Table of Contents

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: 001-38993

HEALTH CATALYST, INC.

(Exact name of registrant as specified in its charter)

Delaware	**45-3337483**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification Number)**

10897 South River Front Parkway #300
South Jordan, UT 84095
(801) 708-6800
(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

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

Title of each class	Trading Symbol(s)	Name of exchange on which registered
Common Stock, par value $0.001 per share	**HCAT**	**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 be file reports pursuant to Section 13 or Section 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 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 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.

Large accelerated filer	☒	Accelerated Filer	☐	Emerging growth company	☐
Non-accelerated Filer	☐	Smaller reporting 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 has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☒

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 common stock held by non-affiliates of the registrant as of June 30, 2021, the last business day of the registrant's most recently completed second fiscal quarter, was approximately $2.5 billion based on the closing price of a share of common stock on June 30, 2021 as reported by the Nasdaq Global Select Market, or Nasdaq, for such date. Shares of the registrant's common stock held by each executive officer, director and holder of 5% or more of the outstanding common stock have been excluded in that such persons may be deemed to be affiliates. This calculation does not reflect a determination that certain persons are affiliates of the registrant for any other purpose.

As of February 25, 2022, the Registrant had 53,347,231 shares of common stock outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Part III incorporates information by reference from the Registrant's definitive proxy statement to be filed with the Securities and Exchange Commission pursuant to Regulation 14A, not later than 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K, in connection with the Registrant's 2022 Annual Meeting of Stockholders.

HEALTH CATALYST, INC.
Annual Report on Form 10-K
For the Year Ended December 31, 2021

Table of Contents

In this Annual Report on Form 10-K, "we," "our," "us," "Health Catalyst," and the "Company" refer to Health Catalyst, Inc. and its wholly-owned subsidiaries.

PART I

Special Note Regarding Forward-Looking Statements

This Annual Report on Form 10-K contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. Forward-looking statements are based on our management's beliefs and assumptions and on information currently available to our management. All statements other than statements of historical facts are "forward-looking statements" for purposes of these provisions, including those relating to future events or our future financial performance and financial guidance. In some cases, you can identify forward-looking statements by terminology such as "may," "might," "will," "should," "expect," "plan," "anticipate," "project," "believe," "estimate," "predict," "potential," "intend" or "continue," the negative of terms like these or other comparable terminology, and other words or terms of similar meaning in connection with any discussion of future operating or financial performance. These statements are only predictions. All forward-looking statements included in this Annual Report on Form 10-K are based on information available to us on the date hereof, and we assume no obligation to update any such forward-looking statements. Any or all of our forward-looking statements in this document may turn out to be wrong. Actual events or results may differ materially. Our forward-looking statements can be affected by inaccurate assumptions we might make or by known or unknown risks, uncertainties and other factors. We discuss many of these risks, uncertainties and other factors in this Annual Report on Form 10-K in greater detail under the subheading below "Summary of Risk Factors" as well as heading "Item 1A—Risk Factors." We caution investors that our business and financial performance are subject to substantial risks and uncertainties.

Summary of Risk Factors

- We operate in a highly competitive industry, and if we are not able to compete effectively, our business and results of operations will be harmed.
- We may be unable to successfully execute on our growth initiatives, business strategies, or operating plans.
- If we fail to effectively manage our growth and organizational change, our business and results of operations could be harmed.
- The ongoing global coronavirus (COVID-19) pandemic could harm our business, results of operations, and financial condition.
- If we do not continue to innovate and provide services that are useful to customers and users, we may not remain competitive, and our revenue and results of operations could suffer.
- Our business could be adversely affected if our customers are not satisfied with our Solution.
- If our existing customers do not continue or renew their contracts with us, renew at lower fee levels or decline to purchase additional technology and services from us, it could have a material adverse effect on our business, financial condition, and results of operations.
- Our Solution is dependent on our ability to source data from third parties, and such third parties could take steps to block our access to data, which could impair our ability to provide our Solution or limit the effectiveness of our Solution.
- 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.
- If our security measures are breached or unauthorized access to customer data is otherwise obtained or we cannot comply with evolving federal and state healthcare regulatory and data privacy laws and regulations, our Solution may be perceived as not being secure, customers may reduce the use of or stop using our Solution, and/or we may incur significant liabilities.
- Our results of operations have in the past fluctuated and may continue to fluctuate significantly, and if we fail to meet the expectations of analysts or investors, our stock price and the value of an investment in our common stock could decline substantially.

- Our pricing may change over time and our ability to efficiently price our Solution will affect our results of operations and our ability to attract or retain customers.

- If our Solution fails to provide accurate and timely information, or if our content or any other element of our Solution is associated with faulty clinical decisions or treatment, we could have liability to customers, members, clinicians, or patients, which could adversely affect our results of operations.

- We rely on third-party providers, including Microsoft Azure, for computing infrastructure, network connectivity, and other technology-related services needed to deliver our Solution. Any disruption in the services provided by such third-party providers could adversely affect our business and subject us to liability.

- 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, potentially require us to issue credits to our customers, and negatively impact our relationships with users or customers, adversely affecting our brand and our business.

Item 1. Business

Overview

We are a leading provider of data and analytics technology and services to healthcare organizations. Our Solution comprises a cloud-based data platform, analytics software, and professional services expertise. Our customers, which are primarily healthcare providers, use our Solution to manage their data, derive analytical insights to operate their organizations, and produce measurable clinical, financial, and operational improvements. We envision a future where all healthcare decisions are data-informed.

The Health Catalyst Way

Our Mission

Our **mission** is to be the *catalyst* for massive, measurable, data-informed healthcare improvement. We fulfill our mission through a confluence of the following elements:

- ***Data Platform*:** integrate data in a flexible, open, and scalable platform to power healthcare's digital transformation;

- ***Analytics Applications*:** deliver insights on how to measurably improve through the use of analytics applications;

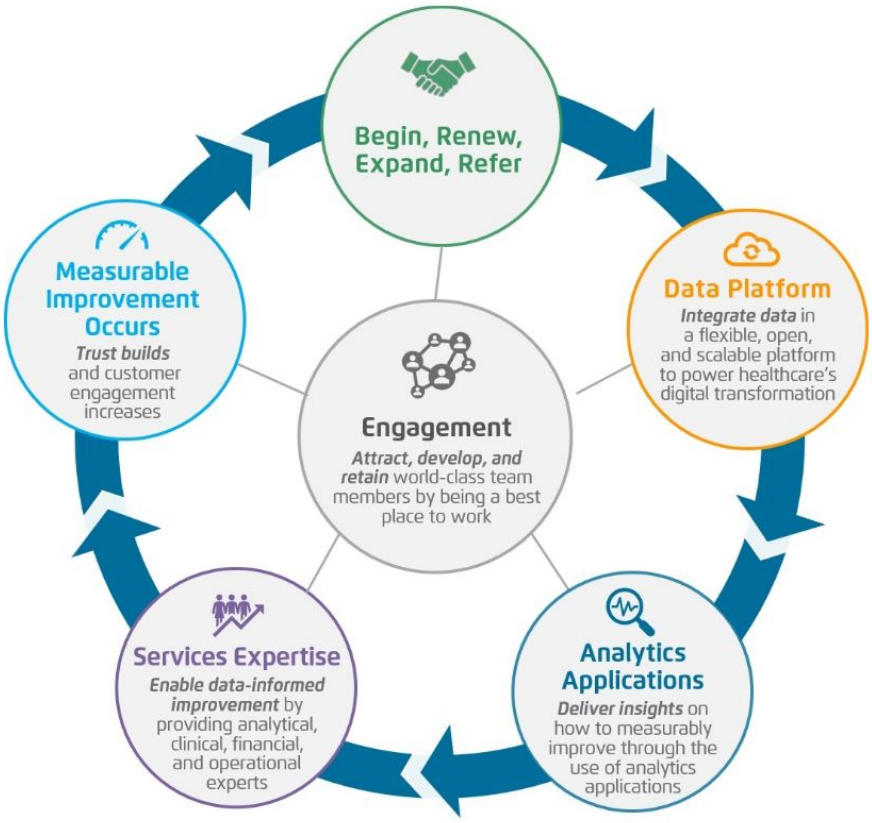
- ***Services Expertise*:** enable data-informed improvement by providing analytical, clinical, financial, and operational experts; and

- ***Engagement*:** attract, develop, and retain world-class team members by being a best place to work.

The Health Catalyst Flywheel

We accomplish our mission with each of our customers by following a process and strategy we call the Health Catalyst Flywheel, or the Flywheel. This process includes delivering on the three components of our Solution: data platform, analytics applications, and services expertise, which together drive measurable improvements. At the center of the Flywheel is the engagement of our team members. Team member engagement is foundational to everything we do and is the #1 priority of our CEO and broader leadership team. When team members feel connected to our mission and are listened to, cared for, and respected at an extraordinary level, they produce outstanding work, which enables our customers to measurably improve. As customers realize improvements, their trust in Health Catalyst builds, their engagement in our shared work increases, and they choose to renew and expand their relationship with us, while also referring Health Catalyst to key decision-makers at other potential customers. Customer renewal, expansion, and referral produce growing, scalable, and predictable financial performance.

The cycle described above creates momentum for our business and is encapsulated in the following diagram:



Given the central importance of team member engagement to our company's long-term success, we have been purposeful in defining and emphasizing operating principles and cultural attributes that reinforce the commitment to our mission and to team member engagement. We consistently focus on our operating principles and cultural attributes, as well as our mission and Flywheel (collectively, the Health Catalyst Way), which we review in all new hire orientations, company-wide meetings, and board of directors' meetings. Furthermore, we regularly measure our team member engagement and adjust our practices based on team member feedback. We have demonstrated an elite, consistent level of team member engagement over time as demonstrated by a 95th to 99th percentile ranking by Gallup.

We will continue to emphasize the Health Catalyst Way, including our operating principles and cultural attributes, which we believe will be central to our long-term success.

Our Operating Principles

The principles that govern our daily interactions include:

Improvement

- We are deeply committed to enabling our customers to achieve and sustain measurable clinical, financial, and operational improvements
- We nurture deep, long-term customer partnerships because achieving and sustaining improvement is a transformational journey

- We pragmatically balance the vision, priority, and pace of innovation for data and analytics technology. We prioritize innovations that accelerate improvement
- We attract, develop, and retain experts who know best practices in their domain, leverage analytics for insight, and accelerate adoption for sustained improvement

Ownership

- We are accountable, as owners, to enable our customers' measurable improvements
- We make decisions that balance and optimize the interests of our teammates, customers, patients, and owners
- We avoid an entitlement mentality and are good stewards of our assets
- We don't micro-manage and we encourage autonomy while also supporting scalable consistency

Respect

- We recognize the immeasurable value of every individual
- We listen carefully to one another and learn from each of our colleagues
- We care deeply about our colleagues, including teammates, customers, patients, and owners
- We benefit from one another's diverse backgrounds and experiences

Transparency

- We courageously tell the truth and we face the truth
- We are the same company, culture, and people in all settings
- We treat confidential information appropriately, and we protect the private data of our customers' patients
- We recommend the best solutions for our customers, whether or not those solutions come from Health Catalyst

Our Cultural Attributes

The attributes we prioritize in hiring, retention, and promotion include:

Continuous learner

- I can learn from anyone
- I love to learn, and I am a lifelong student
- I recognize my mistakes and correct them quickly; I fail fast
- I am open to and respond favorably to feedback and coaching
- I value my autonomy and use it to gain new knowledge and skills
- I recognize that diversity of perspectives leads to better decisions
- I am self-aware and seek improvement, personally and professionally
- I watch, listen, and learn from others; thank them for their teachings; and apply the teachings to the mastery of my profession

Hard working

- I have a deep commitment to massive healthcare improvement
- I stick to the task until the job is completed, then take on new work
- I lead a balanced, healthy life that enables me to sustain my pace
- I am willing to contribute more than my fair share to a project
- I make personal sacrifices, as needed, to get the work done
- I recognize that not every part of my job will be fun

Humble

- I listen first
- I assume positive intent
- I ask for help when I need it
- I serve others without looking for recognition
- I am secure in my own abilities (quiet self-confidence)
- I seek to improve myself before trying to improve others
- I am excited when others succeed and I offer sincere praise
- I often acknowledge others for their contributions to my success
- I frequently express gratitude and appreciation to those around me

World-class

- I strive to be the best in the world at what I do by continuously learning
- I recognize the importance of excellence in pursuit of our mission
- I am well informed about events and trends in healthcare, data, and analytics
- I actively contribute to the company’s pursuit of excellence - in the data and analytics technology we build, in the domain expertise we provide, and in the functions that support this important work

Business Overview

Healthcare organizations operate in an environment that is characterized by waste, changing economics, and data complexity. Organizations that leverage analytics to make data-informed decisions will be better positioned to succeed in this environment. Our customers, which are primarily healthcare providers, use our Solution to manage their data, derive analytical insights to operate their organizations, and produce measurable clinical, financial, and operational improvements.

The core elements of our Solution include:

- ***Data platform.*** The Data Operating System (DOS) is a healthcare-specific, cloud-based, open, flexible, scalable and self-service platform for analytics, app development & interoperability that provides customers a single comprehensive environment to integrate and organize data from their disparate software systems. Our data platform has been built with modern technology and is deeply embedded with healthcare domain knowledge, enabling a broad range of analytics. DOS has amassed one of the largest and most comprehensive data assets of its kind, which enables us to deliver differentiated insights to our customers.

- ***Analytics applications.*** Our analytics applications build on top of our data platform and are designed to analyze the most common problems our customers face across Clinical & Quality, Population Health, Financial & Operational and Research use cases. These analytics applications allow our customers to pinpoint opportunities for measurable improvement across their entire enterprise and are employed by a broad range of users from healthcare executives to front-line clinicians providing care. We developed this suite of software analytics applications over the last several years based on thoughtful measurement of the most critical analytics needs faced by our customers. Our software analytics applications are further enhanced by a broad range of analytics accelerators, which are pre-built, configurable data models with customizable visualizations that can be tailored to specific customer needs.

- ***Services expertise.*** Our world-class team consists of both analytics experts, such as data analysts, data engineers, and data scientists, and domain experts, such as healthcare administrators, physicians, and nurses. Our services are comprised of data & analytics services, domain expertise & education services, outsourcing services, and implementation services. Our services team members leverage our technology to help our customers shorten time-to-value and achieve sustainable measurable improvements. Examples of the services expertise we provide include opportunity analysis and prioritization, data governance, data modeling and analysis, quality and process improvement strategy, cost accounting, data abstraction, and population health strategies. Our approach to integrate data, analytics, and expertise into a holistic Solution is differentiated and has been recognized as among the best in the industry by multiple third parties, including KLAS, Chilmark Research, and others.

We have generated over a thousand documented, customer-verified improvements across clinical, financial, and operational domains. In addition to the positive ROI of customers utilizing our Solution compared to a costly homegrown solution, each of these documented improvements is highly valuable to our customers, enabling them to realize substantial clinical improvements, financial savings, or operational efficiencies. As we deliver measurable improvements, trust builds, and our customers engage with us more broadly and refer new business. This is evidenced by a continued increase in improvements achieved by our customers over time. Customers who have recently contracted with us have already started achieving measurable improvements, while longer-standing customers have seen the number of annual improvements meaningfully grow.

We serve the majority of our customers through a subscription-based contract model. As of December 31, 2021, we served 90 customers with a DOS subscription contract and over 350 other customers. The majority of our customers who are not on a DOS subscription contract are technology customers resulting from our business acquisitions. Our customers include academic medical centers, integrated delivery networks, community hospitals, large physician practices, ACOs, health information exchanges, health insurers, and other risk-bearing entities. Example customers include Acuitas Health, Allina Health, AlohaCare, Children's Hospital of Orange County, Community Health Network, Mass General Brigham, Northwell Health, Steward Health Care, UnityPoint Health, and UPMC.

Our Strengths

Our operational and financial success is based on the following key strengths:

Healthcare-specific, flexible, open, and scalable data platform. DOS was purpose-built to handle healthcare-specific data management and analytics use cases, including the ingestion of disparate healthcare data sources. By linking healthcare-specific vocabularies and rules with a flexible and adaptable framework, we enable faster and more repeatable analytics. As an open and self-service platform, we support the development of analytics and applications on top of DOS, which accelerates the adoption and integration of our platform by our customers. The majority of analytics that are run on top of DOS are client-generated as opposed to outputs of our applications. The scalable, cloud-based infrastructure enables quicker product iteration and deployment.

Integrated and comprehensive nature of our Solution creates measurable improvements. Through the delivery of our comprehensive and integrated Solution of data, analytics, and services expertise, we enable measurable improvements for our customers. Our Solution has generated over a thousand documented, customer-verified improvements across clinical, financial, and operational domains.

Attractive operating model. We have an attractive operating model due to the recurring nature of our revenue and the scalability of our data platform and analytics applications. Our recurring revenue subscription model provides a high degree of revenue visibility. The open and flexible nature of DOS makes it highly scalable, which allows us to deliver additional applications on top of DOS with limited incremental costs. We expect the benefits of our operating model and cost structure to generate operating leverage in our business.

Unique and differentiated culture focused on team member engagement. Our leadership team's commitment to the team member is central to our long-term success. Our commitment to building and maintaining a culture where team members are highly engaged in our mission directly benefits not only team members, but also customers and other stakeholders.

The team member experience is the #1 priority of our CEO and other members of our leadership team. On a daily basis, our leadership focuses on the team member experience, by listening carefully to team member feedback and making changes based on this feedback, by erring in favor of the team member, and by working as an advocate for each team member. This focus enables team members to become highly engaged in fulfilling our mission to be the catalyst for massive, measurable, data-informed improvement in healthcare.

This deep team member engagement in our mission leads team members to build world-class data and analytics technology and to provide industry-leading expertise. The care that the leadership team shows to team members becomes the same care that team members show to our customers, and through this care and commitment, our customers experience accelerating and measurable improvement, which leads them to renew, expand, and refer. By focusing on the team member experience, our customers realize greater improvements, which leads to a high-growth, predictable business model.

Recognized industry leader by multiple third parties. The strength of our Solution has been recognized by multiple third-parties as among the best in the industry. These include KLAS Overall Customer Satisfaction Scores that are frequently among the highest in the peer group, as well as Chilmark Research and others. We recognized early on that healthcare organizations need purpose-built technology products and services to support data-driven insights, and have spent more than a decade building and commercializing our healthcare-specific Solution. We invested meaningful time and resources over the last decade to build a comprehensive and differentiated set of products and services for our customers, which is not easily replicated by other healthcare and/or technology companies. Our customers benefit from our technology innovation and expertise which allows them to avoid the significant time, financial resources, and technical proficiency they would need to invest to build related capabilities in-house. Similarly, the overall complexity and dynamic nature of healthcare require purpose-built products and services to address the challenges our customers face, preventing traditional technology companies from easily leveraging and deploying existing platforms.

Tenured management team with healthcare technology experience. Health Catalyst is led by a team of healthcare and data veterans with many years of combined experience leading digital transformation at health systems, such as Intermountain Healthcare. Our founders and executives collaborated for nearly a decade to pioneer and develop a new data warehousing architecture that resolves many of the problems encountered using traditional data warehousing methodologies. The unique combination of talent and experience across healthcare and technology, as well as our management team's commitment to the Health Catalyst Way, underpin everything we do.

Our Growth Strategies

Our growth strategies reflect our mission to be the catalyst for massive, measurable, data-informed healthcare improvement. Our focus on multiple channels, as well as our collaborative company culture, results in high levels of sustainable growth. Our strategic levers to drive growth include:

- ***Grow our overall customer base.*** We have a substantial opportunity to continue growing our customer base through our active sales and marketing strategy and significant word-of-mouth references. We currently estimate our total core addressable market to include more than 1,200 healthcare organizations, including health systems and risk-bearing entities. We believe there is ample room to win new business and deepen market penetration in our core market. Further, healthcare providers outside of the United States face similar challenges to those in the United States and can implement our Solution to address them. We plan to opportunistically pursue international markets by expanding our business in the United Kingdom, Canada, Asia-Pacific, and the Middle East.

- ***Expand within our current customer base.*** We intend to deepen and expand the relationships we have with our existing customer base. Our relationship with a new customer oftentimes starts through the use of targeted analytics applications and services to pinpoint and achieve a single measurable clinical, financial, or operational improvement. As we deliver measurable improvements, trust builds, and our customers engage with us more broadly and purchase additional applications and services. We have achieved continued DOS Subscription customer growth in part due to strong customer retention and customer referrals. This is evidenced by our positive Dollar-based Retention Rates of 112%, 102%, and 109% for the years ended December 31, 2021, 2020, and 2019, respectively. We will continue to invest in helping customers identify additional uses for our Solution, ensuring they achieve measurable improvements throughout our relationship with them.

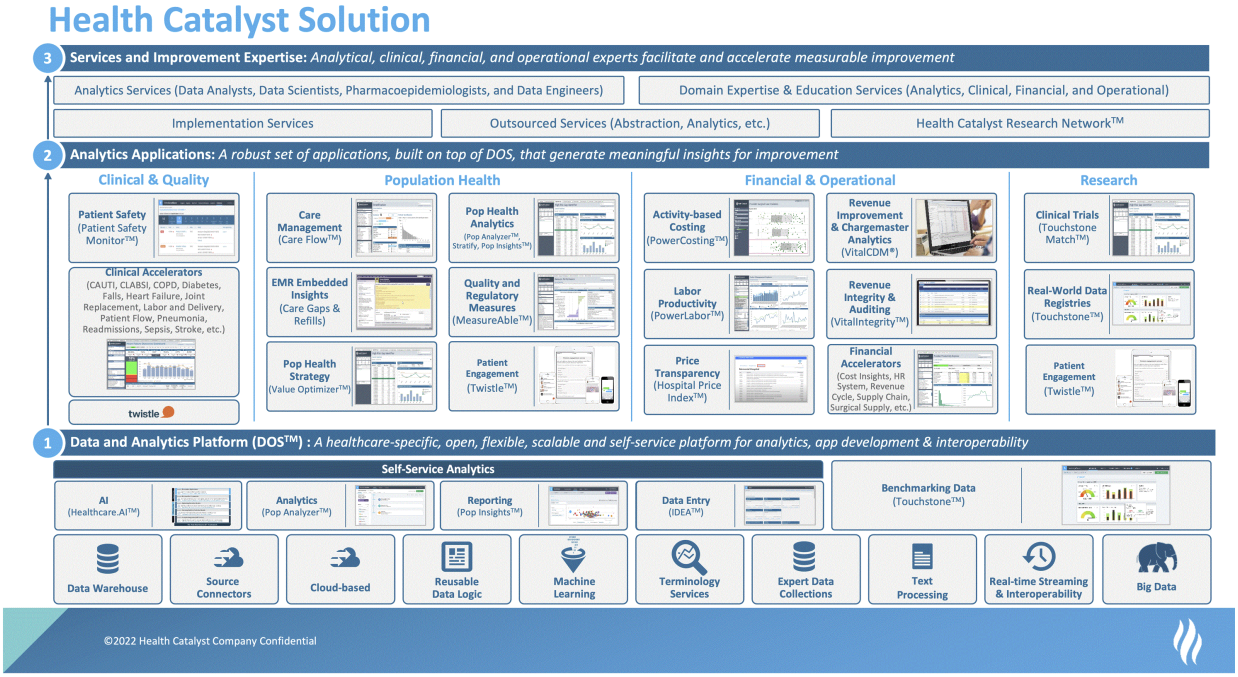
- ***Add new analytics applications and services offerings.*** The expansion of our Solution and enhancement of our applications library will accelerate as we deepen our customer relationships and add to our dataset. Because our platform is open and we partner with our customers, we are able to identify new opportunities for further improvements and leverage that insight with other customers across our core market to develop new analytics applications and services offerings. We have used this process to build several new software applications through our history, and we will continue to invest in product development, particularly at the analytics applications layer of our technology stack.

- ***Grow our addressable market through additional healthcare business segment adjacencies.*** We believe there are significant applications for our Solution outside of our core market, as evidenced by our early efforts to expand into the life sciences market and certain international markets. While we believe there are significant opportunities in our core market, these business segment agencies have the potential to significantly grow our addressable market and business over time.

- ***Selectively pursue acquisitions and partnerships.*** We plan to continue evaluating and identifying opportunities where we can leverage our platform to scale and consolidate both data assets and best-of-breed applications. We believe that competing point solutions vendors will have difficulty in growing their offerings into sustainable businesses, which we believe translates into a robust mergers and acquisitions pipeline for us. We have a track record of identifying and integrating new and complementary capabilities, including our acquisitions of Healthcare Data Works, Medicity, Able Health, Healthfinch, Vitalware, and Twistle. Moreover, we believe the companies we partner with and acquire choose us because of our collaborative, best-in-class culture which we view as a differentiating factor in sourcing acquisitions and partnerships.

Our Solution

Our Solution empowers our customers to run a data-informed business. Our healthcare-specific, open, flexible, scalable and self-service data platform, advanced analytics applications, and services expertise guide our customers to greater levels of digital maturity, enabling clinical, financial, and operational improvements. The diagram below illustrates the three layers of our comprehensive Solution.



Data and analytics platform - the Data Operating System (DOS)

DOS is a healthcare-specific, open, flexible, scalable and self-service data and analytics platform that allows customers to integrate and organize their disparate data sources to enable insights across clinical, financial, and operational objectives. It serves as a digital backbone, allowing customers to extract data from transactional source systems, combine disparate data sets into a unified source of truth and query the dataset directly. DOS is a cloud-based technology that we primarily provide through Microsoft Azure. In order to enable more advanced feature development and functionality, we are in the process of migrating the small number of remaining on-premise DOS customers to Microsoft Azure.

DOS has been uniquely designed and purpose-built to handle the complex, ever-evolving nature of healthcare-specific data and analytics. This includes healthcare-specific terminology, data governance, meta-data management, and analytics. By creating healthcare-specific data models to organize industry-specific data, we enable faster and more repeatable analytics and insights. We have developed the capabilities to turn these insights into actions by connecting our analytics into the workflow systems, such as an electronic health record (EHR).

Differentiating attributes of our DOS include:

- *Data Warehouse.* We believe our innovative architecture has a proven track record of agility and adaptability to new rules, vocabularies, and data content. Our open and self-service platform enables database-level querying and custom analytics use-cases.

- *Source Connectors.* Our platform is designed to quickly ingest data from the numerous systems and siloed data sources our customers possess. We have prebuilt connectors to the most common transactional software systems used by healthcare organizations. The DOS data management console enables customers to manage robust ETL processes and scheduling.

- *Cloud-based.* Modern cloud-based architecture is secure and scalable. Being cloud-based enables quicker product iteration and innovation.

- *Reusable data logic.* Registries, value sets, and other data logic sit on top of the raw data and can be accessed, reused, and updated through open APIs, enabling customer and third-party application development. We update hundreds of registries, value sets, and measure logic regularly. We believe this reusable, healthcare data content enables customers to achieve analytic value more quickly than leveraging homegrown or cross-industry products and services.

- *Machine learning*. Embedded within DOS are machine learning algorithms that our customers can leverage for predictive analytics. Customers can also build their own machine learning data pipelines within DOS.

- *Terminology services.* By standardizing the complex language used to code entries in various health records and clinical systems, DOS facilitates decision support, consistent reporting, and analytics and interoperability.

- *Expert data collections.* A combination of our expert healthcare data model and suite of curated data collections tuned to general and specific healthcare solutions helps our customers build a sustainable data management system for the future needs of healthcare.

- *Closed-loop EHR integration.* Bridges the gap between insight and front-line action by interjecting knowledge at the point of care or service, including back into the workflow of source systems, such as an EMR.

- *Text processing.* Enables the extraction of additional data currently trapped in various unstructured text. We believe the ability to gather insight from clinical notes remains an area of untapped healthcare intelligence with tremendous potential.

- *Real-time streaming and interoperability.* Near or real-time data streaming from the source all the way to the expression of that data through DOS, supporting both transaction-level exchange of data and analytic processing.

- *Big data.* Ability to access, organize, and analyze massive and unique, structured and unstructured, data sets allows us to drive differentiated analytic insights for our customers.

- *AI (Healthcare.AI).* Transformational suite of healthcare-specific, self-service AI products distinguished by capabilities in analytics integration, predictive modeling, retrospective comparisons and prescriptive optimization.

- *Analytics (PopAnalyzer).* Enables non-SQL writers like clinicians and administrators to dynamically author, manage, view, and publish pre-built and custom population ruleset definitions using a drag-and-drop interface. Rulesets can be published as a registry, leveraged across the DOS analytics platform and augmented with summary metrics using our tools. These registries can be used for internal quality improvement and research efforts or for reporting to external organizational registries

- *Reporting (PopInsights).* Enables users to add clinical, financial, and operational measures in an executive dashboard format. Measures are trended over time and updated on a near real-time basis from DOS. Users can customize information, share it with others, and set their own alerts and notifications. As a result, executives and their teams are empowered to take control of the data deluge to plan, prioritize improvement projects, create alignment among groups, strategize the best products and services, and communicate decisions more effectively.
- *Data entry (IDEA).* Collects custom sets of data for instant entry into DOS.

- *Benchmarking (Touchstone).* Uses artificial intelligence to proactively identify where a customer is performing relative to benchmark sets composed of proprietary and publicly-available data; subsequently recommends and prioritizes opportunities for improvement.

Analytics applications

We have thoughtfully developed and acquired several scalable analytics applications that allow us to deliver the right data to the right place at the right time. Combining this pioneering technique with our data asset of more than one hundred million patient records, our customers systematically uncover opportunities for actionable interventions. We have organized our analytics applications into robust sets of applications that generate meaningful insights for improvement in key areas: Clinical & Quality, Population Health Management, Financial & Operational, and Research.

Clinical & Quality

- *Patient safety (Patient Safety Monitor).* Trigger-based surveillance system enabled by DOS. This application monitors patient-level data and applies machine learning algorithms to help clinicians predict whether a patient is currently at risk for a safety event so that the patient's clinicians can intervene as they deem necessary to prevent harm events.

- *Clinical accelerators.* Pre-built clinical data models and customizable visualizations that leverage the broad set of integrated data stored within our DOS platform for a specific analytic use-case. We believe these help customers achieve a much faster time-to-value solution compared to building an analytic model from the ground up.

Population Health Management

- *Care management.* Patient-centric population health service that utilizes data integration, patient stratification and intake, care coordination, patient engagement, and performance measurement to optimize care delivery for high-risk patients.

- *Pop health analytics (Pop Analyzer, Stratify, Pop Insights).* A suite of population-health specific analytics modules, enabling population-level analytics and reporting to support value-based care arrangements.

- *EMR embedded insights (Care Gaps and Refills).* Cloud-based product suite that provides a workflow integration engine delivering insights and analytics into EMR workflows to automate physicians' ability to close patient care gaps in real-time.

- *Quality and regulatory measures (MeasureAble).* Foundational product for integrating hundreds of measures across financial, regulatory, and quality departments and reporting those measures to third-party entities like CMS. Enables proactive measures surveillance to enhance outcomes and facilitates monitoring behaviors, interventions, and activities needed to influence, manage, or change outcomes.

- *Pop health strategy (Value Optimizer).* Allows for a comprehensive, quantified view of potential financial improvement opportunities within a value-based care arrangement. These insights help population health leaders optimize their value-based care strategy and make population health efforts profitable.

- *Patient engagement (Twistle).* Healthcare patient engagement SaaS technology that, among other uses, helps automate patient-centered, personalized, multi-channel communication between care teams and patients that aims to transform the patient experience, drive better care outcomes, and reduce healthcare costs.

Financial & Operational

- *Activity-Based Costing (PowerCosting).* Activity-based costing software application that leverages clinical and operational data from DOS to calculate a true cost of clinical processes and patients on the most granular level. Enables CFOs, physicians, service line leaders, and clinical and financial analysts to understand the true cost of providing care and relate those costs to patient outcomes.

- *Revenue improvement & chargemaster analytics (VitalCDM).* Revenue workflow optimization and analytics solution that organizes, displays, and manages all chargemaster data within one connected solution, enabling hospital billing departments to operate more transparently, price strategically, and present an accurate bill or claim with consistency. We believe this technology is proven to create more accurate reimbursement, increase operational efficiency, and minimize compliance risk.

- *Labor productivity (PowerLabor).* A labor management solution that allows healthcare decision makers to predict labor needs, plan for changes in staffing, and optimize staff-to-patient ratios.

- *Revenue integrity & auditing (VitalIntegrity).* Comprehensive charge capture solution that efficiently manages hospital charge capture processes, detects compliance issues and minimizes revenue leakage resulting from under-and over-charging, late or missing coding, mismatched charges and supplies, and a wide range of chargemaster-related issues.

- *Price transparency (Hospital Price Index).* Enables hospitals to address pricing transparency, including complex requirements of the price transparency mandate.

- *Financial accelerators.* Pre-built financial data models and customizable visualizations that leverage the broad set of integrated data stored within our DOS platform for a specific analytic use-case. We believe these help customers achieve a much faster time-to-value solution compared to building an analytic model from the ground up.

Research

- *Clinical trials (Touchstone Match).* Intelligent SaaS technology that enables researchers to perform clinical trial feasibility analyses, identify sites for clinical trials, and search for patients eligible for clinical trials leveraging our vast health dataset.

- *Real-world data.* Data registries that leverage our national repository of high-quality, research-grade healthcare data.

Services and improvement expertise

We provide a range of high-value-add professional services to help our customers implement and maximize the value of our Solution. Our professional services experts combine industry-leading talent across multiple domain areas with a deep working knowledge of our technology to help our customers achieve a faster time-to-value and drive more meaningful and sustainable measurable improvements. Our services expertise can be provided as a supplement to our customers' existing teams or as an outsourced function for our customers. Our team is comprised of over 465 analytics experts and over 65 domain experts, including several nationally-recognized healthcare and analytics leaders.

Our domain experts provide services across a range of specialties, including:

Infrastructure, data, and analytics services expertise:

- *Data engineering services.* Help customers ingest data sources and provide consulting around DOS best practice and strategy around leveraging new DOS features.
- *Analytics engineering services.* Partner with clients to generate meaningful insights produced from Health Catalyst technology that lead improvement efforts. Guides best practice and training.
- *Implementation services.* Implement and configure analytics applications.
- *Data science services.* Work with client teams to apply scientific methods, processes, algorithms, and systems to ask and answer questions using data. In addition, build software tools to enable self-service capabilities for customers.
- *Analytics strategy services.* Provide agile development workshops, continued data architecture and Extract Transform Load support, documentation and training, measure reporting efficiency, and prioritization and staff augmentation.
- *Data governance services.* Offer advisory services related to leveraging customers' unique, strategic data assets, managing data access and security, and establishing cross-functional governance structures.
- *Outsourced services*. Managed services solution that enables healthcare organizations to boost efficiencies, capabilities, and savings—and optimize employee experience—through outsourcing specific functions, such as data abstraction or analytics, to Health Catalyst.

Healthcare domain expertise:

- *Quality and process improvement strategy.* Organizational readiness assessments and opportunity analysis. Clinical pathways, best practices, and protocol implementation. Lean methodology and clinical variation reduction recommendations.
- *Patient safety services.* Transition from voluntary under-reporting to proactive prevention using data-driven triggers.
- *Cost accounting services.* Expert analysis of fine-grain activity-based costing methods and cost-saving improvement opportunities.
- *Population health and value-based care services.* Organizational transformation services to enhance abilities to take on cost risk for patient populations.
- *Abstraction data submission services.* Support in collecting quality and regulatory information and submitting it to various associations.
- *Health Catalyst University - educational services.* Hands-on courses, programs, and customizable training opportunities to provide our customers with knowledge, practical skills, and take-home tools needed to drive improvement efforts.
- *Health Catalyst Research Network.* A curated network that will include healthcare provider systems, biopharmaceutical companies, and contract research organizations to facilitate connections and collaboration to increase the efficiency, reach, and value of clinical research efforts.

Our Customers

Our customers comprise academic medical centers, integrated delivery networks, community hospitals, large physician practices, ACOs, health information exchanges, health insurers, and other risk-bearing entities. Today, we help executives, administrators, clinicians, and technicians in hundreds of hospitals and thousands of clinics. We work closely in collaboration with many key stakeholders including chief executive officers, chief financial officers, chief information officers, chief technology officers, population health teams, and IT teams among others. From our perspective, discussions regarding data and analytics strategy have oftentimes transitioned from a discussion with members of the IT department to an enterprise-wide, strategic discussion with the C-suite and other leadership members. No customer represented more than 10% of our total revenue for the years ended December 31, 2021, 2020, and 2019.

Team Members and Culture

We currently employ more than 1,200 team members. We believe that we have good relationships with our team members. None of our team members are subject to collective bargaining agreements or are represented by a union.

Our corporate culture is a critical component of our success. We believe that building and maintaining a remarkable culture benefits our customers and team members. Our culture promotes an environment where team members trust each other, strive to continually learn, are motivated to lead hard-working yet balanced lives, make decisions with integrity and humility in mind, communicate openly and honestly, embrace teamwork and collaboration, and enjoy their days at work.

Our team members, who strive to uphold our values and live our mission every day, are at the forefront of cultivating and spreading this culture across the healthcare organizations that we serve. This continuous interaction across the entire Health Catalyst community creates a cycle that further reinforces our culture and fuels our growth.

Our team member engagement scores, as measured by Gallup, have consistently ranked in the 95th to 99th percentile and our KLAS Overall Customer Satisfaction Score has regularly outpaced the segment average. We engage compensation consultants to enable us to make data-informed decisions with respect to our compensation and benefit packages so we continue to attract and retain top talent. Moreover, we have received numerous awards and recognition for our culture and service to our customers. In total, we have been recognized 69 times as a “best place to work” by Glassdoor, Gallup, and Modern Healthcare, among others. Additionally, we have received multiple awards for customer satisfaction and excellence from KLAS, Chilmark Research, and others. For example, our Chargemaster Management product, a revenue analytics product addition through the Vitalware acquisition, was ranked Best in KLAS for 2019, 2020, 2021, and 2022. We believe that these honors demonstrate the loyalty of our team members and our customers and that our culture is driving the behaviors that will help fuel our future growth.

Sales and Marketing

We market and sell our services to healthcare organizations primarily in the United States, but opportunistically in other geographies, including the United Kingdom, the Middle East, and Asia-Pacific. Our dedicated sales team identifies healthcare organizations that would benefit from our Solution. Our sales team works closely with our subject matter experts to foster long-term relationships with our customers’ and sales prospects’ leadership teams. In the third quarter of each year, we hold the Healthcare Analytics Summit (HAS), an event showcasing data-informed improvement in healthcare.

Research and Development

Our ability to compete depends in large part on our continuous commitment to research and development and our ability to rapidly introduce new applications, technologies, features, and functionality. Our research and development organization is responsible for the design, development, and testing of our data platform and analytics applications. Based on customer feedback and needs, we focus our efforts on developing new products, functionality, applications, and core technologies and further enhancing the usability, functionality, reliability, performance, and flexibility of our data platform and existing analytics applications.

Intellectual Property

We rely on a combination of patent, trademark, and copyright laws in the United States as well as confidentiality procedures and contractual provisions to protect our trade secrets, including proprietary technology, databases, and our brand.

As of December 31, 2021, we had twelve issued U.S. patents, three issued Canadian patents, one issued Great Britain patent, and one issued European patent, which expire between 2026 and 2037, and two patent applications pending in the United States and one patent application pending in Canada. These patents and patent applications seek to protect proprietary inventions relevant to our business. We intend to pursue additional patent protection to the extent we believe it would be beneficial to our business and cost-effective.

We have registered "Health Catalyst" and our flame design logo as trademarks in the United States and certain other jurisdictions. We also have filed other trademark applications that are meaningful to our business in the United States and certain other jurisdictions and will pursue additional trademark registrations to the extent we believe it would be beneficial and cost-effective. We are the registered holder of a variety of domain names that include "Health Catalyst" and similar variations.

We maintain our intellectual property and confidential business information in a number of ways. For instance, we have a policy of requiring all employees and consultants to execute confidentiality agreements upon the commencement of an employment or consulting relationship with us. Our employee agreements also require relevant employees to assign to us all rights to any inventions made or conceived during their employment with us in accordance with applicable law. In addition, we have a policy of requiring individuals and entities with which we discuss potential business relationships to sign non-disclosure agreements. Lastly, our agreements with customers include confidentiality and non-disclosure provisions.

Competition

We have experienced, and expect to continue to experience, intense competition from a number of companies. Our primary competitors are industry-agnostic analytics companies, EHR companies, point solution vendors, as well as healthcare organizations that perform their own analytics. Industry-agnostic analytics companies include IBM, Tableau CRM, and Qlik. EHR companies include Cerner Systems and Epic Systems. Point solution companies include Optum Analytics, Premier, Arcadia.io, Strata Decision Technology, Craneware, Innovaccer, and Intersystems.

The principal competitive factors in our industry include:

- level of customer satisfaction;
- ease of deployment and use of solutions and applications;
- breadth and depth of solution and application functionality;
- access to, and ability to glean insights from, large data sets;
- brand awareness and reputation;
- modern and adaptive technology platform;
- capability for customization, configurability, integration, security, scalability, and reliability of applications;
- total cost of ownership;
- ability to innovate and respond to customer needs rapidly;
- size of customer base and level of user adoption;
- regulatory compliance verification and functionality;
- domain expertise with respect to healthcare; and
- ability to integrate with legacy enterprise infrastructures and third-party applications.

We believe that we compete favorably with our competitors on the basis of these factors. However, many of our competitors and potential competitors have significantly greater financial, technological, and other resources and name recognition than we do and more established distribution networks and relationships with healthcare providers. As a result, many of these companies may respond more quickly to new or emerging technologies and standards and changes in customer requirements. These companies may be able to invest more resources in research and development, strategic acquisitions, sales and marketing, patent prosecution, litigation, and financing capital equipment acquisitions for their customers.

Government Regulation

Our business is subject to extensive, complex, and rapidly changing federal and state laws and regulations. Various federal and state agencies have discretion to issue regulations and interpret and enforce healthcare laws. While we believe we comply in all material respects with applicable healthcare laws and regulations, these regulations can vary significantly from jurisdiction to jurisdiction, and interpretation of existing laws and regulations may change periodically. Federal and state legislatures also may enact various legislative proposals that could materially impact certain aspects of our business. The following are summaries of key federal and state laws and regulations that impact our operations:

Government regulation of health-related and other personal information

In the United States, numerous state and federal laws and regulations, including data breach notification laws, health information privacy laws, and consumer protection laws and regulations, govern the collection, use, disclosure, and protection of health-related and other personal information could apply to our operations or the operations of our customers.

For example, the federal Health Insurance Portability and Accountability Act of 1996, as amended by the Health Information Technology for Economic and Clinical Health Act of 2009, and regulations implemented thereunder (collectively, HIPAA) impose obligations on "covered entities," including certain health care providers, health plans, and health care clearinghouses, and their respective "business associates" that create, receive, maintain or transmit protected health information (PHI) for or on behalf of such covered entities, as well as their covered subcontractors with respect to safeguarding the privacy, security and transmission of PHI.

Since we provide services that require us to use and disclose PHI on behalf of our covered entity customers, we are a business associate. Our covered entity customers are required under HIPAA to enter into business associate agreements (BAAs) with us and we are required to enter into BAAs with our downstream subcontractors that access or otherwise process PHI on our behalf. As a business associate, we are required to comply with the HIPAA security standards, and certain provisions of the HIPAA privacy standards and breach notification rule, and may be subject to significant civil and criminal penalties for failure to do so.

In addition to HIPAA, most states have enacted patient confidentiality laws that protect against the disclosure of confidential medical information, including privacy safeguards, and security standards. Many states have also adopted data security breach notification requirements. Such state laws, if more stringent than HIPAA requirements, are not preempted by the federal requirements, and we must comply with them. In addition, certain states have adopted other laws governing the use and disclosure of personal information. For example, California recently enacted the California Consumer Privacy Act (CCPA), which went into effect on January 1, 2020. The CCPA, among other things, creates new data privacy obligations for covered companies and provides new privacy rights to California residents, including the right to access and delete their personal information, opt out of certain personal information sharing, and receive detailed information about how their personal information is used. The CCPA also creates a private right of action with statutory damages for certain data breaches, thereby potentially increasing risks associated with a data breach. Further, the California Privacy Rights Act (CPRA) was recently voted into law by California residents. The CPRA significantly amends the CCPA, and imposes additional data protection obligations on covered companies doing business in California, including additional consumer rights processes and opt outs for certain uses of sensitive data. It also creates a new California data protection agency specifically tasked to enforce the law, which would likely result in increased regulatory scrutiny of California businesses in the areas of data protection and security. The substantive requirements for businesses subject to the CPRA will go into effect on January 1, 2023, and become enforceable on July 1, 2023. Similar laws have passed in Virginia and Colorado, and have been proposed in other states and at the federal level, reflecting a trend toward more stringent privacy legislation in the United States. The enactment of such laws could have potentially conflicting requirements that would make compliance challenging.

Federal and state consumer protection laws are being applied increasingly by the FTC, Federal Communications Commission and states' attorneys general to regulate the collection, use, storage and disclosure of personal or patient information, through websites or otherwise, and to regulate the presentation of website content and to regulate direct marketing, including telemarketing and telephonic communication. Courts may also adopt the standards for fair information practices promulgated by the FTC, which concern consumer notice, choice, security, and access.

