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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, 2019

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)**

3165 Millrock Drive #400
Salt Lake City, UT 84121
(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 is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒

As of June 30, 2019, the last business day of the registrant's most recently completed second fiscal quarter, the registrant's common stock was not listed on a domestic exchange or over-the-counter market. The registrant's common stock began trading on the Nasdaq Global Select Market on July 25, 2019.

As of February 24, 2020, the Registrant had 37,256,504 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 2020 Annual Meeting of Stockholders.

HEALTH CATALYST, INC.
Annual Report on Form 10-K
For the Year Ended December 31, 2019

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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 heading "Item 1A—Risk Factors." We caution investors that our business and financial performance are subject to substantial risks and uncertainties.

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

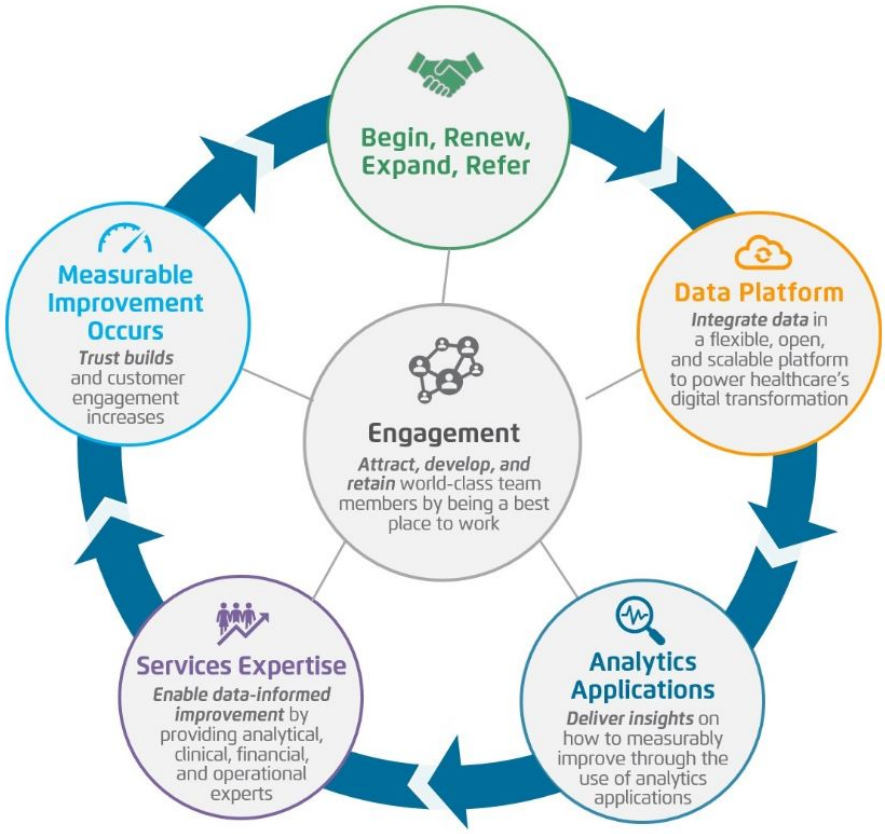
Our **mission** is to be the *catalyst* for massive, measurable, data-informed healthcare improvement. We fulfill our mission through a confluence of the following elements:

- ***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 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 virtuous 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 (not a quick trip)

- 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.*** DOS is a healthcare-specific, cloud-based, open, flexible, and scalable data platform that provides customers a single comprehensive environment to integrate and organize data from their disparate software systems. It 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. 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 foundational and domain-specific software analytics applications over the last few years based on thoughtful measurement of the most critical analytics needs faced by our customers. The majority of our foundational and domain-specific software applications became generally available for deployment in 2018, with more to be released in the coming years. 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 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 Black Book. Our customers achieve sustainable measurable improvements through our Solution.

Since 2015, we have generated approximately 1,200 documented, customer-verified improvements across clinical, financial, and operational domains. In addition to the positive ROI of customers utilizing our Solution versus 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 documented 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. For the year ended December 31, 2019, customers who contracted with us in 2017 and 2018 experienced approximately 6 improvements on average, customers who contracted with us in 2015 and 2016 experienced approximately 11 improvements on average, and customers who contracted with us prior to 2015 experienced approximately 25 improvements on average.

