Item 601 of Regulation S-K).

Exhibits Index

The exhibits listed in the accompanying index to exhibits are filed as part of, or incorporated by reference into, this Annual Report on Form 10-K.

		Incorporated by Reference				
Number	Exhibit Title	Form	File No.	Exhibit	Filing Date	Filed Herewith
3.1	Amended and Restated Certificate of Incorporation.	10-Q	001-37792	3.1	August 15, 2016	
3.2	Amended and Restated Bylaws.	10-Q	001-37792	3.2	August 15, 2016	
4.1	Description of Securities					X
4.2	Indenture dated April 27, 2021, among NantHealth, Inc., NaviNet, inc. and U.S. Bank National Association	8-K	001-37792	4.1	April 28, 2021	
10.1.1+	Second Amended and Restated NantOmics Exclusive Reseller Agreement, dated as of September 20, 2016, by and between the Registrant and NantOmics, LLC.	10-Q	001-37792	10.1	November 10, 2016	
10.1.2+	Amended and Restated NantOmics Exclusive Reseller Agreement, dated as of May 9, 2016, by and between the Registrant and NantOmics, LLC.	S-1/A	333-211196	10.1	June 1, 2016	
10.1.3+	Amendment No. 2 to Second Amended and Restated NantOmics Exclusive Reseller Agreement, dated as of April 23, 2019, by and between the Registrant and NantOmics, LLC.	10-Q	001-37792	10.1.2	May 9, 2019	
10.1.4	Amendment No. 3 to Second Amended and Restated NantOmics Exclusive Reseller Agreement dated as of December 31, 2020.	8-K	001-37792	10.2	January 5, 2021	
10.2+	NantHealth License Agreement, dated June 19, 2015, by and between the Registrant and NantOmics, LLC, as amended.	S-1/A	333-211196	10.2	June 1, 2016	
10.3#	2016 Equity Incentive Plan, as Amended and Restated, and related form agreement.	S-8	333-239326	99.1	June 19, 2020	
10.4#	2016 Executive Incentive Compensation Plan.	S-1	333-211196	10.13	May 6, 2016	
10.5	Amended and Restated Promissory Note, between Registrant and Nant Capital LLC, dated May 9, 2016.	S-1/A	333-211196	10.18	May 11, 2016	
10.6	Amended and Restated Promissory Note, between Registrant and NantOmics, LLC, dated May 23, 2016.	S-1/A	333-211196	10.19	May 24, 2016	
10.7	Side Letter Agreement, between Registrant and NantWorks, LLC, dated May 22, 2016.	S-1/A	333-211196	10.21	May 23, 2016	
10.8	Indenture, dated December 21, 2016, between NantHealth, Inc. and U.S. Bank National Association.	8-K	001-37792	10.2	December 21, 2016	
10.10	Purchase Agreement, dated December 15, 2016, by and among NantHealth, Inc. and J.P. Morgan Securities LLC and Jefferies LLC, as representative of the initial purchasers named therein.	8-K	001-37792	10.1	December 21, 2016	
10.11	Purchase Agreement, dated December 15, 2016, by and between NantHealth, Inc. and Cambridge Equities, L.P.	8-K	001-37792	10.2	December 21, 2016	
10.12	Second Amended and Restated Promissory Note, dated December 15, 2016, by and between NantHealth, Inc. and Nant Capital LLC.	8-K	001-37792	10.3	December 21, 2016	
10.13	Asset Purchase Agreement dated as of August 3, 2017, between Allscripts Healthcare Solutions, Inc. and NantHealth Inc.	8-K	001-37792	2.1	August 31, 2017	
10.14+	Amendment No.1 to Second Amended and Restated Reseller Agreement, dated December 18, 2017, by and between NantHealth, Inc. and NantOmics, LLC.	10-K	001-37792	10.14	March 16, 2018	