Fraud, waste, and abuse

Even though we do not directly order or provide healthcare services that are reimbursable by Medicare, Medicaid or other third-party payors or submit claims or receive reimbursement from any such payor, certain federal and state healthcare laws and regulations pertaining to fraud, abuse and waste apply or may apply to our business and to the financial arrangements through which we market, sell and provide our services to our healthcare provider customers. These laws and regulations include or may include the following:

- The federal Anti-Kickback Statute makes it illegal for any person to knowingly and willfully solicit, receive, offer, or pay any remuneration (including any kickback, bribe, or rebate), directly or indirectly, overtly or covertly, in cash or in kind, in exchange for, or intended to induce or reward, including arranging for or recommending, either the referral of an individual, or the purchase, lease, order, prescription, or recommendation of any good, facility, item or service for which payment may be made, in whole or in part, under a federal healthcare program, such as the Medicare and Medicaid program. A person or entity does not need to have actual knowledge of the federal Anti-Kickback Statute or specific intent to violate it to have committed a violation.
- The federal civil and criminal false claims laws, such as the federal False Claims Act, and civil monetary penalties laws impose criminal and civil penalties and authorizes civil whistleblower or qui tam actions, against individuals or entities for, among other things: knowingly presenting, or causing to be presented, to a federal government healthcare program, claims for payment that are false or fraudulent; making, using or causing to be made or used, a false statement or record material to payment of a false or fraudulent claim or obligation to pay or transmit money or property to the federal government; or knowingly concealing or knowingly and improperly avoiding or decreasing an obligation to pay money to the federal government. The government has prosecuted revenue cycle management service providers for causing the submission of false or fraudulent claims in violation of the FCA. In addition, the government may assert that a claim including items or services resulting from a violation of the federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the federal False Claims Act. Moreover, private individuals have the ability to bring actions on behalf of the U.S. government under the federal False Claims Act as well as under the false claims laws of several states.
- HIPAA also contains a provision that imposes criminal and civil liability for knowingly and willfully executing, or attempting to execute, a scheme to defraud any healthcare benefit program (including private payors) or obtain, by means of false or fraudulent pretenses, representations, or promises, any of the money or property owned by, or under the custody or control of, any healthcare benefit program, regardless of the payor (e.g., public or private) and knowingly and willfully falsifying, concealing or covering up by any trick or device a material fact or making any materially false statements in connection with the delivery of, or payment for, healthcare benefits, items, or services. Similar to the federal Anti-Kickback Statute, a person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation. Similarly, the federal false statements statute prohibits knowingly and willfully falsifying, concealing, or covering up a material fact or making any materially false statement in connection with the delivery of or payment for healthcare benefits, items, or services.

In addition, many states have similar fraud and abuse statutes and regulations that apply regardless of the payor, including commercial payors and self-pay patients. Violations of federal and state fraud and abuse laws may be punishable by criminal and/or civil sanctions, including significant penalties, fines, disgorgement, additional reporting requirements and oversight under a corporate integrity agreement or similar agreement to resolve allegations of noncompliance with these laws, imprisonment and/or exclusion or suspension from federal and state healthcare programs such as Medicare and Medicaid, and debarment from contracting with the U.S. government.

Corporate practice of medicine and fee-splitting laws

In many states, there are laws that that prohibit business entities, such as us, from providing professional medical services or directly employing or otherwise exercising control over professional judgment or medical decisions by physicians or other licensed health care professionals (such activities generally referred to as the “corporate practice of medicine”). Corporate practice of medicine regulations and other similar laws may also prevent fee-splitting, or the sharing of professional service income with non-professional or business interests. Overseeing a care coordination or care management team could be alleged in some cases to involve treatment or diagnosis of patients which requires a clinic license or other state license or permission. Any determination that we are acting in the capacity of a healthcare provider and acting improperly as a healthcare provider, exercising undue influence or control over a healthcare provider or impermissibly sharing fees with a healthcare provider, may result in additional compliance requirements, expense, and liability to us, and require us to change or terminate some portions of our contractual arrangements or business.

Patient safety organization certification and other certification requirements

Our patient safety organization (PSO) is certified by the Agency for Healthcare Research and Quality (AHRQ), an agency of the Department of Health and Human Services (HHS). We must meet certain requirements to maintain this certification. In addition, there may be other federal and state certification requirements that we may be required to meet from time to time in connection with our Solution. We cannot be certain that our Solution will continue to meet these standards. The failure to comply with these certification requirements could result in the loss of certification.

Interoperability Standards. ONC is charged under the 21st Century 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 future data exchange requirements for trusted exchange. ONC continues to modify and refine these standards. We may incur increased software development and administrative expense and delays in delivering technology and services if we need to update our services 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 services. If our services 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 technology and services.

The 21st Century Cures Act includes provisions related to data interoperability, information blocking, and patient access. The Centers for Medicare & Medicaid Services (CMS) and the Office of the National Coordinator for Health Information Technology (ONC) recently issued final rules related to these provisions, which include, among other things, requirements surrounding information blocking, changes to ONC's Health IT Certification Program and requirements that CMS-regulated payors make relevant claims/care data and provider directory information available through standardized patient access and provider directory application programming interfaces (APIs) that connect to provider electronic health records. Any failure to adequately comply with these rules may adversely impact our business and our ability to compete.

In a regulatory climate that is uncertain, our operations may be subject to direct and indirect adoption, expansion or reinterpretation of various federal and state laws and regulations. Compliance with these amended and/or future laws and regulations may require us to change our practices at an undeterminable and possibly significant initial monetary and annual expense. There could be laws and regulations applicable to our business that we have not identified or that, if changed, may apply to our business operations. Additionally, the introduction of new services may require us to comply with additional, yet undetermined, laws and regulations.

U.S. Food and Drug Administration (FDA)

The FDA regulates medical or health-related software, including machine learning functionality and predictive algorithms, if such software falls within the definition of a "medical device" under the Federal Food, Drug, and Cosmetic Act (FDCA). Medical devices are subject to extensive and rigorous regulation by the FDA and by other federal, state and local authorities. The FDCA and related regulations govern the conditions of safety, efficacy, clearance, approval, manufacturing, quality system requirements, labeling, packaging, distribution, storage, recordkeeping, reporting, marketing, advertising, and promotion of medical devices. However, historically, the FDA has exercised enforcement discretion for certain low-risk software functions, and has issued several guidance documents outlining its approach to the regulation of software as a medical device. In addition, FDCA excludes certain types of software from the definition of a medical device, including certain medical-related software, including software used for administrative support functions at a healthcare facility, software intended for maintaining or encouraging a healthy lifestyle, software designed to store electronic health records, software for transferring, storing, or displaying medical device data or in vitro diagnostic data, and certain clinical decision support software. Accordingly, we believe our currently marketed products are not currently regulated by the FDA as medical devices, or are otherwise subject to FDA's current enforcement discretion policies.

FDA premarket clearance and approval requirements - Unless an exemption applies, each medical device commercially distributed in the United States requires either FDA clearance of a 510(k) premarket notification, or approval of a premarket approval application (PMA). Under the FDCA, medical devices are classified into one of three classes—Class I, Class II or Class III—depending on the degree of risk associated with each medical device and the extent of manufacturer and regulatory control needed to ensure its safety and effectiveness. Class I includes devices with the lowest risk to the patient and are those for which safety and effectiveness can be assured by adherence to the FDA's General Controls for medical devices, which include compliance with the applicable portions of the Quality System Regulation (QSR), facility registration and product listing, reporting of adverse medical events, and truthful and non-misleading labeling, advertising, and promotional materials. Class II devices are subject to the FDA's General Controls, and special controls as deemed necessary by the FDA to ensure the safety and effectiveness of the device. These special controls can include performance standards, postmarket surveillance, patient registries and FDA guidance documents.

While most Class I devices are exempt from the 510(k) premarket notification requirement, manufacturers of most Class II devices are required to submit to the FDA a premarket notification under Section 510(k) of the FDCA requesting permission to commercially distribute the device. The FDA's permission to commercially distribute a device subject to a 510(k) premarket notification is generally known as 510(k) clearance. Devices deemed by the FDA to pose the greatest risks, such as life-sustaining, life-supporting or some implantable devices, or devices that have a new intended use, or use advanced technology that is not substantially equivalent to that of a legally marketed device, are placed in Class III, requiring approval of a PMA. Some pre-amendment devices are unclassified, but are subject to the FDA's premarket notification and clearance process in order to be commercially distributed.

Postmarket regulation - After a device is cleared or approved for marketing, numerous and pervasive regulatory requirements continue to apply. These include:

- establishment registration and device listing with the FDA;
- QSR requirements, which require manufacturers, including third-party manufacturers, to follow stringent design, testing, control, documentation and other quality assurance procedures during all aspects of the design and manufacturing process;
- labeling and marketing regulations, which require that promotion is truthful, not misleading, fairly balanced and provide adequate directions for use and that all claims are substantiated, and also prohibit the promotion of products for unapproved or "off-label" uses and impose other restrictions on labeling; FDA guidance on off-label dissemination of information and responding to unsolicited requests for information;
- clearance or approval of product modifications to 510(k)-cleared devices that could significantly affect safety or effectiveness or that would constitute a major change in intended use of one of our cleared devices;
- medical device reporting regulations, which require that a manufacturer report to the FDA if a device it markets may have caused or contributed to a death or serious injury, or has malfunctioned and the device or a similar device that it markets would be likely to cause or contribute to a death or serious injury, if the malfunction were to recur;
- correction, removal and recall reporting regulations, which require that manufacturers report to the FDA field corrections and product recalls or removals if undertaken to reduce a risk to health posed by the device or to remedy a violation of the FDCA that may present a risk to health;
- complying with requirements governing Unique Device Identifiers on devices and also requiring the submission of certain information about each device to the FDA's Global Unique Device Identification Database;
- the FDA's recall authority, whereby the agency can order device manufacturers to recall from the market a product that is in violation of governing laws and regulations; and
- post-market surveillance activities and regulations, which apply when deemed by the FDA to be necessary to protect the public health or to provide additional safety and effectiveness data for the device.

Manufacturers of medical device products marketed in the United States are required to comply with the applicable portions of the QSR, which cover the methods and the facilities and controls for the design, manufacture, testing, production, processes, controls, quality assurance, labeling, packaging, distribution, installation and servicing of finished devices intended for human use. The QSR also requires, among other things, maintenance of a device master file, device history file, and complaint files. Device manufacturers are also subject to periodic scheduled or unscheduled inspections by the FDA. The FDA has broad regulatory compliance and enforcement powers.

If the FDA determines that we failed to comply with applicable regulatory requirements, including a determination that our software products require prior FDA clearance or approval to be legally marketed in the United States, it can take a variety of compliance or enforcement actions, which may result in any of the following sanctions: warning letters, untitled letters, fines, injunctions, consent decrees and civil penalties; recalls, withdrawals, or administrative detention or seizure of our products; operating restrictions or partial suspension or total shutdown of production; refusing or delaying requests for 510(k) marketing clearance or PMA approvals of new products or modified products; withdrawing 510(k) clearances or PMA approvals that have already been granted; refusal to grant export or import approvals for our products; or criminal prosecution.

Foreign regulations

Our subsidiaries in the United Kingdom, Singapore, and the United Arab Emirates are subject to additional regulations by the Government of the United Kingdom, as well as its subdivisions, the Government of Singapore, and the Government of the United Arab Emirates, respectively. These include federal and local corporation requirements, restrictions on exchange of funds, employment-related laws and qualification for tax status.

Foreign data collection. The collection and use of personal health data in the European Economic Area (EEA) is governed by various laws concerning privacy, data protection and data security, most notably the General Data Protection Regulation 2016/679 (GDPR). The GDPR applies to any company established in the EEA as well as to those outside the EEA if they collect and use personal data in connection with offering goods or services to individuals in the EEA or the monitoring of their behavior. The GDPR enhances data protection obligations for processors and controllers of personal data, including, for example, expanded disclosures about how personal information is to be used, limitations on retention of information, mandatory data breach notification requirements and onerous new obligations on services providers. The GDPR also imposes strict rules on the transfer of personal data out of the EEA to other countries, including the United States; in July 2020, the Court of Justice of the European Union limited how organizations could lawfully transfer personal data from the EEA to the United States by invalidating the EU-US Privacy Shield and imposing further restrictions on use of the standard contractual clauses, which could increase our costs and our ability to efficiently process personal data from the EEA. Non-compliance with the GDPR may result in monetary penalties of up to €20 million or 4% of worldwide revenue, whichever is higher. The GDPR may impose additional responsibility and liability in relation to personal data that we process and we may be required to put in place additional mechanisms ensuring compliance with data protection rules. In addition, member states of the EEA may impose further obligations relating to the processing of health data, which could further add to our compliance costs and limit how we process this information. From January 1, 2021, we may be subject to the GDPR and also the United Kingdom (UK) GDPR, which, together with the amended UK Data Protection Act 2018, retains the GDPR in UK national law. The UK GDPR mirrors the fines under the GDPR, e.g. fines up to the greater of €20 million (£17.5 million) or 4% of global turnover. The relationship between the UK and the European Union in relation to certain aspects of data protection law remains unclear, and it is unclear how the UK data protection laws and regulations will develop in the medium to longer term, and how data transfers to and from the UK will be regulated in the long term. The European Commission has adopted an adequacy decision in favor of the UK, enabling data transfers from European Union member states to the UK without additional safeguards. However, the UK adequacy decision will automatically expire in June 2025 unless the European Commission re-assesses and renews or extends that decision. We also may become subject to similar laws and regulations in other countries outside of the EEA in which we do business.

Foreign Corrupt Practices Act (FCPA) and foreign anti-bribery laws. The FCPA makes it illegal for U.S. persons, including U.S. companies, and their subsidiaries, directors, officers, employees, and agents, to promise, authorize or make any corrupt payment, or otherwise provide any item of value, directly or indirectly, to any foreign official or any foreign political party or party official to obtain or retain business. Violations of the FCPA can also result in violations of other U.S. laws, including anti-money laundering, mail and wire fraud, and conspiracy laws. There are severe penalties for violating the FCPA. In addition, the Company may also be subject to other non-U.S. anti-corruption or anti-bribery laws, such as the U.K. Bribery Act 2010.

Export controls. Economic and trade sanctions programs that are administered by OFAC prohibit or restrict transactions to or from, and dealings with specified countries, their governments, and in certain circumstances, with individuals and entities that are specially designated nationals of those countries, and other sanctioned persons, including narcotics traffickers and terrorists or terrorist organizations. Further, federal regulations impose authorization, reporting, and/or licensing requirements prior to the export of certain software that incorporates encryption technology. These requirements may apply to our Solution to the extent that our software with encryption functionality is implemented abroad or is hosted on servers in a foreign country to provide services to customers outside the United States. In addition, various countries also regulate the import of certain encryption technology, including through import permitting and licensing requirements, and have enacted laws that could limit our customers' ability to import our technology into those countries.

Corporate Information

Health Catalyst, Inc. (Health Catalyst) was incorporated under the laws of Delaware in September 2011. We were formerly known as HQC Holdings, Inc. In March 2017, we changed our name to Health Catalyst, Inc. Our principal executive offices are located at 10897 South River Front Parkway #300, South Jordan, Utah 84095, and our telephone number is (801) 708-6800. We completed our initial public offering of shares of our common stock, also referred to as our IPO, in July 2019, and our common stock is listed on Nasdaq under the symbol "HCAT." Our corporate website address is www.healthcatalyst.com. Information contained on or accessible through our website is not part of this Annual Report on Form 10-K.

Human Capital Management

At the center of the Flywheel described above is the engagement of our team members. Team member engagement is foundational to everything we do and is the #1 priority of our CEO and broader leadership team. When team members feel connected to our mission and are listened to, cared for, and respected at an extraordinary level, they produce outstanding work, which enables our customers to measurably improve. As customers realize improvements, their trust in Health Catalyst builds, their engagement in our shared work increases, and they choose to renew and expand their relationship with us, while also referring Health Catalyst to key decision-makers at other potential customers. Customer renewal, expansion, and referral produce growing, scalable, and predictable financial performance.

Our key human capital management objectives include, among others: (i) attracting, developing, and retaining a diverse and talented workforce; (ii) providing opportunities for learning, development, career growth, and movement within Health Catalyst; (iii) evaluating compensation and benefits, and rewarding performance; (iv) investing in physical, emotional, and financial health of team members; (v) obtaining team member feedback; (vi) maintaining and enhancing our culture and mission; and (vii) communicating with our board of directors on a routine basis on key topics. We have implemented and continue to develop many programs designed to achieve these priorities, some of which are further described below.

As of December 31, 2021, we had more than 1,200 team members, almost all of whom are located in the United States. We have not experienced any work stoppages, and we consider our team member relations to be good. We encourage you to review the Environmental, Social and Governance scorecard found on our website at https://ir.healthcatalyst.com/esg/overview (ESG Website) for more detailed information regarding our human capital programs and initiatives. The information on our website is not incorporated by reference into this Annual Report on Form 10-K.

Team member engagement

We regularly engage with our team members to assess their job satisfaction, including conducting regular team member surveys and hosting monthly all team member meetings in which leadership answers questions from team members. We use information from these sources, among others, to improve our ability to attract, develop, and retain talented team members who will help advance our mission.

Compensation, benefits and wellness

In addition to market-competitive base pay, short-term bonus incentives, and long-term equity incentives, we provide comprehensive team member benefits and a variety of other health and wellness resources. We are committed to fair compensation and opportunity in our workplace.

Pay equity

We are committed to ensuring our team members receive equal pay for equal work. We establish components and ranges of compensation based on market and benchmark data. Within this context, we strive to pay all employees equitably within a reasonable range, taking into consideration factors such as role; market data; internal equity; job location; relevant experience; and individual, business unit, and company performance, among others. We regularly review our compensation practices and analyze the equity of compensation decisions. We institute measures, such as communications and trainings, to recognize, interrupt and prevent bias in hiring, performance management, and compensation decisions and we provide resources to further develop managers and leaders to help them make equitable decisions about pay.

Diversity and inclusion

We are committed to fostering a culture of inclusion and belonging, and to building a diverse workforce to drive innovation and collective growth, which we believe is critical to our success. We continue to formalize and invest in our diversity and inclusion initiatives as further described on the ESG website listed above. These diversity and inclusion efforts – spearheaded by our Chief Diversity & Inclusion Officer and our five affinity groups in partnership with hundreds of our team members – focus on diversity and inclusion in our workforce, in our workplace and in healthcare. We continue to focus upon inclusive recruitment and hiring practices to source diverse talent and mitigate potential bias throughout the hiring process, including expanding our internship program to include remote workplace options, attending diversity conferences and job fairs. Our Shades affinity group for team members of color contributes to the marketing and design of our AI driven Health Equity Assessment and Guidance Solution to overcome disparities in care in the healthcare ecosystem. Over the past year, we continued to expand our diversity training for our team members with the creation and launch of our Diversity Dialogue Series, which included outside speakers.

Growth and development

We invest significant resources to develop talent and actively foster a learning culture where team members are empowered to drive their personal and professional growth. We offer extensive onboarding and regular training programs to prepare our team members at all levels for career progression and individual development. We also offer annual continuing education reimbursement to allow team members to be continuous learners and seek new challenges.

Flexible work environment

We help our team members succeed by providing flexibility in where and how they work. For many years, we have enabled team members to have flexible work arrangements, including a large percentage of remote team members. We believe these arrangements can increase team member's ownership, satisfaction and productivity, as well as enable us to hire from a broader, more diverse pool of talent. In response to the COVID-19 pandemic, we allowed all team members to be remote to protect the health, safety and wellness of our team members. We continue to support our workforce with the technology and infrastructure necessary to work from a remote location, including a work equipment and utilities reimbursement program to help our team member improve their dynamic workspaces.

Available Information

Our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, proxy statement, and all amendments to these filings, are available free of charge from our investor relations website (https://ir.healthcatalyst.com/financial-information/sec-filings) as soon as reasonably practicable following our filing with or furnishing to the Securities and Exchange Commission, or the SEC, of any of these reports. The SEC's website (https://www.sec.gov) contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC.

Our investors and others should note that we announce material information to the public about our company, products and services, and other issues through a variety of means, including our website (https://www.healthcatalyst.com/), our investor relations website (https://ir.healthcatalyst.com/), press releases, SEC filings, public conference calls, and social media, in order to achieve broad, non-exclusionary distribution of information to the public.

We encourage our investors and others to review the information we make public in these locations as such information could be deemed to be material information. Please note that this list may be updated from time to time. The contents of any website referred to in this Annual Report on Form 10-K are not intended to be incorporated into this Annual Report on Form 10-K or in any other report or document we file.

Item 1A. Risk Factors

You should carefully consider the following risk factors, in addition to the other information contained in this Annual Report on Form 10-K, including the section of this report titled "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our financial statements and related notes. If any of the events described in the following risk factors and the risks described elsewhere in this report occurs, our business, operating results and financial condition could be seriously harmed. This Annual Report on Form 10-K also contains forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those anticipated in the forward-looking statements as a result of factors that are described below and elsewhere in this report.

Risks Related to Our Business and Industry

We operate in a highly competitive industry, and if we are not able to compete effectively, our business and results of operations will be harmed.

The market for healthcare solutions is intensely competitive. We compete across various segments within the healthcare market, including with respect to data analytics and technology platforms, healthcare consulting, care management and coordination, population health management, and health information exchange. Competition in our market involves rapidly changing technologies, evolving regulatory requirements and industry expectations, frequent new product introductions, and changes in customer requirements. If we are unable to keep pace with the evolving needs of our customers and continue to develop and introduce new applications and services in a timely and efficient manner, demand for our Solution may be reduced and our business and results of operations will be adversely affected.

We face competition from industry-agnostic analytics companies and EHR companies, such as Epic Systems and Cerner. We also compete with other large, well-financed, and technologically sophisticated entities. Some of our current large competitors, such as Optum Analytics and IBM, have greater name recognition, longer operating histories, significantly greater resources than we do, and/or more established distribution networks and relationships with healthcare providers. As a result, our current and potential competitors may be able to respond more quickly and effectively than we can to new or changing opportunities, technologies, standards, or customer requirements. In addition, current and potential competitors have established, and may in the future establish, cooperative relationships with vendors of complementary products, or services to increase the availability of their products or services to the marketplace. Current or future competitors may consolidate to improve the breadth of their products, directly competing with our Solution. Accordingly, new competitors may emerge that have greater market share, larger customer bases, greater breadth and volume of data, more widely adopted proprietary technologies, broader offerings, greater marketing expertise, greater financial resources, and larger sales forces than we have, which could put us at a competitive disadvantage.

Further, in light of these advantages, even if our Solution is more effective than the product or service offerings of our competitors, current or potential customers might select competitive products and services in lieu of purchasing our Solution. We face competition from niche vendors, who offer stand-alone products and services, and from existing enterprise vendors, including those currently focused on software products, which have information systems in place with customers in our target markets. These existing enterprise vendors may now, or in the future, offer or promise products or services with less functionality than our Solution, but offer ease of integration with existing systems and that leverage existing vendor relationships. Increased competition is likely to result in pricing pressures, which could negatively impact our sales, profitability, or market share. Our patient engagement, population health, and care coordination services face competition from a wide variety of market participants. For example, certain health systems have developed their own population health and care coordination systems. If we fail to distinguish our offerings from the other options available to healthcare providers, the demand for and market share of those offerings may decrease.

Changes in the healthcare industry could affect the demand for our Solution, cause our existing contracts to be terminated, and negatively impact the process of negotiating future contracts.

As the healthcare industry evolves, changes in our customer and vendor bases may reduce the demand for our Solution, result in the termination of existing contracts or certain services provided under existing contracts, and make it more difficult to negotiate new contracts on terms that are acceptable to us. For example, the increasing market share of EHR companies in data analytic services at hospital systems may cause our existing customers to terminate contracts with us in order to engage EHR companies to provide these services. Similarly, customer and vendor consolidation results in fewer, larger entities with increased bargaining power and the ability to demand terms that are unfavorable to us. If these trends continue, we cannot assure you that we will be able to continue to maintain or expand our customer base, negotiate contracts with acceptable terms, or maintain our current pricing structure, and our revenue may decrease.

General reductions in expenditures by healthcare organizations, or reductions in such expenditures within market segments that we serve, could have similar impacts with regard to our Solution. Such reductions may result from, among other things, reduced governmental funding for healthcare; a decrease in the number of, or the market exclusivity available to, new drugs coming to market; or adverse changes in business or economic conditions affecting healthcare payors or providers, the pharmaceutical industry, or other healthcare companies that purchase our services (e.g., changes in the design of health plans). In addition, changes in government regulation of the healthcare industry could potentially negatively impact our existing and future contracts. Any of these changes could reduce the purchase of our Solution by such customers, reducing our revenue and possibly requiring us to materially revise our offerings. In addition, our customers' expectations regarding pending or potential industry developments may also affect their budgeting processes and spending plans with respect to our Solution.

The global coronavirus (COVID-19) pandemic could harm our business, results of operations, and financial condition.

In March 2020, the World Health Organization declared COVID-19 a global pandemic. This pandemic, which has continued to spread, and the related adverse public health developments, including orders to shelter-in-place, travel restrictions, and mandated business closures, have adversely affected workforces, organizations, governments, customers, economies, and financial markets globally, leading to an economic downturn and increased market volatility. It has also disrupted the normal operations of many businesses, including ours. The ongoing waves of COVID-19, especially in light of the Delta and Omicron variants, as well as intensified measures undertaken to contain the spread of COVID-19, could decrease healthcare industry spending, adversely affect demand for our technology and services, cause one or more of our customers to file for bankruptcy protection or go out of business, cause one or more of our customers to fail to renew, terminate, or renegotiate their contracts, affect the ability of our sales team to travel to potential customers and the ability of our professional services teams to conduct in-person services and trainings, impact expected spending from new customers, negatively impact collections of accounts receivable, and harm our business, results of operations, and financial condition.

Further, the sales cycle for a new DOS subscription customer, which we estimate to be approximately one year, could lengthen, resulting in a potentially longer delay between increasing operating expenses and the generation of corresponding revenue, if any. We cannot predict with any certainty whether and to what degree the disruption caused by the COVID-19 pandemic and reactions thereto will continue and expect to face difficulty accurately predicting our internal financial forecasts. The pandemic also presents challenges as our entire workforce is currently working remotely and shifting to assisting new and existing customers who are also generally working remotely. It is not possible for us to predict the duration or magnitude of the adverse results of the pandemic and its effects on our business, results of operations, or financial condition at this time.

We may be unable to successfully execute on our growth initiatives, business strategies, or operating plans.

We are continually executing a number of growth initiatives, strategies, and operating plans designed to enhance our business. For example, we recently expanded our data analytics services into the payor and life sciences markets. We may not be able to successfully complete these growth initiatives, strategies, and operating plans and realize all of the benefits, including growth targets and cost savings, that we expect to achieve or it may be more costly to do so than we anticipate. A variety of factors could cause us not to realize some or all of the expected benefits. These factors include, among others, delays in the anticipated timing of activities related to such growth initiatives, strategies, and operating plans, increased difficulty and cost in implementing these efforts, including difficulties in complying with new regulatory requirements and the incurrence of other unexpected costs associated with operating the business. Moreover, our continued implementation of these programs may disrupt our operations and performance. As a result, we cannot assure you that we will realize these benefits. If, for any reason, the benefits we realize are less than our estimates or the implementation of these growth initiatives, strategies, and operating plans adversely affect our operations or cost more or take longer to effectuate than we expect, or if our assumptions prove inaccurate, our business, financial condition, and results of operations may be materially adversely affected.

If we fail to provide effective professional services and high-quality customer support, our business and reputation would suffer.

Our professional services and high-quality, ongoing customer support are important to the successful marketing and sale of our products and services and for the renewal of existing customer agreements. Providing these services and support requires that our professional services and support personnel have healthcare, technical, and other knowledge and expertise, making it difficult for us to hire qualified personnel and scale our professional services and support operations. The demand on our customer support organization will increase as we expand our business and pursue new customers, and such increased support could require us to devote significant development services and support personnel, which could strain our team and infrastructure and reduce our profit margins. If we do not help our customers quickly resolve any post-implementation issues and provide effective ongoing customer support, our ability to sell additional products and services to existing and future customers could suffer and our reputation would be harmed.

Our sales cycles can be long and unpredictable, and our sales efforts require a considerable investment of time and expense. If our sales cycle lengthens or we invest substantial resources pursuing unsuccessful sales opportunities, our results of operations and growth would be harmed.

Our sales process entails planning discussions with prospective customers, analyzing their existing solutions and identifying how these potential customers can use and benefit from our Solution. The sales cycle for a new DOS subscription customer, from the time of prospect qualification to the completion of the first sale, we estimate to be approximately one year and in some cases has exceeded two years. We spend substantial time, effort and money in our sales efforts without any assurance that our efforts will result in the sale of our Solution.

In addition, our sales cycle and timing of sales can vary substantially from customer to customer because of various factors, including the discretionary nature of potential customers' purchasing and budget decisions, the announcement or planned introduction of new analytics applications or services by us or our competitors, and the purchasing approval processes of potential customers. If our sales cycle lengthens or we invest substantial resources pursuing unsuccessful sales opportunities, our results of operations and growth would be harmed.

Our DOS platform or our analytics applications may not operate properly, which could damage our reputation, give rise to claims against us, or divert application of our resources from other purposes, any of which could harm our business and results of operations.

Proprietary software development is time-consuming, expensive, and complex. Unforeseen difficulties can arise. We may encounter technical obstacles, and it is possible that we will discover additional problems that prevent our applications from operating properly.

If our systems do not function reliably or fail to meet user or customer expectations in terms of performance, customers could assert liability claims against us or attempt to cancel their contracts with us, and members could choose to terminate their use of our Solution. This could damage our reputation and impair our ability to attract or retain customers and members.

Information services as complex as those we offer have, in the past, contained, and may in the future develop or contain, undetected defects, vulnerabilities, or errors. We cannot be assured that material performance problems or defects in our software will not arise in the future. Errors may result from sources beyond our control, including the receipt, entry, or interpretation of patient information; the interface of our software with legacy systems that we did not develop; or errors in data provided by third parties. Despite testing, defects or errors may arise in our existing or new software or service processes following introduction to the market.

Customers rely on our Solution to collect, manage, and report clinical, financial, and operational data, and to provide timely and accurate information regarding medical treatment and care delivery patterns. They may have a greater sensitivity to service errors and security vulnerabilities than customers of software products in general. Clinicians may also rely on our predictive models for care delivery prioritization, and to inform treatment protocols. Limitations of liability and disclaimers that purport to limit our liability for damages related to defects in our software or content which we may include in our subscription and services agreements may not be enforced by a court or other tribunal or otherwise effectively protect us from related claims. In most cases, we maintain liability insurance coverage, including coverage for errors and omissions. However, it is possible that claims could exceed the amount of our applicable insurance coverage or that this coverage may not continue to be available on acceptable terms or insufficient amounts.

In light of this, defects, vulnerabilities, and errors and any failure by us to identify and address them could result in loss of revenue or market share; liability to customers, members, their patients, or others; failure to achieve market acceptance or expansion; diversion of development and management resources; delays in the introduction of new services; injury to our reputation; and increased service and maintenance costs. Defects, vulnerabilities, or errors in our software and service processes might discourage existing or potential customers or members from purchasing services from us. Correction of defects, vulnerabilities, or errors could prove to be impossible or impractical. The costs incurred in correcting any defects, vulnerabilities, or errors or in responding to resulting claims or liability may be substantial and could adversely affect our results of operations.

If we are not able to maintain and enhance our reputation and brand recognition, our business and results of operations will be harmed.

We believe that maintaining and enhancing our reputation and brand recognition is critical to our relationships with existing customers and to our ability to attract new customers. The promotion of our brands may require us to make substantial investments and we anticipate that, as our market becomes increasingly competitive, these marketing initiatives may become increasingly difficult and expensive. Our marketing activities may not be successful or yield increased revenue, and to the extent that these activities yield increased revenue, the increased revenue may not offset the expenses we incur and our results of operations could be harmed.

In addition, any factor that diminishes our reputation or that of our management, including failing to meet the expectations of our customers, or any adverse publicity surrounding one of our investors or customers, could make it substantially more difficult for us to attract new customers. If we do not successfully maintain and enhance our reputation and brand recognition, our business may not grow and we could lose our relationships with customers, which would harm our business, results of operations, and financial condition.

If we do not continue to innovate and provide services that are useful to customers and users, we may not remain competitive, and our revenue and results of operations could suffer.

The market for healthcare in the United States is in the early stages of structural change and is rapidly evolving toward a more value-based care model. Our success depends on our ability to keep pace with technological developments, satisfy increasingly sophisticated customer and user requirements, and sustain market acceptance. Our future financial performance will depend in part on growth in this market and on our ability to adapt to emerging demands of this market, including adapting to the ways our customers or users access and use our Solution. Although we have built eight new software analytics applications in the last three years, we may not be able to sustain this rate of innovation. Our competitors are constantly developing products and services that may become more efficient or appealing to our customers or users. As a result, we must continue to invest significant resources in research and development in order to enhance our existing services and introduce new high-quality services and applications that customers will want, while offering our Solution at competitive prices. If we are unable to predict user preferences or industry changes, or if we are unable to modify our Solution on a timely or cost-effective basis, we may lose customers and users. Our results of operations would also suffer if our innovations are not responsive to the needs of our customers, are not appropriately timed with market opportunity, or are not effectively brought to market, including as the result of delayed releases or releases that are ineffective or have errors or defects. As technology continues to develop, our competitors may be able to offer results that are, or that are perceived to be, substantially similar to, or better than, those generated by our Solution. This may force us to compete on additional service attributes and to expend significant resources in order to remain competitive.

Our business could be adversely affected if our customers are not satisfied with our Solution.

We depend on customer satisfaction to succeed with respect to our cloud-based solutions. Our sales organization is dependent on the quality of our offerings, our business reputation, and the strong recommendations from existing customers. If our cloud-based software does not function reliably or fails to meet customer expectations in terms of performance and availability, customers could assert claims against us or terminate their contracts with us or publish negative feedback. This could damage our reputation and impair our ability to attract or retain customers. Furthermore, we provide professional services to customers to support their use of our applications and to achieve measurable clinical, financial, and operational improvements.

Any failure to maintain high-quality professional services, or a market perception that we do not maintain high-quality professional services, could harm our reputation, adversely affect our ability to sell our Solution to existing and prospective customers, and harm our business, results of operations and financial condition.

If our existing customers do not continue or renew their contracts with us, renew at lower fee levels or decline to purchase additional technology and services from us, it could have a material adverse effect on our business, financial condition, and results of operations.

We expect to derive a significant portion of our revenue from the renewal of existing customer contracts and sales of additional technology and services to existing customers. As part of our growth strategy, for instance, we have recently focused on expanding our Solution among current customers. As a result, selling additional technology and services is critical to our future business, revenue growth, and results of operations.

Factors that may affect our ability to sell additional technology and services include, but are not limited to, the following:

- the price, performance, and functionality of our Solution;
- the availability, price, performance, and functionality of competing solutions;
- our ability to develop and sell complementary technology and services;
- the stability, performance, and security of our hosting infrastructure and hosting services;
- our ability to continuously deliver measurable improvements;
- health systems' demand for professional services to augment their internal data analytics function;
- changes in healthcare laws, regulations, or trends;
- the business environment of our customers and, in particular, headcount reductions by our customers; and
- the impact of any natural disasters or public health emergencies, such as the COVID-19 pandemic.

We enter into subscription contracts with our customers for access to our Solution. Many of these contracts have initial terms of one to three years. Most of our customers have no obligation to renew their subscriptions for our Solution after the initial term expires. Although we have long-term contracts with many customers, these contracts may be terminated by the customer before their term expires for various reasons, such as changes in the regulatory landscape and poor performance by us, subject to certain conditions. For example, after a specified period, certain of these contracts are terminable for convenience by our customers, subject to providing us with prior notice. Certain of our contracts may be terminated by the customer immediately following repeated failures by us to provide specified levels of service over periods ranging from six months to more than a year. Certain of our contracts may be terminated immediately by the customer if we lose applicable third-party licenses, go bankrupt, or lose our liability insurance. If any of our contracts with our customers are terminated, we may not be able to recover all fees due under the terminated contract and we will lose future revenue from that customer, which may adversely affect our results of operations. We expect that future contracts will contain similar provisions.

In addition, our customers may negotiate terms less advantageous to us upon renewal, which may reduce our revenue from these customers. Our future results of operations also depend, in part, on our ability to upgrade and enhance our Solution. If our customers fail to renew their contracts, renew their contracts upon less favorable terms, or at lower fee levels or fail to purchase new technology and services from us, our revenue may decline or our future revenue growth may be constrained.

Our results of operations have in the past fluctuated and may continue to fluctuate significantly, and if we fail to meet the expectations of analysts or investors, our stock price and the value of an investment in our common stock could decline substantially.

Our results of operations are likely to fluctuate, and if we fail to meet or exceed the expectations of securities analysts or investors, the trading price of our common stock could decline. Moreover, our stock price may be based on expectations of our future performance that may be unrealistic or that may not be met. Some of the factors that could cause our revenue and results of operations to fluctuate from quarter to quarter include:

- the extent to which our Solution achieves or maintains market acceptance;
- our ability to introduce new applications, updates, and enhancements to our existing applications on a timely basis;
- new competitors and the introduction of enhanced products and services from new or existing competitors;
- the length of our contracting and implementation cycles and our fulfillment periods for our Solution;
- the mix of revenue generated from professional services as compared to technology subscriptions;
- the financial condition of our current and future customers;

- changes in customer budgets and procurement policies;
- changes in regulations or marketing strategies;
- the impact of COVID-19 on our customers, partners and business;
- the amount and timing of our investment in research and development activities;
- the amount and timing of our investment in sales and marketing activities;
- technical difficulties or interruptions to our DOS platform or analytics applications;
- our ability to hire and retain qualified personnel;
- changes in the regulatory environment related to healthcare;
- regulatory compliance costs;
- the timing, size, and integration success of potential future acquisitions;
- unforeseen legal expenses, including litigation and settlement costs; and
- buying patterns of our customers and the related seasonality impacts on our business.

Many of these factors are not within our control, and the occurrence of one or more of them might cause our results of operations to vary widely. For example, we have experienced, and expect that we will continue to experience, seasonality in the number of new customers that subscribe to our Solution; specifically, new customers - DOS Subscription Customers in particular - tend to subscribe to our Solution at higher rates in the second and fourth quarters of the year. Seasonality in our business may cause period-to-period fluctuations in certain of our operating results and financial metrics, and thus limit our ability to predict our future results. As such, we believe that quarter-to-quarter comparisons of our revenue and results of operations may not be meaningful and should not be relied upon as an indication of future performance.

A significant portion of our operating expense is relatively fixed in nature in the short term, and planned expenditures are based in part on expectations regarding future revenue and profitability. Accordingly, unexpected revenue shortfalls, lower-than-expected revenue increases as a result of planned expenditures, and longer-than-expected impact on profitability and margins as a result of planned expenditures may decrease our gross margins and profitability and could cause significant changes in our results of operations from quarter to quarter. In addition, our future quarterly results of operations may fluctuate and may not meet the expectations of securities analysts or investors. If this occurs, the trading price of our common stock could fall substantially, either suddenly or over time.

Our pricing may change over time and our ability to efficiently price our Solution will affect our results of operations and our ability to attract or retain customers.

In the past, we have adjusted our prices as a result of offering new applications and services and customer demand. For example, in the fourth quarter of 2018, we began to introduce new pricing for our Solution to new customers, the full effect of which we expect would be realized in future years. While we determined these prices based on prior experience and feedback from customers, our assessments may not be accurate and we could be underpricing or overpricing our Solution, which may require us to continue to adjust our pricing model. Furthermore, as our applications and services change, then we may need to, or choose to, revise our pricing as our prior experience in those areas will be limited. For example, we introduced our subscription model in 2015, and we may need to continually refine our pricing model. Such changes to our pricing model or our inability to efficiently price our Solution could harm our business, results of operations, and financial condition and impact our ability to predict our future performance.

If our Solution fails to provide accurate and timely information, or if our content or any other element of our Solution is associated with faulty clinical decisions or treatment, we could have liability to customers, members, clinicians, or patients, which could adversely affect our results of operations.

Our applications, content, and services may be used by customers to support clinical decision-making by providers and interpret information about patient medical histories, treatment plans, medical conditions, and the use of particular medications. If our applications, content, or services are associated with faulty clinical decisions or treatment, then customers or their patients could assert claims against us that could result in substantial costs to us, harm our reputation in the industry, and cause demand for our Solution to decline.

Our analytics services may be used by our customers to inform clinical decision-making, provide access to patient medical histories, and assist in creating patient treatment plans. Therefore, if data analyses are presented incorrectly in our applications or they are incomplete, or if we make mistakes in the capture or input of these data, adverse consequences, including death, may occur and give rise to product liability, medical malpractice liability, and other claims against us by customers, clinicians, patients, or others. We often have little control over data accuracy, yet 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.

Our clinical guidelines, algorithms, and protocols may be viewed as providing healthcare professionals with guidance on care management, care coordination, or treatment decisions. If our content, or content we obtain from third parties, contains inaccuracies, or we introduce inaccuracies in the process of implementing third-party content, it is possible that patients, physicians, consumers, the providers of the third-party content, or others may sue us if they are harmed as a result of such inaccuracies. We cannot assure you that our software development, editorial, and other quality control procedures will be sufficient to ensure that there are no errors or omissions in any particular content or our software or algorithms.

The assertion of such claims and ensuing litigation, regardless of its outcome, could result in substantial cost to us, divert management's attention from operations, damage our reputation, and decrease market acceptance of our Solution. We attempt to limit by contract our liability for damages, have our customers assume responsibility for clinical treatment, diagnoses, medical oversight, and dosing decisions, and require that our customers assume responsibility for medical care and approve key algorithms, clinical guidelines, clinical protocols, and data. Despite these precautions, the allocations of responsibility and limitations of liability set forth in our contracts may not be enforceable, be binding upon patients, or otherwise protect us from liability for damages. Furthermore, general liability and errors and omissions insurance coverage and medical malpractice liability coverage may not continue to be available on acceptable terms or may not be available in sufficient amounts to cover one or more large claims against us. In addition, the insurer might disclaim coverage as to any future claim. One or more large claims could exceed our available insurance coverage.

If any of these events occur, they could materially adversely affect our business, financial condition, or results of operations.
Although we carry insurance covering medical malpractice claims in amounts that we believe are appropriate in light of the risks attendant to our business, successful medical liability claims could result in substantial damage awards that exceed the limits of our insurance coverage. In addition, professional liability insurance is expensive and insurance premiums may increase significantly in the future, particularly as we expand our Solution. As a result, adequate professional liability insurance may not be available to our providers or to us in the future at acceptable costs or at all.

Any claims made against us that are not fully covered by insurance could be costly to defend against, result in substantial damage awards against us and divert the attention of our management and our providers from our operations, which could have a material adverse effect on our business, financial condition, and results of operations. In addition, any claims may adversely affect our business or reputation.

We derive a significant portion of our revenue from our largest customers. The loss, termination, or renegotiation of any contract could negatively impact our results.

Historically, we have relied on a limited number of customers for a significant portion of our total revenue and accounts receivable. Our three largest customers during 2021 comprised 4.5%, 4.2%, and 3.5% of our revenue, or 12.2% in the aggregate. Our three largest customers during 2020 comprised 5.6%, 4.6%, and 3.9% of our revenue, or 14.1% in the aggregate. The sudden loss of any of our largest customers or the renegotiation of any of our largest customer contracts could adversely affect our results of operations. In the ordinary course of business, we engage in active discussions and renegotiations with our customers in respect of the solutions we provide and the terms of our customer agreements, including our fees.

As our customers' businesses respond to market dynamics and financial pressures, and as our customers make strategic business decisions in respect of the lines of business they pursue and programs in which they participate, we expect that certain of our customers will, from time to time, seek to restructure their agreements with us. In the ordinary course, we renegotiate the terms of our agreements with our customers in connection with renewals or extensions of these agreements. These discussions and future discussions could result in reductions to the fees and changes to the scope of services contemplated by our original customer contracts and consequently could negatively impact our revenue, business, and prospects.

Because we rely on a limited number of customers for a significant portion of our revenue, we depend on the creditworthiness of these customers. Our customers are subject to a number of risks including reductions in payment rates from governmental payors, higher than expected healthcare costs, and lack of predictability of financial results when entering new lines of business. If the financial condition of our customers declines, our credit risk could increase. Should one or more of our significant customers declare bankruptcy, be declared insolvent, or otherwise be restricted by state or federal laws or regulation from continuing in some or all of their operations, this could adversely affect our ongoing revenue, the collectability of our accounts receivable, and affect our bad debt reserves and net income.

Because we generally recognize technology and professional services revenue ratably over the term of the contract for our services, a significant downturn in our business may not be reflected immediately in our results of operations, which increases the difficulty of evaluating our future financial performance.

We generally recognize technology and professional services revenue ratably over the term of a contract. As a result, a substantial portion of our revenue is generated from contracts entered into during prior periods. Consequently, a decline in new contracts in any quarter may not affect our results of operations in that quarter but could reduce our revenue in future quarters. Additionally, the timing of renewals or non-renewals of a contract during any quarter may only affect our financial performance in future quarters. For example, the non-renewal of a subscription agreement late in a quarter will have minimal impact on revenue for that quarter but will reduce our revenue in future quarters. Accordingly, the effect of significant declines in sales may not be reflected in our short-term results of operations, which would make these reported results less indicative of our future financial results. By contrast, a non-renewal occurring early in a quarter may have a significant negative impact on revenue for that quarter and we may not be able to offset a decline in revenue due to non-renewal with revenue from new contracts entered into in the same quarter. In addition, we may be unable to quickly adjust our costs in response to reduced revenue.

If we are unable to implement and maintain effective internal controls over financial reporting, investors may lose confidence in the accuracy and completeness of our financial reports and the market price of our common stock could be adversely affected.

As a public company, we are required to maintain internal controls over financial reporting and to report any material weaknesses in such internal controls. Section 404 of the Sarbanes-Oxley Act requires that we evaluate and determine the effectiveness of our internal controls over financial reporting.

As a public company, we are required to provide an annual management report on the effectiveness of our internal control over financial reporting. Many of the internal controls we have implemented pursuant to the Sarbanes-Oxley Act are process controls with respect to which a material weakness may be found whether or not any error has been identified in our reported financial statements. This may be confusing to investors and result in damage to our reputation, which may harm our business. Additionally, the proper design and assessment of internal controls over financial reporting are subject to varying interpretations, and, as a result, application in practice may evolve over time as new guidance is provided by regulatory and governing bodies and as common practices evolve. This could result in continuing uncertainty regarding the proper design and assessment of internal controls over financial reporting and higher costs necessitated by ongoing revisions to internal controls.

We must continue to monitor and assess our internal control over financial reporting. If in the future we have any material weaknesses, we may not detect errors on a timely basis and our financial statements may be materially misstated. Additionally, if we are unable to comply with the requirements of Section 404 of the Sarbanes-Oxley Act, are unable to assert that our internal controls over financial reporting are effective, identify material weaknesses in our internal controls over financial reporting, or if our independent registered public accounting firm is unable to express an opinion as to the effectiveness of our internal controls over financial reporting, investors may lose confidence in the accuracy and completeness of our financial reports, and the market price of our common stock could be adversely affected, and we could become subject to investigations by the stock exchange on which our securities are listed, the SEC, or other regulatory authorities, which could require additional financial and management resources.

Future litigation against us could be costly and time-consuming to defend and could result in additional liabilities.

We may from time to time be 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. Claims may also be asserted by or on behalf of a variety of other parties, including government agencies, patients or vendors of our customers, or stockholders. Any litigation involving us may result in substantial costs, operationally restrict our business, and may divert management's attention and resources, which may seriously harm our business, overall financial condition, and results of operations. Insurance may not cover existing or future claims, be sufficient to fully compensate us for one or more of such claims, or continue to be available on terms acceptable to us. A claim brought against us that is uninsured or underinsured could result in unanticipated costs, thereby reducing our results of operations and resulting in a reduction in the trading price of our stock.

We may acquire other companies or technologies, which could divert our management's attention, result in dilution to our stockholders, and otherwise disrupt our operations and we may have difficulty integrating any such acquisitions successfully or realizing the anticipated benefits therefrom, any of which could have an adverse effect on our business, financial condition, and results of operations.

We may seek to acquire or invest in businesses, applications, and services, or technologies that we believe could complement or expand our Solution, 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. We have in the past and may in the future have difficulty integrating acquired businesses. For example, during 2020 we acquired Able Health, Healthfinch, and Vitalware and during 2021 we acquired Twistle, all of which we are in the process of integrating with our other services. We may have difficulty cross-selling our Solution to acquired customers, and we may have difficulty integrating, or incur integration-related costs associated with, newly acquired team members.

We have limited experience in acquiring other businesses. If we acquire additional businesses, 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 achieve the anticipated benefits from the acquired business due to a number of factors, including, but not limited to:

- 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 business;
- diversion of management's attention from other business concerns;
- adverse effects on 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. In the future, if our acquisitions do not yield expected returns, we may be required to take charges to our results of operations 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 results of operations. In addition, if an acquired business fails to meet our expectations, our business, financial condition, and results of operations may suffer.

Also, the anticipated benefit of any acquisition may not materialize or may be prohibited by contractual obligations we may enter into in the future with lenders or other third parties. Additionally, future acquisitions or dispositions could result in potentially dilutive issuances of our equity securities, the incurrence of debt, contingent liabilities, or amortization expenses or write-offs of goodwill, any of which could harm our financial condition. We cannot predict the number, timing or size of future acquisitions, or the effect that any such transactions might have on our results of operations.

Because competition for our target employees is intense, we may not be able to attract and retain the highly skilled employees we need to support our continued growth.

To continue to execute on our growth plan, we must attract and retain highly qualified personnel. Competition for such personnel is intense, especially for senior sales executives and software engineers with high levels of experience in designing and developing applications and consulting and analytics services. We may not be successful in attracting and retaining qualified personnel. We have from time to time in the past experienced, and we expect to continue to experience in the future, difficulty in hiring and retaining highly skilled employees with appropriate qualifications. In addition, our search for replacements for departed employees may cause uncertainty regarding the future of our business, impact employee hiring and retention, and adversely impact our revenue, results of operations, and financial condition. Many of the companies with which we compete for experienced personnel have greater resources than we have. In addition, in making employment decisions, particularly in the Internet and high-technology industries, job candidates often consider the value of the equity awards they may receive in connection with their employment. Volatility in the price of our stock or failure to obtain stockholder approval for increases in the number of shares available for grant under our equity plans may, therefore, adversely affect our ability to attract or retain key employees. If we fail to attract new personnel or fail to retain and motivate our current personnel, our business and future growth prospects could be severely harmed.

We depend on our senior management team, and the loss of one or more of our executive officers or key employees or an inability to attract and retain highly skilled employees could adversely affect our business.

Our success depends largely upon the continued services of our key executive officers and recruitment of additional highly skilled employees. From time to time, there may be changes in our senior management team resulting from the hiring or departure of executives, which could disrupt our business. Several of our senior leaders are active members of the Church of Jesus Christ of Latter-Day Saints. There is a risk that in the future, one or more of these individuals could receive a call to serve in a full-time capacity for the church, which has already occurred with one of the two co-founders of our company, Steven Barlow. In connection with this call to serve, Mr. Barlow took a leave-of-absence from his company responsibilities in March 2017 and returned from his leave of absence in August 2020. Hiring executives with needed skills or the replacement of one or more of our executive officers or other key employees would likely involve significant time and costs and may significantly delay or prevent the achievement of our business objectives.

In addition, competition for qualified management in our industry is intense. Many of the companies with which we compete for management personnel have greater financial and other resources than we do. We have not entered into term-based employment agreements with our executive officers. All of our employees are “at-will” employees, and their employment can be terminated by us or them at any time, for any reason. The departure of key personnel could adversely affect the conduct of our business. In such event, we would be required to hire other personnel to manage and operate our business, and there can be no assurance that we would be able to employ a suitable replacement for the departing individual, or that a replacement could be hired on terms that are favorable to us. In addition, volatility or lack of performance in our stock price may affect our ability to attract replacements should key personnel depart. If we are not able to retain any of our key management personnel, our business could be harmed.

Our corporate culture has contributed to our success, and if we cannot maintain this culture as we grow, we could lose the innovation, creativity, and teamwork fostered by our culture, which could harm our business.

We believe that our corporate culture has been an important contributor to our success, which we believe fosters innovation, teamwork, and passion for providing high levels of customer satisfaction. Most of our employees have been with us for fewer than three years as a result of our rapid growth. As we continue to grow, we must effectively integrate, develop, and motivate a growing number of new employees. As a result, we may find it difficult to maintain our corporate culture, which could limit our ability to innovate and operate effectively. Any failure to preserve our culture could also negatively affect our ability to retain and recruit personnel, maintain our performance, or execute on our business strategy.

If we fail to effectively manage our growth and organizational change, our business and results of operations could be harmed.

We have experienced, and may continue to experience, rapid growth and organizational change, which has placed, and may continue to place, significant demands on our management, operational, and financial resources. In addition, if we fail to successfully integrate new team members, it could harm our culture. We must continue to maintain, and may need to enhance, our information technology infrastructure and financial and accounting systems and controls, as well as manage expanded operations in geographically distributed locations, which will place additional demands on our resources and operations. We also must attract, train, and retain a significant number of qualified sales and marketing personnel, professional services personnel, software engineers, technical personnel, service offering personnel, and management personnel. This will require us to invest in and commit significant financial, operational, and management resources to grow and change in these areas without undermining the corporate culture that has been critical to our growth so far. If we do not achieve the benefits anticipated from these investments, or if the realization of these benefits is delayed, our results of operations may be adversely affected. If we fail to provide effective customer training on our Solution and high-quality customer support, our business and reputation could suffer. Failure to manage our growth effectively could lead us to over-invest or under-invest in technology and operations; result in weaknesses in our infrastructure, systems, or controls; give rise to operational mistakes, losses, or loss of productivity or business opportunities; reduce customer or user satisfaction; limit our ability to respond to competitive pressures; and result in loss of team members and reduced productivity of remaining team members. Our growth could require significant capital expenditures and may divert financial resources and management attention from other projects, such as the development of new or enhanced services or the acquisition of suitable businesses or technologies. 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.

We may not grow at the rates we historically have achieved or at all, even if our key metrics may indicate growth.

We have experienced significant growth in the last five years. Future revenue may not grow at these same rates or may decline. Our future growth will depend, in part, on our ability to grow our revenue from existing customers, to complete sales to potential future customers, to expand our customer and member bases, to develop new solutions, and to expand internationally. We can provide no assurances that we will be successful in executing on these growth strategies or that we will continue to grow our revenue or to generate net income. Our historical results may not be indicative of future performance. Our ability to execute on our existing sales pipeline, create additional sales pipelines, and expand our customer base depends on, among other things, the attractiveness of our Solution relative to those offered by our competitors, our ability to demonstrate the value of our existing and future services, and our ability to attract and retain a sufficient number of qualified sales and marketing leadership and support personnel. In addition, our existing customers may be slower to adopt our Solution than we currently anticipate, which could adversely affect our results of operations and growth prospects.

The estimates of market opportunity and forecasts of market growth included herein may prove to be inaccurate, and even if the markets in which we compete achieve the forecasted growth, our business may not grow at similar rates, or at all.

Market opportunity estimates and growth forecasts included herein are subject to significant uncertainty and are based on assumptions and estimates which may not prove to be accurate. The estimates and forecasts included herein relating to the size and expected growth of our target market may prove to be inaccurate. Even if the markets in which we compete meet the size estimates and growth forecasts included herein, our business may not grow at similar rates, or at all. Our growth is subject to many factors, including our success in implementing our business strategy, which is subject to many risks and uncertainties.

Risks Related to Data and Intellectual Property

Our Solution is dependent on our ability to source data from third parties, and such third parties could take steps to block our access to data, which could impair our ability to provide our Solution or limit the effectiveness of our Solution.

Our data platform requires us to source data from multiple clinical, financial, and operational data sources, which sources are also typically third-party vendors of our customers. The functioning of our analytics applications and our ability to perform analytics services is predicated on our ability to establish interfaces that download the relevant data from these source systems on a repeated basis and in a reliable manner. We may encounter vendors that engage in information blocking practices that may inhibit our ability to access the relevant data on behalf of customers. ONC and CMS recently promulgated final rules to support access, exchange, and use of electronic health information (EHI), referred to as the Final Rule. The Final Rule is intended to clarify provisions of the 21st Century Cures Act regarding interoperability and information blocking, and, subject to the interpretations of the Final Rule, and exceptions to what constitutes information blocking, may create significant new requirements for healthcare industry participants. The Final Rule requires certain electronic health record technology to incorporate standardized application programming interfaces (APIs) to allow individuals to securely and easily access structured EHI using smartphone applications, provides patients with certain rights to electronic access to their EHI (structured and/or unstructured) at no cost and implements the information blocking provisions of the 21st Century Cures Act, subject to eight exceptions that will not be considered information blocking as long as specific conditions are met. The impact of the Final Rule on our business is unclear at this time, due to, among other things, uncertainty regarding the interpretation of safe harbors and exceptions to the Final Rule by industry participants and regulators.

The Final Rule focuses on health plans, payors, and healthcare providers and proposes measures to enable patients to move from health plan to health plan, provider to provider, and have both their clinical and administrative information travel with them. It is unclear whether the Final Rule may benefit us in that certain EHR vendors will no longer be permitted to interfere with our attempts at integration, but the rules may also make it easier for other similar companies to enter the market, creating increased competition, and reducing our market share. It is unclear at this time what the costs of compliance with the proposed rules, if adopted, would be, and what additional risks there may be to our business. If we face limitations on the development of data interfaces and other information blocking practices, our data access and ability to download relevant data may be limited, which could adversely affect our ability to provide our Solution as effectively as possible. Any steps we take to enforce the anti-information blocking provisions of the 21st Century Cures Act could be costly, could distract management attention from the business, and could have uncertain results.

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 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 restricted or prohibited by state, federal or international privacy or data protection laws, or other related privacy and data protection laws. This could impair our functions, processes, and databases that reflect, contain, or are based upon such data and may prevent the use of such data, including our ability to provide such data to third parties that are incorporated into our service offerings. Furthermore, this may cause us to breach obligations to third parties to whom we may provide such data, such as third-party service or technology providers that are incorporated into our service offerings. In addition, this could interfere with or prevent data sourcing, data analyses, or limit other data-driven activities that benefit us. Moreover, we may be subject to claims, civil and/or criminal liability or government or state attorneys general investigations for use or disclosure of information by reason of lack of valid notice, permission, or waiver. These claims, liabilities or government or state attorneys general investigations could subject us to unexpected costs and adversely affect our financial condition and results of operations.

If our security measures are breached or unauthorized access to customer data is otherwise obtained, our Solution may be perceived as not being secure, customers may reduce the use of or stop using our Solution, and we may incur significant liabilities.

Our Solution involves the storage and transmission of our customers' proprietary information, including personal or identifying information regarding patients and their protected health information (PHI). Despite the implementation of security measures, our internal computer systems and those of our customers, contractors, consultants and collaborators are vulnerable to damage from cyberattacks, "phishing" attacks, computer viruses, unauthorized access, natural disasters, terrorism, war and telecommunication and electrical failures. Attacks upon information technology systems are increasing in their frequency, levels of persistence, sophistication and intensity, and are being conducted by sophisticated and organized groups and individuals with a wide range of motives and expertise.

As a result of the COVID-19 pandemic, we may also face increased cybersecurity risks due to our reliance on internet technology and the number of our employees who are working remotely, which may create additional opportunities for cybercriminals to exploit vulnerabilities. Because the techniques used to obtain unauthorized access or sabotage systems change frequently and generally are not identified until they are launched against a target, we may be unable to anticipate these techniques or to implement adequate preventative measures. We may also experience security breaches that may remain undetected for an extended period. Moreover, the detection, prevention, and remediation of known or unknown security vulnerabilities, including those arising from third-party hardware or software, may result in additional direct or indirect costs and management time. As a result, unauthorized access or security breaches as a result of third-party action, employee error, malfeasance, or otherwise could result in the loss or inappropriate use of information, litigation, indemnity obligations, damage to our reputation, and other liability such as government or state Attorney General investigations.

Any or all of these issues could adversely affect our ability to attract new customers, cause existing customers to elect to not renew their subscriptions, result in reputational damage, or subject us to third-party lawsuits, regulatory fines, mandatory disclosures, or other action or liability, which could adversely affect our results of operations. Our general liability insurance may not be adequate to cover all potential claims to which we are exposed and may not be adequate to indemnify us for liability that may be imposed or the losses associated with such events, and in any case, such insurance may not cover all of the specific costs, expenses, and losses we could incur in responding to and remediating a security breach. A security breach of another significant provider of cloud-based solutions may also negatively impact the demand for our Solution.

We rely on third-party providers, including Microsoft Azure, for computing infrastructure, network connectivity, and other technology-related services needed to deliver our Solution. Any disruption in the services provided by such third-party providers could adversely affect our business and subject us to liability.

Our DOS platform and analytics applications are hosted from and use computing infrastructure provided by third parties, including Microsoft Azure and other computing infrastructure service providers. We have migrated and expect to continue to migrate a significant portion of our computing infrastructure needs to Microsoft Azure. We have made and expect to continue to make substantial investments in transitioning customers from our own managed data center to Microsoft Azure. We anticipate that this transition will increase the cost of hosting our technology and negatively impact our technology gross margin. We currently expect our planned transitions to be substantially complete by the end of 2022. Such migrations are risky and may cause disruptions to our Solution, service outages, downtime, or other problems and may increase our costs. Despite precautions taken during such transitions, any unsuccessful transition of technology may impair customers' use of our technology which may cause greater costs or downtime and which may lead to, among other things, customer dissatisfaction and non-renewals.

Our computing infrastructure service providers have no obligation to renew their agreements with us on commercially reasonable terms or at all. If we are unable to renew these agreements on commercially reasonable terms, or if one of our computing infrastructure service providers is acquired, we may be required to transition to a new provider and we may incur significant costs and possible service interruption in connection with doing so.

Problems faced by our computing infrastructure service providers, including those operated by Microsoft, could adversely affect the experience of our customers. Microsoft Azure and other infrastructure vendors have had and may in the future experience significant service outages.
Additionally, if our computing infrastructure service providers are unable to keep up with our growing needs for capacity, this could have an adverse effect on our business. For example, a rapid expansion of our business could affect our service levels or cause our third-party hosted systems to fail. Our agreements with third-party computing infrastructure service providers may not entitle us to service level credits that correspond with those we offer to our customers.

Any changes in third-party service levels at our computing infrastructure service providers, or any related disruptions or performance problems with our Solution, could adversely affect our reputation and may damage our customers' stored files, result in lengthy interruptions in our services, or result in potential losses of customer data. Interruptions in our services might reduce our revenue, cause us to issue refunds to customers for prepaid and unused subscriptions, subject us to service level credit claims and potential liability, allow our customers to terminate their contracts with us, or adversely affect our renewal rates.

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, potentially require us to issue credits to our customers, and negatively impact our relationships with users or customers, adversely affecting our brand and our business.

In addition to the services we provide from our offices, we serve our customers primarily from third-party data-hosting facilities. These facilities 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. Their systems and servers could also be subject to hacking, spamming, ransomware, computer viruses or other malicious software, denial of service attacks, service disruptions, including the inability to process certain transactions, phishing attacks and unauthorized access attempts, including third parties gaining access to users' accounts using stolen or inferred credentials or other means, and may use such access to prevent use of users' accounts. Despite precautions taken at these facilities, the occurrence of a natural disaster or an act of terrorism, a decision to close the facilities without adequate notice, or other unanticipated problems at two or more of the facilities could result in lengthy interruptions in our services. Even with our disaster recovery arrangements, our services could be interrupted.

Our ability to deliver our Internet- and telecommunications-based services is dependent on the development and maintenance of the infrastructure of the Internet and other telecommunications services by third parties. This includes maintenance of a reliable network backbone with the necessary speed, data capacity, and security for providing reliable Internet access and services and reliable mobile device, telephone, facsimile, and pager systems, all at a predictable and reasonable cost. We have experienced and expect that we will 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, bandwidth, and telecommunications equipment or service providers, to provide our services. We do not maintain redundant systems or facilities for some of these services. 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 negatively impact our relationship with users or customers. 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, ransomware, and similar disruptive problems; and
- other potential interruptions.

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

Any errors, failures, interruptions, or delays experienced in connection with these third-party technologies and information services or our own systems could negatively impact our relationships with users and customers, adversely affect our brands and business, and expose us to third-party liabilities. The insurance 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.

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.

We typically provide service level commitments under our customer contracts. If we fail to meet these contractual commitments, we could be obligated to provide credits or refunds for prepaid amounts related to unused subscription services or face contract terminations, which could adversely affect our results of operations.

Finally, recent changes in law could impact the cost and availability of necessary Internet infrastructure. Increased costs and/or decreased availability would negatively affect our results of operations.

Our Solution utilizes open-source software, and any failure to comply with the terms of one or more of these open-source licenses could adversely affect our business.

We use software modules licensed to us by third-party authors under "open-source" licenses in our Solution. Some open-source licenses contain affirmative obligations or restrictive terms that could adversely impact our business, such as restrictions on commercialization or obligations to make available modified or derivative works of certain open-source code. If we were to combine our proprietary software with certain open-source software subject to these licenses in a certain manner, we could, under certain open-source licenses, be required to release or otherwise make available the source code to our proprietary software to the public. This would allow our competitors to create similar products with lower development effort and time and ultimately could result in a loss of product sales for us.

Although we employ practices designed to manage our compliance with open-source licenses and protect our proprietary source code, we may inadvertently use open-source software in a manner we do not intend and that could expose us to claims for breach of contract and intellectual property infringement. If we are held to have breached the terms of an open-source software license, we could be required to, among other things, seek licenses from third parties to continue offering our products on terms that are not economically feasible, pay damages to third parties, to re-engineer our products, to discontinue the sale of our products if re-engineering cannot be accomplished on a timely basis, or to make generally available, in source code form, a portion of our proprietary code, any of which could adversely affect our business, results of operations, and financial condition. The terms of many open-source licenses have not been interpreted by U.S. courts, and, as a result, there is a risk that such licenses could be construed in a manner that imposes unanticipated conditions or restrictions on our ability to commercialize our Solution.

We employ third-party licensed software and software components for use in or with our Solution, and the inability to maintain these licenses or the presence of errors in the software we license could limit the functionality of our Solution and result in increased costs or reduced service levels, which would adversely affect our business.

Our software applications might incorporate or interact with certain third-party software and software components (other than open-source software), such as data visualization software, obtained under licenses from other companies. We pay these third parties a license fee or royalty payment. We anticipate that we will continue to use such third-party software in the future. Although we believe that there are commercially reasonable alternatives to the third-party software we currently make available, this may not always be the case, or it may be difficult or costly to replace. Furthermore, these third parties may increase the price for licensing their software, which could negatively impact our results of operations. Our use of additional or alternative third-party software could require customers to enter into license agreements with third parties. In addition, if the third-party software we make available has errors or otherwise malfunctions, or if the third-party terminates its agreement with us, the functionality of our Solution may be negatively impacted and our business may suffer.

Because we rely on a limited number of customers for a significant portion of our revenue, we depend on the creditworthiness of these customers. Our customers are subject to a number of risks including reductions in payment rates from governmental payors, higher than expected healthcare costs, and lack of predictability of financial results when entering new lines of business. If the financial condition of our customers declines, our credit risk could increase. Should one or more of our significant customers declare bankruptcy, be declared insolvent, or otherwise be restricted by state or federal laws or regulation from continuing in some or all of their operations, this could adversely affect our ongoing revenue, the collectability of our accounts receivable, and affect our bad debt reserves and net income.

Any failure to protect our intellectual property rights could impair our ability to protect our proprietary technology and our brand.

Our success and ability to compete depend in part upon our intellectual property. As of December 31, 2021, we had filed applications for a number of patents, and we have twelve issued U.S., three issued Canadian patents, one issued Great Britain patent, and one issued European patent, as well as two patent applications pending in the United States and one patent application pending in Canada. We also had thirty registered trademarks in the United States, Singapore, United Arab Emirates, and China. We also rely on copyright and trademark laws, trade secret protection, and confidentiality or license agreements with our employees, customers, partners, and others to protect our intellectual property rights. However, the steps we take to protect our intellectual property rights may be inadequate.

For example, other parties, including our competitors, may independently develop similar technology, duplicate our services, or design around our intellectual property and, in such cases, we may not be able to assert our intellectual property rights against such parties. Further, our contractual arrangements may not effectively prevent disclosure of our confidential information or provide an adequate remedy in the event of unauthorized disclosure of our confidential information, and we may be unable to detect the unauthorized use of, or take appropriate steps to enforce, our intellectual property rights.

We make business decisions about when to seek patent protection for a particular technology and when to rely upon trade secret protection, and the approach we select may ultimately prove to be inadequate. Even in cases where we seek patent protection, there is no assurance that the resulting patents will effectively protect every significant feature of our Solution, technology, or proprietary information, or provide us with any competitive advantages. Moreover, we cannot guarantee that any of our pending patent applications will issue or be approved. The United States Patent and Trademark Office and various foreign governmental patent agencies also require compliance with a number of procedural, documentary, fee payment, and other similar provisions during the patent application process and after a patent has issued. There are 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 this occurs, our competitors might be able to enter the market, which would have a material adverse effect on our business. Effective trademark, copyright, patent, and trade secret protection may not be available in every country in which we conduct business. Further, intellectual property law, including statutory and case law, particularly in the United States, is constantly developing, and any changes in the law could make it harder for us to enforce our rights.

In order to protect our intellectual property rights, we may be required to spend significant resources to monitor and protect these rights. Litigation brought to protect and enforce our intellectual property rights could be costly, time-consuming, and distracting to management and could result in the impairment or loss of portions of our intellectual property. Furthermore, our efforts to enforce our intellectual property rights may be met with defenses, counterclaims, and countersuits attacking the validity and enforceability of our intellectual property rights.

An adverse determination of any litigation proceedings could put our intellectual property at risk of being invalidated or interpreted narrowly and could put our related pending patent applications at risk of not issuing. Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential or sensitive information could be compromised by disclosure in the event of litigation. In addition, during the course of litigation, there could be public announcements of the results of hearings, motions or other interim proceedings or developments. If securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of our common stock. Negative publicity related to a decision by us to initiate such enforcement actions against a customer or former customer, regardless of its accuracy, may adversely impact our other customer relationships or prospective customer relationships, harm our brand and business, and could cause the market price of our common stock to decline. Our failure to secure, protect, and enforce our intellectual property rights could adversely affect our brand and our business.

We may be sued by third parties for alleged infringement of their proprietary rights or misappropriation of intellectual property.

There is considerable patent and other intellectual property development activity in our industry. Our future success depends in part on not infringing upon the intellectual property rights of others. Our competitors, as well as a number of other entities and individuals, including so-called non-practicing entities (NPEs), may own or claim to own intellectual property relating to our Solution. From time to time, third parties may claim that we are infringing upon their intellectual property rights or that we have misappropriated their intellectual property. For example, in some cases, very broad patents are granted that may be interpreted as covering a wide field of healthcare data storage and analytics solutions or machine learning and predictive modeling methods in healthcare. As competition in our market grows, the possibility of patent infringement, trademark infringement, and other intellectual property claims against us increases. In the future, we expect others to claim that our Solution and underlying technology infringe or violate their intellectual property rights. In a patent infringement claim against us, we may assert, as a defense, that we do not infringe the relevant patent claims, that the patent is invalid or both. The strength of our defenses will depend on the patents asserted, the interpretation of these patents, and our ability to invalidate the asserted patents. However, we could be unsuccessful in advancing non-infringement and/or invalidity arguments in our defense. In the United States, issued patents enjoy a presumption of validity, and the party challenging the validity of a patent claim must present clear and convincing evidence of invalidity, which is a high burden of proof. Conversely, the patent owner need only prove infringement by a preponderance of the evidence, which is a lower burden of proof.

We may be unaware of the intellectual property rights that others may claim cover some or all of our technology or services. Because patent applications can take years to issue and are often afforded confidentiality for some period of time there may currently be pending applications, unknown to us, that later result in issued patents that could cover one or more aspects of our technology and services. Any claims or litigation could cause us to incur significant expenses and, whether or not successfully asserted against us, could require that we pay substantial damages, ongoing royalty or license payments, or settlement fees, prevent us from offering our Solution or using certain technologies, require us to re-engineer all or a portion of our platform, or require that we comply with other unfavorable terms. We may also be obligated to indemnify our customers or business partners or pay substantial settlement costs, including royalty payments, in connection with any such claim or litigation and to obtain licenses, modify applications, or refund fees, which could be costly. Even if we were to prevail in such a dispute, any litigation regarding our intellectual property could be costly and time-consuming and divert the attention of our management and key personnel from our business operations.

Risks Related to Governmental Regulation

Risks Related to Healthcare and Data Privacy and Security Regulation

Actual or perceived failures to comply with applicable data protection, privacy and security laws, regulations, standards and other requirements could adversely affect our business, results of operations, and financial condition.

- *Health information privacy and security laws*. There are numerous federal and state laws and regulations that govern the privacy and security of health information. In particular, HIPAA imposes, among other things, certain standards relating to the privacy, security, transmission and breach reporting of protected health information (PHI). By processing and maintaining PHI on behalf of our covered entity customers, we are a HIPAA business associate and are required to enter into BAAs with our covered entity clients to safeguard PHI, as well as BAAs with our subcontractors that access or otherwise process PHI on our behalf.

  We may not be able to adequately address the business risks created by HIPAA implementation. Furthermore, we are unable to predict what changes to HIPAA or other laws or regulations might be made in the future or how those changes could affect our business or the costs of compliance. We are unable to predict what, if any, impact the changes in such standards will have on our compliance costs or our Solution. Penalties for failure to comply with a requirement of HIPAA vary significantly depending on the nature of violation and could include civil monetary or criminal penalties. HIPAA also authorizes state attorneys general to file suit under HIPAA on behalf of state residents. Courts can award damages, costs and attorneys' fees related to violations of HIPAA in such cases. While HIPAA does not create a private right of action allowing individuals to sue us in civil court for HIPAA violations, its standards have been used as the basis for a duty of care claim in state civil suits such as those for negligence or recklessness in the misuse or breach of PHI. Certain states have also adopted privacy and security laws and regulations, some of which may be more stringent than HIPAA. Such laws and regulations will be subject to interpretation by various courts and other governmental authorities, thus creating potentially complex compliance issues for us and our future customers and strategic partners.

  Some of our analytics applications, for example one of our benchmarking applications, require that we obtain permissions consistent with HIPAA to provide "data aggregation services" and the right to create de-identified information and to use and disclose such de-identified information. We will also require large sets of de-identified information to enable us to continue to develop machine learning algorithms that enhance our Solution. If we are unable to secure these rights in customer BAAs or as a result of any future changes to HIPAA or other applicable laws, we may face limitations on the use of PHI and our ability to use de-identified information that could negatively affect the scope of our Solution as well as impair our ability to provide upgrades and enhancements to our Solution.

  We outsource important aspects of the storage and transmission of customer and member information, and thus rely on third parties to manage functions that have material cyber-security risks. We attempt to address these risks by requiring outsourcing subcontractors who handle customer information to sign BAAs contractually requiring those subcontractors to adequately safeguard PHI in a similar manner that applies to us and in some cases by requiring such outsourcing subcontractors to undergo third-party security examinations as well as to protect the confidentiality of other sensitive customer information. In addition, we periodically hire third-party security experts to assess and test our security measures. However, we cannot be assured that these contractual measures and other safeguards will adequately protect us from the risks associated with the storage and transmission of customer proprietary information and PHI.

- *Consumer protection regulation*. Federal and state government bodies and agencies have adopted or are considering adopting laws and regulations regarding the collection, use, and dissemination of data, and the presentation of website or other electronic content, which may require compliance with certain standards for notice, choice, security, and access. California adopted the CCPA, which went into effect on January 1, 2020. The CCPA establishes a new privacy framework for covered businesses by creating an expanded definition of personal information, establishing new data privacy rights for consumers in the state of California, imposing special rules on the collection of consumer data from minors, and creating a new and potentially severe statutory damages framework for violations of the CCPA and for businesses that fail to implement reasonable security procedures and practices to prevent data breaches. Additionally, the CPRA recently passed in California. The CPRA significantly amends the CCPA and will impose additional data protection obligations on companies doing business in California, including additional consumer rights processes, limitations on data uses, new audit requirements for higher risk data, and opt outs for certain uses of sensitive data. It will also create a new California data protection agency authorized to issue substantive regulations and could result in increased privacy and information security enforcement. The majority of the provisions will go into effect on January 1, 2023, and additional compliance investment and potential business process changes may be required. If we fail to comply with any of these privacy laws that apply to us, and are subject to the aforementioned penalties, our business and financial results could be adversely affected.

- *GDPR and foreign data privacy protection laws*. In addition, many foreign governments have established or are in the process of establishing privacy and data security legal frameworks governing the collection, use and disclosure of personal information obtained from their residents. For example, in the European Union (EU), the GDPR went into effect on May 25, 2018. If we or our vendors fail to comply with the applicable EU privacy laws, we could be subject to government enforcement actions and significant penalties against us. GDPR imposes data protection requirements for processing the personal data of individuals within the European Economic Area (EEA) relating to the consent of the individuals to whom the personal data relates, the information provided to the individuals, the documentation we must retain, 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. GDPR has increased our responsibility and potential liability in relation to personal data that we process, and we may be required to put in place mechanisms to ensure compliance with GDPR. In addition, the GDPR increases the scrutiny of transfers of personal data from the EEA to the United States and other jurisdictions that the European Commission does not recognize as having "adequate" data protection laws; in July 2020, the Court of Justice of the European Union limited how organizations could lawfully transfer personal data from the EEA to the United States by invalidating the EU-US Privacy Shield and imposing further restrictions on use of the standard contractual clauses, which could increase our costs and our ability to efficiently process personal data from the EEA. Data protection authorities of the different EEA member states may also interpret GDPR differently, and guidance on implementation and compliance practices are often updated or otherwise revised, which adds to the complexity of processing personal data in the EEA. Any failure by us to comply with GDPR could result in proceedings or actions against us by governmental entities or others, which may subject us to significant penalties and negative publicity, require us to change our business practices, and increase our costs and severely disrupt our business. From January 1, 2021, we may be subject to the GDPR and also the UK GDPR, which, together with the amended UK Data Protection Act 2018, retains the GDPR in UK national law. The UK GDPR mirrors the fines under the GDPR, e.g. fines up to the greater of €20 million (£17.5 million) or 4% of global turnover.

  The relationship between the United Kingdom and the European Union in relation to certain aspects of data protection law remains unclear, and it is unclear how UK data protection laws and regulations will develop in the medium to longer term, and how data transfers to and from the UK will be regulated in the long term. The European Commission has adopted an adequacy decision in favor of the United Kingdom, enabling data transfers from EU member states to the United Kingdom without additional safeguards. However, the UK adequacy decision will automatically expire in June 2025 unless the European Commission re-assesses and renews or extends that decision.

- *Canadian data protection laws*. Similarly, Canada's Personal Information Protection and Electronic Documents Act provides Canadian residents with privacy protections in regard to transactions with businesses and organizations in the private sector and sets out ground rules for how private-sector organizations may collect, use, and disclose personal information in the course of commercial activities. Foreign governments may attempt to apply such laws extraterritorially or through treaties or other arrangements with U.S. governmental entities. Other jurisdictions besides the EU and Canada are similarly introducing or enhancing laws and regulations relating to privacy and data security, which enhances risks relating to compliance with such laws. Furthermore, as we enter into business arrangements in countries outside of the United States, we will need to be prepared to comply with applicable local privacy laws. The GDPR and other changes in laws or regulations associated with the enhanced protection of certain types of personal data, such as health-related data or other sensitive information, could greatly increase our cost of providing our products and services or even prevent us from offering certain services in jurisdictions that we operate.

We cannot be certain that the privacy policies and other statements regarding our practices will be found sufficient to protect us from liability or adverse publicity relating to the privacy and security of personal information. There is ongoing concern from privacy advocates, regulators, and others regarding data protection and privacy issues, and the number of jurisdictions with data protection and privacy laws has been increasing. Also, there are ongoing public policy discussions regarding whether the standards for de-identified, anonymous, or pseudonymized health information are sufficient, and the risk of re-identification sufficiently small, to adequately protect patient privacy. We expect that there will continue to be new proposed laws, regulations, and industry standards concerning privacy, data protection, and information security in the United States, including the CCPA and the CPRA, and we cannot yet determine the impact such laws, regulations, and standards may have on our business. Future laws, regulations, standards, and other obligations, and changes in the interpretation of existing laws, regulations, standards, and other obligations could impair our or our customers' ability to collect, use, or disclose information relating to consumers, which could decrease demand for our Solutions, increase our costs, and impair our ability to maintain and grow our customer base and increase our revenue. Any failure or perceived failure by us to comply with international, federal or state laws or regulations, industry standards, or other legal obligations, or any actual or suspected security incident, whether or not resulting in unauthorized access to, or acquisition, release, or transfer of personally identifiable information or other data, may result in governmental enforcement actions and prosecutions, private litigation, fines, and penalties or adverse publicity and could cause our customers to lose trust in us, which could have an adverse effect on our reputation and business. We may be unable to make such changes and modifications in a commercially reasonable manner or at all, and our ability to develop new products and features could be limited. Any of these developments could harm our business, financial condition, and results of operations. Privacy and data security concerns, whether valid or not valid, may inhibit market adoption of our platform.

Government regulation of healthcare creates risks and challenges with respect to our compliance efforts and our business strategies.

Many healthcare laws are complex, and their application to specific services and relationships may not be clear. In particular, many existing healthcare laws and regulations, when enacted, did not anticipate the data analytics and improvement services that we provide, and these laws and regulations may be applied to our Solution in ways that we do not anticipate, particularly as we develop and release new and more sophisticated solutions. Our failure to accurately anticipate the application of these laws and regulations, or our other failure to comply with them, could create significant liability for us, result in adverse publicity, and negatively affect our business. Some of the risks we face or may face from healthcare regulation are described below.

The federal Anti-Kickback Statute prohibits, among other things, the offering, paying, soliciting, or receiving anything of value, directly or indirectly, for the referral of patients covered by Medicare, Medicaid, and other federal healthcare programs or the leasing, purchasing, ordering, or arranging for or recommending the lease, purchase, or order of any item, good, facility, or service covered by these programs. A person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation. Some enforcement activities focus on below or above market payments for federally reimbursable healthcare items or services as evidence of the intent to provide a kickback. Many states also have similar anti-kickback laws that are not necessarily limited to items or services for which payment is made by a federal healthcare program. Moreover, both federal and state laws prohibit bribery and similar behavior. We do not believe we directly order or provide healthcare services that are reimbursable by Medicare, Medicaid or other third-party payors or submit claims or receive reimbursement from any such payor. However, nonetheless, in addition to direct enforcement action against us, if our advisory services or Solutions offered to customers are associated with action by customers that is determined or alleged to be in violation of these laws and regulations, it is possible that an enforcement agency would also try to hold us liable.

There are also numerous federal and state laws that prohibit the submission of false information, or the failure to disclose information, in connection with submission and payment of claims for health care items and services by health care providers. For example, the federal civil False Claims Act prohibits, among other things, individuals or entities from knowingly presenting, or causing to be presented, to the U.S. federal government, claims for payment or approval that are false or fraudulent, or knowingly making, using or causing to be made or used, a false record or statement material to a false or fraudulent claim. The government has prosecuted RCM service providers for causing the submission of false or fraudulent claims in violation of the False Claims Act. In addition, the government may assert that a claim including items and services resulting from a violation of the U.S. federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the civil False Claims Act.

HIPAA also created new 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 payors, 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. Similar to the federal Anti-Kickback Statute, a person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation.

Any determination by a court or regulatory agency that we or any of our customers, vendors or partners have violated these laws could subject us to significant civil or criminal penalties, invalidate all or portions of some of our customer contracts, require us to change or terminate some portions of our business, require us to refund portions of our services fees, subject us to additional reporting requirements and oversight under a corporate integrity agreement or similar agreement to resolve allegations of noncompliance with these laws, cause us to be disqualified from serving customers doing business with government payors, and have an adverse effect on our business. Our customers' failure to comply with these laws and regulations in connection with our services could result in substantial liability (including, but not limited to, criminal liability), adversely affect demand for our Solution, and force us to expend significant capital, research and development, and other resources to address the failure. Even an unsuccessful challenge by regulatory authorities of our activities could result in adverse publicity and could require a costly response from us.

If our arrangements with physicians and other health care professionals are found to constitute the improper rendering of professional medical services or fee splitting under applicable state laws, our business, financial condition and our ability to operate in those states could be adversely impacted.

We employ and contract with physicians and other licensed health care professionals who assist our customers with the customers' care coordination, care management, population health management, and patient safety activities. Although we do not intend to provide medical care, treatment, or advice, our relationships with such health care professionals may implicate certain state laws in the United States in which we operate that generally prohibit non-professional entities from providing licensed medical services, exercising control over licensed physicians or other licensed health care professionals or engaging in certain practices such as fee-splitting with such licensed professionals. There can be no assurance that these laws will be interpreted in a manner consistent with our practices or that other laws or regulations will not be enacted in the future that could have a material and adverse effect on our business, financial condition and results of operations. Regulatory authorities, state boards of medicine, state attorneys general and other parties may assert that we are engaged in the provision of professional medical services, and/or that our arrangements with our affiliated physicians and other licensed health care professionals constitute unlawful fee-splitting. If a jurisdiction's prohibition on the corporate practice of medicine or fee-splitting is interpreted in a manner that is inconsistent with our practices, we may be required to restructure or terminate some portions of our business, require us to refund portions of our services fees, and have an adverse effect on our business. Even an unsuccessful challenge by regulatory authorities of our activities could result in adverse publicity and could require a costly response from us.

The FDA may modify its enforcement policies with respect to medical software products, and our products may become subject to extensive regulatory requirements, which may increase the cost of conducting, or otherwise harm, our business.

The FDA may regulate medical or health-related software, including machine learning functionality and predictive algorithms, if such software falls within the definition of a "medical device" under the Federal Food, Drug, and Cosmetic Act (FDCA). Medical devices are subject to extensive and rigorous regulation by the FDA and by other federal, state and local authorities. The FDCA and related regulations govern the conditions of safety, efficacy, clearance, approval, manufacturing, quality system requirements, labeling, packaging, distribution, storage, recordkeeping, reporting, marketing, advertising, and promotion of medical devices. However, historically, the FDA has exercised enforcement discretion for certain low-risk software functions, and has issued several guidance documents outlining its approach to the regulation of software as a medical device. In addition, the 21st Century Cures Act amended the FDCA to exclude from the definition of "medical device" certain types of medical-related software, including software used for administrative support functions at a healthcare facility, software intended for maintaining or encouraging a healthy lifestyle, software designed to store electronic health records, software for transferring, storing, or displaying medical device data or in vitro diagnostic data, and certain clinical decision support software. Accordingly, we believe our currently marketed products are not currently regulated by the FDA as medical devices, or that our products are otherwise subject to FDA's current enforcement discretion policies applicable to software products. However, there is a risk that the FDA could disagree with our determination, or that the FDA could alter its enforcement discretion policies, and in each case, subject our software to more stringent medical device regulations.

If the FDA determines that any of our current or future analytics applications are regulated as medical devices and not otherwise subject to enforcement discretion, we would become subject to various requirements under the FDCA and the FDA's implementing regulations. If this occurs, we may be required to cease marketing or to recall our product until we obtain the requisite clearances or approvals, which would entail significant cost and could harm our business. Our failure to comply with applicable regulatory requirements could result in enforcement action by the FDA, or comparable state or foreign regulatory authorities, including: untitled letters, warning letters, fines, injunctions, consent decrees and civil penalties, recalls, termination of distribution, administrative detentions, seizure of our products, operating restrictions, partial suspension or total shutdown of production, delays in or refusal to grant clearances or approvals, prohibitions on sales of our products, and criminal prosecution. Any of these sanctions could result in higher than anticipated costs or lower than anticipated sales and have a material adverse effect on our reputation, business, financial condition and results of operations.

The healthcare regulatory and political framework is uncertain and evolving.

Existing and new laws and regulations affecting the healthcare industry, or changes to existing laws and regulations could create unexpected liabilities for us, cause us to incur additional costs, and/or restrict our operations. Reforming the healthcare industry has been a priority for U.S. politicians, and key members of the legislative and executive branches have proposed a wide variety of potential changes and policy goals. Certain changes to laws impacting our industry, or perceived intentions to do so, could affect our business and results of operations. By way of example, in March 2010, the Affordable Care Act, or ACA, was enacted, which substantially changed the way healthcare is financed by both governmental and private insurers and has significantly impacted our industry and, to some degree, our business. Since its enactment, there have been judicial, executive and Congressional challenges to certain aspects of the ACA. On June 17, 2021, the U.S. Supreme Court dismissed the most recent judicial challenge to the ACA brought by several states without specifically ruling on the constitutionality of the ACA. Thus, the ACA will remain in effect in its current form. We anticipate that new cost containment measures or other healthcare reforms will continue to be implemented at both the federal and state level, any of which could harm our business, financial condition and results of operations.

Due to the particular nature of certain services we provide or the manner in which we provide them, we may be subject to additional government regulation and foreign government regulation.

While our Solution is primarily subject to government regulations pertaining to healthcare, certain aspects of our Solution may require us to comply with regulatory schema from other areas. Examples of such regulatory schema include:

- *Antitrust laws*. Our national cloud-based network allows us access to cost and pricing data for a large number of providers in most regional markets, as well as to the contracted rates for third-party payors. To the extent that our Solution enables providers to compare their cost and pricing data with those of their competitors, those providers could collude to increase the pricing for their services, to reduce the compensation they pay their employees, or to collectively negotiate agreements with third parties. Similarly, if payors are able to compare their contracted rates of payment to providers, those payors may seek to reduce the amounts they might otherwise pay. Such actions may be deemed to be anti-competitive and a violation of federal antitrust laws. To the extent that we are deemed to have enabled such activities, we could be subject to fines and penalties imposed by the U.S. Department of Justice or the FTC and be required to curtail or terminate the services that permitted such collusion.

- *Foreign Corrupt Practices Act (FCPA) and foreign anti-bribery laws*. The FCPA makes it illegal for U.S. persons, including U.S. companies, and their subsidiaries, directors, officers, employees, and agents, to promise, authorize or make any corrupt payment, or otherwise provide anything of value, directly or indirectly, to any foreign official, any foreign political party or party official, or candidate for foreign political office to obtain or retain business. Violations of the FCPA can also result in violations of other U.S. laws, including anti-money laundering, mail and wire fraud, and conspiracy laws. There are severe penalties for violating the FCPA. In addition, the Company may also be subject to other non-U.S. anti-corruption or anti-bribery laws, such as the U.K. Bribery Act 2010. If our employees, contractors, vendors, or partners fail to comply with the FCPA and/or foreign anti-bribery laws, we may be subject to penalties or sanctions, and our ability to develop new prospects and retain existing customers could be adversely affected.

- *Economic sanctions and export controls*. Economic and trade sanctions programs that are administered by the U.S. Treasury Department's Office of Foreign Assets Control (OFAC) prohibit or restrict transactions to or from, and dealings with specified countries and territories, their governments, and in certain circumstances, with individuals and entities that are specially designated nationals of those countries, and other sanctioned persons, including narcotics traffickers and terrorists or terrorist organizations. As federal, state and foreign legislative regulatory scrutiny and enforcement actions in these areas increase, we expect our costs to comply with these requirements will increase as well. Failure to comply with any of these requirements could result in the limitation, suspension or termination of our services, imposition of significant civil and criminal penalties, including fines, and/or the seizure and/or forfeiture of our assets. Further, our Solution incorporates encryption technology. This encryption technology may be exported from the United States only with the required export authorizations, including by a license, a license exception or other appropriate government authorizations. Such solutions may also be subject to certain regulatory reporting requirements. Various countries also regulate the import of certain encryption technology, including through import permitting and licensing requirements, and have enacted laws that could limit our customers' ability to import our Solution into those countries. Governmental regulation of encryption technology and of exports and imports of encryption products, or our failure to obtain required approval for our Solution, when applicable, could harm our international sales and adversely affect our revenue. Compliance with applicable regulatory requirements regarding the provision of our Solution, including with respect to new applications, may delay the introduction of our Solution in various markets or, in some cases, prevent the provision of our Solution to some countries altogether.

- *Regulatory certification*. We must obtain certification from governmental agencies, such as the Agency for Healthcare Research and Quality (AHRQ) to sell certain of our analytics applications and services in the United States. We cannot be certain that our Solution will continue to meet these standards. The failure to comply with these certification requirements could result in the loss of certification, which could restrict our Solution offerings and cause us to lose customers.

Risks Related to Internet Regulation

Our business could be adversely impacted by changes in laws and regulations related to the Internet or changes in access to the Internet generally.

The future success of our business depends upon the continued use of the Internet as a primary medium for communication, business applications, and commerce. Federal or state government bodies or agencies have in the past adopted, and may in the future adopt, laws or regulations affecting the use of the Internet as a commercial medium. Legislators, regulators, or government bodies or agencies may also make legal or regulatory changes or interpret or apply existing laws or regulations that relate to the use of the Internet in new and materially different ways. Changes in these laws, regulations or interpretations could require us to modify our platform in order to comply with these changes, to incur substantial additional costs or divert resources that could otherwise be deployed to grow our business, or expose us to unanticipated civil or criminal liability, among other things.