Number	Exhibit Title	Incorporated by Reference				Filed Herewith
		Form	File No.	Exhibit	Filing Date	
10.15	Assignment Agreement, dated February 1, 2018, by and between the Company and NantOmics, LLC.	10-Q/A	001-37792	10.1	July 11, 2018	
10.16	Promissory note dated August 8, 2018, by the Company to the benefit of Nant Capital, LLC.	10-Q	001-37792	10.1	August 9, 2018	
10.17#	Amended and Restated Consulting Agreement dated September 12, 2018, between the Company and Mr. Bob Petrou	10-Q	001-37792	10.2	November 21, 2018	
10.18***	Asset Purchase Agreement dated as of January 13, 2020, among Masimo Corporation and VCCB Holdings, Inc., and NantHealth, Inc.	10-K	001-37792	2.1	February 28, 2020	
10.19	Open NMS Assignment Agreement, dated as of July 22, 2020, between the Registrant and Cambridge Equities, LP.	10-Q	001-37792	10.1	August 7, 2020	
10.20	Amended and Restated Promissory Note by and between the Company and Nant Capital, LLC dated as of December 31, 2020.	8-K	001-37792	10.1	January 5, 2021	
10.21	Form of Exchange Agreement by and between the Company and certain holders, dated as of April 13, 2021	8-K	001-37792	10.1	April 14, 2021	
10.22	Form of Exchange Agreement by and between the Company and Cambridge Equities, L.P., dated as of April 13, 2021	8-K	001-37792	10.2	April 14, 2021	
10.23	Note Purchase Agreement by and among the Company, NaviNet, Inc., and certain buyers, dated as of April 13, 2021	8-K	001-37792	10.3	April 14, 2021	
10.24	Third Amended and Restated Promissory Note, dated April 27, 2021, by and between NantHealth, Inc. and Nant Capital LLC	8-K	001-37792	10.1	April 28, 2021	
10.25	Second Amended and Restated Promissory Note, dated April 27, 2021, by and between NantHealth, Inc. and Nant Capital LLC	8-K	001-37792	10.2	April 28, 2021	
10.26	Open Market Sale Agreement℠ dated November 12, 2021, by and between NantHealth, Inc. and Jefferies LLC	8-K	001-37792	10.1	November 12, 2021	
21.1	Subsidiaries					X
23.1	Consent of Ernst & Young LLP					X
24.1	Power of Attorney (Contained on Signature Page to this Annual Report on Form 10-K).					X
31.1	Certification of Principal Executive Officer required by Rule 13a-14(a) or Rule 15d-14(a) of the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.					X
31.2	Certification of Principal Financial Officer required by Rule 13a-14(a) or Rule 15d-14(a) of the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.					X
32.1 *	Certification of Chief Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.					X
32.2 *	Certification of Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.					X
101.INS**	XBRL Instance Document - the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document.					X

		Incorporated by Reference				
Number	Exhibit Title	Form	File No.	Exhibit	Filing Date	Filed Herewith
101.SCH**	XBRL Taxonomy Extension Schema Document.					X
101.CAL**	XBRL Taxonomy Extension Calculation Linkbase Document.					X
101.DEF**	XBRL Taxonomy Extension Definition Linkbase Document.					X
101.LAB**	XBRL Taxonomy Extension Label Linkbase Document.					X
101.PRE**	XBRL Taxonomy Extension Presentation Linkbase Document.					X

Represents a management contract or compensatory plan.

+ Confidential treatment granted with respect to certain portions of this exhibit. Omitted portions filed separately with the Securities and Exchange Commission.

* As contemplated by SEC Release No. 33-8212, these exhibits are furnished with this Annual Report on Form 10-K and are not deemed filed with the Securities and Exchange Commission and are not incorporated by reference in any filing of NantHealth, Inc. under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, whether made before or after the date hereof and irrespective of any general incorporation language contained in such filings.

** XBRL (eXtensible Business Reporting Language) information is furnished and not filed or a part of a registration statement or prospectus for purposes of sections 11 or 12 of the Securities Act of 1933, as amended, is deemed not filed for purposes of section 18 of the Securities Exchange Act of 1934, as amended, and is otherwise not subject to liability under these sections.

*** Certain identified information has been omitted pursuant to Item 601(b)(10) of Regulation S-K because such information is both (i) not material and (ii) would likely cause competitive harm to the Company if publicly disclosed. The Company hereby undertakes to furnish supplemental copies of the unredacted exhibit upon request by the SEC.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, as amended, the Registrant has duly caused this Annual Report on Form 10-K to be signed on its behalf by the undersigned, thereunto duly authorized.

NantHealth, Inc.