In addition, government agencies and private organizations have imposed, and may in the future impose, additional taxes, fees or other charges for accessing the Internet or commerce conducted via the Internet. Internet access is frequently provided by companies that have significant market power and could take actions that degrade, disrupt or increase the cost of our customers' use of our platform, which could negatively impact our business. Net neutrality rules, which were designed to ensure that all online content is treated the same by Internet service providers and other companies that provide broadband services were repealed by the Federal Communications Commission effective June 2018. The repeal of the net neutrality rules could force us to incur greater operating expenses or our customers' use of our platform could be adversely affected, either of which could harm our business and results of operations.

These developments could limit the growth of Internet-related commerce or communications generally or result in reductions in the demand for Internet-based platforms and services such as ours, increased costs to us or the disruption of our business. In addition, as the Internet continues to experience growth in the numbers of users, frequency of use and amount of data transmitted, the use of the Internet as a business tool could be adversely affected due to delays in the development or adoption of new standards and protocols to handle increased demands of Internet activity, security, reliability, cost, ease-of-use, accessibility, and quality of service. The performance of the Internet and its acceptance as a business tool has been adversely affected by "viruses," "worms," and similar malicious programs and the Internet has experienced a variety of outages and other delays as a result of damage to portions of its infrastructure. If the use of the Internet generally, or our platform specifically, is adversely affected by these or other issues, we could be forced to incur substantial costs, demand for our platform could decline, and our results of operations and financial condition could be harmed.

Risks Related to Tax Regulation

Taxing authorities may successfully assert that we should have collected or in the future should collect sales and use, value-added or similar transactional taxes, and we could be subject to liability with respect to past or future sales, which could adversely affect our results of operations.

We do not collect sales and use, value-added, and similar transactional taxes in all jurisdictions in which we have sales, based on our belief that such taxes are not applicable or that we are not required to collect such taxes with respect to the jurisdiction. Sales and use, value-added, and similar tax laws and rates vary greatly by jurisdiction. Certain jurisdictions in which we do not collect such taxes may assert that such taxes are applicable, which could result in tax assessments, penalties, and interest, and we may be required to collect such taxes in the future. Such tax assessments, penalties, interest or future requirements, increase in tax rates, or a combination of the foregoing may result in an increase in our sales and similar transactional taxes, increase administrative burdens or costs, or otherwise adversely affect our business, results of operations, or financial condition.

Unanticipated changes in our effective tax rate and additional tax liabilities, including as a result of our international operations or implementation of new tax rules, could harm our future results.

We are subject to income taxes in the United States and are expanding into various foreign jurisdictions that are subject to income tax. Our domestic and international tax liabilities are subject to the allocation of expenses in differing jurisdictions and complex transfer pricing regulations administered by taxing authorities in various jurisdictions. Tax rates in the jurisdictions in which we operate may change as a result of factors outside of our control or relevant taxing authorities may disagree with our determinations as to the income and expenses attributable to specific jurisdictions. In addition, changes in tax and trade laws, treaties or regulations, or their interpretation or enforcement, have become more unpredictable and may become more stringent, which could materially adversely affect our tax position.

Forecasting our estimated annual effective tax rate is complex and subject to uncertainty, and there may be material differences between our forecasted and actual effective tax rate. Our effective tax rate could be adversely affected by changes in the mix of earnings and losses in countries with differing statutory tax rates, certain non-deductible expenses, the valuation of deferred tax assets and liabilities, adjustments to income taxes upon finalization of tax returns, changes in available tax attributes, decision to repatriate non-U.S. earnings for which we have not previously provided for U.S. taxes, and changes in federal, state, or international tax laws and accounting principles. Finally, we may be subject to income tax audits throughout the world. An adverse resolution of one or more uncertain tax positions in any period could have a material impact on our results of operations or financial condition for that period.

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

As of December 31, 2021 and December 31, 2020, we had net operating loss (NOL) carryforwards for federal income tax purposes of approximately $580.0 million and $419.6 million, respectively, and state income tax purposes of approximately $465.7 million and $334.6 million, respectively, which may be available to offset taxable income in the future, and which expire in various years beginning in 2032 for federal purposes if not utilized. The state NOLs will expire depending upon the various rules in the states in which we operate. A lack of future taxable income would adversely affect our ability to utilize these NOLs before they expire. In general, under Section 382 of the Internal Revenue Code of 1986, as amended (the Code) a corporation that undergoes an “ownership change” (as defined under Section 382 of the Code and applicable Treasury Regulations) is subject to limitations on its ability to utilize its pre-change NOLs to offset its future taxable income.

We may experience a future ownership change under Section 382 of the Code that could affect our ability to utilize the NOLs to offset our income. Furthermore, our ability to utilize NOLs of companies that we have acquired or may acquire in the future may be subject to limitations. There is also a risk that due to regulatory changes, such as suspensions on the use of NOLs or other unforeseen reasons, our existing NOLs could expire or otherwise be unavailable to reduce future income tax liabilities, including for state income tax purposes. Certain provisions of the Tax Act (as defined below), as amended by the CARES Act, also limit the use of NOLs, as discussed further below. For these reasons, we may not be able to utilize a material portion of our NOLs, even if we attain profitability, which could potentially result in increased future tax liability to us and could adversely affect our results of operations and financial condition.

Comprehensive tax reform legislation could adversely affect our business and financial condition.

On December 22, 2017, the Tax Cuts and Jobs Act of 2017 (the Tax Act) was signed into law. The Tax Act contains, among other things, significant changes to corporate taxation, including (i) a reduction of the corporate tax rate from a top marginal rate of 35% to a flat rate of 21%, (ii) a limitation of the tax deduction for interest expense to 30% of adjusted earnings (except for certain small businesses) (increased to 50% by the CARES Act for taxable years beginning in 2019 and 2020), (iii) a limitation of the deduction for NOLs in taxable years beginning after December 31, 2020 to 80% of current year taxable income in respect of NOLs generated during or after 2018 and elimination of net operating loss carrybacks for NOLs arising in tax years ending after December 31, 2020, (iv) a one-time tax on offshore earnings at reduced rates regardless of whether they are repatriated, (v) immediate deductions for certain new investments instead of deductions for depreciation expense over time, and (vi) a modification or repeal of many business deductions and credits. For federal NOLs arising in tax years beginning after December 31, 2017, the Tax Act (as modified by the CARES Act) limits a taxpayer’s ability to utilize federal NOL carryforwards in taxable years beginning after December 31, 2020 to 80% of taxable income. In addition, federal NOLs arising in tax years ending after December 31, 2017 can be carried forward indefinitely, but carryback of federal NOLs arising in tax years ending after December 31, 2020 is generally prohibited. It is uncertain if and to what extent various states will conform to the newly enacted federal tax law. We will continue to examine the impact the Tax Act and CARES Act may have on our results of operations and financial condition.

Risks Related to Our Outstanding Convertible Notes

Servicing our Notes may require a significant amount of cash, and we may not have sufficient cash or the ability to raise the funds necessary to settle conversions of the Notes in cash, repay the Notes at maturity, or repurchase the Notes as required.

On April 14, 2020, we issued $230.0 million in aggregate principal amount of 2.50% Convertible Senior Notes (the Notes) due 2025, pursuant to an Indenture dated April 14, 2020, with U.S. Bank National Association, as trustee, in a private offering to qualified institutional buyers (the Note Offering). We received net proceeds from the Notes of $222.5 million, after deducting the initial purchasers' discounts and offering expenses payable by us. The Notes are governed by an indenture (the Indenture) between us, as the issuer, and U.S. Bank National Association, as trustee. The Notes are our senior, unsecured obligations and accrue interest payable semiannually in arrears on April 15 and October 15 of each year, beginning on October 15, 2020, at a rate of 2.50% per year. The Notes will mature on April 15, 2025, unless earlier converted, redeemed, or repurchased. The Indenture does not contain any financial covenants or restrictions on the payments of dividends, the incurrence of indebtedness, or the issuance or repurchase of securities by us or any of our subsidiaries.

A holder may convert all or any portion of its Notes, at its option, subject to certain conditions and during certain periods, into cash, shares of our common stock or a combination of cash and shares of our common stock, with the form of consideration determined at our election. Noteholders will have the right to require us to repurchase all or a portion of their notes at 100% of the principal amount of Notes to be repurchased, plus accrued and unpaid interest to, but excluding, the repurchase date, upon the occurrence of certain events. The conversion rate is initially 32.6797 shares of our common stock per $1,000 principal amount of Notes (which is equivalent to an initial conversion price of approximately $30.60 per share of our common stock). If the Notes have not previously been converted, redeemed or repurchased, we will be required to repay the Notes in cash at maturity.

Our ability to make required cash payments in connection with redemptions or conversions of the Notes, repurchase the Notes upon the occurrence of certain events, or to repay or refinance the Notes at maturity will depend on market conditions and our future performance, which is subject to economic, financial, competitive, and other factors beyond our control. We also may not use the cash proceeds we raised through the issuance of the Notes in an optimally productive and profitable manner. Since inception, our business has generated net losses, and we may continue to incur significant losses. As a result, we may not have enough available cash or be able to obtain financing at the time we are required to repurchase or repay the Notes or pay cash with respect to Notes being converted.

In addition, our ability to repurchase or to pay cash upon conversion or at maturity of the Notes may be limited by law or regulatory authority or by other agreements governing our future indebtedness. Our failure to repurchase Notes upon the occurrence of certain events or to pay cash upon conversion or at maturity of the Notes as required by the Indenture would constitute a default under the Indenture. A default under the Indenture or the occurrence of certain events that allow Noteholders to require repurchase could also lead to a default under agreements governing our future indebtedness and could have a material adverse effect on our business, results of operations, and financial condition. If the payment of the related indebtedness were to be accelerated after any applicable notice or grace periods, we may not have sufficient funds to repay the indebtedness and repurchase the Notes or to pay cash upon conversion or at maturity of the Notes.

We are subject to counterparty risk with respect to the Capped Calls.

In connection with the issuance of the Notes, we entered into the Capped Calls with certain option counterparties. We used approximately $21.6 million of the net proceeds from the Note Offering to pay the cost of the Capped Calls and allocated issuance costs. The Capped Calls have initial cap prices of $42.00 per share, subject to certain adjustments. The Capped Calls are expected generally to reduce the potential dilution to our common stock upon any conversion of Notes and/or offset any cash payments we are required to make in excess of the principal amount of converted Notes, as the case may be, with such reduction and/or offset subject to the cap price. The Capped Calls are separate transactions that we entered into with the option counterparties, and are not part of the terms of the Notes. The option counterparties are financial institutions or affiliates of financial institutions, and we will be subject to the risk that one or more of such option counterparties may default under the Capped Calls.

Our exposure to the credit risk of the option counterparties will not be secured by any collateral. If any option counterparty becomes subject to insolvency proceedings, we will become an unsecured creditor in those proceedings with a claim equal to our exposure at that time under the Capped Calls. Our exposure will depend on many factors but, generally, the increase in our exposure will be correlated to the increase in our common stock market price and in the volatility of the market price of our common stock. In addition, upon a default by any option counterparty, we may suffer adverse tax consequences and dilution with respect to our common stock. We can provide no assurance as to the financial stability or viability of any option counterparty.

The Capped Calls may affect the value of our common stock.

In connection with the issuance of the Notes, we entered into the Capped Calls with the option counterparties. The Capped Calls are expected generally to reduce the potential dilution to our common stock upon any conversion of the Notes and/or offset any cash payments we are required to make in excess of the principal amount of converted Notes, as the case may be.

From time to time, the option counterparties or their respective affiliates may modify their hedge positions by entering into or unwinding various derivative transactions with respect to our common stock and/or purchasing or selling our common stock or other securities of ours in secondary market transactions prior to the maturity of the Notes. This activity could cause or avoid an increase or a decrease in the market price of our common stock.

If we raise additional capital through debt financing, the terms of any new debt could further restrict our ability to operate our business.

If we raise any additional debt financing, the terms of such additional debt could further restrict our operating and financial flexibility by subjecting us to customary affirmative and negative covenants, indemnification provisions, and events of default. Further, if we are liquidated, the lender's rights to repayment would be senior to the rights of the holders of our common stock to receive any proceeds from the liquidation. Any declaration by a lender of an event of default could significantly harm our business and prospects and could cause the price of our common shares to decline.

Risks Related to Ownership of Our Common Stock

Risks Related to an Investment in Our Securities

We have a limited operating history in an evolving industry which makes it difficult to evaluate our current business future prospects and increases the risk of your investment.

We launched operations in 2008 and we acquired Able Health, Healthfinch, Vitalware, and Twistle in February 2020, July 2020, September 2020, and July 2021, respectively. Our limited operating history, in particular with respect to the businesses we acquired in 2020 and 2021, makes it difficult to effectively assess or forecast our future prospects. You should consider our business and prospects in light of the risks and difficulties we encounter or may encounter. These risks and difficulties include our ability to cost-effectively acquire new customers and retain existing customers, maintain the quality of our technology infrastructure that can efficiently and reliably handle the requirements of our customers and the deployment of new features and solutions and successfully compete with other companies that are currently in, or may enter, the healthcare solution space. Additional risks include our ability to effectively manage growth, achieve synergies, responsibly use the data that customers share with us, process, store, protect, and use personal data in compliance with governmental regulation, contractual obligations, and other legal obligations related to privacy and security and avoid interruptions or disruptions in our service or slower than expected load times for our platform. If we fail to address the risks and difficulties that we face, including those associated with the challenges listed above, our business and our results of operations will be adversely affected.

We have experienced significant net losses since inception, we expect to incur losses in the future, and we may not be able to generate sufficient revenue to achieve and maintain profitability.

We have incurred significant net losses in the past, including net losses of $153.2 million and $115.0 million in the years ended December 31, 2021 and 2020, respectively. We had an accumulated deficit of $878.9 million as of December 31, 2021. We expect our costs will increase over time as we continue to invest to grow our business and build relationships with customers, develop our platform, develop new solutions, and operate as a public company. These efforts may prove to be more expensive than we currently anticipate, and we may not succeed in increasing our revenue sufficiently to offset these higher expenses.

As a result, we may need to raise additional capital through equity and debt financings in order to fund our operations. To date, we have financed our operations principally from the proceeds we received through private sales of equity securities, payments received from sales of our Solution, borrowings under our loan and security agreements, our initial public offering (IPO), the Note Offering, and sale of 4,882,075 shares (inclusive of the underwriters' over-allotment option to purchase 636,792 shares) of our common stock at $53.00 per share in August 2021 (the Secondary Public Equity Offering). We may also fail to improve the gross margins of our business. If we are unable to effectively manage these risks and difficulties as we encounter them, our business, financial condition, and results of operations would be adversely affected. Our failure to achieve or maintain profitability could negatively impact the value of our common stock.

The market price of our common stock may be volatile and may decline regardless of our operating performance, and you may lose all or part of your investments.

The market price of our common stock may fluctuate significantly in response to numerous factors, many of which are beyond our control, including:

- overall performance of the equity markets and/or publicly-listed technology companies;
- actual or anticipated fluctuations in our net revenue or other operating metrics;
- changes in the financial projections we provide to the public or our failure to meet these projections;
- failure of securities analysts to initiate or maintain coverage of us, changes in financial estimates by any securities analysts who follow our company, or our failure to meet the estimates or the expectations of investors;
- the economy as a whole and market conditions in our industry;
- rumors and market speculation involving us or other companies in our industry;
- announcements by us or our competitors of significant innovations, acquisitions, strategic partnerships, joint ventures, or capital commitments;
- new laws or regulations or new interpretations of existing laws or regulations applicable to our business;
- lawsuits threatened or filed against us;
- recruitment or departure of key personnel;
- other events or factors, including those resulting from war, incidents of terrorism, or responses to these events; and
- the expiration of contractual lock-up or market standoff agreements.

In addition, extreme price and volume fluctuations in the stock markets have affected and continue to affect many technology companies' stock prices. Often, their stock prices have fluctuated in ways unrelated or disproportionate to the companies' operating performance. In the past, stockholders have filed securities class action litigation following periods of market volatility. If we were to become involved in securities litigation, it could subject us to substantial costs, divert resources and the attention of management from our business, and harm our business. Moreover, because of these fluctuations, comparing our results of operations on a period-to-period basis may not be meaningful. You should not rely on our past results as an indication of our future performance. This variability and unpredictability could also result in our failing to meet the expectations of industry or financial analysts or investors for any period. If our net revenue or results of operations fall below the expectations of analysts or investors or below any forecasts we may provide to the market, or if the forecasts we provide to the market are below the expectations of analysts or investors, the price of our common stock could decline substantially. Such a stock price decline could occur even when we have met any previously publicly stated net revenue or earnings forecasts that we may provide.

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

The trading market for our common stock will depend in part on the research and reports that securities or industry analysts publish about us or our business. Securities and industry analysts do not currently, and may never, publish research on our company. If few securities analysts commence coverage of us, or if industry analysts cease coverage of us, the trading price for our common stock could be negatively affected. If one or more of the analysts who cover us downgrade our common stock or publish inaccurate or unfavorable research about our business, our common stock price would likely decline. If one or more of these analysts cease coverage of us or fail to publish reports on us on a regular basis, demand for our common stock could decrease, which might cause our common stock price and trading volume to decline.

Our management has broad discretion in the use of proceeds from our IPO, the Note Offering, and the Secondary Public Equity Offering and our use may not produce a positive rate of return.

The principal purposes of our IPO were to increase our capitalization and financial flexibility, create a public market for our stock and thereby enable access to the public equity markets by our employees and stockholders, obtain additional capital, and strengthen our position in the healthcare data analytics applications and services market. We used a portion of the Note Offering proceeds to pay the cost of the capped call transactions related thereto and to prepay in full all outstanding indebtedness under our credit agreement with OrbiMed. We cannot specify with certainty our plans for the use of the net proceeds we received from these offerings. However, we intend to use the net proceeds we received from our IPO and Secondary Public Equity Offering for working capital and other general corporate purposes. We may also use a portion of the net proceeds from these offerings for the acquisition of, or investment in, technologies, solutions or businesses that complement our business. Our management has broad discretion over the specific use of the net proceeds we received in these offerings and might not be able to obtain a significant return, if any, on investment of these net proceeds. Investors will need to rely upon the judgment of our management with respect to the use of proceeds. If we do not use the net proceeds that we received in our IPO, the Note Offering, and Secondary Public Equity Offering effectively, our business, results of operations, and financial condition could be harmed.

Our issuance of additional capital stock in connection with financings, acquisitions, investments, our stock incentive plans or otherwise will dilute all other stockholders.

We expect to issue additional capital stock in the future that will result in dilution to all other stockholders. We expect to grant equity awards to employees, directors, and consultants under our stock incentive plans. We may also raise capital through equity financings in the future, including through offerings similar to the Secondary Public Equity Offering during the third quarter of 2021. As part of our business strategy, we may acquire or make investments in complementary companies, products, or technologies and issue equity securities to pay for any such acquisition or investment, such as our issuance of equity securities in connection with our acquisitions of Able Health, Healthfinch, Vitalware, and Twistle in February 2020, July 2020, September 2020, and July 2021, respectively. Any such issuances of additional capital stock may cause stockholders to experience significant dilution of their ownership interests and the per-share value of our common stock to decline.

The requirements of being a public company may strain our resources, divert management's attention and affect our ability to attract and retain executive management and qualified board members.

As a public company, we are subject to the reporting requirements of the Securities Exchange Act of 1934 (the Exchange Act), the listing standards of Nasdaq and other applicable securities rules and regulations. We expect that the requirements of these rules and regulations will continue to increase our legal, accounting, and financial compliance costs, make some activities more difficult, time-consuming, and costly, and place significant strain on our personnel, systems, and resources. For example, the Exchange Act requires, among other things, that we file annual, quarterly and current reports with respect to our business and results of operations. As a result of the complexity involved in complying with the rules and regulations applicable to public companies, our management's attention may be diverted from other business concerns, which could harm our business, results of operations, and financial condition.

Although we have already hired additional employees to assist us in complying with these requirements, we may need to hire more employees in the future or engage outside consultants, which will increase our operating expenses. In addition, changing laws, regulations, and standards relating to corporate governance and public disclosure are creating uncertainty for public companies, increasing legal and financial compliance costs, and making some activities more time-consuming. These laws, regulations, and standards are subject to varying interpretations, in many cases due to their lack of specificity, and, as a result, their application in practice may evolve over time as new guidance is provided by regulatory and governing bodies. This could result in continuing uncertainty regarding compliance matters and higher costs necessitated by ongoing revisions to disclosure and governance practices. We intend to invest substantial resources to comply with evolving laws, regulations and standards, and this investment may result in increased general and administrative expenses and a diversion of management's time and attention from business operations to compliance activities. If our efforts to comply with new laws, regulations, and standards differ from the activities intended by regulatory or governing bodies due to ambiguities related to their application and practice, regulatory authorities may initiate legal proceedings against us and our business may be harmed.

We also expect that being a public company and these new rules and regulations will make it more expensive for us to obtain director and officer liability insurance, and we may be required to accept reduced coverage or incur substantially higher costs to obtain coverage. These factors could also make it more difficult for us to attract and retain qualified members of our board of directors, particularly to serve on our audit committee and compensation committee, and qualified executive officers.

As a result of disclosure of information in filings required of a public company, our business and financial condition is more visible, which may result in an increased risk of threatened or actual litigation, including by competitors and other third parties. If such claims are successful, our business and results of operations could be harmed, and even if the claims do not result in litigation or are resolved in our favor, these claims, and the time and resources necessary to resolve them, could divert the resources of our management and harm our business, results of operations, and financial condition.

The individuals who now constitute our senior management team have limited experience managing a publicly-traded company and limited experience complying with the increasingly complex laws pertaining to public companies. Our senior management team may not successfully or efficiently manage our transition to a public company that is subject to significant regulatory oversight and reporting obligations.

We do not intend to pay dividends on our common stock and, consequently, the ability of common stockholders to achieve a return on investment will depend on appreciation, if any, in the price of our common stock.

You should not rely on an investment in our common stock to provide dividend income. We have never declared or paid any dividends on our capital stock. We intend to retain any earnings to finance the operation and expansion of our business, and we do not anticipate paying any cash dividends in the foreseeable future. In addition, the terms of any future credit facility or financing we obtain may contain, terms prohibiting or limiting the amount of dividends that may be declared or paid on our common stock. As a result, common stockholders may only receive a return on investment if the market price of our common stock increases.

We could be subject to securities class action litigation.

In the past, securities class action litigation has often been brought against a company following a decline in the market price of its securities. This risk is especially relevant for us because technology and healthcare technology companies have experienced significant stock price volatility in recent years. If we face such litigation, it could result in substantial costs and a diversion of management's attention and resources, which could harm our business.

Risks Related to Our Charter and Bylaws

Provisions in our charter documents and under Delaware law could make an acquisition of our company more difficult, limit attempts by our stockholders to replace or remove our current board of directors, and limit the market price of our common stock.

Provisions in our amended and restated certificate of incorporation and amended and restated bylaws may have the effect of delaying or preventing a change of control or changes in our management. Our amended and restated certificate of incorporation and amended and restated bylaws, include provisions that:

- provide that our board of directors is classified into three classes of directors with staggered three-year terms;
- permit the board of directors to establish the number of directors and fill any vacancies and newly-created directorships;
- require super-majority voting to amend some provisions in our amended and restated certificate of incorporation and amended and restated bylaws;
- authorize the issuance of "blank check" preferred stock that our board of directors could use to implement a stockholder rights plan;
- provide that only a majority of our board of directors will be authorized to call a special meeting of stockholders;
- prohibit stockholder action by written consent, which requires all stockholder actions to be taken at a meeting of our stockholders;
- provide that the board of directors is expressly authorized to make, alter, or repeal our bylaws; and
- advance notice requirements for nominations for election to our board of directors or for proposing matters that can be acted upon by stockholders at annual stockholder meetings.

Moreover, Section 203 of the Delaware General Corporation Law may discourage, delay, or prevent a change in control of our company. Section 203 imposes certain restrictions on mergers, business combinations, and other transactions between us and holders of 15% or more of our common stock.

Our amended and restated bylaws designate a state or federal court located within the State of Delaware as the exclusive forum for certain litigation that may be initiated by our stockholders, which could limit stockholders' ability to obtain a favorable judicial forum for disputes with us.

Our amended and restated bylaws include an exclusive forum provision that provides that the Court of Chancery of the State of Delaware will be the exclusive forum for the following types of actions or proceedings under Delaware statutory or common law:

- any derivative action or proceeding brought on our behalf;
- any action asserting a breach of fiduciary duty owed to us or our stockholders by any of our current or former directors, officers or other employees;
- any action asserting a claim against us arising pursuant to the Delaware General Corporation Law, our amended and restated certificate of incorporation, or our amended and restated bylaws; or
- any action that is governed by the internal affairs doctrine and asserts a claim against us or any of our current or former directors, officers or other employees or stockholders.

This exclusive forum provision will not apply to any causes of action arising under the Securities Act or the Exchange Act. Further, Section 22 of the Securities Act creates concurrent jurisdiction for federal and state courts over all suits brought to enforce any duty or liability created by the Securities Act or the rules and regulations thereunder. Accordingly, both state and federal courts have jurisdiction to entertain such Securities Act claims. To prevent having to litigate claims in multiple jurisdictions and the threat of inconsistent or contrary rulings by different courts, among other considerations, our amended and restated bylaws provide that, unless we consent in writing to the selection of an alternative forum, to the fullest extent permitted by law, the federal district courts of the United States of America shall be the exclusive forum for the resolution of any complaint asserting a cause or causes of action arising under the Securities Act; however, a court may not enforce such provision.

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 any of our directors, officers, or other employees, which may discourage lawsuits with respect to such claims. Alternatively, if a court were to find the choice of forum provision which will be contained in our amended and restated bylaws to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions, which could harm our business, results of operations, and financial condition.

General Risks

Changes in accounting principles may cause previously unanticipated fluctuations in our financial results, and the implementation of such changes may impact our ability to meet our financial reporting obligations.

We prepare our financial statements in accordance with U.S. GAAP which are subject to interpretation or changes by the Financial Accounting Standards Board (FASB), the SEC, and other various bodies formed to promulgate and interpret appropriate accounting principles. New accounting pronouncements and changes in accounting principles have occurred in the past and are expected to occur in the future which may have a significant effect on our financial results. Furthermore, any difficulties in implementation of changes in accounting principles, including the ability to modify our accounting systems, could cause us to fail to meet our financial reporting obligations, which could result in regulatory discipline and harm investors' confidence in us.

Economic uncertainties or downturns in the general economy or the industries in which our customers operate could disproportionately affect the demand for our Solution and negatively impact our results of operations.

General worldwide economic conditions have experienced significant downturns during the last ten or more years, and market volatility and uncertainty remain widespread, making it potentially very difficult for our customers and us to accurately forecast and plan future business activities. During challenging economic times, our customers may have difficulty gaining timely access to sufficient credit or obtaining credit on reasonable terms, which could impair their ability to make timely payments to us and adversely affect our revenue.

If that were to occur, our financial results could be harmed. Further, challenging economic conditions may impair the ability of our customers to pay for the applications and services they already have purchased from us and, as a result, our write-offs of accounts receivable could increase. We cannot predict the timing, strength, or duration of any economic slowdown or recovery. If the condition of the general economy or markets in which we operate worsens, our business could be harmed.

Investors' expectations of our performance relating to environmental, social, and governance factors may impose additional costs and expose us to new risks.

There is an increasing focus from certain investors, employees, and other stakeholders concerning corporate responsibility, specifically related to environmental, social, and governance factors. Some investors may use these factors to guide their investment strategies and, in some cases, may choose not to invest in us if they believe our policies relating to corporate responsibility are inadequate. Third-party providers of corporate responsibility ratings and reports on companies have increased to meet growing investor demand for measurement of corporate responsibility performance. The criteria by which companies' corporate responsibility practices are assessed may change, which could result in greater expectations of us and cause us to undertake costly initiatives to satisfy such new criteria. If we elect not to or are unable to satisfy such new criteria, investors may conclude that our policies with respect to corporate responsibility are inadequate. We may face reputational damage in the event that our corporate responsibility procedures or standards do not meet the standards set by various constituencies.

Furthermore, if our competitors' corporate responsibility performance is perceived to be greater than ours, potential or current investors may elect to invest with our competitors instead. In addition, in the event that we communicate certain initiatives and goals regarding environmental, social and governance matters, we could fail, or be perceived to fail, in our achievement of such initiatives or goals, or we could be criticized for the scope of such initiatives or goals. If we fail to satisfy the expectations of investors, employees, and other stakeholders, or, if our initiatives are not executed as planned, our reputation and business, operating results, and financial condition could be adversely impacted.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

Our principal executive offices are located in South Jordan, Utah where we lease facilities totaling approximately 118,207 square feet under a lease agreement that expires on December 31, 2031. We use this facility for administration, sales and marketing, technology and development and professional services. We also lease offices elsewhere in the United States for sales, professional services, and other personnel, including offices in Minneapolis, Minnesota, Alpharetta, Georgia, Madison, Wisconsin, Yakima, Washington, and Dallas, Texas.

We believe that our facilities are adequate to meet our needs for the immediate future, and that, should it be needed, suitable additional space will be available to accommodate any such expansion of our operations.

Item 3. Legal Proceedings

We are, and from time to time may be, party to litigation and subject to claims incident to the ordinary course of business. As our growth continues, we may become party to an increasing number of litigation matters and claims. The outcome of litigation and claims cannot be predicted with certainty, and the resolution of these matters could materially affect our future results of operations, cash flows or financial position. We are not presently party to any legal proceedings that in the opinion of management, if determined to adversely affect us, would individually or taken together have a material adverse effect on our business, operating results, financial condition or cash flows.

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 our common stock

Our common stock began trading on the Nasdaq Global Select Market under the symbol "HCAT" on July 25, 2019. Prior to that date, there was no public trading market for our common stock.

Holders of record

As of December 31, 2021, there were 163 holders of record of our common stock. The actual number of stockholders is greater than this number of record holders and includes stockholders who are beneficial owners but whose shares are held in street name by brokers and other nominees.

Dividend policy

We do not intend to pay cash dividends in the foreseeable future.

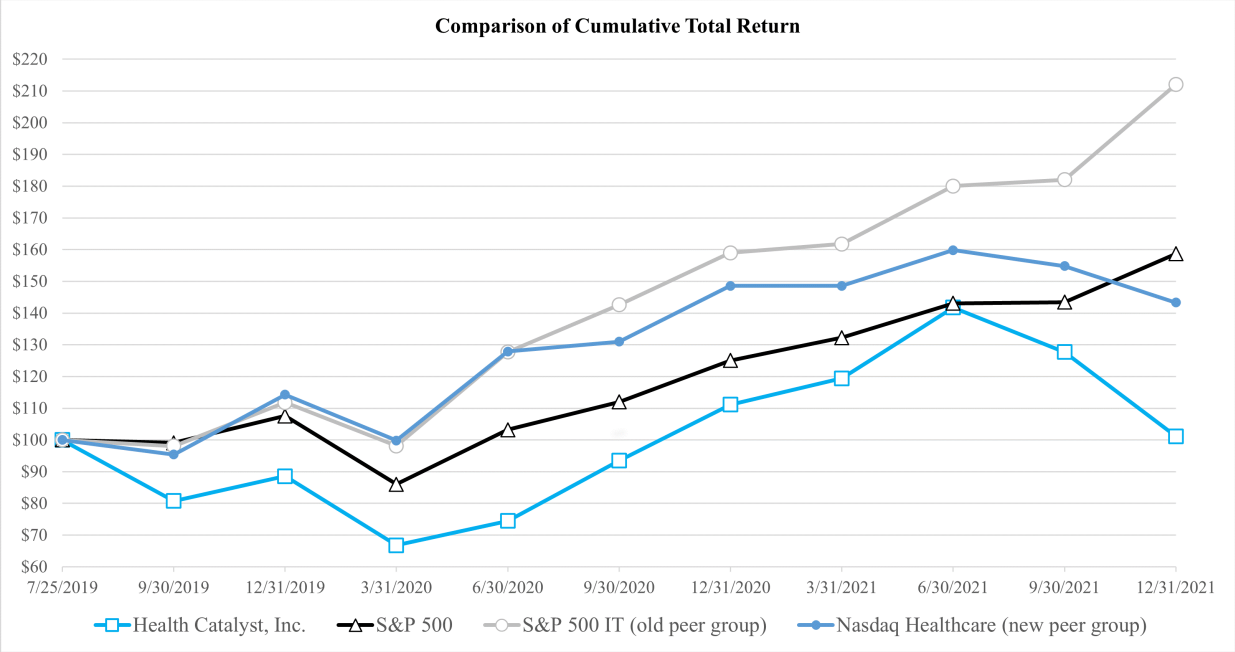
Securities authorized for issuance under equity compensation plans

The information required by this item with respect to our equity compensation plans is incorporated by reference in our proxy statement for the 2022 Annual Meeting of Stockholders to be filed with the SEC within 120 days of the year ended December 31, 2021.

Stock performance graph

The following performance graph and related information is "furnished" and shall not be deemed to be "soliciting material" or "filed" for purposes of Section 18 of the Exchange Act and Regulation 14A under the Exchange Act nor shall such information be incorporated by reference into any filing of Health Catalyst, Inc. under the Exchange Act or the Securities Act, except to the extent we specifically incorporate it by reference in such filing.

The graph set forth below compares the cumulative total return to stockholders on our common stock relative to the cumulative total returns of the S&P 500 Index, Nasdaq Healthcare Index (new peer group), and S&P 500 Information Technology Index (old peer group) between July 25, 2019 (the date our common stock commenced trading) through December 31, 2021. We believe the new peer group, which includes Health Catalyst, better reflects companies relevant to our current business. All values assume a $100 initial investment at market close on July 25, 2019. The initial public offering price of our common stock, which had a closing stock price of $39.17 on July 25, 2019, was $26.00 per share. Data for the S&P 500, Nasdaq Healthcare, and S&P 500 Information Technology indices assume reinvestment of dividends. The comparisons are based on historical data and are not indicative of, nor intended to forecast, the future performance of our common stock.



Company/Index	Jul 25, 2019[1]	Dec 31, 2019	Jun 30, 2020	Dec 31, 2020	Jun 30, 2021	Dec 31, 202
Health Catalyst, Inc.	100	89	74	111	142	10
S&P 500	100	108	103	125	143	15
S&P 500 IT (old peer group)	100	112	128	159	180	21
Nasdaq Healthcare (new peer group)	100	114	128	149	160	14

(1) Base period

Unregistered Sales of Equity Securities and Use of Proceeds

Unregistered sales of equity securities

During the year ended December 31, 2021, we did not issue or sell any unregistered securities not previously disclosed in a Quarterly Report on Form 10-Q or in a Current Report on Form 8-K.

Issuer purchases of equity securities

None.

Item 6. [Reserved]

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

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our consolidated financial statements, the accompanying notes, and other financial information included elsewhere in this Annual Report on Form 10-K. This discussion contains forward-looking statements that involve risks, uncertainties, and assumptions. Our actual results could differ materially from those forward-looking statements below. Factors that could cause or contribute to those differences include, but are not limited to, those identified below and those discussed in the sections titled "Risk Factors" and "Special Note Regarding Forward-Looking Statements" included elsewhere in this Annual Report on Form 10-K.

A discussion regarding our financial condition and results of operations for the year ended December 31, 2021 compared to the year ended December 31, 2020 is presented below. A discussion regarding our financial condition and results of operations for the year ended December 31, 2020 compared to the year ended December 31, 2019 is included under "Management's Discussion and Analysis of Financial Condition and Results of Operations" in our prior year Form 10-K filed on February 25, 2021.

Overview

We are a leading provider of data and analytics technology and services to healthcare organizations. Our Solution comprises a cloud-based data platform, analytics software, and professional services expertise. Our customers, which are primarily healthcare providers, use our Solution to manage their data, derive analytical insights to operate their organization, and produce measurable clinical, financial, and operational improvements. We envision a future where all healthcare decisions are data-informed.

Health Catalyst was founded in 2008 by healthcare analytics industry pioneers. Our founders and team developed the initial version of our Solution, consisting of an early version of our data platform, select analytics accelerators, and professional services expertise. From the beginning, our Solution has been focused on enabling our mission: to be the catalyst for massive, measurable, data-informed healthcare improvement. We currently employ more than 1,200 team members.

Highlights from the years ended December 31, 2021, 2020, and 2019 include:

- For the years ended December 31, 2021, 2020, and 2019, our total revenue was $241.9 million, $188.8 million, and $154.9 million, respectively. The growth in revenue was primarily due to revenue from new customers, including customers of our recent acquired entities, and existing customers paying higher technology access fees from contractual, annual escalators.

- For the years ended December 31, 2021, 2020, and 2019, we incurred net losses of $153.2 million, $115.0 million, and $60.1 million, respectively.

- For the years ended December 31, 2021, 2020, and 2019, our Adjusted EBITDA was $(11.2) million, $(21.3) million, and $(27.4) million, respectively.

See "Reconciliation of Non-GAAP Financial Measures" below for more information about this financial measure, including the limitations of such measure and a reconciliation to the most directly comparable measure calculated in accordance with GAAP. See "Key Factors Affecting Our Performance" for more information about important opportunities and challenges related to our business.

In August 2021, we completed an underwritten public offering of 4,882,075 shares (inclusive of the underwriters' over-allotment option to purchase 636,792 shares) of our common stock at $53.00 per share. We received net proceeds of $245.2 million, after deducting the underwriting discounts and commissions and other offering costs.

COVID-19 Impact

The COVID-19 pandemic and the related adverse public health developments, have adversely affected workforces, organizations, governments, customers, economies, and financial markets globally. It has also disrupted the normal operations of many businesses, including ours. COVID-19 has disrupted and we believe will continue to disrupt the normal operations of our customers, which are primarily healthcare providers. Given the unknown timeline and the near-term uncertainty of COVID-19 on our business, there continues to be uncertainty as to the extent to which the global COVID-19 pandemic may adversely impact our business operations, financial performance, and results of operations at this time. We believe that the ongoing waves of COVID-19, especially in light of the Delta and Omicron variants, coupled with the potential for new variants and vaccination rates in certain areas of the country, likely indicate that our country and national healthcare system will be under some amount of continued operational and budgetary strain over the coming months. Nevertheless, we continue to be encouraged as we witness meaningful evidence that the healthcare provider ecosystem is much better equipped and prepared to respond to the ongoing pandemic, including through treatment efficacy, supply chain logistics, capacity planning, and broader operational optimization.

We benefit from a highly recurring revenue model in which greater than 90% of our revenue is recurring in nature. As such, we expect that the near-term impact of COVID-19 on our total revenue will be relatively muted, as evidenced by our revenue performance for the years ended December 31, 2021 and 2020. Additionally, we benefit from a high level of technology revenue predictability, especially our DOS subscription customers whose contracts typically have built-in, contractual technology revenue escalators. We also have developed a number of technology and services solutions designed specifically to support healthcare providers during the COVID-19 pandemic. Importantly, since the onset of the COVID-19 pandemic, our customers' overall usage of our data platform has increased meaningfully. Given these factors, our technology dollar-based retention has not been impacted as a result of COVID-19 and we would anticipate similar dynamics moving forward.

As we get through the COVID-19 pandemic and healthcare organizations' operations begin to normalize, we continue to be optimistic that the pandemic will serve as an overall medium-to-long term tailwind in the industry's adoption of data and analytics. At the health system level, we are seeing meaningful evidence that COVID-19 is highlighting the need for a commercial-grade data and analytics solution to replace patchwork homegrown systems. Likewise, we have seen current and prospective customer interest strengthening in areas including revenue and cost optimization analytics and value-based care analytics, for which we think our technology and professional services offerings are well suited.

Our Business Model

We offer our Solution to a variety of healthcare organizations, primarily in the United States, including academic medical centers, integrated delivery networks, community hospitals, large physician practices, ACOs, health information exchanges, health insurers, and other risk-bearing entities. We categorize our customer count into two primary categories: DOS Subscription Customers and Other Customers. DOS Subscription Customers are defined as customers who directly or indirectly access our DOS platform via a technology subscription contract. Other customers generally include DOS non-subscription customers and other customers from historical acquisitions. As of December 31, 2021, 2020, and 2019, we had 90, 74, and 65 DOS Subscription Customers with active subscriptions, respectively. As of December 31, 2021, we served over 350 Other Customers compared to 300 as of December 31, 2020. The increase in Other Customers from 2020 to 2021 was primarily due to our acquisition of Twistle and new Vitalware customers.

We derive substantially all of our revenue through subscriptions for use of our technology and professional services on a recurring basis. In 2021, greater than 90% of our total revenue was recurring in nature. Customers pay for our technology primarily on a subscription basis for our entire technology suite or for pieces of our technology (e.g., DOS-only). We generally provide access to our technology and deliver professional services to customers on a recurring basis, with our technology invoiced upfront annually or quarterly and our professional services invoiced monthly. Most of our technology and professional services contracts with DOS subscription customers have up to a three-year term, of which the vast majority are terminable after one year upon 90 days' notice. As we increase the use cases we address at a given customer, we have the opportunity to upsell incremental technology and services. We have demonstrated an ability to upsell technology and services to our customer base over time as evidenced by a Dollar-based Retention Rate of 112%, 102%, and 109% for the years ended December 31, 2021, 2020, and 2019, respectively.

The primary costs incurred to deliver our technology are hosting fees and headcount-related costs associated with our cloud services and support teams. Hosting fees are related to providing our technology through a cloud-based environment hosted primarily by Microsoft Azure. However, we also have deployed DOS on-premise to a small number of customers. Over time, we plan to migrate our on-premise and private data center customers to Azure-hosted environments, increasing our technology cost of revenue. We have experienced and expect to continue to experience operational inefficiencies associated with managing multiple hosting providers, resulting in a headwind against Adjusted Technology Gross Margin. The primary costs incurred to deliver our professional services are the salaries, benefits, and other headcount-related costs of our team members.

We delineate our sales organization by new customer acquisition and existing customer retention and expansion. Selling efforts to new customers vary. Many of our new customers engage with us broadly for multiple use cases, requiring buy-in during the sales cycle across the C-suite. Alternatively, in some instances, we engage with a customer in a single-use case. After we demonstrate measurable improvements, we work with our customers to expand the utilization of our Solution to other use cases or enterprise-wide. The average sales cycle for a new DOS subscription customer is estimated to be approximately one year, and that timeline can vary materially. Because of our vertical focus on the healthcare industry, we believe our sales and marketing resources can be deployed more efficiently than at horizontally-focused companies that provide technology and services to multiple industries. Over the past few years, we have invested in growth infrastructure by adding to our sales operations and marketing teams, which are built to help us scale over the long term.

We have demonstrated a consistent track record of innovation through research and development over time as evidenced by our new product features and new product offerings. This innovation is driven by feedback we glean from our customers, professional services teams, and the market generally. Our investments in product development have been focused on increasing the capabilities of our Solution and expanding the number of use cases we address for our customers.

Key Business Metrics

We regularly review a number of metrics, including the following key financial metrics, to manage our business and evaluate our operating performance compared to that of other companies in our industry:

	Year Ended December 31,					
	2021		2020		2019	
	(in thousands, except percentages)					
Total revenue	$ 241,926		$ 188,845		$ 154,941	
Adjusted Technology Gross Profit	102,326		75,666		56,378	
Adjusted Technology Gross Margin	69	%	68	%	67	%
Adjusted Professional Services Gross Profit	$ 25,544		$ 19,358		$ 24,494	
Adjusted Professional Services Gross Margin	27	%	25	%	35	%
Total Adjusted Gross Profit	$ 127,870		$ 95,024		$ 80,872	
Total Adjusted Gross Margin	53	%	50	%	52	%
Adjusted EBITDA	$ (11,248)		$ (21,287)		$ (27,363)	

We monitor the key metrics set forth in the preceding table to help us evaluate trends, establish budgets, measure the effectiveness and efficiency of our operations, and determine team member incentives. We discuss Adjusted Gross Profit, Adjusted Gross Margin, and Adjusted EBITDA in more detail below.

Adjusted gross profit and adjusted gross margin

Adjusted Gross Profit is a non-GAAP financial measure that we define as revenue less cost of revenue, excluding depreciation and amortization, stock-based compensation, and acquisition-related costs, net, as applicable. We define Adjusted Gross Margin as our Adjusted Gross Profit divided by our revenue. We believe Adjusted Gross Profit and Adjusted Gross Margin are useful to investors as they eliminate the impact of certain non-cash expenses and allow a direct comparison of these measures between periods without the impact of non-cash expenses and certain other non-recurring operating expenses. We present both of these measures for our technology and professional services business. We believe these non-GAAP measures are useful in evaluating our operating performance compared to that of other companies in our industry, as these measures generally eliminate the effects of certain items that may vary from company to company for reasons unrelated to overall profitability.

See above for information regarding the limitations of using our Adjusted Gross Profit and Adjusted Gross Margin as financial measures and for a reconciliation of revenue to our Adjusted Gross Profit, the most directly comparable financial measure calculated in accordance with GAAP.

Adjusted EBITDA

Adjusted EBITDA is a non-GAAP financial measure that we define as net loss adjusted for interest and other expense, net, loss on debt extinguishment, income tax provision (benefit), depreciation and amortization, stock-based compensation, acquisition-related costs, net, and non-recurring lease-related charges. We believe Adjusted EBITDA provides investors with useful information on period-to-period performance as evaluated by management and comparison with our past financial performance. We believe Adjusted EBITDA is useful in evaluating our operating performance compared to that of other companies in our industry, as this metric generally eliminates the effects of certain items that may vary from company to company for reasons unrelated to overall operating performance.

See “Reconciliation of Non-GAAP Financial Measures” below for information regarding the limitations of using our Adjusted EBITDA as a financial measure and for a reconciliation of our net loss to Adjusted EBITDA, the most directly comparable financial measure calculated in accordance with GAAP.

Other Key Metrics

We also regularly monitor and review the number of DOS Subscription Customers and Dollar-based Retention Rate as shown in the following tables:

	As of December 31,		
	2021	2020	2019
DOS Subscription Customers	90	74	65

DOS subscription customers

Since 2016, our primary contracting model is a subscription-based contract to our DOS platform, analytics applications, and professional services. Given how fundamental DOS is to our Solution and because the vast majority of our total revenue is derived from DOS Subscription Customers, we believe our DOS Subscription Customer count is the best representation of our market penetration and the growth of our business.

	Year Ended December 31,		
	2021	2020	2019
Dollar-based Retention Rate	112 %	102 %	109 %

Dollar-based Retention Rate

We calculate our Dollar-based Retention Rate as of a period end by starting with the sum of the Annual Recurring Revenue (ARR) from customers as of the date 12 months prior to such period end (prior period ARR). We then calculate the sum of the ARR from these same customers as of the current period end (current period ARR). Current period ARR includes any upsells and also reflects contraction or attrition over the trailing twelve months but excludes revenue from new customers added in the current period. We then divide the current period ARR by the prior period ARR to arrive at our Dollar-based Retention Rate. We calculate ARR for each customer as the expected monthly recurring revenue of our customers as of the last day of a period multiplied by 12. Because our primary business model is to contract for our DOS platform, analytics applications, and professional services, acquired customers that have not subscribed to DOS, including legacy Medicity, Able Health, Healthfinch, Vitalware, and Twistle, are not included in the Dollar-based Retention Rate metrics.

Given our high level of technology revenue predictability, we would anticipate minimal impact on our technology Dollar-based retention as a result of COVID-19. As noted, our Dollar-based Retention Rate Key Metric excludes customers who are not DOS Subscription Customers, including customers added through acquisition, as the go-forward technology revenue growth profiles of these businesses may vary from our core DOS Subscription Customers. Specifically, Medicity customers have generated a lower Dollar-based Retention Rate than DOS Subscription Customers and we expect flat to declining revenue from Medicity customers in the foreseeable future.

The financial strain imposed by COVID-19 on a number of our customers led to a meaningfully lower professional services dollar-based retention in 2020 due to discounts provided to support our customers through the financial strain related to the initial outbreak. We did not provide similar discounts during 2021 and saw improvement in professional services dollar-based retention compared to 2020. Given that our customer base will be under some amount of continued pandemic-related financial and operational uncertainty over the coming months and the nature of our contract structure for professional services, we anticipate that there will be more variation to our professional services dollar-based retention in the near-term. While the vast majority of our professional services revenue are recurring in nature, we also provide customers with an option to engage with us for non-recurring, project-based professional services fees. These non-recurring, project-based fees are less predictable than our recurring services and can drive fluctuations in quarterly professional services revenues and in prior period comparisons.

Reconciliation of Non-GAAP Financial Measures

In addition to our results determined in accordance with GAAP, we believe the following non-GAAP measures are useful in evaluating our operating performance. We use the following non-GAAP financial information to evaluate our ongoing operations, as a component in determining employee bonus compensation, and for internal planning and forecasting purposes. We believe that non-GAAP financial information, when taken collectively, may be helpful to investors because it provides consistency and comparability with past financial performance. However, non-GAAP financial information is presented for supplemental informational purposes only, has limitations as an analytical tool and should not be considered in isolation or as a substitute for financial information presented in accordance with GAAP. In addition, other companies, including companies in our industry, may calculate similarly-titled non-GAAP measures differently or may use other measures to evaluate their performance, all of which could reduce the usefulness of our non-GAAP financial measures as tools for comparison. A reconciliation is provided below for each non-GAAP financial measure to the most directly comparable financial measure stated in accordance with GAAP. Investors are encouraged to review the related GAAP financial measures and the reconciliation of these non-GAAP financial measures to their most directly comparable GAAP financial measures, and not to rely on any single financial measure to evaluate our business.

Adjusted gross profit and adjusted gross margin

Adjusted Gross Profit is a non-GAAP financial measure that we define as revenue less cost of revenue, excluding depreciation and amortization, stock-based compensation, and acquisition-related costs, net, as applicable. We define Adjusted Gross Margin as our Adjusted Gross Profit divided by our revenue. We believe Adjusted Gross Profit and Adjusted Gross Margin are useful to investors as they eliminate the impact of certain non-cash expenses and allow a direct comparison of these measures between periods without the impact of non-cash expenses and certain other non-recurring operating expenses. We present both of these measures for our technology and professional services business. We believe these non-GAAP measures are useful in evaluating our operating performance compared to that of other companies in our industry, as these metrics generally eliminate the effects of certain items that may vary from company to company for reasons unrelated to overall profitability.

The following is a reconciliation of revenue to our Adjusted Gross Profit and Adjusted Gross Margin in total and for technology and professional services for the years ended December 31, 2021, 2020, and 2019:

	Year Ended December 31, 2021 (in thousands, except percentages)		
	Technology	Professional Services	Total
Revenue	$ 147,718	$ 94,208	$ 241,926
Cost of revenue, excluding depreciation and amortization	(47,516)	(76,838)	(124,354)
Gross profit, excluding depreciation and amortization	100,202	17,370	117,572
Add:			
Stock-based compensation	2,063	8,047	10,110
Acquisition-related costs, net[(1)]	61	127	188
Adjusted Gross Profit	$ 102,326	$ 25,544	$ 127,870
Gross margin, excluding depreciation and amortization	68 %	18 %	49 %
Adjusted Gross Margin	69 %	27 %	53 %

(1) Acquisition-related costs, net includes deferred retention expenses following the acquisition of Twistle.

	Year Ended December 31, 2020 (in thousands, except percentages)		
	Technology	Professional Services	Total
Revenue	$ 110,467	$ 78,378	$ 188,845
Cost of revenue, excluding depreciation and amortization	(35,604)	(62,473)	(98,077)
Gross profit, excluding depreciation and amortization	74,863	15,905	90,768
Add:			
Stock-based compensation	803	3,453	4,256
Adjusted Gross Profit	$ 75,666	$ 19,358	$ 95,024
Gross margin, excluding depreciation and amortization	68 %	20 %	48 %
Adjusted Gross Margin	68 %	25 %	50 %

	Year Ended December 31, 2019 (in thousands, except percentages)		
	Technology	Professional Services	Total
Revenue	$ 83,975	$ 70,966	$ 154,941
Cost of revenue, excluding depreciation and amortization	(27,797)	(47,548)	(75,345)
Gross profit, excluding depreciation and amortization	56,178	23,418	79,596
Add:			
Stock-based compensation	200	968	1,168
Acquisition-related costs, net[1]	—	108	108
Adjusted Gross Profit	56,378	24,494	80,872
Gross margin, excluding depreciation and amortization	67 %	33 %	51 %
Adjusted Gross Margin	67 %	35 %	52 %

(1) Acquisition-related costs, net includes post-acquisition restructuring costs following the acquisition of Medicity.

Adjusted Technology Gross Margin increased slightly from 68% for the year ended December 31, 2020 to 69% for the year ended December 31, 2021. This year-over-year performance was mainly driven by existing customers paying higher technology access fees from contractual, built-in escalators, without the corresponding increase in hosting costs, offset partially by headwinds due to the continued costs associated with transitioning a portion of our customer base to Azure hosted environments. We expect Adjusted Technology Gross Margin to fluctuate and potentially decline in the near term, primarily due to additional costs associated with the ongoing transition of a small number of customers from on-premise and our managed data centers to third-party hosted data centers with Microsoft Azure.

Adjusted Professional Services Gross Margin increased from 25% for the year ended December 31, 2020 to 27% for the year ended December 31, 2021, due primarily to the impact of prior year professional services discounts provided to support our customers through the financial strain they experienced related to COVID-19, greater non-recurring and project-based revenue, and a shift in the mix of professional services delivered. Our professional services are comprised of data and analytics services, domain expertise services, outsourcing services, and implementation services. The majority of our professional services revenue is generated from data and analytic services and domain expertise services, which are the highest gross margin professional services we provide. The delivery mix among all of our services in a given period can lead to fluctuations in our Adjusted Professional Services Gross Margin. Adjusted Professional Services Gross Margin may fluctuate on a quarterly basis due to changes in the mix of services we provide and the amount of operational overhead required to deliver our services.

Adjusted EBITDA

Adjusted EBITDA is a non-GAAP financial measure that we define as net loss adjusted for interest and other expense, net, loss on extinguishment of debt, income tax provision (benefit), depreciation and amortization, stock-based compensation, acquisition-related costs, net, and non-recurring lease-related charges. We believe Adjusted EBITDA is useful in evaluating our operating performance compared to that of other companies in our industry, as this metric generally eliminates the effects of certain items that may vary from company to company for reasons unrelated to overall operating performance.

The following is a reconciliation of our net loss to Adjusted EBITDA for the years ended December 31, 2021, 2020, and 2019:

	Year Ended December 31,		
	2021	2020	2019
	(in thousands)		
Net loss	$ (153,210)	$ (115,017)	$ (60,096)
Add:			
Interest and other expense, net	16,458	11,572	3,419
Loss on extinguishment of debt	—	8,514	1,670
Income tax provision (benefit)	(6,898)	(1,194)	142
Depreciation and amortization	37,528	18,725	9,212
Stock-based compensation	65,145	37,957	17,844
Acquisition-related costs, net[(1)]	27,929	16,758	446
Non-recurring lease-related charges[(2)]	1,800	1,398	—
Adjusted EBITDA	$ (11,248)	$ (21,287)	$ (27,363)

(1) Acquisition-related costs, net includes third party fees associated with due diligence, deferred retention expenses, post-acquisition restructuring costs incurred as part of business combinations, and changes in fair value of contingent consideration liabilities for potential earn-out payments. For additional details refer to Note 2 in our consolidated financial statements.

(2) Non-recurring lease-related charges includes the lease-related impairment charge for the subleased portion of our corporate headquarters and duplicate rent expense incurred during the relocation of our corporate headquarters. For additional details refer to Note 9 in our consolidated financial statements.

Key Factors Affecting Our Performance

We believe that our future growth, success, and performance are dependent on many factors, including those set forth below. While these factors present significant opportunities for us, they also represent the challenges that we must successfully address in order to grow our business and improve our results of operations

- ***Impact of COVID-19 pandemic.*** The COVID-19 pandemic has adversely affected workforces, organizations, governments, customers, economies, and financial markets globally, leading to an economic downturn and increased market volatility. It has also disrupted the normal operations of many businesses, including ours. The ongoing waves of COVID-19, especially in light of the Delta and Omicron variants, as well as intensified measures undertaken to contain the spread of COVID-19, could continue to decrease healthcare industry spending, adversely affect demand for our technology and services, cause one or more of our customers to file for bankruptcy protection or go out of business, cause one or more of our customers to fail to renew, terminate, or renegotiate their contracts, affect the ability of our sales team to travel to potential customers and the ability of our professional services teams to conduct in-person services and trainings, impact expected spending from new customers, negatively impact collections of accounts receivable, and harm our business, results of operations, and financial condition. It is not possible for us to predict the duration or magnitude of the adverse results of the outbreak and its effects on our business, results of operations, or financial condition at this time.

- ***Add new customers.*** We believe our ability to increase our customer base will enable us to drive growth. Our potential customer base is generally in the early stages of data and analytics adoption and maturity. We expect to further penetrate the market over time as potential customers invest in commercial data and analytics solutions. As one of the first data platform and analytics vendors focused specifically on healthcare organizations, we have an early-mover advantage and strong brand awareness. Our customers are large, complex organizations who typically have long procurement cycles which may lead to declines in the pace of our new customer additions.

- ***Leverage recent product and services offerings to drive expansion.*** We believe that our ability to expand within our customer base will enable us to drive growth. Over the last few years, we have developed and deployed several new analytics applications including PowerCosting (formerly known as CORUS), PowerLabor, Touchstone, Patient Safety Monitor, Pop Analyzer (formerly known as Population Builder), and others. Because we are in the early stages of certain of our applications' lifecycles and maturity, we do not have enough information to know the impact on revenue growth by upselling these applications and associated services to current and new customers.

- ***Impact of acquisitions.*** We have acquired multiple companies over the last few years, including Medicity in June 2018, Able Health in February 2020, Healthfinch in July 2020, Vitalware in September 2020, and Twistle in July 2021. The historical and go-forward revenue growth profiles of these businesses may vary from our core DOS Subscription Customers, thus impacting our overall growth rate. Specifically, Medicity customers have generated a lower Dollar-based Retention Rate than DOS Subscription Customers and we expect declining revenue from Medicity customers in the foreseeable future. If our cross-sell efforts and technology integration strategies are successful related to the recent acquisitions, this could offset revenue declines from Medicity customers. As we integrate the teams acquired via our recent acquisitions, we have also incurred integration-related costs and duplicative costs that could impact our operating cost profile in the near-term.

- ***Changing revenue mix***. Our technology and professional services offerings have materially different gross margin profiles. While our professional services offerings help our customers achieve measurable improvements and make them stickier, they have lower gross margins than our technology revenue. In 2021, our technology revenue and professional services revenue represented 61% and 39% of total revenue, respectively. Changes in our revenue mix between the two offerings would impact future Total Adjusted Gross Margin. Furthermore, changes within the types of professional services we offer over time can have a material impact on our Adjusted Professional Services Gross Margin, impacting our future Total Adjusted Gross Margin. See "Reconciliation of Non-GAAP Financial Measures" above for more information.

- ***Transitions to Microsoft Azure as DOS hosting provider.*** We incur hosting fees related to providing DOS through a cloud-based environment hosted by Microsoft Azure. We maintain a small number of customers that have deployed DOS on-premise. We are in the process of migrating customers who deployed DOS on-premise to Azure-hosted environments. The Azure cloud provides customers with more advanced DOS product functionality and a more seamless customer experience; however, hosting customers in Azure is more costly than on-premise deployments on a per-customer basis. This transition has resulted in higher cost of technology revenue and a reduced Adjusted Technology Gross Margin.

Recent Acquisitions

Twistle, Inc.

On July 1, 2021, we acquired Twistle Inc. (Twistle), a healthcare patient engagement SaaS technology company that automates patient-centered communication between care teams and patients to transform the patient experience, drive better care outcomes, and reduce healthcare costs. We anticipate that Twistle's leading clinical workflow and patient engagement platform, paired with the Health Catalyst population health offering, will enable a comprehensive go-to-market solution to address the population health needs of healthcare and life science organizations. The acquisition consideration transferred was $91.9 million, consisting of net cash consideration of $46.7 million, Health Catalyst common shares with a fair value of $43.1 million, and contingent consideration based on certain earn-out performance targets for Twistle during an earn-out period that ends on June 30, 2022, which had an initial estimated fair value of $2.1 million.

Vitalware, LLC

On September 1, 2020, we acquired Vitalware, LLC (Vitalware), a provider of revenue workflow optimization and analytics SaaS technology solutions to healthcare organizations, in a transaction accounted for as a business combination. Vitalware's flagship offering is a chargemaster management solution that delivers analytics for the complex regulatory and compliance functions needed by healthcare provider systems. Additionally, Vitalware brings to bear newer product suites to help health systems capture lost revenue and to support compliance with expanding pricing transparency regulation. The acquisition consideration transferred was $119.2 million and was comprised of net cash consideration of $69.6 million, Health Catalyst common shares with a fair value of $41.3 million, and contingent consideration based on certain earn-out performance targets for Vitalware during an earn-out period that ended on March 31, 2021. The purchase resulted in Health Catalyst acquiring 100% ownership in Vitalware. The earn-out contingent consideration liability was settled during the second quarter of 2021.

Healthfinch, Inc.

On July 31, 2020, we acquired Healthfinch, Inc. (Healthfinch), which provides a workflow integration engine delivering insights and analytics into EMR workflows to automate physicians' ability to close patient care gaps in real-time, in a transaction accounted for as a business combination. We believe this acquisition will strengthen our existing population health capabilities. The acquisition consideration transferred was $50.5 million and was comprised of net cash consideration of $16.9 million, Health Catalyst common shares with a fair value of $27.8 million, and contingent consideration based on certain earn-out performance targets for Healthfinch during an earn-out period that ended on July 31, 2021. The purchase resulted in Health Catalyst acquiring 100% ownership in Healthfinch. Approximately half of the earn-out was settled during the third quarter of 2021 and the remaining amount is expected to be settled during the first quarter of 2022.

Able Health, Inc.

On February 21, 2020, we acquired Able Health, Inc. (Able Health), a leading software-as-a-service provider of quality and regulatory measurement tracking and reporting to healthcare providers and risk-bearing entities, in a transaction accounted for as a business combination. We believe this acquisition will strengthen Health Catalyst's Quality and Regulatory Measures capabilities. The acquisition consideration transferred was $21.5 million and was comprised of net cash consideration of $15.2 million, Health Catalyst common shares with a fair value of $3.3 million, and contingent consideration based on achievement of Able Health specified incremental customer billings for the year ended December 31, 2020. The purchase resulted in Health Catalyst acquiring 100% ownership in Able Health. The earn-out contingent consideration liability was settled during the first quarter of 2021.

Components of Our Results of Operations

Revenue

We derive our revenue from sales of technology and professional services. For the years ended December 31, 2021, 2020, and 2019, technology revenue represented 61%, 58%, and 54% of total revenue, respectively, and professional services revenue represented 39%, 42%, and 46% of total revenue, respectively.

Technology revenue. Technology revenue primarily consists of subscription fees charged to customers for access to use our data platform and analytics applications. We provide customers access to our technology through either an all-access or limited-access, modular subscription. Most of our subscription contracts are cloud-based and have up to a three-year term, of which the majority are terminable after one year upon 90 days' notice. The vast majority of our DOS subscription contracts have built-in annual escalators for technology access fees. Also included in technology revenue is the maintenance and support we provide, which generally includes updates and support services.

Professional services revenue. Professional services revenue primarily includes analytics services, domain expertise services, outsourcing services, and implementation services. Professional services arrangements typically include a fee for making full-time equivalent (FTE) services available to our customers on a monthly basis. FTE services generally consist of a blend of analytic engineers, analysts, and data scientists based on the domain expertise needed to best serve our customers.

Deferred revenue

Deferred revenue consists of customer billings in advance of revenue being recognized from our technology and professional services arrangements. We primarily invoice our customers for technology arrangements annually or quarterly in advance. Amounts anticipated to be recognized within one year of the balance sheet date are recorded as deferred revenue and the remaining portion is recorded as deferred revenue, net of current portion on the consolidated balance sheets.

Cost of revenue, excluding depreciation and amortization

Cost of technology revenue. Cost of technology revenue primarily consists of costs associated with hosting and supporting our technology, including third-party cloud computing and hosting costs, contractor costs, and salary and related personnel costs for our cloud services and support teams.

Although we expect cost of technology revenue to increase in absolute dollars as we increase headcount, cloud computing, and hosting costs to accommodate growth, and as we continue to transition customers to third-party hosted data centers with Microsoft Azure, we anticipate cost of technology revenue as a percentage of technology revenue will generally decrease over the long term. We expect cost of technology revenue as a percentage of technology revenue to fluctuate and potentially increase in the near term, primarily due to additional costs associated with transitioning a small number of customers from on-premise and our managed data centers to Microsoft Azure.

Cost of professional services revenue. Cost of professional services revenue consists primarily of costs related to delivering our team’s expertise in analytics, strategic advisory, improvement, and implementation services. These costs primarily include salary and related personnel costs, travel-related costs, and outside contractor costs. We expect cost of professional services revenue to increase in absolute dollars as we increase headcount to accommodate growth.

Operating expense

Sales and marketing. Sales and marketing expenses primarily include salary and related personnel costs for our sales, marketing, and account management teams, lead generation, marketing events, including our Healthcare Analytics Summit (HAS), marketing programs, and outside contractor costs associated with the sale and marketing of our offerings.

We plan to continue to invest in sales and marketing to grow our customer base, expand in new markets, and increase our brand awareness. The trend and timing of sales and marketing expenses will depend in part on the timing of our expansion into new markets and marketing campaigns. We expect that sales and marketing expenses will increase in absolute dollars in future periods, but decrease as a percentage of our revenue over the long term. Our sales and marketing expenses may fluctuate as a percentage of our revenue from period to period due to the timing and extent of these expenses.

Research and development. Research and development expenses primarily include salary and related personnel costs for our data platform and analytics applications teams, subscriptions, and outside contractor costs associated with the development of products. We have developed an open, flexible, and scalable data platform. We plan to continue to invest in research and development to develop new solutions and enhance our applications library.

We expect that research and development expenses will increase in absolute dollars in future periods, but decrease as a percentage of our revenue over the long term. Our research and development expenses may fluctuate as a percentage of our revenue from period to period due to the nature, timing, and extent of these expenses.

General and administrative. General and administrative expenses primarily include salary and related personnel costs for our legal, finance, people operations, IT, and other administrative teams, including certain executives. General and administrative expenses also include facilities, subscriptions, corporate insurance, outside legal, accounting, directors' fees, lease-related impairment charges, and the change in fair value of contingent consideration liabilities.

We expect our general and administrative expenses to increase in absolute dollars for the foreseeable future, but decrease as a percentage of our revenue over the long term. Our general and administrative expenses may fluctuate as a percentage of our revenue from period to period due to the timing and extent of these expenses.

Depreciation and amortization. Depreciation and amortization expenses are primarily attributable to our capital investment and consist of fixed asset depreciation, amortization of intangibles considered to have definite lives, and amortization of capitalized internal-use software costs.

Interest and other expense, net

Interest and other expense, net primarily consists of interest expense partially offset by income from our investment holdings. Interest expense in the current year is primarily attributable to the Notes and in prior years was primarily attributable to our now extinguished term loan and imputed interest on acquisition-related consideration payable. It also includes the amortization of discounts on debt and amortization of deferred financing costs related to our various debt arrangements. The adoption of ASU 2020-06 during the first quarter of 2022 is expected to reduce our reported interest expense as it relates to our convertible senior notes.

Income tax provision (benefit)

Income tax provision (benefit) consists of U.S. federal, state, and foreign income taxes. Because of the uncertainty of the realization of the deferred tax assets, we have a full valuation allowance for our net deferred tax assets, including net operating loss carryforwards (NOLs) and tax credits related primarily to research and development.

As of December 31, 2021, we had federal and state NOLs of $580.0 million and $465.7 million, respectively, which will begin to expire for federal and state tax purposes in 2032 and 2023, respectively. Our existing NOLs may be subject to limitations arising from ownership changes and, if we undergo an ownership change in the future, our ability to utilize our NOLs and tax credits could be further limited by Sections 382 and 383 of the Code. Future changes in our stock ownership, many of which are outside of our control, could result in an ownership change under Sections 382 and 383 of the Code. Our NOLs and tax credits may also be limited under similar provisions of state law.

On March 27, 2020, the Coronavirus Aid, Relief and Economic Security (CARES) Act was enacted and signed into U.S. law to provide economic relief to individuals and businesses facing economic hardship as a result of the COVID-19 pandemic. On March 11, 2021, the American Rescue Plan Act of 2021 (ARPA) was enacted and signed into U.S. law to provide additional economic stimulus and tax credits. Changes in tax laws or rates are accounted for in the period of enactment. The income tax provisions of the CARES Act and ARPA do not have a significant impact on our current taxes, deferred taxes, or uncertain tax positions. The CARES Act also provided for the deferral of an employer’s portion of social security payroll taxes for the remainder of 2020. We began deferring the social security payroll tax match in April 2020 and fully paid all related deferred payroll taxes in December 2021.

Results of Operations

The following tables set forth our consolidated results of operations data and such data as a percentage of total revenue for each of the periods indicated:

	Year Ended December 31,		
	2021	2020	2019
	(in thousands)		
Revenue:			
Technology	$ 147,718	$ 110,467	$ 83,975
Professional services	94,208	78,378	70,966
Total revenue	241,926	188,845	154,941
Cost of revenue, excluding depreciation and amortization shown below:			
Technology[1][2]	47,516	35,604	27,797
Professional services[1][2]	76,838	62,473	47,548
Total cost of revenue, excluding depreciation and amortization	124,354	98,077	75,345
Operating expenses:			
Sales and marketing[1][2]	75,027	55,411	47,284
Research and development[1][2]	62,733	53,517	46,252
General and administrative[1][2][3]	85,934	59,240	31,713
Depreciation and amortization	37,528	18,725	9,212
Total operating expenses	261,222	186,893	134,461
Loss from operations	(143,650)	(96,125)	(54,865)
Loss on extinguishment of debt	—	(8,514)	(1,670)
Interest and other expense, net	(16,458)	(11,572)	(3,419)
Loss before income taxes	(160,108)	(116,211)	(59,954)
Income tax provision (benefit)	(6,898)	(1,194)	142
Net loss	$ (153,210)	$ (115,017)	$ (60,096)

(1) Includes stock-based compensation expense, as follows:

	Year Ended December 31,		
	2021	2020	2019
Stock-Based Compensation Expense:	(in thousands)		
Cost of revenue, excluding depreciation and amortization:			
Technology	$ 2,063	$ 863	200
Professional services	8,047	3,453	968
Sales and marketing	22,698	13,093	3,811
Research and development	10,213	8,069	4,841
General and administrative	22,124	12,539	8,024
Total	$ 65,145	$ 37,957	17,844

(2) Includes acquisition-related costs, net, as follows:

	Year Ended December 31,		
	2021	2020	2019
Acquisition-related costs, net:	(in thousands)		
Cost of revenue, excluding depreciation and amortization:			
Technology	$ 61	$ —	$ —
Professional services	127	—	108
Sales and marketing	592	—	306
Research and development	901	—	32
General and administrative	26,248	16,758	—
Total	$ 27,929	$ 16,758	$ 446

(3) Includes non-recurring lease-related charges, as follows:

	Year Ended December 31,		
	2021	2020	2019
Non-recurring lease-related charges:	(in thousands)		
General and administrative	$ 1,860	$ 1,398	—

	Year Ended December 31,		
	2021	2020	2019
Revenue:			
Technology	61 %	58 %	54 %
Professional services	39	42	46
Total revenue	100	100	100
Cost of revenue, excluding depreciation and amortization shown below:			
Technology	20	19	18
Professional service	32	33	31
Total cost of revenue, excluding depreciation and amortization	52	52	49
Operating expenses:			
Sales and marketing	31	29	31
Research and development	26	28	30
General and administrative	36	31	20
Depreciation and amortization	16	10	6
Total operating expenses	109	98	87
Loss from operations	(61)	(50)	(36)
Loss on extinguishment of debt	—	(5)	(1)
Interest and other expense, net	(7)	(6)	(2)
Loss before income taxes	(68)	(61)	(39)
Income tax provision (benefit)	(3)	(1)	—
Net loss	(65)%	(60)%	(39)%

Discussion of the Years Ended December 31, 2021 and 2020

Revenue

	Year Ended December 31,			
	2021	2020	$ Change	% Change
	(in thousands, except percentages)			
Revenue:				
Technology	$ 147,718	$ 110,467	$ 37,251	34 %
Professional services	94,208	78,378	15,830	20 %
Total revenue	$ 241,926	$ 188,845	$ 53,081	28 %
Percentage of revenue:				
Technology	61 %	58 %		
Professional services	39	42		
Total	100 %	100 %		

Total revenue was $241.9 million for the year ended December 31, 2021, compared to $188.8 million for the year ended December 31, 2020, an increase of $53.1 million, or 28%.

Technology revenue was $147.7 million, or 61% of total revenue, for the year ended December 31, 2021, compared to $110.5 million, or 58% of total revenue, for the year ended December 31, 2020. The revenue growth was primarily from new DOS Subscription Customers, acquired technology customers, and revenue from existing customers paying higher technology access fees from contractual, annual escalators, and new offerings of expanded support services.

Professional services revenue was $94.2 million, or 39% of total revenue, for the year ended December 31, 2021, compared to $78.4 million, or 42% of total revenue, for the year ended December 31, 2020. The professional services revenue growth is primarily due to implementation, analytics, outsourcing, and other improvement services being provided to new DOS Subscription Customers, greater non-recurring and project-based services, partially offset by lower professional services dollar-based retention achieved in 2020 relative to historical performance as a result of the COVID-19 pandemic.

Cost of revenue, excluding depreciation and amortization

	Year Ended December 31,			
	2021	2020	$ Change	% Change
	(in thousands, except percentages)			
Cost of revenue, excluding depreciation and amortization:				
Technology	$ 47,516	$ 35,604	$ 11,912	33 %
Professional services	76,838	62,473	14,365	23 %
Total cost of revenue, excluding depreciation and amortization	$ 124,354	$ 98,077	$ 26,277	27 %
Percentage of total revenue	51 %	52 %		

Cost of technology revenue, excluding depreciation and amortization, was $47.5 million for the year ended December 31, 2021, compared to $35.6 million for the year ended December 31, 2020, an increase of $11.9 million, or 33%. The increase in cost of technology revenue was primarily due to $3.8 million in increased cloud computing and hosting costs largely from the recent acquisitions and the expanded use of Microsoft Azure to serve existing and new customers, $3.4 million of increased salary and related personnel costs from additional cloud services and support headcount, $2.4 million from increased dues and subscriptions, and $1.3 million of additional stock-based compensation.

Cost of professional services revenue was $76.8 million for the year ended December 31, 2021, compared to $62.5 million for the year ended December 31, 2020, an increase of $14.4 million, or 23%. This increase was primarily due to an $8.7 million increase in salary and related personnel costs from additional professional services headcount, a $4.6 million increase in stock-based compensation, and a $1.2 million increase in contractor and outside service fees.

Operating Expenses

Sales and marketing

	Year Ended December 31,		$ Change	% Change
	2021	2020		
	(in thousands, except percentages)			
Sales and marketing	$ 75,027	$ 55,411	$ 19,616	35 %
Percentage of total revenue	31 %	29 %		

Sales and marketing expenses were $75.0 million for the year ended December 31, 2021, compared to $55.4 million for the year ended December 31, 2020, an increase of $19.6 million, or 35%. The increase was primarily due to additional stock-based compensation of $9.6 million and greater salary and related personnel costs from additional headcount of $8.8 million.

Sales and marketing expense as a percentage of total revenue increased from 29% in the year ended December 31, 2020 to 31% in the year ended December 31, 2021.

Research and development

	Year Ended December 31,		$ Change	% Change
	2021	2020		
	(in thousands, except percentages)			
Research and development	$ 62,733	$ 53,517	$ 9,216	17 %
Percentage of total revenue	26 %	28 %		

Research and development expenses were $62.7 million for the year ended December 31, 2021, compared to $53.5 million for the year ended December 31, 2020, an increase of $9.2 million, or 17%. The increase was primarily due to a $4.8 million increase in salary and related personnel costs from additional development team headcount, a $2.1 million increase in stock-based compensation, and a $2.2 million increase in contractor and outside service fees.

Research and development expense as a percentage of revenue decreased from 28% in the year ended December 31, 2020 to 26% in the year ended December 31, 2021.

General and administrative

	Year Ended December 31,		$ Change	% Change
	2021	2020		
	(in thousands, except percentages)			
General and administrative	$ 85,934	$ 59,240	$ 26,694	45 %
Percentage of total revenue	36 %	31 %		

General and administrative expenses were $85.9 million for the year ended December 31, 2021, compared to $59.2 million for the year ended December 31, 2020, an increase of $26.7 million, or 45%. The increase was primarily due to increases of $9.6 million in stock-based compensation, $8.6 million in change in fair value of contingent consideration liabilities, $6.3 million in salary and related personnel costs from additional headcount, $1.8 million in lease-related impairment charges, and $1.2 million in dues and subscriptions, which were partially offset by a decrease of $1.4 million in duplicate headquarter rent expense and $1.3 million in decreased acquisition-related transaction costs.

General and administrative expense as a percentage of revenue increased from 31% in the year ended December 31, 2020 to 36% in the year ended December 31, 2021.

Depreciation and amortization

	Year Ended December 31,		$ Change	% Change
	2021	2020		
	(in thousands, except percentages)			
Depreciation and amortization	$ 37,528	$ 18,725	$ 18,803	100 %
Percentage of total revenue	16 %	10 %		

Depreciation and amortization expenses were $37.5 million for the year ended December 31, 2021, compared to $18.7 million for the year ended December 31, 2020, an increase of $18.8 million, or 100%. This increase was primarily due to the amortization of acquired intangible assets from our recent business acquisitions.

Depreciation and amortization expense as a percentage of revenue increased from 10% in the year ended December 31, 2020 to 16% in the year ended December 31, 2021.

Loss on extinguishment of debt

	Year Ended December 31,			
	2021	2020	$ Change	% Change
	(in thousands, except percentages)			
Loss on extinguishment of debt	$ —	$ (8,514)	$ 8,514	n/m[1]

(1) Not meaningful.

On April 14, 2020, we used $57.0 million of proceeds from the Note Offering to prepay in full all outstanding indebtedness, including prepayment penalties, under the Credit Agreement and terminate the Credit Agreement. We recorded a loss on extinguishment of debt of approximately $8.5 million during the year ended December 31, 2020, including approximately $7.0 million of repayment fees and $1.5 million unamortized debt discounts and issuance costs related to the OrbiMed term loan.

Interest and other expense, net

	Year Ended December 31,			
	2021	2020	$ Change	% Change
	(in thousands, except percentages)			
Interest income	$ 831	$ 2,094	$ (1,263)	(60) %
Interest expense	(17,313)	(13,716)	(3,597)	26 %
Other income (expense)	24	50	(26)	(52) %
Total interest and other expense, net	$ (16,458)	$ (11,572)	$ (4,886)	42 %

Interest and other expense, net increased $4.9 million, or 42%, for the year ended December 31, 2021 compared to the year ended December 31, 2020. The change is primarily due to an increase in non-cash interest expense of $4.2 million from the amortization of debt issuance costs and discounts related to our Notes Offering that occurred in April 2020. There was also a decrease in interest income of $1.3 million primarily due to lower market interest rates.

Income tax provision (benefit)

	Year Ended December 31,			
	2021	2020	$ Change	% Change
	(in thousands, except percentages)			
Income tax provision (benefit)	$ (6,898)	$ (1,194)	$ (5,704)	n/m[1]

(1) Not meaningful.

Our income tax provision consists of current and deferred taxes for U.S. federal, state, and foreign income taxes. The income tax benefit of $6.9 million and $1.2 million recorded for the years ended December 31, 2021 and 2020, respectively, is primarily related to the discrete deferred tax benefits attributable to the release of a portion of the valuation allowance during the respective periods. The releases of valuation allowance are attributable to the acquisition of Twistle and Able Health, which resulted in deferred tax liabilities that, upon acquisition, allowed us to recognize certain deferred tax assets that had previously been offset by a valuation allowance.

Liquidity and Capital Resources

As of December 31, 2021, we had cash, cash equivalents, and short-term investments of $445.0 million, which were held for working capital and other general corporate purposes, which may include acquisitions and strategic transactions. Our cash equivalents and short-term investments are comprised primarily of money market funds, U.S. treasury notes, commercial paper, corporate bonds, and asset-backed securities.

Since inception, we have financed our operations primarily from the proceeds we received through private sales of equity securities, payments received from customers under technology and professional services arrangements, borrowings under our loan and security agreements, our IPO, the Note Offering, and the Secondary Public Equity Offering. Our future capital requirements will depend on many factors, including our pace of new customer growth and expanded customer relationships, technology and professional services renewal activity, and the timing and extent of spend to support the expansion of sales, marketing, development, and acquisition-related activities. In the event that additional financing is required from outside sources, we may not be able to raise it on terms acceptable to us, or at all. If we are unable to raise additional capital when desired, our business, results of operations, and financial condition would be adversely affected.

We believe our existing cash, cash equivalents and marketable securities and amounts available under our credit facilities will be sufficient to meet our working capital and capital expenditure needs over at least the next 12 months, though we may require additional capital resources in the future.

Secondary Public Equity Offering

In August 2021, we completed an underwritten public offering of 4,882,075 shares (inclusive of the underwriters' over-allotment option to purchase 636,792 shares) of our common stock at $53.00 per share. We received net proceeds of $245.2 million, after deducting the underwriting discounts and commissions and other offering costs.

The offering was made pursuant to an effective shelf registration statement (File No. 333-258625) filed with the Securities and Exchange Commission. We plan to use the proceeds for continuing operations and potential future acquisitions.

Convertible senior notes

On April 14, 2020, we issued $230.0 million in aggregate principal amount of 2.50% Convertible Senior Notes due 2025 (the Notes), pursuant to an Indenture dated April 14, 2020, with U.S. Bank National Association, as trustee, in a private offering to qualified institutional buyers. We received net proceeds from the sale of the Notes of $222.5 million, after deducting the initial purchasers' discounts and offering expenses payable by us.

Capped Calls

On April 8, 2020, concurrently with the pricing of the Notes, we entered into privately negotiated capped call transactions (the Base Capped Calls) with certain financial institutions, or option counterparties. In addition, in connection with the initial purchasers' exercise in full of their option to purchase additional Notes, on April 9, 2020, we entered into additional capped call transactions (the Additional Capped Calls, and, together with the Base Capped Calls, the Capped Calls) with each of the option counterparties. We used approximately $21.6 million of the net proceeds from the Note Offering to pay the option premium cost of the Capped Calls. The Capped Calls have initial cap prices of $42.00 per share, subject to certain adjustments. The Capped Calls are expected generally to reduce the potential dilution to our common stock upon any conversion of Notes and/or offset any cash payments we are required to make in excess of the principal amount of converted Notes, as the case may be, with such reduction and/or offset subject to the cap price.

Refer to Note 10 of our consolidated financial statements for additional details regarding the private offering of the Notes and the Capped Calls.

Initial public offering

On July 29, 2019, we closed our IPO in which we issued and sold 8,050,000 shares (inclusive of the underwriters' over-allotment option to purchase 1,050,000 shares, which was exercised on July 25, 2019) of common stock at $26.00 per share. We received net proceeds of $194.6 million after deducting underwriting discounts and commissions and before deducting offering costs of $4.6 million.

OrbiMed financings

On February 6, 2019, we entered into the Credit Agreement with OrbiMed that established a senior term loan facility of up to $80.0 million under certain conditions. The contractual interest rate is the higher of LIBOR plus 7.5% and 10.0%. On February 6, 2019, we borrowed $50.0 million under the Credit Agreement with principal payments due beginning in 2023, and we simultaneously repaid our $20.0 million term loan from SVB in full. In addition, we repaid in full the outstanding balance of $1.3 million under the SVB revolving line of credit. Additionally, on February 6, 2019, we sold 437,787 shares of our Series F redeemable convertible preferred stock for a purchase price of $12.2 million. The effect of the OrbiMed debt proceeds, the Series F stock issuance, and the repayment of the SVB term loan resulted in a net increase in cash, cash equivalents, and short-term investments of $38.7 million, net of fees and debt prepayment premiums. On April 14, 2020, we used $57.0 million of proceeds from the Note Offering to prepay in full all outstanding indebtedness, including prepayment penalties, under the Credit Agreement with OrbiMed, dated February 6, 2019, as amended, and terminate the Credit Agreement.

SVB revolving line of credit

In June 2016, we signed a Loan and Security Agreement with SVB which established a revolving line of credit based on a formula amount. On February 6, 2019, we amended the Loan Agreement with SVB which reduced the revolving line of credit to a current maximum of $5.0 million with an obligation to maintain a minimum of $5.0 million cash or cash equivalents on deposit with SVB to maintain the assurance of future credit availability. The line may be increased to $10.0 million upon request and approval by SVB. The maturity date of the revolving line of credit was amended to be February 6, 2021. On April 8, 2020, we entered into a Pay-Off Letter Agreement with SVB, pursuant to which we paid to SVB immaterial termination costs, representing all amounts due and owing under the Loan Agreement, dated as of October 6, 2017.

Cash Flows

The following table summarizes our cash flows for the years ended December 31, 2021, 2020, and 2019:

	Year Ended December 31,		
	2021	2020	2019
	(in thousands)		
Net cash used in operating activities	$ (23,123)	$ (26,148)	$ (32,184)
Net cash used in investing activities	(139,678)	(82,565)	(209,602)
Net cash provided by financing activities	264,084	182,609	231,381
Effect of exchange rate changes on cash and cash equivalents	(10)	26	6
Net increase (decrease) in cash and cash equivalents	$ 101,273	$ 73,922	$ (10,399)

Operating activities

Our largest source of operating cash flows is cash collections from our customers for technology and professional services arrangements. Our primary uses of cash from operating activities are for employee-related expenses, marketing expenses, and technology costs.

For the year ended December 31, 2021, net cash used in operating activities was $23.1 million, which included a net loss of $153.2 million. Non-cash charges primarily consisted of $65.1 million in stock-based compensation, $37.5 million in depreciation and amortization of property, equipment, and intangible assets, $20.0 million in change in fair value of contingent consideration liabilities, and $11.9 million in amortization of debt discount and issuance costs, reduced by the $7.1 million deferred tax benefit. The $9.1 million of payments in excess of the acquisition date fair value to settle the cash-based portion of contingent consideration liabilities was included in the net cash used in operating activities.

For the year ended December 31, 2020, net cash used in operating activities was $26.1 million, which included a net loss of $115.0 million. Non-cash charges primarily consisted of $18.7 million in depreciation and amortization of property, equipment, and intangible assets, $38.0 million in stock-based compensation, $14.1 million in change in fair value of contingent consideration liabilities, $8.5 million of loss from the extinguishment of debt, and $8.1 million in amortization of debt discount and issuance costs.

For the year ended December 31, 2019, net cash used in operating activities was $32.2 million, which included a net loss of $60.1 million. Non-cash charges primarily consisted of $9.2 million in depreciation and amortization of property, equipment, and intangible assets, $17.8 million in stock-based compensation, $1.7 million of loss from the extinguishment of debt, and $1.1 million in amortization of debt discount and issuance costs.

Investing activities

Net cash used in investing activities for the year ended December 31, 2021 of $139.7 million was primarily due to purchases of short-term investments of $261.4 million, reduced by the sale and maturity of short-term investments of $186.9 million. There were also investing cash outflows of $46.8 million to acquire Twistle, $11.8 million in purchases of property, equipment, and intangible assets, including leasehold improvements and furnishings for our new corporate headquarters, and $6.6 million of capitalized internal use software development costs.

Net cash used in investing activities for the year ended December 31, 2020 of $82.6 million was primarily due to $189.5 million in purchases of short-term investments, $101.7 million used in current year business acquisitions, and $9.0 million in purchases of property, equipment, and intangible assets, reduced by the $219.1 million sale and maturity of short-term investments.

Net cash used in investing activities for the year ended December 31, 2019 of $209.6 million was primarily due to $256.0 million in purchases of short-term investments and $4.3 million in purchases of property, equipment, and intangible assets, reduced by the $50.7 million sale and maturity of short-term investments.

Financing activities

Net cash provided by financing activities for the year ended December 31, 2021 of $264.1 million was primarily the result of $245.2 million in public offering proceeds, net of underwriters' discounts and commissions, $20.4 million in stock option exercise proceeds, and $4.8 million in proceeds from our ESPP, reduced by the $6.3 million in payments of acquisition-related obligations.

Net cash provided by financing activities for the year ended December 31, 2020 of $182.6 million was primarily the result of $222.5 million in net proceeds from the private offering of the Notes, $36.3 million in stock option exercise proceeds, and $4.3 million in proceeds from our ESPP, reduced by the $57.0 million payoff of the OrbiMed Credit Facility, $21.7 million used to purchase Capped Calls, including issuance costs, and the $1.6 million in payments of acquisition-related obligations

Net cash provided by financing activities for the year ended December 31, 2019 of $231.4 million was primarily the result of $194.6 million in IPO proceeds, net of underwriters’ discounts and commissions, $47.2 million in net proceeds drawn under the OrbiMed Credit Facility, $12.1 million in net proceeds from the sale and issuance of Series F redeemable convertible preferred stock, $2.7 million in stock option exercise proceeds, and $3.0 million in proceeds from our ESPP, reduced by the $21.8 million payoff of the SVB debt, $4.6 million in payments of deferred offering costs, and $1.7 million in payments of acquisition-related obligations.

Contractual Obligations and Commitments

The contractual commitment amounts summarized below are associated with agreements that are enforceable and legally binding and that specify all significant terms, including fixed or minimum services to be used, fixed, minimum or variable price provisions and the approximate timing of the transaction.

In the ordinary course of business, we enter into agreements of varying scope and terms pursuant to which we agree to indemnify customers or business partners and other parties with respect to certain matters, including, but not limited to, losses arising out of the breach of such agreements, services to be provided by us or from data breaches, or intellectual property infringement claims made by third parties. No demands have been made upon us to provide indemnification under such agreements and there are no claims that we are aware of that could have a material effect on our consolidated financial statements.

Convertible senior notes

On April 14, 2020, we issued $230.0 million in aggregate principal amount of 2.50% Convertible Senior Notes due in 2025. The Notes are senior, unsecured obligations and accrue interest payable semiannually in arrears on April 15 and October 15 of each year, beginning on October 15, 2020, at a rate of 2.50% per year. The Notes will mature on April 15, 2025, unless earlier converted, redeemed, or repurchased. The Notes are convertible into cash, shares of our common stock, or a combination of cash and shares of our common stock, with the form of consideration determined at our election. The conversion rate is initially 32.6797 shares of our common stock per $1,000 principal amount of Notes (which is equivalent to an initial conversion price of approximately $30.60 per share of our common stock).

Refer to Note 10 of our audited consolidated financial statements included within Item 8 in this Annual Report on Form 10-K for more information regarding our contractual obligations related to these convertible senior notes.

Operating lease obligations

We lease office space and certain equipment under operating leases that expire between 2022 and 2031. As of December 31, 2021, we had total future operating lease payment obligations of $29.8 million, with $3.4 million payable within the next 12 months.

Refer to Note 9 of our audited consolidated financial statements included within Item 8 in this Annual Report on Form 10-K for more information regarding our operating lease obligations.

Contingent consideration liabilities

The Twistle acquisition included a contractual obligation in the form of potential contingent consideration based on certain revenue-based earn-out performance targets for Twistle during an earn-out period that ends on June 30, 2022. The Twistle contingent consideration is capped at $65.0 million and will be paid in a combination of approximately 20% cash and 80% in shares of our common stock.

The Healthfinch acquisition included a contractual obligation in the form of potential contingent consideration based on certain revenue-based earn-out performance targets for Healthfinch during an earn-out period that ended on July 31, 2021. Approximately half of the Healthfinch earn-out contingent consideration liability was settled during the third quarter of 2021 for cash consideration of $1.7 million and the issuance of 78,243 shares of our common stock. The remaining Healthfinch contingent consideration liability is expected to be settled during the first quarter of 2022.