Date: February 25, 2022

By:	/s/ Patrick Soon-Shiong
Name:	Patrick Soon-Shiong
Its:	Chairman, Chief Executive Officer and Director (Principal Executive Officer)

By:	/s/ Bob Petrou
Name:	Bob Petrou
Its:	Chief Financial Officer (Principal Financial and Accounting Officer)

POWER OF ATTORNEY

Each person whose signature appears below constitutes and appoints Patrick Soon-Shiong and Bob Petrou, and each of them, as his or her true and lawful attorney-in-fact and agent, with full power of substitution and resubstitution, for him or her and in his or her name, place and stead, in any and all capacities, to sign any and all amendments to this Annual Report on Form 10-K, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in connection therewith, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or any of them, or their or his substitutes, may lawfully do or cause to be done by virtue thereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, as amended, this Annual Report on Form 10-K has been signed below by the following persons on behalf of the Registrant in the capacities and on the dates indicated.

Signature	Title	Date
/s/ Patrick Soon-Shiong Patrick Soon-Shiong	Chairman, Chief Executive Officer and Director (Principal Executive Officer)	February 25, 2022
/s/ Bob Petrou Bob Petrou	Chief Financial Officer (Principal Financial and Accounting Officer)	February 25, 2022
/s/ Michael S. Sitrick Michael S. Sitrick	Director	February 25, 2022
/s/ Kirk K. Calhoun Kirk K. Calhoun	Director	February 25, 2022
/s/ Michael Blaszyk Michael Blaszyk	Director	February 25, 2022
/s/ Deanna Wise Deanna Wise	Director	February 25, 2022

Exhibit 4.1

DESCRIPTION OF THE REGISTRANT'S SECURITIES
REGISTERED PURSUANT TO SECTION 12 OF THE SECURITIES
EXCHANGE ACT OF 1934

NantHealth, Inc. has one class of securities registered under Section 12 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), our Common Stock.

Description of Common Stock

The following description of our Common Stock is a summary and does not purport to be complete. It is subject to and qualified in its entirety by reference to our Amended and Restated Certificate of Incorporation (the "Certificate of Incorporation") and our amended and restated Bylaws (the "Bylaws"), each of which are incorporated by reference as an exhibit to the Annual Report on Form 10-K of which this Exhibit 4.1 is a part. We encourage you to read our Certificate of Incorporation, our Bylaws and the applicable provisions of the Delaware General Corporation Law, for additional information.

Common Stock

We are authorized to issue up to a total of 750,000,000 shares of common stock, par value $0.0001 per share. Holders of our common stock are entitled to one vote for each share held on all matters submitted to a vote of our stockholders. Holders of our common stock have no cumulative voting rights. Further, holders of our common stock have no preemptive, conversion, redemption or subscription rights and there are no sinking fund provisions applicable to our common stock. Upon our liquidation, dissolution or winding-up, holders of our common stock are entitled to share ratably in all assets remaining after payment of all liabilities and the liquidation preferences of any of our outstanding shares of preferred stock. Subject to preferences that may be applicable to any outstanding shares of preferred stock, holders of our common stock are entitled to receive dividends, if any, as may be declared from time to time by our board of directors, or board, out of our assets which are legally available.

As of December 31, 2021, there were 115,505,244 shares of common stock issued and outstanding and there were approximately 109 holders of record of our common stock. As of December 31, 2021, there were 14,475,636 shares of common stock underlying outstanding options, 119,705 shares of common stock underlying restricted stock units, and 0 shares of common stock underlying phantom units.

Preferred Stock

Our board is authorized, subject to certain limitations prescribed by law, to designate and issue up to a total of 20,000,000 shares of preferred stock, par value $0.0001 per share, without stockholder approval. The board may issue preferred stock from time to time in one or more series and fix the designations, preferences and rights of the shares of each such series and any qualifications, limitations or restrictions on the shares of each such series, including dividend rights and rates, conversion rights, voting rights, terms of redemption, liquidation preferences and the number of shares constituting any such series.

Our board may authorize the issuance of preferred stock with voting or conversion rights that could harm the voting power or other rights of the holders of the common stock. The issuance of preferred stock, while providing flexibility in connection with possible acquisitions and other corporate purposes, could, among other things, have the effect of delaying, deferring or preventing a change in control of our company and might harm the market price of our common stock and the voting and other rights of the holders of common stock. We have no current plans to issue any shares of preferred stock.