The outstanding contingent consideration liabilities are categorized as Level 3 fair value measurements and are remeasured as of each reporting period. The estimated fair value of the contingent consideration liabilities is $19.3 million as of December 31, 2021.

Refer to Notes 2 and 7 of our audited consolidated financial statements included within Item 8 in this Annual Report on Form 10-K for more information regarding these acquisition-related contingent consideration liabilities.

Off-balance sheet arrangements

As of December 31, 2021, we did not have any relationships with unconsolidated organizations or financial partnerships, such as structured finance or special purpose entities that would have been established for the purpose of facilitating off-balance sheet arrangements or other contractually narrow or limited purposes.

Critical Accounting Policies and Estimates

Our consolidated financial statements are prepared in accordance with U.S. GAAP. The preparation of these consolidated financial statements requires management to make estimates, assumptions, and judgments that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenue and expenses during the applicable periods. We base our estimates, assumptions, and judgments on our knowledge and experience about past and current events and on various other factors that we believe to be reasonable under the circumstances. Different assumptions and judgments would change the estimates used in the preparation of our consolidated financial statements, which, in turn, could change the results from those reported. We evaluate our estimates, assumptions, and judgments on an ongoing basis.

The critical accounting estimates, assumptions, and judgments that we believe have the most significant impact on our consolidated financial statements are described below.

Revenue recognition

We derive our revenues primarily from technology subscriptions and professional services. We determine revenue recognition by applying the following steps:

- Identification of the contract, or contracts, with a customer;
- Identification of the performance obligations in the contract;
- Determination of the transaction price;
- Allocation of the transaction price to the performance obligations in the contract; and
- Recognition of revenue when, or as, we satisfy the performance obligation.

We recognize revenue net of any taxes collected from customers and subsequently remitted to governmental authorities.

Technology revenue

Technology revenue primarily consists of subscription fees charged to customers for access to use our technology. We provide customers access to our technology through either an all-access or limited-access, modular subscription. The majority of our subscription arrangements are cloud-based and do not provide customers the right to take possession of the technology or contain a significant penalty if the customer were to take possession of the technology. Revenue from cloud-based subscriptions is recognized ratably over the contract term beginning on the date that the service is made available to the customer. Most of our subscription contracts have up to a three-year term, of which the vast majority are terminable after one year upon 90 days notice.

Subscriptions that allow the customer to take software on-premise without significant penalty are treated as time-based licenses. These arrangements generally include access to technology, access to unspecified future products and maintenance and support. Revenue for upfront access to the technology library is recognized at a point in time when the technology is made available to the customer. Revenue for access to unspecified future products included in time-based license subscriptions is recognized ratably over the contract term beginning on the date that the access is made available to the customer.

We also have certain perpetual license arrangements. Revenue from these arrangements is recognized at a point in time upon delivery of the software. Technology revenue also includes maintenance and support revenue which generally includes bug fixes, updates, and support services. Revenue related to maintenance and support is recognized over the contract term beginning on the date that the service is made available to the customer.

Professional services revenue

Professional services revenue primarily includes data and analytics services, domain expertise services, outsourcing services, and implementation services. Professional services arrangements typically include a fee for making FTE services available to our customers on a monthly basis. FTE services generally consist of a blend of analytic engineers, analysts, and data scientists based on the domain expertise needed to best serve our customers. Professional services are typically considered distinct from the technology offerings and revenue is generally recognized as the service is provided using the "right to invoice" practical expedient.

Contracts with multiple performance obligations

Many of our contracts include multiple performance obligations. We account for performance obligations separately if they are capable of being distinct and distinct within the context of the contract. In these circumstances, the transaction price is allocated to separate performance obligations on a relative standalone selling price basis. We determine standalone selling prices based on the observable price a good or service is sold for separately when available. In cases where standalone selling prices are not directly observable, based on information available, we utilize the expected cost plus a margin, adjusted market assessment, or residual estimation method. We consider all information available including our overall pricing objectives, market conditions, and other factors, which may include the value of contracts, customer demographics, and the types of users.

Standalone selling prices are not directly observable for our all-access and limited-access technology arrangements, which are composed of cloud-based subscriptions, time-based licenses, and perpetual licenses. For these technology arrangements, we use the residual estimation method due to the limited number of standalone transactions and/or prices that are highly variable.

Variable consideration

We have also entered into at-risk and shared savings arrangements with certain customers whereby we receive variable consideration based on the achievement of measurable improvements which may include cost savings or performance against metrics. For these arrangements, we estimate revenue using the most likely amount that we will receive. Estimates are based on our historical experience and best judgment at the time to the extent it is probable that a significant reversal of revenue recognized will not occur. Due to the nature of our arrangements, certain estimates may be constrained until the uncertainty is further resolved.

Business combinations

The results of businesses acquired in a business combination are included in our consolidated financial statements from the date of the acquisition. Purchase accounting results in assets and liabilities of an acquired business generally being recorded at their estimated fair values on the acquisition date. Any excess consideration over the fair value of identifiable assets acquired and liabilities assumed is recognized as goodwill.

We perform valuations of assets acquired and liabilities assumed on each acquisition accounted for as a business combination in order to record the tangible and intangible assets acquired and liabilities assumed based on our best estimate of fair value. Determining the fair value of assets acquired and liabilities assumed requires management to use significant judgment and estimates including the selection of valuation methodologies, estimates of future revenue and cash flows, discount rates, and selection of comparable companies. Significant estimation is required in determining the fair value of the customer-related intangible assets and technology-related intangible assets. The significant estimation is primarily due to the judgmental nature of the inputs to the valuation models used to measure the fair value of these intangible assets, as well as the sensitivity of the respective fair values to the underlying significant assumptions. We typically use the income approach or cost approach to measure the fair value of intangible assets. The significant assumptions used to form the basis of the estimates included the number of engineer hours required to develop technology, expected revenue including revenue growth rates, rate and timing of obsolescence, royalty rates and earnings before interest, taxes, depreciation and amortization (EBITDA) margin used in the estimate for customer relationships, and backlog. Many of these significant assumptions were forward-looking and could be affected by future economic and market conditions. We engage the assistance of valuation specialists in concluding on fair value measurements in connection with determining fair values of assets acquired and liabilities assumed in a business combination.

Transaction costs associated with business combinations are expensed as incurred and are included in general and administrative expense in our consolidated statements of operations and comprehensive loss.

Goodwill

We record goodwill as the difference between the aggregate consideration paid for a business combination and the fair value of the identifiable net tangible and intangible assets acquired. Goodwill includes the know-how of the assembled workforce, the ability of the workforce to further improve technology and product offerings, customer relationships, and the expected cash flows resulting from these efforts. Goodwill may also include expected synergies resulting from the complementary strategic fit these businesses bring to existing operations. Goodwill is assessed for impairment annually or more frequently if indicators of impairment are present or circumstances suggest that impairment may exist.

Our first step in the goodwill impairment test is a qualitative analysis of factors that could be indicators of potential impairment. Next, if a quantitative analysis is necessary, we compare the fair value of the reporting unit with its carrying amount, including goodwill. If the fair value of the reporting unit exceeds its carrying amount, the goodwill of the reporting unit is not considered impaired. If the carrying amount of the reporting unit exceeds its fair value, we would recognize an impairment charge for the amount by which the carrying amount exceeds the reporting unit's fair value.

Stock-based compensation

Stock-based awards, including stock options, restricted stock units (RSUs), performance-based restricted stock units (PRSUs), and restricted shares are measured and recognized in the consolidated financial statements based on the fair value of the award on the grant date. The grant date fair value of our stock-based awards is typically determined using the market closing price of our common stock on the date of grant; however, we also consider whether any adjustments are required as a result of material nonpublic information to which the market is likely to react positively upon announcement. The expense is recognized straight-line over the vesting period for awards with a service condition. The accelerated attribution method is used for PRSUs.

We record forfeitures of stock-based awards as the actual forfeitures occur. For awards subject to performance conditions, we record expense when the performance condition becomes probable. Each reporting period, we evaluate the probability of achieving the performance criteria, estimate the number of shares that are expected to vest, and adjust the related compensation expense accordingly.

We estimate the fair value of purchase rights issued under the 2019 Health Catalyst Employee Stock Purchase Plan (ESPP) as of the beginning of each offering period using the Black-Scholes option-pricing model. This requires the input of subjective assumptions, including the expected volatility of the price of our common stock, risk-free interest rates, and the expected dividend yield of our common stock. The assumptions used in our option-pricing model represent our best estimates. These estimates involve inherent uncertainties and the application of management's judgment. The resulting fair value, net of actual forfeitures, is recognized on a straight-line basis over each six-month ESPP offering period.

The measurement date for non-employee awards is the date of grant. The compensation expense for non-employees is recognized, without changes in the fair value of the award, in the same period and in the same manner as though we had paid cash for the services, which is typically the vesting period of the respective award.

We will continue to use judgment in evaluating the assumptions related to our stock-based compensation on a prospective basis. As we continue to accumulate additional data related to our common stock, we may have refinements to our estimates, which could materially impact our future stock-based compensation expense.

Recent Accounting Pronouncements

See "Description of Business and Summary of Significant Accounting Policies" in Note 1 to our audited consolidated financial statements included within Item 8 in this Annual Report on Form 10-K for more information.

Item 7A. Quantitative and Qualitative Disclosures about Market Risk

We are exposed to certain market risks in the ordinary course of our business. Market risk represents the risk of loss that may impact our financial position due to adverse changes in financial market prices and rates. Our market risk exposure is primarily a result of fluctuations in interest rates but may include foreign currency exchange risk and inflation in the future. There were no material quantitative changes in market risk exposures between the current and preceding fiscal years.

Interest rate risk

We had cash, cash equivalents, and short-term investments of $445.0 million and $270.9 million as of December 31, 2021 and 2020, respectively, which are held for working capital purposes. We do not make investments for trading or speculative purposes.

Our cash equivalents and short-term investments 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 fluctuate 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. However, because we classify our investments as “available for sale,” no gains or losses are recognized due to changes in interest rates unless such securities are sold prior to maturity or declines in fair value are determined to be other-than-temporary.

As of December 31, 2021 and 2020, a hypothetical 100 basis point change in interest rates would not have had a material impact on the value of our cash equivalents or investment portfolio. Fluctuations in the value of our cash equivalents and investment portfolio caused by a change in interest rates (gains or losses on the carrying value) are recorded in other comprehensive income and are realized only if we sell the underlying securities prior to maturity.

On April 14, 2020, we issued $230.0 million in aggregate principal amount Convertible Senior Notes due 2025 (the Notes), in a private placement to qualified institutional buyers exempt from registration under the Securities Act (the Note Offering). The Notes have a fixed annual interest rate of 2.50%, and, therefore, we do not have economic interest rate exposure on the Notes. However, the values of the Notes are exposed to interest rate risk. Generally, the fair value of our fixed interest rate Notes will increase as interest rates fall and decrease as interest rates rise. We carry the Notes as face value less unamortized discount on our Consolidated Balance Sheets, and we present the fair value for required disclosure purposes only.

Foreign currency exchange risk

Our reporting currency is the U.S. dollar, and the functional currency of our subsidiaries is typically their local currency. Our results of operations and cash flows are subject to fluctuations due to changes in foreign currency exchange rates, particularly changes in the Singapore Dollar. Due to the relatively small size of our international operations to date, our foreign currency exposure has been fairly limited and thus we have not instituted a hedging program. We are considering the costs and benefits of initiating such a program and may in the future hedge balances and transactions denominated in currencies other than the U.S. dollar as we expand international operations.

Today, our international sales contracts are generally denominated in U.S. dollars, while our international operating expenses are often denominated in local currencies. In the future, an increasing portion of our international sales contracts may be denominated in local currencies.

Additionally, as we expand our international operations a larger portion of our operating expenses will be denominated in local currencies. Therefore, fluctuations in the value of the U.S. dollar and foreign currencies may affect our results of operations when translated into U.S. dollars.

Inflation risk

We do not believe that inflation has had a material effect on our business, results of operations, or financial condition. However, we continue to monitor and assess the impact of the recent inflationary pressures on our business operations. If our costs were to become subject to significant inflationary pressures, we may not be able to fully offset such higher costs. Our inability or failure to do so could harm our business, results of operations, or financial condition.

Item 8. Financial Statements and Supplementary Data.

HEALTH CATALYST, INC.

Index to Consolidated Financial Statements

Report of Independent Registered Public Accounting Firm

To the Stockholders and the Board of Directors of Health Catalyst, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Health Catalyst, Inc. (the Company) as of December 31, 2021 and 2020, the related consolidated statements of operations, comprehensive loss, redeemable convertible preferred stock and stockholders' equity (deficit) and cash flows for each of the three 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 three years in the period ended December 31, 2021, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2021, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) and our report dated March 1, 2022 expressed an unqualified opinion thereon.

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 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. 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 account or disclosure to which it relates.

Revenue Recognition – identification of and accounting for performance obligations

Description of the Matter

As described in Note 1 and Note 3 to the consolidated financial statements, the Company primarily derives its revenues from recurring technology and professional services subscriptions. When the Company's contracts contain multiple performance obligations that are determined to be distinct, the performance obligations are accounted for separately. In such cases, the transaction price is allocated to the distinct performance obligations on a standalone selling price basis and the timing of revenue recognition is determined separately for each performance obligation.

How We Addressed the Matter in Our Audit

Auditing the Company's determination of distinct performance obligations, the allocation of the transaction price based on a stand-alone selling price and the timing of revenue recognition can be challenging. Judgment is involved to determine the distinct performance obligations, the estimation of stand-alone selling price, and the timing of revenue recognition. For example, there may be nonstandard terms and conditions or changes in management's business practices that can have a material effect on the distinct performance obligations, the appropriate stand-alone selling price and the timing of revenue recognition.

We obtained an understanding, evaluated the design and tested the operating effectiveness of controls over the Company's process to identify the distinct performance obligations, determine the standalone selling prices for each performance obligation, allocate the transaction price to the performance obligations and determine the appropriate timing of revenue recognition for each distinct performance obligation.

Our audit procedures included, among others, testing a sample of contracts. For each contract selection, we read the executed contract to assess management's evaluation of significant nonstandard terms and conditions and tested the appropriateness of the determination of distinct performance obligations. We also tested the allocation of consideration and management's determination of standalone selling price for performance obligations by assessing the appropriateness of the methodology applied, testing the calculations for mathematical accuracy and testing selections to corroborate the data underlying the company's calculations. To test the timing of revenue recognition and the appropriateness of the methodology employed for each distinct performance obligation, we tested the amounts recognized as revenue or recorded as deferred revenue. Additionally, we performed substantive analytical procedures, including a correlation analysis between revenue, deferred revenue, accounts receivable and cash. We also tested the accuracy and completeness of relevant underlying data.

/s/ Ernst & Young LLP

We have served as the Company's auditor since 2012.

Salt Lake City, Utah
March 1, 2022

Report of Independent Registered Public Accounting Firm

To the Stockholders and the Board of Directors of Health Catalyst, Inc.

Opinion on Internal Control Over Financial Reporting

We have audited Health Catalyst, Inc.'s internal control over financial reporting as of December 31, 2021, based on criteria established in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) (the COSO criteria). In our opinion, Health Catalyst, Inc. (the Company) maintained, in all material respects, effective internal control over financial reporting as of December 31, 2021, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of Health Catalyst, Inc. as of December 31, 2021 and 2020, the related consolidated statement of operations, comprehensive loss, redeemable convertible preferred stock and stockholders' equity (deficit) and cash flows for each of the three years in the period ended December 31, 2021, and related notes and our report dated March 1, 2022 expressed an unqualified opinion thereon.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting included in the accompanying Management's Report on Internal Control Over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the 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 audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects.

Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

A company's 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 generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) 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.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ Ernst & Young LLP

Salt Lake City, Utah
March 1, 2022

HEALTH CATALYST, INC.

Consolidated Balance Sheets
(in thousands, except share and per share data)

	As of December 31,	
	2021	**2020**
Assets		
Current assets:		
Cash and cash equivalents	$ 193,227	$ 91,954
Short-term investments	251,754	178,917
Accounts receivable, net[(1)]	48,801	48,296
Prepaid expenses and other assets	14,609	10,632
Total current assets	508,391	329,799
Property and equipment, net	23,316	12,863
Operating lease right-of-use assets	21,133	24,729
Intangible assets, net	104,788	98,921
Goodwill	169,972	107,822
Other assets	4,496	3,606
Total assets	$ 832,096	$ 577,740
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	$ 4,693	$ 5,332
Accrued liabilities	23,725	16,510
Deferred revenue[(1)]	56,632	47,145
Operating lease liabilities	3,425	2,622
Contingent consideration liabilities	4,576	14,427
Acquisition-related consideration payable	—	2,000
Total current liabilities	93,051	88,036
Long-term debt, net of current portion	180,942	168,994
Deferred revenue, net of current portion	929	1,878
Operating lease liabilities, net of current portion	20,244	23,669
Contingent consideration liabilities, net of current portion	14,719	16,837
Other liabilities	113	2,227
Total liabilities	309,998	301,641
Commitments and contingencies (Notes 9 and 16)		
Stockholders' equity:		
Preferred stock, $0.001 par value per share; 25,000,000 shares authorized and no shares issued and outstanding as of December 31, 2021 and 2020	—	—
Common stock, $0.001 par value; 500,000,000 shares authorized as of December 31, 2021 and 2020; 52,622,080 and 43,376,848 shares issued and outstanding as of December 31, 2021 and 2020, respectively	53	43
Additional paid-in capital	1,400,972	1,001,645
Accumulated deficit	(878,860)	(725,650)
Accumulated other comprehensive income (loss)	(67)	61
Total stockholders' equity	522,098	276,099
Total liabilities and stockholders' equity	$ 832,096	$ 577,740

(1) Includes amounts attributable to related party transactions. See Note 18 for further details.

The accompanying notes are an integral part of these consolidated financial statements.

HEALTH CATALYST, INC.

Consolidated Statements of Operations
(in thousands, except per share data)

	Year Ended December 31,		
	2021	**2020**	**2019**
Revenue[(1)]:			
Technology	$ 147,718	$ 110,467	$ 83,975
Professional services	94,208	78,378	70,966
Total revenue	241,926	188,845	154,941
Cost of revenue, excluding depreciation and amortization[(1)]:			
Technology	47,516	35,604	27,797
Professional services	76,838	62,473	47,548
Total cost of revenue, excluding depreciation and amortization	124,354	98,077	75,345
Operating expenses:			
Sales and marketing	75,027	55,411	47,284
Research and development	62,733	53,517	46,252
General and administrative	85,934	59,240	31,713
Depreciation and amortization	37,528	18,725	9,212
Total operating expenses	261,222	186,893	134,461
Loss from operations	(143,650)	(96,125)	(54,865)
Loss on extinguishment of debt	—	(8,514)	(1,670)
Interest and other expense, net	(16,458)	(11,572)	(3,419)
Loss before income taxes	(160,108)	(116,211)	(59,954)
Income tax provision (benefit)	(6,898)	(1,194)	142
Net loss	$ (153,210)	$ (115,017)	$ (60,096)
Less: accretion of redeemable convertible preferred stock	—	—	180,826
Net loss attributable to common stockholders	$ (153,210)	$ (115,017)	$ (240,922)
Net loss per share attributable to common stockholders, basic and diluted	$ (3.23)	$ (2.91)	$ (12.86)
Weighted-average shares outstanding used in calculating net loss per share attributable to common stockholders, basic and diluted	47,495	39,541	18,741

(1) Includes amounts attributable to related party transactions. See Note 18 for further details.

The accompanying notes are an integral part of these consolidated financial statements.

HEALTH CATALYST, INC.

Consolidated Statements of Comprehensive Loss
(in thousands)

	Year Ended December 31,		
	2021	**2020**	**2019**
Net loss	$ (153,210)	$ (115,017)	$ (60,096)
Other comprehensive gain (loss):			
Change in net unrealized gains (losses) on available for sale investments	(102)	(59)	75
Change in foreign currency translation adjustment	(26)	48	(2)
Comprehensive loss	$ (153,338)	$ (115,028)	$ (60,023)

The accompanying notes are an integral part of these consolidated financial statements.

HEALTH CATALYST, INC.

Consolidated Statements of Redeemable Convertible Preferred Stock and Stockholders' Equity (Deficit) ***(in thousands, except share data)***

	Redeemable Convertible Preferred Stock		Common Stock		Additional Paid-In Capital	Accumulated Deficit	Accumulated Other Comprehensive Income (Loss)	Total Stockholders' Equity (Deficit)
	Shares	Amount	Shares	Amount				
Balance as of January 1, 2019	22,713,694	$ 409,845	4,779,356	$ 5	$ —	$ (374,772)	$ (1)	$ (374,768)
Issuance of Series F redeemable convertible preferred stock, net of issuance costs of $115	437,787	12,073	—	—	—	—	—	—
Initial public offering, net of underwriters' discounts and commissions and offering costs	—	—	8,050,000	8	190,031	—	—	190,039
Accretion of redeemable convertible preferred stock	—	180,826	—	—	(5,180)	(175,646)	—	(180,826)
Conversion of redeemable convertible preferred stock	(23,151,481)	(602,744)	23,151,481	23	602,721	—	—	602,744
Exercise of stock options	—	—	373,292	1	2,655	—	—	2,656
Stock-based compensation	—	—	—	—	17,844	—	—	17,844
Exercise of common stock warrants	—	—	189,959	—	—	—	—	—
Issuance of common stock under ESPP	—	—	134,766	—	2,978	—	—	2,978
Net loss	—	—	—	—	—	(60,096)	—	(60,096)
Other comprehensive income	—	—	—	—	—	—	73	73
Balance as of December 31, 2019	—	$ —	36,678,854	$ 37	$ 811,049	$ (610,514)	$ 72	$ 200,644
Adoption of the current expected credit loss standard	—	—	—	—	—	(119)	—	(119)
Issuance of common stock as acquisition consideration	—	—	2,190,229	2	72,455	—	—	72,457
Equity component of convertible senior notes, net	—	—	—	—	61,213	—	—	61,213
Purchase of Capped Calls concurrent with issuance of convertible senior notes	—	—	—	—	(21,743)	—	—	(21,743)
Exercise of stock options	—	—	3,748,719	4	36,260	—	—	36,264
Vesting of restricted stock units and restricted shares	—	—	585,057	—	—	—	—	—
Issuance of common stock under ESPP	—	—	173,989	—	4,273	—	—	4,273
Stock-based compensation	—	—	—	—	38,138	—	—	38,138
Net loss	—	—	—	—	—	(115,017)	—	(115,017)
Other comprehensive loss	—	—	—	—	—	—	(11)	(11)
Balance as of December 31, 2020	—	$ —	43,376,848	$ 43	$ 1,001,645	$ (725,650)	$ 61	$ 276,099
Public offering, net of underwriters' discounts and commissions and offering costs	—	—	4,882,075	5	245,175	—	—	245,180
Issuance of common stock as acquisition consideration	—	—	762,765	1	43,103	—	—	43,104
Issuance of common stock for settlement of contingent consideration	—	—	409,029	—	20,083	—	—	20,083
Exercise of stock options	—	—	1,738,027	2	20,348	—	—	20,350
Vesting of restricted stock units and restricted shares	—	—	1,316,657	2	–	—	—	2
Issuance of common stock under ESPP	—	—	136,679	—	4,837	—	—	4,837
Stock-based compensation	—	—	—	—	65,781	—	—	65,781
Net loss	—	—	—	—	–	(153,210)	—	(153,210)
Other comprehensive loss	—	—	—	—	–	—	(128)	(128)
Balance as of December 31, 2021	—	$ —	52,622,080	$ 53	$ 1,400,972	$ (878,860)	$ (67)	$ 522,098

The accompanying notes are an integral part of these consolidated financial statements.

HEALTH CATALYST, INC.

Consolidated Statements of Cash Flows *(in thousands)*

	Year Ended December 31,		
	2021	**2020**	**2019**
Cash flows from operating activities			
Net loss	$ (153,210)	$ (115,017)	$ (60,096)
Adjustments to reconcile net loss to net cash used in operating activities:			
Stock-based compensation expense	65,145	37,957	17,844
Depreciation and amortization	37,528	18,725	9,212
Change in fair value of contingent consideration liabilities	20,036	14,088	—
Amortization of debt discount and issuance costs	11,948	8,054	1,081
Non-cash operating lease expense	3,585	4,303	3,460
Impairment of lease-related assets	1,800	—	—
Investment discount and premium (accretion) amortization	1,202	1,349	(615)
Provision for expected credit losses	499	863	—
Loss on extinguishment of debt	—	8,514	1,670
Deferred tax provision (benefit)	(7,134)	(1,273)	40
Payment of acquisition-related contingent consideration	(9,085)	—	—
Other	(53)	116	(54)
Change in operating assets and liabilities:			
Accounts receivable	102	(16,448)	127
Prepaid expenses and other assets	(4,442)	(3,667)	(1,596)
Accounts payable, accrued liabilities, and other liabilities	5,202	8,243	(86)
Deferred revenue	7,637	11,459	77
Operating lease liabilities	(3,883)	(3,414)	(3,248)
Net cash used in operating activities	(23,123)	(26,148)	(32,184)
Cash flows from investing activities			
Purchase of short-term investments	(261,363)	(189,526)	(256,007)
Proceeds from the sale and maturity of short-term investments	186,893	219,069	50,677
Acquisition of businesses, net of cash acquired	(46,763)	(101,657)	—
Purchases of property and equipment	(10,450)	(7,775)	(2,015)
Capitalization of internal use software	(6,644)	(1,442)	(384)
Purchase of intangible assets	(1,373)	(1,248)	(1,935)
Proceeds from the sale of property and equipment	22	14	62
Net cash used in investing activities	(139,678)	(82,565)	(209,602)
Cash flows from financing activities			
Proceeds from public offerings, net of discounts, commissions, and offering costs	245,180	—	194,649
Proceeds from exercise of stock options	20,350	36,264	2,656
Proceeds from employee stock purchase plan	4,844	4,273	2,978
Payments of acquisition-related consideration	(6,290)	(1,624)	(1,713)
Proceeds from convertible senior notes, net of issuance costs	—	222,482	—
Purchase of capped calls concurrent with issuance of convertible senior notes	—	(21,743)	—
Repayment of credit facilities	—	(57,043)	(21,821)
Proceeds from credit facilities, net of debt issuance costs	—	—	47,169
Proceeds from the issuance of redeemable convertible preferred stock, net	—	—	12,073
Payments of deferred offering costs	—	—	(4,610)
Net cash provided by financing activities	264,084	182,609	231,381
Effect of exchange rate changes on cash and cash equivalents	(10)	26	6
Net increase (decrease) in cash and cash equivalents	101,273	73,922	(10,399)

Cash and cash equivalents at beginning of period	91,954	18,032	28,431
Cash and cash equivalents at end of period	$ 193,227	$ 91,954	$ 18,032
Supplemental disclosures of cash flow information			
Cash paid for interest	$ 6,360	$ 4,979	$ 5,557
Cash paid for income taxes, net	138	92	19
Supplemental disclosures of non-cash investing and financing information			
Common stock issued in connection with acquisitions	$ 43,104	$ 72,457	$ —
Common stock issued for settlement of contingent consideration	20,083	—	—
Purchase of property and equipment included in accounts payable and accrued liabilities	983	2,310	209
Stock-based compensation capitalized as internal use software	636	181	—
Purchase of intangible assets included in accounts payable and accrued liabilities	520	78	1,626
Operating lease right-of-use assets obtained in exchange for operating lease obligations	—	24,456	581
Redeemable convertible preferred stock accretion	—	—	180,826

The accompanying notes are an integral part of these consolidated financial statements.

1. Description of Business and Summary of Significant Accounting Policies

Nature of operations

Health Catalyst, Inc. (Health Catalyst) was incorporated under the laws of Delaware in September 2011. We are a leading provider of data and analytics technology and services to healthcare organizations. Our Solution comprises a cloud-based data platform, analytics software, and professional services expertise. Our customers, which are primarily healthcare providers, use our Solution to manage their data, derive analytical insights to operate their organizations, and produce measurable clinical, financial, and operational improvements.

Basis of presentation

The accompanying consolidated financial statements have been prepared in accordance with U.S. generally accepted accounting principles (GAAP).

Principles of consolidation

The consolidated financial statements include the accounts of Health Catalyst and its wholly-owned subsidiaries. Intercompany balances and transactions have been eliminated.

Use of estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. On an on-going basis, we evaluate our estimates, including those related to revenue recognition, provisions for expected credit losses, useful lives of property and equipment, capitalization and estimated useful life of internal-use software and other intangible assets, fair value of financial instruments, deferred tax assets, stock-based compensation, contingent consideration, the period of benefit for deferred contract acquisition costs, the incremental borrowing rate used for operating leases, and tax uncertainties. Actual results could differ from those estimates.

Segment reporting

Operating segments are identified as components of an enterprise about which separate discrete financial information is evaluated by the chief operating decision maker (the CODM) in assessing performance and making decisions regarding resource allocation. We operate our business in two operating segments that also represent our reportable segments. Our segments are (1) technology and (2) professional services.

The CODM, the Chief Executive Officer, uses Adjusted Gross Profit (defined as revenue less cost of revenue that excludes depreciation, amortization, stock-based compensation expense, and certain other operating expenses) as the measure of our profit.

Net loss per share

Basic net loss per share is calculated by dividing net loss attributable to common stockholders by the weighted average number of shares of common stock outstanding. Net loss attributable to common stockholders is computed as net loss less accretion of redeemable convertible preferred stock. Diluted net loss per share attributable to common stockholders is calculated by giving effect to all potentially dilutive common stock equivalents outstanding for the period. For purposes of this calculation, stock options, restricted stock units (RSUs), performance-based restricted stock units (PRSUs), convertible senior notes, restricted shares, shares issuable as acquisition-related contingent consideration, and purchase rights and purchase rights committed under the employee stock purchase plan are considered to be common stock equivalents but have been excluded from the calculation of diluted net loss per share attributable to common stockholders as the effect is antidilutive.

Since we have the intent and ability to settle the principal amount of our convertible senior notes in cash and any excess in shares of our common stock, we use the treasury stock method for calculating any potential dilutive effect of the conversion spread on net income (loss) per share, if applicable. The conversion spread has a potentially dilutive impact when the average market price of our common stock for a given period exceeds $30.60 per share. The Capped Calls are excluded from the calculation of diluted earnings per share, as they would be antidilutive under the treasury stock method.

Prior to our IPO, we computed basic and diluted net loss per share in conformity with the two-class method required for participating securities. The two-class method is an earnings allocation formula that treats a participating security as having rights to earnings that otherwise would have been available to holders of common stock. Redeemable convertible preferred stock and common stock were considered participating securities for purposes of this calculation. However, the two-class method did not impact the net loss per common share attributable to common stockholders as we were in a loss position for each of the periods presented and the redeemable convertible preferred stockholders did not have a contractual obligation to participate in losses. In connection with our IPO the redeemable convertible preferred stock was converted and we no longer have participating securities.

Revenue recognition

We recognize revenue in accordance with Accounting Standards Codification Topic 606, *Revenue from Contracts with Customers (Topic 606)*. We derive our revenues primarily from technology subscriptions and professional services. We determine revenue recognition by applying the following steps:

- Identification of the contract, or contracts, with a customer;
- Identification of the performance obligations in the contract;
- Determination of the transaction price;
- Allocation of the transaction price to the performance obligations in the contract; and
- Recognition of revenue when, or as, we satisfy the performance obligation.

We recognize revenue net of any taxes collected from customers and subsequently remitted to governmental authorities.

Technology revenue

Technology revenue primarily consists of subscription fees charged to customers for access to use our technology. We provide customers access to our technology through either an all-access or limited-access, modular subscription. The majority of our subscription arrangements are cloud-based and do not provide customers the right to take possession of the technology or contain a significant penalty if the customer were to take possession of the technology. Revenue from cloud-based subscriptions is recognized ratably over the contract term beginning on the date that the service is made available to the customer. Most of our subscription contracts have up to a three-year term, of which the vast majority are terminable after one year upon 90 days' notice.

Subscriptions that allow the customer to take software on-premise without significant penalty are treated as time-based licenses. These arrangements generally include access to technology, access to unspecified future products and maintenance and support. Revenue for upfront access to our technology library is recognized at a point in time when the technology is made available to the customer. Revenue for access to unspecified future products included in time-based license subscriptions is recognized ratably over the contract term beginning on the date that the access is made available to the customer.

We also have certain perpetual license arrangements. Revenue from these arrangements is recognized at a point in time upon delivery of the software. Technology revenue also includes maintenance and support revenue which generally includes bug fixes, updates, and support services. Revenue related to maintenance and support is recognized over the contract term beginning on the date that the service is made available to the customer.

Professional services revenue

Professional services revenue primarily includes data and analytics services, domain expertise services, outsourcing services, and implementation services. Professional services arrangements typically include a fee for making full-time equivalent (FTE) services available to our customers on a monthly basis. FTE services generally consist of a blend of analytic engineers, analysts, and data scientists based on the domain expertise needed to best serve our customers. Professional services are typically considered distinct from the technology offerings and revenue is generally recognized as the service is provided using the “right to invoice” practical expedient.

Contracts with multiple performance obligations

Many of our contracts include multiple performance obligations. We account for performance obligations separately if they are capable of being distinct within the context of the contract. In these circumstances, the transaction price is allocated to separate performance obligations on a relative standalone selling price basis. We determine standalone selling prices based on the observable price a good or service is sold for separately when available. In cases where standalone selling prices are not directly observable, based on information available, we utilize the expected cost plus a margin, adjusted market assessment, or residual estimation method. We consider all information available including our overall pricing objectives, market conditions, and other factors, which may include customer demographics and the types of users.

Standalone selling prices are not directly observable for our all-access and limited-access technology arrangements, which are composed of cloud-based subscriptions, time-based licenses, and perpetual licenses. For these technology arrangements, we generally use the residual estimation method due to a limited number of standalone transactions and/or prices that are highly variable.

Variable consideration

We have also entered into at-risk and shared savings arrangements with certain customers whereby we receive variable consideration based on the achievement of measurable improvements which may include cost savings or performance against metrics. For these arrangements, we estimate revenue using the most likely amount that we will receive. Estimates are based on our historical experience and best judgment at the time to the extent it is probable that a significant reversal of revenue recognized will not occur. Due to the nature of our arrangements, certain estimates may be constrained until the uncertainty is further resolved.

Contract balances

Contract assets resulting from services performed prior to invoicing customers are recorded as unbilled accounts receivable and are presented on the consolidated balance sheets in aggregate with accounts receivable. Unbilled accounts receivable generally become billable at contractually specified dates or upon the attainment of contractually defined milestones. As of December 31, 2021, 2020, and 2019, the unbilled accounts receivable included in accounts receivable on our consolidated balance sheets was $0.8 million, $1.6 million and $2.9 million, respectively.

We record contract liabilities as deferred revenue when cash payments are received or due in advance of performance. Deferred revenue primarily relates to the advance consideration received from the customer. As of December 31, 2021, 2020, and 2019, the total of current and non-current deferred revenue on our consolidated balance sheets was $57.6 million, $49.0 million, and $32.1 million, respectively.

Deferred costs

We capitalize sales commissions, and associated fringe costs, such as benefits and payroll taxes, paid to direct sales personnel and other incremental costs of obtaining contracts with customers, provided we expect to recover those costs. We determine that costs should be deferred based on our sales compensation plans when the commissions are incremental and would not have occurred absent the customer contract. As of December 31, 2021 and 2020, $1.4 million and $0.5 million, respectively, of deferred contract acquisition costs are expected to be amortized within the next 12 months and are included in prepaid expenses and other assets on the consolidated balance sheets. As of December 31, 2021 and 2020, the remaining $3.0 million and $1.4 million, respectively, of deferred contract acquisition costs are included in non-current other assets.

Commissions paid upon the initial acquisition of a contract are amortized on a straight-line basis over an estimated period of benefit of four years. Amortization is recognized on a straight-line basis commensurate with the pattern of revenue recognition. The period of benefit was estimated by considering factors such as estimated average customer life, the rate of technological change in our subscription service, and the impact of competition in our industry. As our average customer life significantly exceeded the rate of change in our technology, we concluded that the rate of change in the technology underlying our subscription service was the most significant factor in determining the period of benefit for which the asset relates. In evaluating the rate of change in our technology, we considered the competition in our industry, our commitment to continuous innovation, and the frequency of product, platform, and technology updates. We determined that the impact of competition in our industry is reflected in the period of benefit through the rate of technological change. Amortization of deferred contract acquisition costs is included within sales and marketing expense in the consolidated statements of operations.

We defer certain costs to fulfill a contract when the costs are expected to be recovered, are directly related to in-process contracts and enhance resources that will be used in satisfying performance obligations in the future. These deferred fulfillment costs primarily consist of employee compensation incurred as part of the implementation of new contracts. As of December 31, 2021 and 2020, we had deferred contract fulfillment costs of $0.1 million and $0.5 million, respectively. Amortization of deferred fulfillment costs is included within cost of revenue in the consolidated statements of operations.

We periodically review these deferred costs to determine whether events or changes in circumstances have occurred that could impact the period of benefit. There were no impairment losses recorded on deferred contract costs during the periods presented.

Cost of revenue, excluding depreciation and amortization

Cost of technology revenue primarily consists of costs associated with hosting and supporting our technology, including third-party cloud computing and hosting costs, contractor costs, and salary and related personnel costs for our cloud services and support teams. Cost of professional services revenue primarily consists of salary and related personnel costs, travel-related costs, and independent contractor costs. Cost of revenue excludes costs related to depreciation and amortization.

Cash and cash equivalents

We consider all highly liquid investments purchased with a remaining maturity of three months or less at the time of acquisition to be cash equivalents.

Short-term investments

Our investment policy limits investments to highly-rated instruments. We classify and account for our short-term investments as available for sale securities as we may sell these securities at any time for use in our current operations or for other purposes, even prior to maturity. As a result, we classify our short-term investments, including securities with contractual maturities beyond twelve months, within current assets in the consolidated balance sheets.

Accounts receivable

Accounts receivable are non-interest bearing and are recorded at the original invoiced amount less an allowance for credit losses based on the probability of future collections. Our allowance is based on our estimate of expected credit losses for outstanding trade accounts receivables and unbilled receivables. We determine expected credit losses based on historical write-off experience, an analysis of the aging of outstanding receivables, customer payment patterns, the establishment of specific reserves for customers in an adverse financial condition, and our expectations of changes in macro-economic conditions, including the ongoing COVID-19 pandemic, that may impact the collectability of outstanding receivables.

We reassess the adequacy of the allowance for credit losses each reporting period. The following table presents a rollforward of the allowance for credit losses (in thousands):

	Allowance for Credit Losses on Accounts Receivable
Balance at January 1, 2021	$ 1,200
Current period provision for expected credit losses	499
Less: Write-offs, net of recoveries	(99)
Balance at December 31, 2021	$ 1,600

Property and equipment

Property and equipment are stated at historical cost less accumulated depreciation. Repairs and maintenance costs that do not extend the useful life or improve the related assets are expensed as incurred. Depreciation is computed using the straight-line method over the estimated useful lives of the assets. The estimated useful life of each asset category is as follows:

Computer equipment	2-3 years
Furniture and fixtures	3-5 years
Leasehold improvements	Lesser of lease term or estimated useful life
Computer software	2-5 years
Capitalized internal-use software costs	2-3 years

When there are indicators of potential impairment, we evaluate the recoverability of the carrying values by comparing the carrying amount of the applicable asset group to the estimated undiscounted future cash flows expected to be generated by the asset group over the remaining useful life of the primary asset in the asset group. If the carrying amount of the asset group exceeds its estimated undiscounted future net cash flows, an impairment charge is recognized based on the amount by which the carrying value of the long-lived assets exceeds the fair value of the assets. Other than the lease-related impairment described in Note 9, we did not incur any long-lived impairment charges for the years ended December 31, 2021, 2020, and 2019.

Intangible assets

Intangible assets include developed technologies, customer relationships, customer contracts, and trademarks that were acquired in business combinations and asset acquisitions. Intangible assets also include the purchase of third-party computer software. The intangible assets are amortized using the straight-line method over the assets' estimated useful lives. The estimated useful life of each asset category is as follows:

Developed technologies	3-10 years
Customer relationships and contract backlog	2-7 years
Computer software licenses	2-5 years
Trademarks	1-5 years

Goodwill

We record goodwill as the difference between the aggregate consideration paid for a business combination and the fair value of the identifiable net tangible and intangible assets acquired. Goodwill includes the know-how of the assembled workforce, the ability of the workforce to further improve technology and product offerings, customer relationships, and the expected cash flows resulting from these efforts. Goodwill may also include expected synergies resulting from the complementary strategic fit these businesses bring to existing operations. Goodwill is assessed for impairment annually or more frequently if indicators of impairment are present or circumstances suggest that impairment may exist.

Our first step in the goodwill impairment test is a qualitative analysis of factors that could be indicators of potential impairment. Next, if a quantitative analysis is necessary, we compare the fair value of the reporting unit with its carrying amount, including goodwill. If the fair value of the reporting unit exceeds its carrying amount, the goodwill of the reporting unit is not considered impaired. If the carrying amount of the reporting unit exceeds its fair value, we would recognize an impairment charge for the amount by which the carrying amount exceeds the reporting unit's fair value. There was no impairment of goodwill for the years ended December 31, 2021, 2020, and 2019.

Business combinations

The results of businesses acquired in a business combination are included in our consolidated financial statements from the date of the acquisition. Purchase accounting results in assets and liabilities of an acquired business generally being recorded at their estimated fair value on the acquisition date. Any excess consideration over the fair value of the identifiable assets acquired and liabilities assumed is recognized as goodwill.

We perform valuations of assets acquired and liabilities assumed on each acquisition accounted for as a business combination in order to record the tangible and intangible assets acquired and liabilities assumed based on our best estimate of fair value. Determining the fair value of assets acquired and liabilities assumed requires management to use significant judgment and estimates including the selection of valuation methodologies, estimates of future revenue and cash flows, discount rates, and selection of comparable companies. Significant estimation is required in determining the fair value of the customer-related intangible assets and technology-related intangible assets.

The significant estimation is primarily due to the judgmental nature of the inputs to the valuation models used to measure the fair value of these intangible assets, as well as the sensitivity of the respective fair values to the underlying significant assumptions. We typically use the income approach or cost approach to measure the fair value of intangible assets. The significant assumptions used to form the basis of the estimates included the number of engineer hours required to develop technology, expected revenue including revenue growth rates, rate and timing of obsolescence, royalty rates and earnings before interest, taxes, depreciation and amortization ("EBITDA") margin used in the estimate for customer relationships, and backlog. Many of these significant assumptions were forward-looking and could be affected by future economic and market conditions. We engage the assistance of valuation specialists in concluding on fair value measurements in connection with determining fair values of assets acquired and liabilities assumed in a business combination.

For the years ended December 31, 2021 and 2020, we expensed $1.4 million and $2.7 million, respectively, of transaction costs associated with business combinations. The costs were expensed as incurred and are included in general and administrative expense in our consolidated statements of operations. No such costs were incurred or recorded for the year ended December 31, 2019.

Contingent consideration liabilities

Our acquisition consideration in business combinations may include an estimate for contingent consideration that will be paid if certain earn-out performance targets are met. The resulting contingent consideration liabilities are categorized as a Level 3 fair value measurement because we estimate projections during the earn-out period utilizing unobservable inputs, including various potential pay-out scenarios based on billings and revenue-related earn-out targets. Changes to the unobservable inputs could have a material impact on our consolidated financial statements. We generally value the expected contingent consideration and the corresponding liabilities using a probability model such as the Monte Carlo method based on estimates of potential pay-out scenarios. Probabilities are applied to each potential scenario and the resulting values are discounted using a rate that considers weighted average cost of capital as well as a specific risk premium associated with the riskiness of the earn-out itself, the related projections, projected payment dates, and volatility in the fair value of our common stock. The fair value of the contingent consideration is remeasured each reporting period.

The portion of the contingent consideration liabilities that will be settled in shares of our common stock is classified as a component of non-current liabilities in our consolidated balance sheets, while the portion to paid in cash is classified as a component of current liabilities. Changes to the contingent consideration liabilities are reflected as part of general and administrative expense in our consolidated statements of operations.

Advertising costs

All advertising costs are expensed as incurred. For the years ended December 31, 2021, 2020, and 2019, we incurred $4.4 million, $4.3 million, and $4.9 million in advertising costs, respectively.

Development costs and internal-use software

For technology products that are developed to be sold externally, we determined that technological feasibility is reached shortly before the products are ready for general release. Any costs associated with software development between the time technological feasibility is reached and general release are inconsequential.

We capitalize certain development costs incurred in connection with our internal-use software. These capitalized costs are primarily related to the software platforms that are hosted by us and accessed by our customers on a subscription basis. Costs incurred in the preliminary stages of development are expensed as incurred as research and development costs. Once an application has reached the development stage, internal and external costs, if direct and incremental, are capitalized until the software is substantially complete and ready for its intended use.

We also capitalize costs related to specific upgrades and enhancements when it is probable the expenditures will result in additional functionality. Capitalized costs are recorded as part of property and equipment. Maintenance and training costs are expensed as incurred. Internal-use software is amortized on a straight-line basis over its estimated useful life with the amortization included in depreciation and amortization expense in our consolidated statements of operations.

Stock-based compensation

Stock-based awards, including stock options, restricted stock units, performance-based restricted stock units, and restricted shares are measured and recognized in the consolidated financial statements based on the fair value of the award on the grant date. The grant date fair value of our stock-based awards is typically determined using the market closing price of our common stock on the date of grant; however we also consider whether any adjustments are required as a result of material nonpublic information to which the market is likely to react positively upon announcement.

We record forfeitures of stock-based awards as the actual forfeitures occur. For awards subject to performance conditions, we record expense when the performance condition becomes probable. Each reporting period, we evaluate the probability of achieving the performance criteria, estimate the number of shares that are expected to vest, and adjust the related compensation expense accordingly.

Stock-based compensation expense related to purchase rights issued under the 2019 Health Catalyst Employee Stock Purchase Plan (ESPP) is based on the Black-Scholes option-pricing model fair value of the estimated number of awards as of the beginning of the offering period. Stock-based compensation expense is recognized using the straight-line method over the offering period.

The measurement date for non-employee awards is the date of grant. The compensation expense for non-employees is recognized, without changes in the fair value of the award, in the same period and in the same manner as though we had paid cash for the services, which is typically the vesting period of the respective award.

Concentrations of credit risk

Financial instruments that potentially subject us to a concentration of credit risk consist principally of cash and cash equivalents, short-term investments, and accounts receivable. We deposit cash with high credit quality financial institutions which at times may exceed federally insured amounts. We have not experienced any losses on our deposits.

We perform ongoing credit evaluations of our customers' financial condition and require no collateral from customers. We review the expected collectability of accounts receivable and record an allowance for credit losses based on the probability of future collections. There were no customers with outstanding net accounts receivable balances as a percentage of total outstanding net accounts receivable balance greater than 10% as of December 31, 2021 and 2020. There were no customers with revenue as a percentage of total revenue greater than 10% for the years ended December 31, 2021, 2020, and 2019.

Income taxes

Deferred income tax balances are accounted for using the asset and liability method and reflect the effects of temporary differences between the financial reporting and tax bases of our assets and liabilities using enacted tax rates expected to apply when taxes are actually paid or recovered. In addition, deferred tax assets and liabilities are recorded for net operating loss (NOL) and credit carryforwards. A valuation allowance is provided against deferred tax assets unless it is more likely than not that they will be realized based on all available positive and negative evidence. Such evidence includes, but is not limited to, recent cumulative earnings or losses, expectations of future taxable income by taxing jurisdiction, and the carry-forward periods available for the utilization of deferred tax assets.

We use a two-step approach to recognize and measure uncertain income tax positions. The first step is to evaluate the tax position for recognition by determining if the weight of available evidence indicates it is more likely than not that the position will be sustained upon audit. The second step is to measure the tax benefit as the largest amount, which is more than 50% likely of being realized upon ultimate settlement. We do not accrue interest and penalties related to unrecognized tax benefits within the provision for income taxes because we have net operating loss carryforwards. Significant judgment is required to evaluate uncertain tax positions. Although we believe that we have adequately reserved for our uncertain tax positions, we can provide no assurance that the final tax outcome of these matters will not be materially different.

We evaluate our uncertain tax positions on a regular basis and evaluations are based on a number of factors, including changes in facts and circumstances, changes in tax law, correspondence with tax authorities during the course of an audit, and effective settlement of audit issues. To the extent that the final tax outcome of these matters is different than the amounts recorded, such differences will affect the provision for income taxes in the period in which such determination is made and could have a material impact on our financial condition and results of operations.

Fair value of financial instruments

The carrying amounts reported in the consolidated balance sheets for cash, receivables, accounts payable, and current accrued expenses approximate fair values because of the immediate or short-term maturity of these financial instruments. The carrying value of acquisition-related consideration payable, operating lease liabilities, and long-term debt approximate fair value based on interest rates available for debt with similar terms at December 31, 2021 and 2020. Money market funds and short-term investments are measured at fair value on a recurring basis. Our contingent consideration liabilities are measured at fair value on a recurring basis based primarily on significant inputs not observable in the market.

Fair value is estimated by applying the following hierarchy, which prioritizes the inputs used to measure fair value into three levels and bases the categorization within the hierarchy upon the lowest level of input that is available and significant to the fair value measurement:

- Level 1- Quoted prices in active markets for identical assets or liabilities.
- Level 2- Observable inputs other than quoted prices in active markets for identical assets and liabilities, quoted prices for identical or similar assets or liabilities in inactive markets, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.
- Level 3- Inputs that are generally unobservable and typically reflect management’s estimate of assumptions that market participants would use in pricing the asset or liability.

All of our financial instruments are valued using quoted prices in active markets or based on other observable inputs. For Level 2 securities, we use a third-party pricing service which provides documentation on an ongoing basis that includes, among other things, pricing information with respect to reference data, methodology, inputs summarized by asset class, pricing application, and corroborative information. Our contingent consideration liabilities are categorized as a Level 3 fair value measurement because we estimate projections during the earn out period utilizing various potential pay-out scenarios.

Leases

We determine if an arrangement is a lease at inception. Operating leases are included in operating lease right-of-use (ROU) assets, operating lease liabilities, and operating lease liabilities, net of current portion in our consolidated balance sheets. We have adopted the short-term lease recognition exemption policy. All of our leasing commitments are classified either as operating leases or otherwise qualify as short-term leases with lease terms of 12 months or less.

ROU assets represent our right to use an underlying asset for the lease term and lease liabilities represent our obligation to make lease payments arising from the lease. Operating lease ROU assets and liabilities are recognized at commencement date based on the present value of lease payments over the lease term. As our lease contracts do not provide an implicit rate, we use our incremental borrowing rate based on the information available at commencement date to determine the present value of lease payments. The operating lease ROU asset also includes any lease payments made and excludes lease executory costs. Our lease terms may include options to extend or terminate the lease when it is reasonably certain that we will exercise the applicable option. Lease expense for lease payments is recognized on a straight-line basis over the lease term. We do not have lease agreements that contain non-lease components, which generally would be accounted for separately.

Foreign currency

The functional currency of our international subsidiaries is generally their local currency. We translate these subsidiaries’ financial statements into U.S. dollars using month-end exchange rates for assets and liabilities and average exchange rates for revenue and expenses. We record translation gains and losses in accumulated other comprehensive loss in stockholders’ equity. We record foreign exchange gains and losses in interest and other expense, net. Our net foreign exchange gains and losses were not material for the periods presented.

Accounting pronouncements adopted

Accounting for income taxes

In December 2019, the FASB issued ASU 2019-12, *Income Taxes (Topic 740) - Simplifying the Accounting for Income Taxes*, which simplifies the accounting for income taxes, eliminates certain exceptions within Topic 740, and clarifies certain aspects of the current guidance to promote consistency among reporting entities. The new standard is effective for fiscal years beginning after December 15, 2020. Most amendments within the standard are required to be applied on a prospective basis, while certain amendments must be applied on a retrospective or modified retrospective basis. We adopted ASU 2019-12 as of January 1, 2021 on a prospective basis. The adoption of this standard did not have a material impact on our consolidated financial statements and related disclosures.

Recent accounting pronouncements not yet adopted

Accounting for convertible instruments

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*. The new standard simplifies accounting for convertible instruments by removing major separation models required under current GAAP. Consequently, more convertible debt instruments will be reported as a single liability instrument with no separate accounting for embedded conversion features. The new standard also simplifies the diluted net income per share calculation, including a requirement to apply the if-converted method when calculating the potentially dilutive impact of convertible instruments. ASU 2020-06 is effective for annual and interim periods beginning after December 15, 2021 and we intend to adopt this standard using the modified retrospective approach during the first quarter of 2022.

Adoption of the new standard is expected to result in significant classification changes to our consolidated balance sheet as of January 1, 2022, including a decrease to Accumulated deficit of approximately $17.2 million and a decrease to Additional paid-in capital of approximately $61.2 million related to amounts attributable to the conversion premium that had previously been recorded in equity. We also expect to record a net increase to the convertible senior notes balance of $44.0 million due to the reclassification of the conversion premium from equity to debt.

The adoption of this standard is expected to reduce our reported non-cash interest expense as we will no longer record amortization of the debt discount. As we expect continued net losses in the near term, we do not expect significant changes to our diluted net loss per share calculation presented in our consolidated statements of operations. However, applying the if-converted method instead of the net share settlement or treasury stock method, which is currently being applied, will result in a significant increase in the potentially dilutive securities related to convertible senior notes disclosed in the notes to the consolidated financial statements after adopting the new standard. There is no other significant impact expected to our consolidated financial statements and related disclosures as a result of the adoption of this standard.

Accounting for business combinations

In October 2021, the FASB issued ASU 2021-08, *Business Combinations (Topic 805): Accounting for Contract Assets and Contract Liabilities from Contracts with Customers*. ASU 2021-08 will require that an entity (acquirer) recognize and measure contract assets and contract liabilities (i.e., deferred revenue) acquired in a business combination in accordance with Topic 606. Under current GAAP, an acquirer generally recognizes assets acquired and liabilities assumed in a business combination, including contract assets and contract liabilities arising from revenue contracts with customers, at fair value on the acquisition date. ASU 2021-08 will result in the acquirer recording acquired contract assets and liabilities on the same basis that would have been recorded by the acquiree before the acquisition in accordance with ASC Topic 606. ASU 2021-08 is effective for fiscal years beginning after December 15, 2022, with early adoption permitted. We will apply the amendments prospectively to business combinations occurring on or after January 1, 2022.

Notes to the Consolidated Financial Statements

2. Business Combinations

The business acquisitions discussed below are included in our results of operations from their respective dates of acquisition.

2021 Acquisition

Twistle, Inc.

On July 1, 2021, we acquired Twistle, Inc. (Twistle), a healthcare patient engagement SaaS technology company that, among other things, helps automate patient-centered, personalized, multi-channel communication between care teams and patients that aims to transform the patient experience, drive better care outcomes, and reduce healthcare costs, in a transaction accounted for as a business combination. The acquisition consideration transferred was $91.9 million and was comprised of net cash consideration of $46.7 million, Health Catalyst common shares with a fair value of $43.1 million, and contingent consideration based on certain earn-out performance targets for Twistle during an earn-out period that ends on June 30, 2022, with an initial fair value of $2.1 million. The purchase resulted in Health Catalyst acquiring 100% ownership in Twistle.

An additional 67,939 shares of our common stock subject to a restriction agreement, or restricted shares, were issued pursuant to the terms of the acquisition agreement. The value of these restricted shares is recognized as post-combination stock-based compensation expense on a straight-line basis over the vesting term. Refer to Note 14 for additional details related to our stock-based compensation.

In connection with the acquisition, we also agreed to make deferred cash retention payments to continuing Twistle team members related to their unvested options previously granted or promised to be granted. The retention payments are subject to quarterly or cliff vesting based on continued employment over a required service period of between 12 and 18 months post-closing. Such amounts are recorded as post-combination compensation expense on a straight-line basis over the relevant vesting terms. For the year ended December 31, 2021, we recognized compensation expense of $4.0 million related to these retention payments. As of December 31, 2021, there was an additional $6.2 million of unrecognized compensation expense related to these retention payments expected to be recognized over a weighted-average period of 1.0 year.

The following table summarizes the acquisition-date fair value of consideration transferred and the identifiable assets purchased and liabilities assumed as part of our acquisition of Twistle (in thousands):

Assets acquired:		
Accounts receivable	$	1,106
Prepaid expenses and other assets		98
Property and equipment, net		57
Developed technologies		13,000
Customer relationships		23,700
Trademarks		20
Total assets acquired		37,981
Less liabilities assumed:		
Accounts payable and other current liabilities		161
Deferred revenue		900
Net deferred tax liabilities		7,142
Total liabilities assumed		8,203
Total assets acquired, net		29,778
Goodwill		62,150
Total consideration transferred, net of cash acquired	$	91,928

The acquired intangible assets were valued utilizing either an income approach or a cost approach as deemed most applicable, and include customer relationships, developed technology, and trademarks that will be amortized on a straight-line basis over their estimated useful lives of seven years, three years, and one year, respectively. The resulting goodwill from the Twistle acquisition was fully allocated to the technology reporting unit and is not deductible for income tax purposes.

The preliminary allocation of the consideration transferred was based on a preliminary valuation that was subject to potential adjustments. As of December 31, 2021, we recorded a measurement period adjustment as a result of a Section 382 analysis that identified pre-acquisition ownership changes and a corresponding limitation on Twistle's pre-acquisition net operating loss carryforwards. The measurement period adjustment increased both the net deferred tax liabilities assumed and acquired goodwill by $0.3 million, which is reflected in the amounts in the table above. There was also a corresponding increase to the current year deferred income tax benefit due to a discrete valuation allowance release. There were no other measurement period adjustments recorded during the year ended December 31, 2021.

Pro forma financial information has not been presented for the Twistle acquisition as the impact to our consolidated financial statements was not material. The amount of revenue attributable to the acquired business of Twistle was not material to our consolidated statement of operations for the year ended December 31, 2021. Income (loss) information for Twistle after the acquisition date through December 31, 2021 is not presented as the Twistle business was integrated into our operations immediately following the acquisition and is impracticable to quantify.

2020 Acquisitions

Able Health, Inc.

On February 21, 2020, we acquired Able Health, Inc. (Able Health), a leading software-as-a-service provider of quality and regulatory measurement tracking and reporting to healthcare providers and risk-bearing entities, in a transaction accounted for as a business combination. The acquisition consideration transferred was $21.5 million and was comprised of net cash consideration of $15.2 million, Health Catalyst common shares with a fair value of $3.3 million, and contingent consideration based on achievement of Able Health specified incremental customer billings for the year ended December 31, 2020, with an initial fair value of $3.0 million. The purchase resulted in Health Catalyst acquiring 100% ownership in Able Health. The earn-out contingent consideration liability was settled during the first quarter of 2021 through the issuance of 21,387 shares of our common stock.

An additional 179,392 shares of our common stock subject to restriction agreements, or restricted shares, were issued pursuant to the terms of the acquisition agreement and 60,000 restricted stock units were issued in connection with the acquisition agreement. The value of these restricted shares and restricted stock units were recognized as post-combination stock-based compensation expense over their respective vesting terms. The vesting of the restricted shares was subject to one year of continuous service by the applicable team members and vested on the one-year anniversary of the acquisition closing date and the service-based condition for the restricted stock units issued pursuant to the terms of the acquisition agreement is satisfied over two years with a 50% cliff vesting period of one year and ratable quarterly vesting thereafter. Refer to Note 14 for additional details related to our stock-based compensation.

The following table summarizes the acquisition-date fair value of consideration transferred and the identifiable assets purchased and liabilities assumed as part of our acquisition of Able Health (in thousands):

Assets acquired:		
Accounts receivable	$	633
Prepaid expenses and other assets		57
Developed technologies		7,500
Customer relationships		600
Trademarks		100
Total assets acquired		8,890
Less liabilities assumed:		
Accounts payable and other current liabilities		91
Deferred revenue		762
Net deferred tax liabilities		1,280
Total liabilities assumed		2,133
Total assets acquired, net		6,757
Goodwill		14,725
Total consideration transferred, net of cash acquired	$	21,482

The acquired intangible assets were valued utilizing either an income approach or a cost approach as deemed most applicable, and include customer relationships, developed technology, and trademarks that will be amortized on a straight-line basis over their estimated useful lives of six years, three years, and two years, respectively. The resulting goodwill from the Able Health acquisition was fully allocated to the technology reporting unit and is not deductible for income tax purposes.

Healthfinch, Inc.

On July 31, 2020, we acquired Healthfinch, Inc. (Healthfinch), which provides a workflow integration engine delivering insights and analytics into EMR workflows to automate physicians' ability to close patient care gaps in real-time, in a transaction accounted for as a business combination. We believe this acquisition will strengthen our existing population health capabilities. The acquisition consideration transferred was $50.5 million and was comprised of net cash consideration of $16.9 million, Health Catalyst common shares with a fair value of $27.8 million, and contingent consideration based on certain earn-out performance targets for Healthfinch during an earn-out period that ended on July 31, 2021, with an initial fair value of $5.8 million. The purchase resulted in Health Catalyst acquiring 100% ownership in Healthfinch. Approximately 50% of the earn-out was settled for $1.7 million in cash and the issuance of 78,243 shares during the third quarter of 2021 and we anticipate that the remaining earn-out will be settled during the first quarter of 2022.

The following table summarizes the acquisition-date fair value of consideration transferred and the identifiable assets purchased and liabilities assumed as part of our acquisition of Healthfinch (in thousands):

Assets acquired:		
Accounts receivable	$	1,408
Prepaid expenses and other assets		347
Developed technologies		8,100
Customer relationships and contract backlog		10,000
Trademarks		200
Total assets acquired		20,055
Less liabilities assumed:		
Accounts payable and other current liabilities		408
Deferred revenue		2,100
Total liabilities assumed		2,508
Total assets acquired, net		17,547
Goodwill		32,960
Total consideration transferred, net of cash acquired	$	50,507

The acquired intangible assets were valued utilizing either an income approach or a cost approach as deemed most applicable, and include customer relationships and contract backlog, developed technology, and trademarks that will be amortized on a straight-line basis over their estimated useful lives of seven years, three years, and two years, respectively. The resulting goodwill from the Healthfinch acquisition was fully allocated to the technology reporting unit and is not deductible for income tax purposes.

Vitalware, LLC

On September 1, 2020, we acquired Vitalware, LLC (Vitalware), a provider of revenue workflow optimization and analytics SaaS technology solutions to healthcare organizations, in a transaction accounted for as a business combination. Vitalware's flagship offering is a chargemaster management solution that delivers results for the complex regulatory and compliance functions needed by healthcare provider systems. Additionally, Vitalware brings to bear newer product suites to help health systems capture lost revenue and to support compliance with expanding pricing transparency regulation. The acquisition consideration transferred was $119.2 million and was comprised of net cash consideration of $69.6 million, Health Catalyst common shares with a fair value of $41.3 million, and contingent consideration based on certain earn-out performance targets for Vitalware during an earn-out period that ended on March 31, 2021, with an initial fair value of $8.3 million. The purchase resulted in Health Catalyst acquiring 100% ownership in Vitalware. The earn-out contingent consideration liability was settled during the second quarter of 2021 for cash consideration of $15.0 million and the issuance of 309,458 shares of our common stock.

An additional 203,997 shares of our common stock subject to a restriction agreement, or restricted shares, were issued pursuant to the terms of the acquisition agreement. The value of these restricted shares were recognized as post-combination stock-based compensation expense on a straight-line basis over the 12-month vesting term. 75% of these restricted shares vested on a monthly basis over a term of approximately one year and the remaining 25% vested on the one year anniversary of the acquisition closing date. Refer to Note 14 for additional details related to our stock-based compensation.

The following table summarizes the acquisition-date fair value of consideration transferred and the identifiable assets purchased and liabilities assumed as part of our acquisition of Vitalware (in thousands):

Assets acquired:		
Accounts receivable	$	3,220
Prepaid expenses and other assets		469
Developed technologies		18,000
Customer relationships and contract backlog		43,000
Trademarks		1,400
Total assets acquired		66,089
Less liabilities assumed:		
Accounts payable and other current liabilities		766
Deferred revenue		2,589
Total liabilities assumed		3,355
Total assets acquired, net		62,734
Goodwill		56,443
Total consideration transferred, net of cash acquired	$	119,177

The acquired intangible assets were valued utilizing an income approach, and include customer relationships, contract backlog, developed technology, and trademarks that will be amortized on a straight-line basis over their estimated useful lives of seven years, two years, four years, and for trademarks two to five years, respectively. The resulting goodwill from the Vitalware acquisition was fully allocated to the technology reporting unit and is deductible for income tax purposes.

Unaudited pro forma financial information

The following table reflects our unaudited pro forma combined results of operations for years ended December 31, 2020 and 2019 as if the acquisitions of Able Health, Healthfinch, and Vitalware had taken place on January 1, 2019:

	Year Ended December 31,	
	2020	2019
Total pro forma revenues (unaudited)	$ 209,409	$ 173,973
Pro forma net loss (unaudited)	(124,485)	(90,850)

The unaudited pro forma information is not intended to present actual results that would have been attained had the acquisition been completed as of January 1, 2019 or to project potential results as of any future date or for any future periods.

The pro forma adjustments are based upon available information and certain assumptions that we believe are reasonable. The nature and amount of material, nonrecurring pro forma adjustments directly attributable to these acquisitions which are included in the pro forma revenues or net loss, as applicable, are attributable to fair value adjustments to deferred revenues, amortization of acquired intangible assets, acquisition-related income tax considerations, and acquisition transaction costs that had a net impact on the pro forma combined net loss of $9.5 million and $30.8 million for the years ended December 31, 2020 and 2019, respectively.

3. Revenue

Disaggregation of revenue

The following table represents Health Catalyst's revenue disaggregated by type of arrangement (in thousands):

	Year Ended December 31,		
	2021	2020	2019
Recurring technology	$ 147,446	$ 110,467	$ 83,791
One-time technology (i.e., perpetual license)	272	—	184
Professional services	94,208	78,378	70,966
Total revenue	$ 241,926	$ 188,845	$ 154,941

For the years ended December 31, 2021, 2020, and 2019, 99.2%, 99.8%, and 99.7% of revenue was related to contracts with customers located in the United States.

4. Goodwill and Intangible Assets

We operate our business in two operating segments that also represent our reporting units. Our reporting units are organized based on our technology and professional services. We have not incurred any goodwill impairment charges.

Goodwill by reporting unit is as follows (in thousands):

	As of December 31,	
	2021	2020
Technology	$ 169,190	$ 107,040
Professional services	782	782
Total goodwill	$ 169,972	$ 107,822

As of December 31, 2021, intangible assets consisted of the following (in thousands):

	Gross	Accumulated Amortization	Net
Developed technologies	$ 82,729	$ (40,988)	$ 41,741
Customer relationships and contracts	81,464	(21,078)	60,386
Computer software licenses	8,392	(6,590)	1,802
Trademarks	1,720	(861)	859
Total intangible assets	$ 174,305	$ (69,517)	$ 104,788

As of December 31, 2020, intangible assets consisted of the following (in thousands):

	Gross	Accumulated Amortization	Net
Developed technologies	$ 69,729	$ (25,293)	$ 44,436
Customer relationships and contracts	57,764	(7,482)	50,282
Computer software licenses	7,359	(4,615)	2,744
Trademarks	1,700	(241)	1,459
Total intangible assets	$ 136,552	$ (37,631)	$ 98,921

Amortization expense of acquired intangible assets for the years ended December 31, 2021, 2020, and 2019 was $32.0 million, $15.9 million, and $6.3 million, respectively. Amortization expense for intangible assets is included in depreciation and amortization in the consolidated statements of operations.

The weighted-average remaining amortization period by type of intangible assets as of December 31, 2021 is as follows:

	Weighted-Average Remaining Amortization Period (years)
Developed technologies	2.7
Customer relationships and contracts	5.6
Computer software licenses	1.2
Trademarks	2.7

As of December 31, 2021, future amortization expense for finite-lived intangible assets is estimated to be as follows (in thousands):

Year Ending December 31,	
2022	$ 32,910
2023	23,793
2024	17,946
2025	11,568
2026	9,566
Thereafter	9,005
Total future amortization expense	$ 104,788

5. Property and Equipment

Property and equipment consisted of the following (in thousands):

	As of December 31,	
	2021	2020
Computer equipment	$ 9,235	$ 8,576
Leasehold improvements	10,832	8,089
Furniture and fixtures	3,715	1,734
Capitalized internal-use software costs	10,769	3,489
Computer software	198	947
Capital lease equipment	—	37
Total property and equipment	34,749	22,872
Less: accumulated depreciation	(11,433)	(10,009)
Property and equipment, net	$ 23,316	$ 12,863

Our long-lived assets are located in the United States. Depreciation expense for the years ended December 31, 2021, 2020, and 2019 was $5.5 million, $2.9 million, and $2.9 million, respectively. Depreciation expense includes amortization of assets recorded under a capital lease and the amortization of capitalized internal-use software costs.

We capitalized $7.3 million, $1.6 million, and $0.4 million of internal-use software costs for the years ended December 31, 2021, 2020, and 2019, respectively. We incurred $2.4 million, $0.7 million, and $0.5 million of capitalized internal-use software cost amortization expense for the years ended December 31, 2021, 2020, and 2019, respectively.

6. Short-term Investments

We classify our short-term investments as available for sale. Available-for-sale securities are recorded on our consolidated balance sheets at fair market value and any unrealized gains or losses are reported as part of other comprehensive loss on the consolidated statements of comprehensive loss. We determine realized gains or losses on the sales of investments through the specific identification method and record such gains or losses as part of interest and other expense, net on the consolidated statements of operations. We did not have any material realized gains or losses on investments during the years ended December 31, 2021, 2020, and 2019. We measure the fair value of investments on a recurring basis.

The following table summarizes, by major security type, our cash equivalents and short-term investments (in thousands) as of December 31, 2021:

	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value	Cash equivalents	Short-term Investments
Money market funds	$ 173,475	$ —	$ —	$ 173,475	$ 173,475	$ —
Commercial paper	153,498	—	—	153,498	—	153,498
Corporate bonds	71,259	—	(45)	71,214	4,424	66,790
Asset-backed securities	31,509	—	(43)	31,466	—	31,466
Total	$ 429,741	$ —	$ (88)	$ 429,653	$ 177,899	$ 251,754

The following table summarizes, by major security type, our cash equivalents and short-term investments (in thousands) as of December 31, 2020:

	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value	Cash equivalents	Short-term Investments
Money market funds	$ 79,387	$ —	$ —	$ 79,387	$ 79,387	$ —
U.S. treasury notes	59,382	7	—	59,389	—	59,389
Commercial paper	68,018	—	—	68,018	—	68,018
Corporate bonds	48,494	8	(1)	48,501	—	48,501
Asset-backed securities	3,009	—	—	3,009	—	3,009
Total	$ 258,290	$ 15	$ (1)	$ 258,304	$ 79,387	$ 178,917

The following table presents the contractual maturities of our short-term investments as of December 31, 2021 and December 31, 2020 (in thousands):

	As of December 31, 2021		As of December 31, 2020	
	Amortized Cost	Fair Value	Amortized Cost	Fair Value
Due within one year	$ 230,429	$ 230,372	$ 178,903	$ 178,917
Due between one and five years	21,411	21,382	—	—
Total	$ 251,840	$ 251,754	$ 178,903	$ 178,917

Accrued interest receivables related to our available-for-sale securities of $0.8 million and $0.5 million as of December 31, 2021 and 2020, respectively, were included within prepaid expenses and other assets on our consolidated balance sheets.

On a quarterly basis we evaluate unrealized losses on our available-for-sale debt securities and the related accrued interest receivables to determine whether a decline in the fair value below the amortized cost basis is due to credit-related factors or noncredit-related factors. We do not intend to sell investments that are in an unrealized loss position and it is not likely that we will be required to sell any investments before recovery of their amortized cost basis. As of December 31, 2021 and 2020, there were no material unrealized losses due to credit-related factors.

7. Fair Value of Financial Instruments

Assets and liabilities measured at fair value on a recurring basis as of December 31, 2021 were as follows (in thousands):

	December 31, 2021			
	Level 1	Level 2	Level 3	Total
Assets (Liabilities):				
Money market funds	$ 173,475	$ —	$ —	$ 173,475
Commercial paper	—	153,498	—	153,498
Corporate bonds	—	71,214	—	71,214
Asset-backed securities	—	31,466	—	31,466
Contingent consideration liabilities	—	—	(19,295)	(19,295)
Total	$ 173,475	$ 256,178	$ (19,295)	$ 410,358

Assets and liabilities measured at fair value on a recurring basis as of December 31, 2020 were as follows (in thousands):

	December 31, 2020			
	Level 1	Level 2	Level 3	Total
Assets (Liabilities):				
Money market funds	$ 79,387	$ —	$ —	$ 79,387
U.S. Treasury notes	59,389	—	—	59,389
Commercial paper	—	68,018	—	68,018
Corporate bonds	—	48,501	—	48,501
Asset-backed securities	—	3,009	—	3,009
Contingent consideration liabilities	—	—	(31,264)	(31,264)
Total	$ 138,776	$ 119,528	$ (31,264)	$ 227,040

There were no transfers between Level 1 and Level 2 of the fair value measurement hierarchy during the years ended December 31, 2021 and 2020.

Convertible Senior Notes

As of December 31, 2021, the estimated fair value of our convertible senior notes, with aggregate principal totaling $230.0 million, was $335.7 million. We estimate the fair value based on quoted market prices in an inactive market on the last trading day of the reporting period (Level 2). These convertible senior notes are recorded at face value less unamortized debt discount and transaction costs on our consolidated balance sheets. Refer to Note 10—Convertible Senior Notes and Credit Facilities for further information.

Level 3 fair value measurements

The Twistle acquisition consideration included an initial estimate for contingent consideration based on certain revenue-based earn-out performance targets for Twistle during an earn-out period that ends on June 30, 2022. The Twistle contingent consideration is capped at $65.0 million and will be paid in a combination of approximately 20% cash and 80% in shares of our common stock. We value Twistle's expected contingent consideration and the corresponding liability using the Monte Carlo valuation method based on estimates of potential pay-out scenarios.

The Healthfinch acquisition consideration included an initial estimate for contingent consideration based on certain revenue-based earn-out performance targets for Healthfinch during an earn-out period that ended on July 31, 2021. Approximately half of the Healthfinch earn-out contingent consideration liability was settled during the third quarter for cash consideration of $1.7 million and the issuance of 78,243 shares of our common stock. The remaining Healthfinch contingent consideration liability is expected to be settled during the first quarter of 2022.

The outstanding contingent consideration liabilities are categorized as Level 3 fair value measurements and are remeasured as of each reporting period. The aggregate intrinsic value of the revenue-based earn-out contingent consideration liabilities is approximately $20.8 million based on a point estimate of our internal forecasting of the ultimate earn-outs that will be earned and our common stock price as of December 31, 2021. The recurring Level 3 fair value measurements of the contingent consideration liabilities include the other following significant inputs as of December 31, 2021:

	Valuation Method	Fair Value	Market Price of Revenue Risk	Revenue Volatility
Revenue-based earn-out liability	Monte Carlo	$19.3 million	2%	10%

The following table sets forth a summary of the changes in the estimated fair value of the contingent consideration liabilities, which are measured at fair value on a recurring basis using significant unobservable inputs (in thousands):

	Fair Value Measurements Using Significant Unobservable Inputs (Level 3)
Balance at December 31, 2020	$ 31,264
Initial contingent consideration liabilities from acquisitions (see Note 2)	2,062
Change in fair value of contingent consideration liabilities	22,717
Settlement of contingent consideration	(36,748)
Balance at December 31, 2021	$ 19,295

The Able Health and Vitalware earn-out contingent consideration liabilities were fully settled during the year ended December 31, 2021.

Nonrecurring fair value measurements

We recorded an impairment charge of $1.8 million related to subleased office space in the third quarter of 2021. This impairment charge was derived from the difference between the carrying value and the fair value of the relevant asset group. The fair value of this asset group was estimated using a discounted cash flow analysis of the subleased space and included certain unobservable (Level 3) inputs, including the anticipated future sublease terms and rates. Refer to Note 9—Leases for further information.

8. Accrued liabilities

As of December 31, 2021 and 2020, accrued liabilities consisted of the following (in thousands):

	As of December 31, 2021	As of December 31, 2020
Accrued compensation and benefit expenses	$ 17,430	$ 9,838
Other accrued liabilities	6,295	6,672
Total accrued liabilities	$ 23,725	$ 16,510

9. Leases

Operating leases

We lease office space and certain equipment under operating leases that expire between 2022 and 2031. The terms of the leases provide for rental payments on a graduated scale, options to renew the leases (one to five years), landlord incentives or allowances, and periods of free rent. In March 2020, we entered into a lease for office space in South Jordan, Utah, that became our new company headquarters during the second quarter of 2021. This new lease for office space replaced our prior headquarters in Salt Lake City, Utah, the lease for which expired December 31, 2020. This new lease requires total lease payments of $31.7 million with a non-cancelable lease term of 11 years, excluding renewal options.

Lease payments began on January 1, 2021, however, we took initial possession of the first 64,910 square feet of the new headquarters in June 2020 to begin leasehold improvements, which resulted in a right-of-use asset and corresponding operating lease liability of $13.0 million, and commencement of operating lease expense. We took possession of an additional 53,297 square feet of the new headquarters lease in August 2020, which resulted in an additional right-of-use asset and corresponding lease liability of $10.8 million. According to the terms of this new lease agreement, our leased square footage will expand between 2022 and 2023 resulting in $2.8 million of additional required future lease payments. We have the right to sublease all, or a portion, of this leased office space provided that certain terms and conditions are met.

In September 2021, we subleased one floor of our corporate headquarters. The initial sublease has a lease term of two years with the option of the sublessee to extend for an additional two years. We performed a recoverability test of the relevant asset group, comprised of operating lease right-of-use and other related assets, and determined that the carrying value of this asset group was not fully recoverable. As a result, we measured and recognized a $1.8 million impairment charge representing the amount by which the carrying value exceeded the estimated fair value of this asset group. The impairment charge was recorded as part of general and administrative expense in our consolidated statements of operations. $1.3 million of the impairment charge was allocated to the ROU asset and the remaining $0.5 million was allocated to leasehold improvements and furniture and fixtures.

Our operating lease expense for the years ended December 31, 2021, 2020, and 2019, was $3.6 million, $4.3 million, and $3.2 million, respectively. In addition to those amounts, lease expense attributable to short-term leases with terms of 12 months or less for the years ended December 31, 2021, 2020, and 2019, was $0.1 million, $0.2 million, and $0.2 million, respectively.

Maturities of lease liabilities under operating leases at December 31, 2021 are as follows (in thousands):

Year ending December 31:	
2022	$ 3,425
2023	3,364
2024	3,073
2025	2,931
2026	2,881
Thereafter	14,163
Total lease payments	29,837
Less: Imputed interest	(6,168)
Total lease liability	$ 23,669

Supplemental balance sheet information related to leases as of December 31, 2021 and 2020 is as follows (in thousands other than weighted average amounts):

	As of December 31,	
	2021	2020
Operating lease right-of-use assets	$ 21,133	$ 24,729
Operating lease liabilities, current	$ 3,425	$ 2,622
Operating lease liabilities, noncurrent	20,244	23,669
Total operating lease liabilities	$ 23,669	$ 26,291
Weighted-average remaining operating lease term (years)	9.6	10.4
Weighted-average operating lease discount rate	5.0 %	5.0 %

10. Convertible Senior Notes and Credit Facilities

Convertible senior notes

On April 14, 2020, we issued $230.0 million in aggregate principal amount of 2.50% Convertible Senior Notes due 2025 (the Notes), in a private placement to qualified institutional buyers exempt from registration under the Securities Act (the Note Offering). The net proceeds from the issuance of the Notes were approximately $222.5 million, after deducting the initial purchasers' discounts and offering expenses payable by us.

The Notes are governed by an indenture (the Indenture) between us, as the issuer, and U.S. Bank National Association, as trustee. The Notes are our senior, unsecured obligations and accrue interest payable semiannually in arrears on April 15 and October 15 of each year, beginning on October 15, 2020, at a rate of 2.50% per year. The Notes will mature on April 15, 2025, unless earlier converted, redeemed, or repurchased. The Indenture does not contain any financial or operating covenants or restrictions on the payments of dividends, the incurrence of indebtedness, or the issuance or repurchase of securities by us or any of our subsidiaries.

We may not redeem the Notes prior to April 20, 2023. On or after April 20, 2023, we may redeem, for cash, all or a portion of the Notes, at our option, if the last reported sale price of our common stock has been at least 130% of the conversion price then in effect for at least 20 trading days (whether or not consecutive), including the trading day immediately preceding the date on which we provide notice of redemption, during any 30 consecutive trading day period ending on, and including, the trading day immediately preceding the date on which we provide notice of redemption at a redemption price equal to 100% of the principal amount of the Notes to be redeemed, plus accrued and unpaid interest to, but excluding, the redemption date. No sinking fund is provided for the Notes.

The Notes have an initial conversion rate of 32.6797 shares of our common stock per $1,000 principal amount of Notes (which is equivalent to an initial conversion price of approximately $30.60 per share of our common stock). Following certain corporate events that occur prior to the maturity date, we will increase the conversion rate for a holder who elects to convert its Notes in connection with such corporate event. Additionally, upon the occurrence of a corporate event that constitutes a "fundamental change" per the Indenture, holders of the Notes may require the Company to repurchase for cash all or a portion of their Notes at a purchase price equal to 100% of the principal amount of the Notes plus accrued and unpaid interest.

Holders of the Notes may convert all or any portion of their Notes at any time prior to the close of business on October 14, 2024, in integral multiples of $1,000 principal amount, only under the following circumstances:

- During any calendar quarter commencing after the calendar quarter ended on June 30, 2020 (and only during such calendar quarter), if the last reported sale price of our common stock for at least 20 trading days (whether or not consecutive) during a period of 30 consecutive trading days ending on, and including, the last trading day of the immediately preceding calendar quarter is greater than or equal to 130% of the conversion price on each applicable trading day;

- During the five business day period after any five consecutive trading day period (the "measurement period") in which the trading price as defined in the Indenture per $1,000 principal amount of Notes for each trading day of the measurement period was less than 98% of the product of the last reported sale price of our common stock and the conversion rate on each such trading day;

- If we call such notes for redemption, at any time prior to the close of business on the scheduled trading day immediately preceding the redemption date; or

- Upon the occurrence of specified corporate events described in the Indenture.

On or after October 15, 2024, until the close of business on the second scheduled trading day immediately preceding the maturity date, holders may convert all or any portion of their Notes at the conversion rate at any time irrespective of the foregoing circumstances. Upon conversion, holders will receive cash, shares of our common stock or a combination of cash and shares of common stock, at our election.

As of December 31, 2021, the conditions allowing holders of the Notes to convert were not met. The Notes are therefore not currently convertible and are classified as long-term debt.

We account for the Notes as separate liability and equity components. We determined the carrying amount of the liability component as the present value of its cash flows using a discount rate of approximately 10% based on comparable debt transactions for similar companies. The estimated interest rate was applied to the Notes, which resulted in a fair value of the liability component of $166.7 million upon issuance, calculated as the present value of future contractual payments based on the $230.0 million aggregate principal amount. The excess of the principal amount of the liability component over its carrying amount, or the debt discount, is amortized to interest expense over the term of the Notes using the effective interest method. The $63.3 million difference between the gross proceeds received from issuance of the Notes of $230.0 million and the estimated fair value of the liability component represents the equity component, or the conversion option, of the Notes and was recorded in additional paid-in capital. The equity component is not remeasured as long as it continues to meet the conditions for equity classification.

We allocated issuance costs related to the issuance of the Notes to the liability and equity components using the same proportions as the initial carrying value of the Notes. Issuance costs attributable to the liability component were $5.5 million and are being amortized to interest expense using the effective interest method over the term of the Notes. Issuance costs attributable to the equity component were $2.1 million and are netted with the equity component of the Notes in stockholders' equity on the consolidated balance sheets.

The net carrying value of the liability component of the Notes was as follows (in thousands):

	As of December 31,	
	2021	2020
Principal	$ 230,000	$ 230,000
Less: Unamortized debt discount	(45,249)	(56,206)
Less: Unamortized issuance costs	(3,809)	(4,800)
Net carrying amount	$ 180,942	$ 168,994

The net carrying value of the equity component of the Notes was as follows (in thousands):

	As of December 31,	
	2021	2020
Proceeds allocated to the conversion option (debt discount)	$ 63,270	$ 63,270
Less: Issuance costs	(2,057)	(2,057)
Net carrying amount	$ 61,213	$ 61,213

The interest expense recognized related to the Notes was as follows (in thousands):

	As of December 31,	
	2021	2020
Contractual interest expense	$ 5,750	$ 4,073
Amortization of debt issuance costs and discount	11,948	7,725
Total	$ 17,698	$ 11,798

Based on the closing price of our common stock of $39.62 on December 31, 2021, the if-converted value of the Notes was $67.8 million more than their respective principal amount.

Capped Calls

On April 8, 2020, concurrently with the pricing of the Notes, we entered into privately negotiated capped call transactions (Base Capped Calls) with certain option counterparties. In addition, in connection with the initial purchasers' exercise in full of their option to purchase additional Notes, on April 9, 2020, we entered into additional capped call transactions (together with the Base Capped Calls, the Capped Calls) with each of the option counterparties. We used approximately $21.7 million of the net proceeds from the Note Offering to pay the cost of the Capped Calls and allocated issuance costs. The Capped Calls have initial cap prices of $42.00 per share, subject to certain adjustments. The Capped Calls are expected generally to reduce the potential dilution to our common stock upon any conversion of Notes and/or offset any cash payments we are required to make in excess of the principal amount of converted Notes, as the case may be, with such reduction and/or offset subject to the cap price.

The Capped Calls are separate transactions that we entered into with the option counterparties, and are not part of the terms of the Notes. As the Capped Call transactions are considered indexed to our own stock and are considered equity classified, they were recorded in stockholders' equity and are not accounted for as derivatives. The cost incurred in connection with the Capped Calls was recorded as a reduction to additional paid-in capital on our consolidated balance sheets.

OrbiMed debt financing transaction

On February 6, 2019, we entered into a debt financing agreement with OrbiMed Royalty Opportunities II, LP (OrbiMed) where we obtained an $80.0 million senior term loan commitment, with $50.0 million available and up to an additional $30.0 million contingently available on or prior to March 31, 2020 (the Delayed Draw Commitment). We paid $2.4 million in fees related to the establishment of the OrbiMed term loan and incurred $0.3 million in debt issuance costs. The Delayed Draw Commitment was contingent upon our achievement of minimum levels of technology revenues ranging from technology revenues for the latest 12 months of at least $60.0 million to borrow up to $10.0 million, to a minimum of $80.0 million in technology revenues to borrow between $25.0 million and $30.0 million.

The contractual interest rate of the OrbiMed term loan was the higher of LIBOR plus 7.5% and 10.0%. Interest payments were required at the end of each month. The maturity date of the OrbiMed term loan was February 6, 2024. Upon the payment of all or any portion of the principal amount on the OrbiMed term loan, we were required to pay an exit fee of 5% of the principal amount paid. This exit fee was being accreted as interest expense over the contractual term of the loan. As we elected to prepay the principal balance prior to the 48-month anniversary of the closing date we were required to pay a repayment premium of 9% of the principal balance prepaid. Amounts borrowed under the OrbiMed term loan were secured by a first priority security interest in substantially all of our assets other than intellectual property. The agreement also included a financial covenant requiring the achievement of minimum trailing-twelve-month revenue amounts as well as certain other financial and non-financial covenants. We were in compliance with these covenants under the terms of the OrbiMed term loan as of April 14, 2020.

Extinguishment of OrbiMed term loan

On April 14, 2020, we used $57.0 million of proceeds from the Note Offering to prepay in full all outstanding indebtedness, including prepayment penalties, under the Credit Agreement and terminated the Credit Agreement. We recorded a loss on debt extinguishment of $8.5 million during the second quarter of 2020, including $1.5 million unamortized debt discounts and issuance costs related to the OrbiMed term loan and $7.0 million of repayment fees.

11. Redeemable Convertible Preferred Stock

During the year ended December 31, 2019, we authorized 1,077,587 shares of Series F redeemable convertible preferred stock and issued 437,787 shares of Series F redeemable convertible preferred stock for total cash consideration of $12.1 million, net of offering costs of $0.1 million. Upon the closing of our IPO in July 2019, the 23,151,481 shares of redeemable convertible preferred stock, then outstanding, were converted on a one-for-one basis into 23,151,481 shares of common stock.

Prior to the IPO, our shares of redeemable convertible preferred stock were redeemable at the option of the holder at an amount equal to the greater of the original issuance price or the redemption value. Accordingly, we recognized changes in the redemption value as they occurred and adjusted the carrying amount of the applicable class of redeemable convertible preferred stock as a deemed dividend (or a reversal of accretion to reflect a reduction in fair value of the redemption value) from additional paid-in-capital or an adjustment of the accumulated deficit to equal the redemption value at the end of each reporting period. This method viewed the end of the reporting period as if it were also the redemption date for the applicable class of redeemable convertible preferred stock.

Upon the closing of our IPO, the shares of redeemable convertible preferred stock were accreted to the IPO price of $26.00 per share, or $602.7 million. As the shares of redeemable convertible preferred stock were converted into shares of common stock, and are no longer redeemable at the option of the holder, we reclassified the carrying value of the shares of redeemable convertible preferred stock to stockholders' equity (deficit) as part of the closing of our IPO.

12. Stockholders' Equity

Amendment and restatement of certificate of incorporation

In connection with our IPO, the certificate of incorporation of Health Catalyst was amended and restated to, among other things, provide for the (i) authorization of 500,000,000 shares of common stock with a par value of $0.001 per share; (ii) authorization of 25,000,000 shares of undesignated preferred stock that may be issued from time to time; and (iii) establishment of a classified board of directors, divided into three classes, each of whose members will serve for staggered three-year terms.

Preferred stock

Our board of directors has the authority, without further action by our stockholders, to issue up to 25,000,000 shares of preferred stock in one or more series and to fix the rights, preferences, and privileges thereof, including voting rights. As of December 31, 2021 and 2020, no shares of this preferred stock were issued and outstanding.

Common stock

We had 500,000,000 shares of $0.001 par value common stock authorized, of which 52,690,019 and 43,709,237 shares were legally issued and outstanding as of December 31, 2021 and 2020, respectively. The shares legally issued and outstanding as of December 31, 2021 and 2020, included 67,939 and 332,389 shares, respectively, issued pursuant to acquisition agreements, which are subject to a restriction agreement and were unvested, as such, for accounting purposes they were not considered to be outstanding common stock shares. Each share of common stock has the right to one vote on all matters submitted to a vote of stockholders. The holders of common stock are also entitled to receive dividends whenever funds are legally available and when declared by the board of directors, subject to prior rights of holders of all classes of stock outstanding having priority rights as to dividends. No dividends have been declared or paid on our common stock through December 31, 2021.

Secondary Public Equity Offering

In August 2021, we completed an underwritten public offering of 4,882,075 shares (inclusive of the underwriters' over-allotment option to purchase 636,792 shares) of our common stock at $53.00 per share. We received net proceeds of $245.2 million, after deducting the underwriting discounts and commissions and other offering costs.

Initial public offering

On July 29, 2019, we closed our initial public offering of common stock (IPO) in which we issued and sold 8,050,000 shares (inclusive of the underwriters' over-allotment option to purchase 1,050,000 shares) of common stock at $26.00 per share. We received net proceeds of $194.6 million after deducting underwriting discounts and commissions and before deducting offering costs of $4.6 million. Upon the closing of our IPO, all shares of our outstanding redeemable convertible preferred stock converted into 23,151,481 shares of common stock on a one-for-one basis.

Stock Split

On July 10, 2019, we effected a 1-for-2 reverse stock split of our capital stock. We have adjusted all references to share and per share amounts in the accompanying consolidated financial statements and notes to reflect the reverse stock split.

Common stock warrants

In October 2017, we issued warrants in connection with the Mezzanine Loan and Security Agreement with SVB for up to 255,336 shares of common stock with a ten-year term at an exercise price of $10.66 per share. The fair value of the warrants on the date of grant was $1.6 million and recorded as deferred financing costs. The deferred financing costs were reclassified to a discount on debt in proportion to the advances made on the credit facility. The deferred financing costs and the debt discount were scheduled to be recognized as interest expense over the term of the credit facility.