Anti-Takeover Effects of Delaware Law and Our Certificate of Incorporation and Bylaws

The provisions of Delaware law, our amended and restated certificate of incorporation and our amended and restated bylaws may have the effect of delaying, deferring or discouraging another person from acquiring control of our company. These provisions, which are summarized below, may have the effect of discouraging takeover bids. They are also designed, in part, to encourage persons seeking to acquire control of us to negotiate first with our board of directors. We believe that the benefits of increased protection of our potential ability to negotiate with an unfriendly or unsolicited acquirer outweigh the disadvantages of discouraging a proposal to acquire us because negotiation of these proposals could result in an improvement of their terms.

Amended and Restated Certificate of Incorporation and Amended and Restated Bylaw Provisions

Our amended and restated certificate of incorporation and our amended and restated bylaws include a number of provisions that could deter hostile takeovers or delay or prevent changes in control of our management team, including the following:

- *Board of directors vacancies.* Our amended and restated certificate of incorporation and amended and restated bylaws authorize only our board of directors to fill vacant directorships, including newly created seats. In addition, the number of directors constituting our board of directors is permitted to be set only by a resolution adopted by our board of directors. These provisions would prevent a stockholder from increasing the size of our board of directors and then gaining control of our board of directors by filling the resulting vacancies with its own nominees. This makes it more difficult to change the composition of our board of directors but promotes continuity of management.
- *Advance notice requirements for stockholder proposals and director nominations*. Our amended and restated bylaws provide advance notice procedures for stockholders seeking to bring business before our annual meeting of stockholders or to nominate candidates for election as directors at our annual meeting of stockholders. Our amended and restated bylaws also specify certain requirements regarding the form and content of a stockholder's notice. These provisions might preclude our stockholders from bringing matters before our annual meeting of stockholders or from making nominations for directors at our annual meeting of stockholders if the proper procedures are not followed. We expect that these provisions may also discourage or deter a potential acquirer from conducting a solicitation of proxies to elect the acquirer's own slate of directors or otherwise attempting to obtain control of our company.
- *No cumulative voting*. The Delaware General Corporation Law provides that stockholders are not entitled to the right to cumulate votes in the election of directors unless a corporation's certificate of incorporation provides otherwise. Our amended and restated certificate of incorporation does not provide for cumulative voting.
- *Amendment of charter provisions*. Any amendment of the above provisions in our amended and restated certificate of incorporation requires approval by holders of at least two-thirds of our then outstanding voting securities.
- *Issuance of undesignated preferred stock*. Our board of directors has the authority, without further action by the stockholders, to issue up to 20,000,000 shares of undesignated preferred stock with rights and preferences, including voting rights, designated from time to time by our board of directors. The existence of authorized but unissued shares of preferred stock would enable our board of directors to render more difficult or to discourage an attempt to obtain control of us by means of a merger, tender offer, proxy contest or other means.

- *Exclusive forum*. Unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware is the sole and exclusive forum for (i) any derivative action or proceeding brought on our behalf, (ii) any action asserting a claim of breach of a fiduciary duty owed by any of our directors, officers or other employees to us or our stockholders, (iii) any action asserting a claim arising pursuant to any provision of the Delaware General Corporation Law, our amended and restated certificate of incorporation or our amended and restated bylaws, or (iv) any action asserting a claim against us governed by the internal affairs doctrine. This choice of forum provision may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers or other employees, which may discourage such lawsuits against us and our directors, officers and other employees.

Listing

Our common stock is listed on The NASDAQ Global Select Market under the symbol "NH."

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is American Stock Transfer & Trust Company, LLC, or AST. The transfer agent and registrar's address is 6201 15th Avenue, Brooklyn, New York 11219. The transfer agent's telephone number is (800) 937-5449.

Exhibit 21.1

NantHealth, Inc.

Subsidiaries

Name of Subsidiary	Jurisdiction of Organization
NaviNet, Inc.	Delaware
NaviNet Limited	United Kingdom
NantHealth Labs, Inc.	Delaware
NantHealth Singapore Pte Ltd	Singapore
New Nant Health Canada, Inc.	Canada
The Open NMS Group, Inc.	North Carolina
OpenNMS Group Canada, Inc.	Canada

Note: Subsidiary companies excluded from the above listing, if considered in the aggregate, would not constitute a significant subsidiary.

Exhibit 23.1

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the following Registration Statements:

(1) Registration Statement (Form S-3 No. 333-254937) of NantHealth, Inc., and

(2) Registration Statement (Form S-8 Nos. 333-239326, 333-211886 and 333-225670) pertaining to the 2016 Equity Incentive Plan and Phantom Unit Plan of NantHealth, Inc.

of our report dated February 25, 2022, with respect to the consolidated financial statements of NantHealth, Inc., included in this Annual Report (Form 10-K) of NantHealth, Inc. for the year ended December 31, 2021.