In October 2018, all remaining contingencies were resolved and the remaining common stock warrant liability balance was marked to market and recorded in stockholders' equity (deficit). In February 2019, the term loan from the Mezzanine Loan and Security Agreement with SVB were fully paid off, resulting in the $1.0 million unamortized portion of the debt discount related to the warrants being included in the current year loss on debt extinguishment. Soon after the effective date of our IPO, all 255,336 outstanding warrants were exercised through a cashless exercise, resulting in the issuance of 189,959 shares of common stock.

13. Net Loss Per Share

The following table presents the calculation of basic and diluted net loss per share attributable to common stockholders (in thousands, except share and per share amounts):

	Year Ended December 31,		
	2021	2020	2019
Numerator:			
Net loss attributable to common stockholders	$ (153,210)	$ (115,017)	$ (240,922)
Denominator:			
Weighted-average number of shares used in calculating net loss per share attributable to common stockholders, basic and diluted	47,494,768	39,540,726	18,741,119
Net loss per share attributable to common stockholders, basic and diluted	$ (3.23)	$ (2.91)	$ (12.86)

During the years ended December 31, 2021, 2020 and 2019, we incurred net losses and, therefore, the effect of our stock options, restricted stock units, performance-based restricted stock units, convertible senior notes, shares issuable as acquisition-related contingent consideration, and restricted shares, were not included in the calculation of diluted net loss per share attributable to common stockholders as the effect would be anti-dilutive. The following table contains share totals with a potentially dilutive impact:

	As of December 31,		
	2021	2020	2019
Common stock options	2,115,484	3,892,936	7,847,716
Restricted stock units	2,273,354	1,839,998	503,861
Performance-based restricted stock units	319,442	—	—
Shares related to convertible senior notes	2,469,624	1,281,217	—
Shares issuable as acquisition-related contingent consideration	87,415	363,867	—
Restricted shares	67,939	332,389	—
Total potentially dilutive securities	7,333,258	7,710,407	8,351,577

The conversion spread of the Notes will have a potentially dilutive impact when the average market price of our common stock for a given period exceeds the conversion price of $30.60 per share. The shares related to the Notes in the table above are calculated based on the average market price of our common stock for the three months ended December 31, 2021 and 2020, respectively. Capped Calls with initial cap prices of $42.00 per share are excluded from the calculation of diluted earnings per share, as they would be antidilutive.

The shares issuable as acquisition-related contingent consideration in the table above are calculated based on the earn-out achieved and the estimated amount of shares that would be issuable if the contingent consideration liabilities from the acquisitions of Healthfinch and Twistle were to be settled as of December 31, 2021.

14. Stock-Based Compensation

In 2011, our board of directors adopted the Health Catalyst, Inc. 2011 Stock Incentive Plan (2011 Plan), which provided for the direct award, sale of shares and granting of RSUs and options for our common stock to our directors, team members, or consultants. In connection with our IPO, our board of directors adopted the 2019 Stock Option and Incentive Plan (2019 Plan). The 2019 Plan provides flexibility to our compensation committee to use various equity-based incentive awards as compensation tools to motivate our workforce, including the grant of incentive and non-statutory stock options, restricted and unrestricted stock, RSUs, and stock appreciation rights to our directors, team members, or consultants.

We initially reserved 2,756,607 shares of our common stock (2,500,000 under the 2019 Plan and 256,607 shares under the 2011 Plan that were available immediately prior to the IPO registration date). The 2019 Plan provides that the number of shares reserved available for issuance under the plan will automatically increase each January 1, beginning on January 1, 2020, by 5% of the outstanding number of shares of our common stock on the immediately preceding December 31, or such lesser number of shares as determined by our compensation committee. As of January 1, 2021, there were an additional 2,185,461 shares reserved for issuance under the 2019 Plan.

As of December 31, 2021, 2020, and 2019, there were 15,294,920, 13,109,459, and 11,272,878 shares authorized for grant, respectively, and 2,969,638, 2,481,818, and 2,309,370 shares available for grant, respectively, under the 2019 Plan and 2011 Plan (collectively the 'Stock Incentive Plan').

The following two tables summarize our total stock-based compensation expense by award type and where the stock-based compensation expense was recorded in our consolidated statements of operations (in thousands):

	Year Ended December 31,		
	2021	2020	2019
Options	$ 5,276	$ 7,793	$ 14,837
Restricted stock units (RSUs)	40,345	21,469	2,034
Performance-based restricted stock units (PRSUs)	10,944	—	—
Employee stock purchase plan	1,511	1,856	973
Restricted shares	7,069	6,839	—
Total stock-based compensation	$ 65,145	$ 37,957	$ 17,844

	Year Ended December 31,		
	2021	2020	2019
Cost of revenue	$ 10,110	$ 4,256	$ 1,168
Sales and marketing	22,698	13,093	3,811
Research and development	10,213	8,069	4,841
General and administrative	22,124	12,539	8,024
Total stock-based compensation	$ 65,145	$ 37,957	$ 17,844

For the years ended December 31, 2021, 2020, and 2019 we capitalized $0.6 million, $0.2 million, and $0.0 million respectively, of stock-based compensation as internal-use software. We did not capitalize any stock-based compensation expense to deferred costs for the years ended December 31, 2021, 2020, and 2019. The 2019 stock-based compensation includes a $6.0 million cumulative catch-up of compensation expense related to the two-tier employee stock-based awards that was recorded upon satisfaction of the performance condition on the closing date of our IPO.

Stock options

All options were granted with an exercise price determined by the board of directors that was equal to the estimated fair value of our common stock at the date of grant, based on the information known on the date of grant. Subject to certain exceptions defined in the Stock Incentive Plan related to an employee's termination, options generally expire on the tenth anniversary of the applicable grant date.

We have issued two types of employee stock-based awards, standard and two-tier. Our standard stock-based awards vest solely on a service-based condition. For these awards, we recognize stock-based compensation based on the grant date fair value of the awards and recognize that cost using the straight-line method over the requisite service period of the award. Two-tier employee stock-based awards contained both a service-based condition and performance condition, defined as the earlier of (i) an acquisition or change in control of the company or (ii) upon the occurrence of our initial public offering. A change in control event and effective registration event was not deemed probable until consummated; accordingly, no expense was recorded related to two-tier stock-based awards until the performance condition became probable of occurring. Awards that contained both service-based and performance conditions were recognized using the accelerated attribution method once the performance condition was probable of occurring. The service-based condition is generally a service period of four years. Upon closing our IPO in 2019, we recorded cumulative share-based compensation expense of approximately $6.0 million using the accumulated attribution method for two-tier employee stock-based awards for which the service condition had been satisfied at that date.

The fair value of options, which vest in accordance with service schedules, was estimated on the date of grant using the Black-Scholes option pricing model. The absence of an active market for our common stock required us to estimate the fair value of our common stock for purposes of granting stock options and for determining stock-based compensation expense for the periods presented. We obtained contemporaneous third-party valuations to assist in determining the estimated fair value of our common stock. These contemporaneous third-party valuations used the methodologies, approaches, and assumptions consistent with the American Institute of Certified Public Accountants Practice Guide, *Valuation of Privately-Held-Company Equity Securities Issued as Compensation*. Expected volatilities were based on historical volatilities of comparable companies. The expected term of the options was based on the simplified method outlined in the SEC Staff accounting guidance, under which we estimated the term as the average of the option's contractual term and the option's weighted average vesting period. The risk-free rate represented the yield on U.S. Treasury bonds with maturity equal to the expected term of the granted option. We account for forfeitures as they occur. All standard stock options outstanding at December 31, 2021 and 2020 are expected to vest according to their specific schedules.

There were no stock options granted during the years ended December 31, 2021 and 2020. The fair value of our option granted during the year ended December 31, 2019 was estimated at the grant date using the Black-Scholes option-pricing model based on the following weighted-average assumptions:

	Year Ended December 31,
	2019
Expected volatility	43.8%-44.5%
Expected term (in years)	6.3
Risk-free interest rate	2.4%-2.5%
Expected dividends	—

A summary of the share option activity under the Health Catalyst Stock Plan for the year ended December 31, 2021, is as follows:

	Time-Based Option Shares	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life in Years	Aggregate Intrinsic Value
Outstanding at December 31, 2020	3,892,936	$ 11.58	7.0	$ 123,304,540
Options exercised	(1,738,027)	11.72		
Options cancelled/forfeited	(39,425)	11.87		
Outstanding at December 31, 2021	2,115,484	$ 11.45	5.9	$ 59,591,457
Vested and expected to vest as of December 31, 2021	2,115,484	$ 11.45	5.9	$ 59,591,457
Vested and exercisable as of December 31, 2021	1,301,262	$ 10.55	5.4	$ 37,833,348

There were no stock options granted during the years ended December 31, 2021 and 2020. The weighted-average grant-date fair value for stock options granted during the year ended December 31, 2019 was $9.31. The aggregate intrinsic value of stock options exercised was $67.0 million, $83.2 million, and $6.5 million for the years ended December 31, 2021, 2020, and 2019, respectively. The total grant-date fair value of stock options vested during the years ended December 31, 2021, 2020, and 2019 was $6.8 million, $9.9 million, and $8.1 million, respectively. As of December 31, 2021, approximately $2.7 million of unrecognized compensation expense related to our stock options is expected to be recognized over a remaining weighted-average period of 0.8 years.

Restricted stock units (RSUs)

The service-based condition for restricted stock units (RSUs) is generally satisfied over four years with a cliff vesting period of one year and quarterly vesting thereafter. The following table sets forth the outstanding RSUs and related activity for the year ended December 31, 2021:

	Restricted Stock Units	Weighted Average Grant Date Fair Value
Unvested and outstanding at January 1, 2021	1,839,998	$ 34.17
RSUs granted	1,641,695	50.83
RSUs vested	(983,774)	38.77
RSUs forfeited	(224,565)	37.94
Unvested and outstanding at December 31, 2021	2,273,354	$ 43.84

As of December 31, 2021, we had $92.3 million of unrecognized stock-based compensation expense related to outstanding RSUs expected to be recognized over a weighted-average period of 2.7 years.

Performance-based restricted stock units (PRSUs)

During the year ended December 31, 2021, we granted PRSUs to all employees that included both service conditions and performance conditions related to company-wide goals. These PRSUs will vest to the extent the applicable performance conditions are achieved for the year ended December 31, 2021, and if the individual employee continues to provide services through the vesting date of March 1, 2022. The number of PRSUs that will ultimately vest from the 2021 PRSU grants can range from 0% to 100% of the original amount granted depending on our performance during 2021 against the pre-established targets.

We also granted additional executive PRSUs based on the same performance conditions described above, but with an extended four-year service condition whereby one quarter of such shares will vest on March 1, 2022, and the remainder in quarterly installments thereafter.

The following table sets forth the outstanding PRSUs, including executive PRSUs, and related activity for the year ended December 31, 2021:

	Performance-based Restricted Stock Units	Weighted Average Grant Date Fair Value
Unvested and outstanding at January 1, 2021	—	$ —
PRSUs granted	350,636	50.24
PRSUs forfeited	(30,700)	49.86
Unvested and outstanding at December 31, 2021	319,442	$ 50.28

As of December 31, 2021, we had $2.6 million of unrecognized stock-based compensation expense related to outstanding PRSUs expected to be recognized over a remaining weighted-average period of 0.4 years.

Employee stock purchase plan

In connection with our IPO in July 2019, our board of directors adopted the ESPP and a total of 750,000 shares of common stock were initially reserved for issuance under the ESPP. The number of shares of common stock available for issuance under the ESPP will be increased on the first day of each calendar year beginning January 1, 2020 and each year thereafter until the ESPP terminates. The number of shares of common stock reserved and available for issuance under the ESPP shall be cumulatively increased by the least of (i) 750,000 shares, (ii) one percent of the number of shares of common stock issued and outstanding on the immediately preceding December 31, and (iii) such lesser number of shares of common stock as determined by the ESPP Administrator.

The ESPP generally provides for six-month offering periods, the exception being the first offering period. The offering periods generally start on the first trading day after June 30 and December 31 of each year. The first offering period began on the IPO date and ended on December 31, 2019.

The ESPP permits participants to elect to purchase shares of common stock through fixed percentage contributions from eligible compensation during each offering period, not to exceed 15% of the eligible compensation a participant receives during an offering period or accrue at a rate which exceeds $25,000 of the fair value of the stock (determined on the option grant dates(s)) for each calendar year. A participant may purchase the lowest of (a) a number of shares of common stock determined by dividing such participant's accumulated payroll deductions on the exercise date by the option price, (b) 2,500 shares; or (c) such other lesser maximum number of shares as shall have been established by the Administrator in advance of the offering period.

Amounts deducted and accumulated by the participant will be used to purchase shares of common stock at the end of each offering period. The purchase price of the shares will be 85% of the lower of the fair value of common stock on the first trading day of each offering period or on the purchase date, except for the first offering period, for which the purchase price will be 85% of the lower of (i) the IPO price or (ii) the fair value of common stock on the purchase date. Participants may end their participation at any time during an offering period and will be paid their accumulated contributions that have not been used to purchase shares of common stock. Participation ends automatically upon termination of employment.

The fair value of the purchase right for the ESPP option component is estimated on the date of grant using the Black-Scholes model with the following assumptions for the years ended December 31, 2021 and 2020:

	Year Ended December 31,		
	2021	2020	2019
Expected volatility	33.8%-40.4%	54.9%-79.8%	44.2%
Expected term (in years)	0.5	0.5	0.4
Risk-free interest rate	0.1%	0.2%-1.6%	2.1%
Expected dividends	—	—	—

During the year ended December 31, 2021, we issued 136,679 shares under the ESPP, with a weighted-average purchase price per share of $35.39. Total cash proceeds withheld from employees for the purchase of shares under the ESPP in 2021 were $4.8 million. As of December 31, 2021, 1,108,974 shares are reserved for future issuance under the ESPP.

Restricted shares

As part of the Able Health acquisition that closed on February 21, 2020, 179,392 shares of our common stock were issued pursuant to the terms of the acquisition agreement and are a stock-based compensation arrangement subject to a restriction agreement. The vesting of those shares was subject to one year of continuous service by the applicable team members and vested fully during the year ended December 31, 2021.

As part of the Vitalware acquisition that closed on September 1, 2020, 203,997 shares of our common stock were issued pursuant to the terms of the acquisition agreement and were considered a stock-based compensation arrangement subject to a restriction agreement. 75% of these restricted shares vested on a monthly basis over a term of approximately one year and the remaining 25% vested on the one year anniversary of the acquisition closing date. As of December 31, 2021, all of these restricted shares were vested.

As part of the Twistle acquisition that closed on July 1, 2021, 67,939 shares of our common stock were issued pursuant to the terms of the acquisition agreement and are considered a stock-based compensation arrangement subject to a restriction agreement. The vesting of those shares are subject to one year of continuous service and shall be released on the eighteen-month anniversary of the acquisition closing date.

As of December 31, 2021, we had $1.9 million of unrecognized stock-based compensation expense related to outstanding restricted shares expected to be recognized over a weighted-average period of 0.5 years.

15. Income Taxes

For the years ended December 31, 2021, 2020, and 2019, the income tax provision (benefit) consisted of the following (in thousands):

	Year Ended December 31,		
	2021	2020	2019
rrent taxes:			
ederal	$ —	(11)	11
oreign	27	(2)	10
tate	209	92	81
tal current tax provision	236	79	102
ferred taxes:			
ederal	(5,975)	(1,044)	33
tate	(1,159)	(229)	7
tal deferred provision (benefit)	(7,134)	(1,273)	40
tal income tax provision (benefit)	$ (6,898)	(1,194)	142

A reconciliation of the statutory U.S. federal income tax rate to our effective income tax rate is as follows:

	Year Ended December 31,		
	2021	2020	2019
x at U.S. statutory rates	21.0%	21.0%	21.0%
te income tax, net of federal tax effect	0.6	0.1	(0.1)
deral research and development credits	2.4	3.4	17.2
ck-based compensation	6.1	8.4	(1.5)
ntingent consideration	(2.7)	0.9	—
ange in valuation allowance	(22.9)	(32.5)	(36.6)
her, net	(0.2)	(0.3)	(0.2)
fective income tax rate	4.9%	1.0%	(0.2)%

The income tax benefit of $6.9 million and $1.2 million recorded for the years ended December 31, 2021 and 2020, respectively, is primarily related to the discrete deferred tax benefits attributable to the release of a portion of the domestic valuation allowance during the respective periods. The releases of valuation allowance are attributable to the acquisition of Twistle and Able Health, which resulted in deferred tax liabilities that, upon acquisition, allowed us to reduce our domestic valuation allowance against deferred tax assets of $7.1 million and $1.3 million, respectively.

The tax effects of temporary differences that give rise to significant portions of the deferred tax assets and liabilities were as follows as of December 31, 2021 and 2020 (in thousands):

	As of December 31,	
	2021	2020
Deferred income tax assets:		
Net operating loss carryforwards	$ 147,674	$ 106,320
Research and development credits	27,391	22,311
Operating lease liabilities	6,044	6,788
Interest limitation carryforward	5,780	4,746
Stock-based compensation	5,430	3,344
Deferred revenue	1,153	1,505
Property and equipment	750	423
Intangible assets	571	665
Accrued expenses	416	308
Allowance for bad debt	404	305
Other	70	60
Contingent consideration	—	4,882
Deferred payroll	—	1,108
Total deferred income tax assets	195,683	152,765
Valuation allowance	(175,545)	(130,080)
Net deferred income tax assets	20,138	22,685
Deferred income tax liabilities:		
Convertible debt	(11,093)	(13,864)
Operating lease right-of-use assets	(5,358)	(6,289)
Prepaid expenses	(2,570)	(1,928)
Deferred commissions	(1,102)	(478)
Indefinite-lived intangible assets	(58)	(49)
Deferred contract costs	(15)	(126)
Total deferred income tax liabilities	(20,196)	(22,734)
Net deferred income tax liabilities	$ (58)	$ (49)

We account for deferred taxes under ASC 740, *Income Taxes*, which requires a reduction of the carrying amounts of deferred tax assets by a valuation allowance if, based on available evidence, it is more likely than not that such assets will not be realized. Accordingly, the need to establish valuation allowances for deferred tax assets is assessed periodically based on the ASC 740 more-likely-than-not realization threshold criterion. This assessment considers matters such as future reversals of existing taxable temporary differences, projected future taxable income, tax-planning strategies, legislative developments, and results of recent operations. The evaluation of the recoverability of the deferred tax assets requires that we weigh all positive and negative evidence to reach a conclusion that it is more likely than not that all or some portion of the deferred tax assets will not be realized. The weight given to the evidence is commensurate with the extent to which it can be objectively verified.

We have provided a valuation allowance for our net deferred tax assets, absent differences related to intangible assets with indefinite lives, at December 31, 2021 and 2020, due to the uncertainty surrounding the future realization of such assets and the cumulative losses we have generated. Therefore, no benefit has been recognized in the financial statements for the net operating loss carryforwards and other deferred tax assets, apart from an immaterial deferred tax liability as noted previously. The net deferred income tax liability balance is recorded under Other Liabilities on the consolidated balance sheets. During the years ended December 31, 2021 and 2020, respectively, the valuation allowance increased by $45.5 million and $31.7 million, respectively.

As of December 31, 2021, we had approximately $580.0 million of consolidated federal net operating loss carryforwards and $465.7 million of apportioned state net operating loss carryforwards available to offset future taxable income, respectively. If unused, the federal and state net operating loss carryforwards will begin to expire in 2032 and 2023, respectively.

We have federal research and development credit carryforwards of $25.6 million and state research and development credit carryforwards of $11.0 million, which if not utilized will begin to expire in 2032 and 2025, respectively. To the extent we do not utilize our carryforwards within the applicable statutory carryforward periods, either because of ownership changes and limitations under Code Sections 382 and 383 and similar state laws or the lack of sufficient taxable income, the carryforwards will expire unused.

Utilization of net operating loss carryforwards and credits may be subject to a substantial annual limitation due to the ownership change limitations provided by the Internal Revenue Code of 1986, as amended (the "IRC"), and similar state provisions. The Company most recently performed a detailed analysis in December 2021 to determine whether an ownership change under Section 382 of the IRC had occurred or will occur. Due to pre-acquisition changes in ownership identified as part of the most recent Section 382 analysis, net operating loss carryforwards of $2.0 million will be permanently lost pursuant to Section 382, as well as federal research and development tax credit carryforwards $0.6 million will be permanently lost pursuant to Section 383. It is possible that additional limitations may arise in future years due to future changes in the ownership of the Company.

We file federal and state income tax returns in jurisdictions with varying statutes of limitations. With few exceptions, we are no longer subject to federal or state income tax examinations by tax authorities for tax years prior to 2018 and 2017, respectively.

We recognize tax benefits from uncertain tax positions when it is more likely than not, based on the technical merits, that the position will be sustained upon examination. The following table summarizes the activity related to unrecognized tax benefits for the years ended December 31, 2021, 2020, and 2019 (in thousands):

	Year Ended December 31,		
	2021	2020	2019
Beginning balance	$ 5,578	$ 1,816	$ 2,372
Increase (decrease) in unrecognized tax benefits taken in prior years	(122)	2,228	(957)
Increase in unrecognized tax benefits related to the current year	1,392	1,534	401
Ending balance	$ 6,848	$ 5,578	$ 1,816

The total amount of unrecognized tax benefits that, if recognized, would affect the effective tax rate is zero due to the valuation allowance. We do not anticipate material changes in the total amount of our unrecognized tax benefits within 12 months of the reporting date. Our policy is to accrue interest and penalties related to unrecognized tax benefits within the provision for income taxes. However, as of December 31, 2021 and 2020, we have not accrued interest and penalties because we have net operating loss carryforwards.

16. Contingencies

Litigation

Liabilities for loss contingencies arising from claims, assessments, litigation, fines, penalties, and other sources are recorded when it is probable that a liability has been incurred and the amount can be reasonably estimated. Legal costs incurred in connection with loss contingencies are expensed as incurred.

We are involved in legal proceedings from time to time that arise in the normal course of business. As of December 31, 2021, there were no significant outstanding claims against us.

17. Deferred Revenue and Performance Obligations

Deferred revenue includes advance customer payments and billings in excess of revenue recognized. For the year ended December 31, 2021, approximately 18% of the revenue recognized was included in deferred revenue at the beginning of the period.

Transaction price allocated to the remaining performance obligations

Most of our technology and professional services contracts have up to a three-year term, of which the vast majority are terminable after one year upon 90 days' notice. For arrangements that do not allow the customer to cancel within one year or less, we expect to recognize $77.0 million of revenue on unsatisfied performance obligations as of December 31, 2021. We expect to recognize approximately 80% of the remaining performance obligations over the next 24 months, with the balance recognized thereafter.

18. Related Parties

In the past, we entered into arrangements with a customer, Mass General Brigham (formerly Partners Healthcare), where, at that time, a member of the customer's management was a member of our board of directors. This former director served on our board from January 2018 to May 2021. He resigned from his executive position with our customer on March 31, 2021. As such, we no longer consider this customer to be a related party subsequent to March 31, 2021.

We recognized $0.9 million of revenue from this customer prior to the related party relationship ending during the year ended December 31, 2021. For the years ended December 31, 2020, and 2019, we recognized $2.6 million, and $3.0 million, respectively, in revenue from this former related party. As of December 31, 2020, we had receivables of $0.6 million and deferred revenue of $0.7 million with this former related party. We didn't have any receivables or deferred revenue from related parties as of December 31, 2021.

As of December 31, 2019, we also had acquisition-related consideration payable to this former related party for a prior year asset acquisition. This asset acquisition occurred prior to this entity becoming a related party. The acquisition-related consideration payable to this related party was $1.2 million as of December 31, 2019, which was paid in full during the year ended December 31, 2020.

In the past we entered into revenue arrangements with customers that were also our investors. None of these customers held a significant amount of ownership in our equity interests at the time.

19. Employee Benefit Plans

We have a 401(k) defined contribution plan covering eligible employees. Our contributions were $3.8 million, $3.2 million, and $5.3 million for the years ended December 31, 2021, 2020, and 2019, respectively. As of December 31, 2021 and 2020, we matched 100% of the first 3% of an employees' 401(k) plan contributions.

20. Segments

We operate our business in two operating segments that also represent our reportable segments. Our business is organized based on our technology offerings and professional services. Accordingly, our segments are:

- Technology - Our technology segment (Technology) includes our data platform, analytics applications and support services. Technology generates revenues primarily from contracts that are cloud-based subscription arrangements, time-based license arrangements, and maintenance and support fees; and

- Professional Services - Our professional services segment (Professional Services) is generally the combination of analytics, implementation, strategic advisory, outsource, and improvement services to deliver expertise to our customers to more fully configure and utilize the benefits of our Technology offerings.

Revenues and cost of revenues generally are directly attributed to our segments. All segment revenues are from our external customers. Asset and other balance sheet information at the segment level is not reported to our Chief Operating Decision Maker.

Segment revenue and Adjusted Gross Profit for the years ended December 31, 2021, 2020, and 2019 were as follows (in thousands):

	Year Ended December 31,		
	2021	2020	2019
Revenue:			
Technology	$ 147,718	$ 110,467	$ 83,975
Professional Services	94,208	78,378	70,966
Total revenue	$ 241,926	$ 188,845	$ 154,941

	Year Ended December 31,		
	2021	2020	2019
Adjusted Gross Profit:			
Technology	$ 102,326	$ 75,666	$ 56,378
Professional Services	25,544	19,358	24,494
Total reportable segments Adjusted Gross Profit	127,870	95,024	80,872
Less Adjusted Gross Profit reconciling items:			
Stock-based compensation	(10,110)	(4,256)	(1,168)
Acquisition-related costs, net[(1)]	(188)	—	(108)
Less other reconciling items:			
Sales and marketing	(75,027)	(55,411)	(47,284)
Research and development	(62,733)	(53,517)	(46,252)
General and administrative	(85,934)	(59,240)	(31,713)
Depreciation and amortization	(37,528)	(18,725)	(9,212)
Debt extinguishment costs	—	(8,514)	(1,670)
Interest and other expense, net	(16,458)	(11,572)	(3,419)
Net loss before income taxes	$ (160,108)	$ (116,211)	$ (59,954)

(1) Acquisition-related costs, net include deferred retention expenses and post-acquisition restructuring costs following the Twistle and Medicity acquisitions.

21. Subsequent Events

KPI Ninja, Inc. acquisition

On February 24, 2022, we acquired KPI Ninja, Inc. (KPI Ninja), a leading provider of interoperability, enterprise analytics, and value-based care solutions based in Lincoln, Nebraska. KPI Ninja is known for its powerful capabilities, flexible configurations, and comprehensive applications designed to fulfill the promise of data-driven health care.

We acquired all of the equity interests in KPI Ninja for preliminary gross consideration of approximately $33.0 million, consisting of $19.5 million in cash and 463,016 shares of our common stock issued on the closing date based on a reference price of $29.14 per share. The purchase price is subject to certain post-closing purchase price adjustments, including working capital adjustments, which are expected to be finalized during the first half of 2022.

Given the recent timing of the closing of this business combination, we are in the process of identifying and measuring the value of the assets acquired and liabilities assumed. We plan to disclose the preliminary purchase price allocation estimates and other related information in our Form 10-Q for the quarterly period ending March 31, 2022.

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

Our management, with the participation of our principal executive officer and principal financial officer, has evaluated the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (the Exchange Act)), as of the end of the period covered by this Annual Report on Form 10-K. Based on such evaluation, our principal executive officer and principal financial officer have concluded that as of such date, our disclosure controls and procedures were effective at a reasonable assurance level.

Management's report on internal control over financial reporting

Our management is responsible for establishing and maintaining adequate internal controls over financial reporting. Our management, including the CEO and CFO, conducted an evaluation of the effectiveness of our internal control over financial reporting, as defined in Rule 13a-15(f) of the Securities Exchange Act of 1934, as amended. Our internal control over financial reporting is designed 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. Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies may deteriorate.

Management conducted an evaluation of the effectiveness of our internal control over financial reporting as of December 31, 2021 using the criteria issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in Internal Control—Integrated Framework (2013). Based on the results of this evaluation, our management concluded that our internal control over financial reporting was effective as of December 31, 2021.

The effectiveness of our internal control over financial reporting as of December 31, 2021 has been audited by Ernst & Young LLP, an independent registered public accounting firm, as stated in their report which is provided in Part II, Item 8 of this Annual Report on Form 10-K.

Changes in internal control over financial reporting

There was no change in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) that occurred during the period covered by the three months ended December 31, 2021 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Inherent limitations on effectiveness of disclosure controls and procedures

Our management, including our principal executive officer and principal financial officer, do not expect that our disclosure controls and procedures or our internal control over financial reporting will prevent all errors and all fraud. 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 the benefits of controls must be considered 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, 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 is also 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. Due to 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. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections

Not Applicable.

PART III

Item 10. Directors, Executive Officers, and Corporate Governance

The information required by this item is incorporated by reference to our proxy statement relating to our 2022 Annual Meeting of Stockholders. The proxy statement will be filed with the Securities and Exchange Commission within 120 days of the year ended December 31, 2021.

Our board of directors has adopted a Code of Business Conduct and Ethics, or the Code of Conduct, that applies to all officers, directors, and employees, which is available on our website at ir.healthcatalyst.com under "Corporate Governance." The nominating and corporate governance committee of our board of directors is responsible for overseeing the Code of Conduct and must approve any waivers of the Code of Conduct for employees, executive officers, and directors. We expect that any amendments to the Code of Conduct, or any waivers of its requirements, will be disclosed on our website, as required by applicable law or the Nasdaq listing standards.

Item 11. Executive Compensation

The information required by this item is incorporated by reference to our proxy statement relating to our 2022 Annual Meeting of Stockholders. The proxy statement will be filed with the Securities and Exchange Commission within 120 days of the year ended December 31, 2021.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

The information required by this item is incorporated by reference to our proxy statement relating to our 2022 Annual Meeting of Stockholders. The proxy statement will be filed with the Securities and Exchange Commission within 120 days of the year ended December 31, 2021.

Item 13. Certain Relationships and Related Transactions, and Director Independence

The information required by this item is incorporated by reference to our proxy statement relating to our 2022 Annual Meeting of Stockholders. The proxy statement will be filed with the Securities and Exchange Commission within 120 days of the year ended December 31, 2021.

Item 14. Principal Accountant Fees and Services

The information required by this item is incorporated by reference to our proxy statement relating to our 2022 Annual Meeting of Stockholders. The proxy statement will be filed with the Securities and Exchange Commission within 120 days of the year ended December 31, 2021.

PART IV

Item 15. Exhibits and Financial Statement Schedules

The following documents are filed as a part of this Annual Report on Form 10-K:

(a) Financial statements

The information concerning our financial statements, including the Report of Independent Registered Public Accounting Firm required by this item is incorporated by reference herein to the section of this Annual Report on Form 10-K in Item 8, entitled “Consolidated Financial Statements and Supplementary Data.”

(b) Financial statement schedules

All schedules have been omitted because the required information is not present or not present in amounts sufficient to require submission of the schedules, or because the information required is included in the section of this Annual Report on Form 10-K Item 8, entitled “Consolidated Financial Statements and Supplementary Data.”

(c) Exhibits

See the Exhibit Index immediately preceding the signature page of this Annual Report on Form 10-K.

Item 16. Form 10-K Summary

None.

EXHIBIT INDEX

Exhibit Number	Description of Document	Incorporated by Reference from Form	Incorporated by Reference from Exhibit Number	Date Filed
3.1	Amended and Restated Certificate of Incorporation.	S-1/A	3.2	July 12, 2019
3.2	Amended and Restated Bylaws.	S-1/A	3.4	July 12, 2019
3.3	Amendment to the Amended and Restated Bylaws	8-K	3.1	August 2, 2021
4.1	Form of common stock certificate.	S-1/A	4.1	July 12, 2019
4.2	Fifth Amended and Restated Registration Agreement, dated February 6, 2019, by and among the Registrant and certain of its stockholders.	S-1	4.2	June 27, 2019
4.3	Fifth Amended and Restated Investor Rights Agreement, dated February 6, 2019, by and among the Registrant and certain of its stockholders.	S-1	4.3	June 27, 2019
4.4	Fifth Amended and Restated Stockholders Agreement, dated February 6, 2019, by and among the Registrant and certain of its stockholders.	S-1	4.4	June 27, 2019
4.5	Amendment No. 1 to Financing Documents, dated July 10, 2019, by and among the Registrant and certain of its stockholders.	S-1/A	4.5	July 12, 2019
4.6	Description of securities registered under Section 12 of the Exchange Act.	10-K	4.6	February 28, 2020
10.1#	Non-Employee Director Compensation Policy.	10-Q	10.1	August 23, 2019
10.2#	2019 Stock Option and Incentive Plan, and forms of agreements thereunder.	S-1/A	10.12	July 12, 2019
10.3#	Amended and Restated 2011 Stock Incentive Plan, and forms of agreements thereunder.	S-1	10.13	June 27, 2019
10.4#	2019 Employee Stock Purchase Plan.	S-1/A	10.14	July 12, 2019
10.5#	Executive Severance Plan.	S-1/A	10.16	July 12, 2019
10.6#	Offer Letter, dated January 13, 2012, between the Registrant and Bryan Hinton.	Filed herewith		
10.7#	Offer Letter, dated September 26, 2011, between the Registrant and Daniel Burton.	S-1	10.6	June 27, 2019
10.8#	Offer Letter, dated March 27, 2014, between the Registrant and Bryan Hunt.	10-K	10.10	February 25, 2021
10.9#	Offer Letter, dated May 20, 2013, between the Registrant and J. Patrick Nelli.	S-1	10.8	June 27, 2019
10.10#	Offer Letter, dated September 26, 2011, between the Registrant and Paul Horstmeier.	S-1	10.9	June 27, 2019
10.11#	Offer Letter, dated May 22, 2013, between the Registrant and Linda Llewelyn.	S-1	10.10	June 27, 2019
10.12#	Offer Letter, dated December 3, 2015, between the Registrant and Daniel Orenstein.	S-1	10.11	June 27, 2019
10.13#	Offer Letter, dated April 4, 2013, between the Registrant and Jason Alger.	10-K	10.15	February 25, 2021
10.14#	Senior Executive Cash Incentive Bonus Plan.	S-1	10.15	June 27, 2019
10.15#	Form of Indemnification Agreement, between the Registrant and each of its executive officers and directors.	S-1	10.18	June 27, 2019

21.1	Subsidiaries of Registrant.	Filed herewith
23.1	Consent of Independent Registered Public Accounting Firm.	Filed herewith
24.1	Power of Attorney (included on signature page to this Annual Report on Form 10-K).	Filed herewith
31.1	Certification of Chief Executive Officer pursuant to Exchange Act Rules 13a-14(a) and 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.	Filed herewith
31.2	Certification of Chief Financial Officer pursuant to Exchange Act Rules 13a-14(a) and 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.	Filed herewith
32.1^	Certifications of the Chief Executive Officer and Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.	Furnished herewith
101.SCH	Inline XBRL Taxonomy Extension Schema Document	Filed herewith
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document	Filed herewith
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document	Filed herewith
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document	Filed herewith
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document	Filed herewith
104	Cover Page Interactive Data File (formatted as inline XBRL with applicable taxonomy extension information contained in Exhibits 101)	Filed herewith

# Indicates management contract or compensatory plan.

^ The certifications attached as Exhibit 32.1 accompanying this Annual Report on Form 10-K, are deemed furnished and not filed with the Securities and Exchange Commission and are not to be incorporated by reference into any filing of Health Catalyst, 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 of this Annual Report on Form 10-K, irrespective of any general incorporation language contained in such filing.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

HEALTH CATALYST, INC.

Date: 3/1/2022

By: /s/ Bryan Hunt

Bryan Hunt

Chief Financial Officer
(Principal Financial Officer)

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints each of Daniel Burton, Bryan Hunt, Jason Alger, and Daniel Orenstein, with full power of substitution and resubstitution, as his or her true and lawful attorney-in-fact and agent to act in his or her name, place and stead and to execute in the name and on behalf of each person, individually and in each capacity stated below, and to file, any and all documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorney-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing, ratifying and confirming all that said attorney-in-fact and agents or any of them or their and his or her substitute or 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 Report 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/ Daniel Burton	Chief Executive Officer and Director	3/1/2022
Daniel Burton	*(Principal Executive Officer)*	
/s/ Bryan Hunt	Chief Financial Officer	3/1/2022
Bryan Hunt	*(Principal Financial Officer)*	
/s/ Jason Alger	Chief Accounting Officer	3/1/2022
Jason Alger	*(Principal Accounting Officer)*	
/s/ John A. Kane	Director	
John A. Kane		3/1/2022
/s/ Fraser Bullock	Director	
Fraser Bullock		3/1/2022
/s/ Duncan Gallagher	Director	
Duncan Gallagher		3/1/2022
/s/ Julie Larson-Green	Director	
Julie Larson-Green		3/1/2022
/s/ Anita V. Pramoda	Director	
Anita V. Pramoda		3/1/2022
/s/ S. Dawn Smith	Director	
S. Dawn Smith		3/1/2022
/s/ Mark Templeton	Director	
Mark Templeton		3/1/2022

Exhibit 10.6

Friday, January 13, 2012

Dear Bryan Hinton,

This letter represents an offer of full-time employment, subject to the terms and conditions set forth in this offer. This letter does not represent a contract or agreement for employment and employment with HQC is at will.

Position: Sr. Software Architect
Base salary: $135,000.00 Annualized
Start date: On or before January 30, 2012

Division/Department: Research and Development
FLSA status: Exempt, Full-time
Location: Salt Lake City, UT

Business hours: 8:30 AM - 5:30 PM, Monday through Friday. Work hours may vary based upon the need of the position.

In addition to the base salary, you will:

1. Receive a $5,000.00 signing bonus payable with your first eligible pay period.
2. Be eligible to receive a bonus equal up to 10% of your annual base salary subject to the individual, department, and company performance initiatives. Such bonus will be prorated based upon the number of days you are employed by the company during that fiscal year. The bonus for any fiscal year will be paid after the Company's books for that year have been closed. The bonus will only be paid if you are employed by the Company at the time of bonus determination.
3. Receive a Stock Option Grant for a certain number of shares of the Parent Company's Common Stock. The amount of your option grant is set within the sole discretion of the Board of Directors, at the next applicable board meeting. This option is subject to the terms and conditions applicable to options granted under the Parent's 2011 Stock Incentive Plan as described in the Plan and the applicable Stock Option Agreement. You will be vested in 25% of the option share after 12 months of continuous service, and the balance will vest in equal monthly installments over the next 36 months of continuous service, as described in the applicable Stock Option Agreement.
4. Receive a one-time grant of 40 PTO hours effective on your official start date.

Full-time employment with Healthcare Quality Catalyst also includes:

Insurance Plans: Eligibility begins on the first day of the month following 30-days of employment.

- Medical and Dental Insurance: HQC pays 100% of the monthly insurance premium for the employee and 50% of the adjusted premium for dependents and spouse.
- Vision Insurance: The Vision Plan is an employee elective plan. The insurance premium is the responsibility of the employee. Premiums may be deducted as a pre-tax deduction on a per-pay period basis.
- Life, Accidently Death and Dismemberment, and Disability Insurance: These insurance programs are paid 100% by HQC.
- Flexible Spending Account: FSA allow you to contribute pre-tax dollars which can be used to pay for qualifying medical, dental, and vision care expenses not otherwise covered under normal health-related insurance plans.

Paid Time Off:

- Holiday Pay: Ten days of time off with pay according to the annual holiday schedule, including two personal holidays.
- Paid Time Off: PTO eligibility begins on your date of hire and may be used as soon as it is earned. PTO is accrued and awarded according to the following schedule:

Accrual Period	Hours	Hours Per Pay Period	Days Per Year
0 - 4 years of service	120	4.62	15
5 – 9 years of service	160	6.15	20
10+ years- Maximum accrual	208	8.0	26

Retirement Plan: HQC is in the process of implementing a Safe Harbor 401K Retirement Plan. You will be advised of the plan provision once implementation occurs. It is anticipated that the 401K Retirement Plan will be implanted in the first quarter of 2012.

All benefits are subject to change. Additional details about each benefit are available in the Employee Handbook or by speaking directly with the Human Resource office.

Pay checks are issued on a bi-weekly basis with a total of 26 pay periods per calendar year. You are encouraged to participate in our direct deposit program as our payroll is outsourced.

With acceptance of this employment offer, you will be asked to sign [both an Employee Agreement] and an Employee Invention and Confidentiality Agreement and agree to the on-going compliance with such agreements as a condition of employment. These agreements contain "employment at will", "non-compete" and "non-disclosure" provisions. Copies of these agreements are available for your review upon request in advance of accepting employment. Otherwise, copies of these agreements will be provided to you prior to your start date.

At Will Employment

Employment with HQC is "at-will." This means that it is not for any specified period of time and can be terminated by you or by HQC at any time, with or without advance notice or additional payment, and for any or no particular reason or cause. It also means that your job duties, title and responsibility and reporting level, compensation and benefits, as well as HQC's personnel policies and procedures, may be changed at any time, with or without notice, in the sole and absolute discretion of HQC.

The "at-will" nature of your employment shall remain unchanged during your tenure as an employee and may not be changed, except in an express writing signed by you and by a duly authorized officer of HQC.

In addition, we are required by law to obtain documentation within the first three days of employment that you are eligible to work in the United States. Please bring copies of your eligibility documentation on your first day of employment. Enclosed is a copy of INS Form l-9, which contains a list of acceptable documentation.

If you accept this offer, this letter and the written agreements referenced in this letter shall constitute the complete agreement between you and HQC with respect to the initial terms and conditions of your employment. Any representations not contained in this letter (written or oral), that may have been made to you are expressly cancelled and superseded by this offer. Except as otherwise specified in this letter, the terms and conditions of your employment pursuant to this letter may not be changed, except by a writing signed by a duly authorized officer of HQC

HC reserves the right to provide you with additional policies in addition to any existing written policies that would apply to the terms of your employment.

Should your position, compensation, or benefits change over time the remaining sections of this agreement will still be valid. If any provision in this offer or compliance by you or HQC with any provision of this offer constitutes a violation of any law, or is or becomes unenforceable or void, it will be deemed modified to the extent necessary so that it is no longer in violation of law, unenforceable or void, and such provision will be enforced to the fullest extent permitted by law. If such modification is not possible, said provision, to the extent that it is in violation of law, unenforceable or void, will be deemed severable from the remaining provisions of this offer, which provisions and terms win remain in effect.

This offer is valid until Monday, January 16, 2012 and requires a written response by 9:00 AM on this date. You should keep a copy of this letter for your own records. If you have any questions regarding this offer, please contact our Human Resource office at 801-708-6809 at your earliest convenience.

We look forward to you joining the Health Catalyst team.

Sincerely,

Sherm Conger
Director of Human Resources
SHERM.CONGER@HQCATALYST.COM

Acknowledgement of Understanding and Acceptance
By signing below:

1. I acknowledge that I have read and understand the foregoing terms and conditions of this employment offer.
2. I accept this employment offer.

Accepted by: /s/ Bryan Hinton Date: 2/6/2012

List of Subsidiaries of Health Catalyst, Inc.

Medicity LLC (Delaware, United States)

Health Catalyst UK Ltd (England and Wales)

Health Catalyst Singapore Pte. Ltd. (Singapore)

Health Catalyst Middle East FZ-LLC (incorporated within a Free Zone in the UAE)

Able Health, LLC (Delaware, United States)

Healthfinch, LLC (Delaware, United States)

Vitalware, LLC (Delaware, United States)

Twistle, LLC (Delaware, United States)

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-8 No. 333-232795) pertaining to the Amended and Restated 2011 Stock Incentive Plan, the 2019 Stock Option and Incentive Plan and the 2019 Employee Stock Purchase Plan of Health Catalyst, Inc.,

2. Registration Statement (Form S-8 No. 333-236731) pertaining to the 2019 Stock Option and Incentive Plan and the 2019 Employee Stock Purchase Plan of Health Catalyst, Inc.,

3. Registration Statement (Form S-8 No. 333-253542) pertaining to the 2019 Stock Option and Incentive Plan and the 2019 Employee Stock Purchase Plan of Health Catalyst, Inc.,

4. Registration Statement (Form S-3 No. 333-258625) of Health Catalyst, Inc.;

of our reports dated March 1, 2022, with respect to the consolidated financial statements of Health Catalyst, Inc. and the effectiveness of internal control over financial reporting of Health Catalyst, Inc. included in this Annual Report (Form 10-K) of Health Catalyst, Inc. for the year ended December 31, 2021.

/s/ Ernst & Young LLP

Salt Lake City, UT
March 1, 2022

Exhibit 31.1

CERTIFICATION PURSUANT TO RULE 13a-14(a) OR 15d-14(a) OF THE SECURITIES EXCHANGE ACT OF 1934, AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Daniel Burton, certify that:

1. I have reviewed this Annual Report on Form 10-K of Health Catalyst, 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)) 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) 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

(c) 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: March 1, 2022

/s/ Daniel Burton

Daniel Burton
Chief Executive Officer
(Principal Executive Officer)

Exhibit 31.2

CERTIFICATION PURSUANT TO RULE 13a-14(a) OR 15d-14(a) OF THE SECURITIES EXCHANGE ACT OF 1934, AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Bryan Hunt, certify that:

1. I have reviewed this Annual Report on Form 10-K of Health Catalyst, 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)) 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) 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

(c) 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: March 1, 2022

/s/ Bryan Hunt

Bryan Hunt
Chief Financial Officer
(Principal Financial Officer)

Exhibit 32.1

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the filing of the Annual Report on Form 10-K for the fiscal year ended December 31, 2021, as filed with the Securities and Exchange Commission on the date hereof (the "Report") by Health Catalyst, Inc. (the "Company"), Daniel Burton, as the Chief Executive Officer of the Company, and Bryan Hunt, as the Chief Financial Officer of the Company, each hereby certifies pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to the best of his knowledge:

1 The Report fully complies with the requirements of Section 13(a) or Section 15(d) of the Exchange Act; and

2 The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: March 1, 2022

/s/ Daniel Burton
Daniel Burton
Chief Executive Officer
(Principal Executive Officer)

/s/ Bryan Hunt
Bryan Hunt
Chief Financial Officer
(Principal Financial Officer)