/s/ Ernst & Young LLP

Los Angeles, California

February 25, 2022

Exhibit 24.1

POWER OF ATTORNEY

Each person whose signature appears below constitutes and appoints Patrick Soon-Shiong and Bob Petrou, and each of them, as his or her true and lawful attorney-in-fact and agent, with full power of substitution and resubstitution, for him or her and in his or her name, place and stead, in any and all capacities, to sign any and all amendments to this Annual Report on Form 10-K, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in connection therewith, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or any of them, or their or his substitutes, may lawfully do or cause to be done by virtue thereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, as amended, this Annual Report on Form 10-K has been signed below by the following persons on behalf of the Registrant in the capacities and on the dates indicated.

Signature	Title	Date
/s/ Patrick Soon-Shiong Patrick Soon-Shiong	Chairman, Chief Executive Officer and Director (Principal Executive Officer)	February 25, 2022
/s/ Bob Petrou Bob Petrou	Chief Financial Officer (Principal Financial and Accounting Officer)	February 25, 2022
/s/ Michael S. Sitrick Michael S. Sitrick	Director	February 25, 2022
/s/ Kirk K. Calhoun Kirk K. Calhoun	Director	February 25, 2022
/s/ Michael Blaszyk Michael Blaszyk	Director	February 25, 2022
/s/ Deanna Wise Deanna Wise	Director	February 25, 2022

Exhibit 31.1

CERTIFICATION OF CHIEF EXECUTIVE OFFICER
PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Patrick Soon-Shiong, certify that:

1. I have reviewed this Annual Report on Form 10-K of NantHealth, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 25, 2022

By: /s/ Patrick Soon-Shiong
Dr. Patrick Soon-Shiong
Chairman, Chief Executive Officer and Director
(Principal Executive Officer)

Exhibit 31.2

CERTIFICATION OF CHIEF FINANCIAL OFFICER
PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Bob Petrou, certify that:

1. I have reviewed this Annual Report on Form 10-K of NantHealth, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 25, 2022

By: /s/ Bob Petrou
Bob Petrou
Chief Financial Officer
(Principal Financial and Accounting Officer)

Exhibit 32.1

CERTIFICATION OF CHIEF EXECUTIVE OFFICER
PURSUANT TO 18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

Pursuant to the requirement set forth in Rule 13a-14(b) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and Section 1350 of Chapter 63 of Title 18 of the United States Code (18 U.S.C. §1350), I, Patrick Soon-Shiong, hereby certify that, to my knowledge:

(i) the Company's Annual Report on Form 10-K for the year ended December 31, 2021 to which this Certification is attached as Exhibit 32.1 (the "Report") fully complies with the requirements of section 13(a) or 15(d) of the Exchange Act, and

(ii) that the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of NantHealth, Inc.

Date: February 25, 2022

By: /s/ Patrick Soon-Shiong
Dr. Patrick Soon-Shiong
Chairman, Chief Executive Officer and Director
(Principal Executive Officer)

This certification accompanies the Annual Report on Form 10-K to which it relates, is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of NantHealth, Inc. under the Securities Act of 1933, as amended, or the Exchange Act (whether made before or after the date of the Form 10-K), irrespective of any general incorporation language contained in such filing.

Exhibit 32.2

CERTIFICATION OF CHIEF FINANCIAL OFFICER
PURSUANT TO 18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

Pursuant to the requirement set forth in Rule 13a-14(b) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and Section 1350 of Chapter 63 of Title 18 of the United States Code (18 U.S.C. §1350), I, Bob Petrou, hereby certify that, to my knowledge:

(i) the Company's Annual Report on Form 10-K for the year ended December 31, 2021 to which this Certification is attached as Exhibit 32.2 (the "Report") fully complies with the requirements of section 13(a) or 15(d) of the Exchange Act, and

(ii) that the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of NantHealth, Inc.

Date: February 25, 2022

By: /s/ Bob Petrou
Chief Financial Officer
(Principal Financial and Accounting Officer)

This certification accompanies the Annual Report on Form 10-K to which it relates, is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of NantHealth, Inc. under the Securities Act of 1933, as amended, or the Exchange Act (whether made before or after the date of the Form 10-K), irrespective of any general incorporation language contained in such filing.