We serve the majority of our customers through a subscription-based contract model. As of December 31, 2019, we served 130 customers, including 65 customers with a DOS subscription contract. The majority of our customers not on a DOS subscription contract are interoperability subscription customers resulting from our 2018 acquisition of Medicity. 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, Partners HealthCare, UnityPoint Health, and UPMC.

We currently employ more than 900 team members including over 250 analytics experts and over 70 domain experts. For the years ended December 31, 2019, 2018, and 2017, our total revenue was $154.9 million, $112.6 million, and $73.1 million, respectively. For the years ended December 31, 2019, 2018, and 2017, we incurred net losses of $60.1 million, $62.0 million, and $47.0 million, respectively. For the years ended December 31, 2019, 2018, and 2017, our Adjusted EBITDA was $(27.4) million, $(38.1) million, and $(35.4) million, respectively. See “Selected Consolidated Financial and Other Data - Reconciliation of Non-GAAP Financial Measures” for more information about Adjusted EBITDA, including the limitations of such measure and a reconciliation to the most directly comparable measure calculated in accordance with GAAP.

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 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. Since 2015, our Solution has generated approximately 1,200 documented, customer-verified improvements across clinical, financial, and operational domains. Over this period, total improvements have grown at a 110% CAGR while the number of annual improvements per customer has increased meaningfully as customers renew and expand the use of our Solution.

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 Black Book. 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 and Northwestern University. 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, and Southeast Asia.

- ***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 109%, 107%, and 108% for the years ended December 31, 2019, 2018, and 2017, respectively. This is also evidenced by a continued increase in documented improvements achieved by our customers over time. Recent customers have already started achieving measurable improvements, while customers who began working with us in 2017 and 2018 on average experienced approximately 6 improvements over the 12 months ended December 31, 2019, customers who began working with us in 2015 and 2016 on average experienced approximately 11 improvements over the 12 months ended December 31, 2019, and customers who began working with us before 2015 on average experienced approximately 25 improvements over the 12 months ended December 31, 2019. We will continue to invest in helping customers identify additional uses for our Solution, ensuring they achieve measurable improvements throughout our relationship with them.

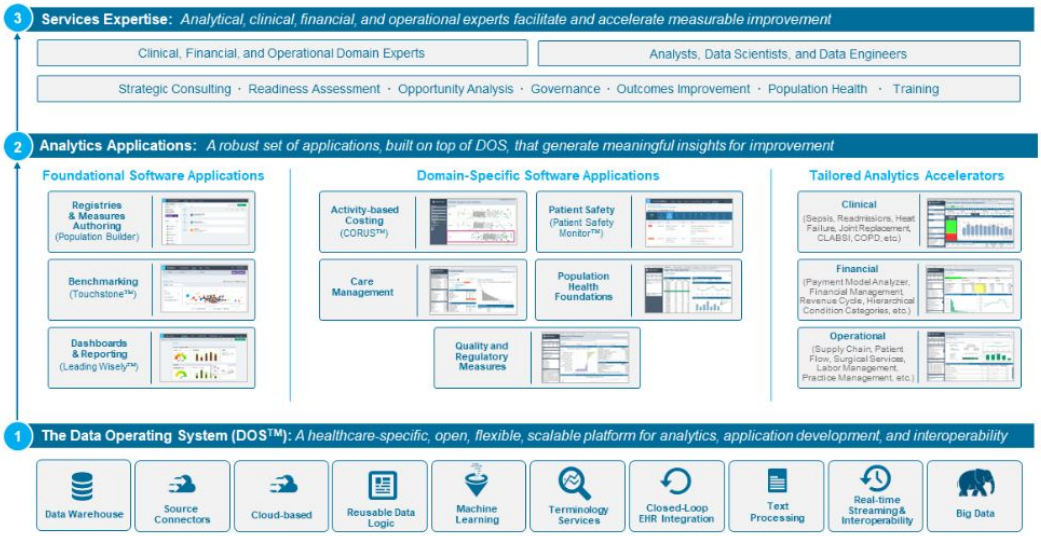
- ***Add new analytics applications and services offerings.*** The expansion of our Solution and enhancement of our applications library will accelerate as we deepen our customer relationships and add to our dataset. Because our platform is open and we partner with our customers, we are able to identify 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 eight new software applications over the past few years, 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 recent expansion into the life sciences market. Other business segment adjacencies include serving the employer space and additional types of providers and risk-bearing entities. 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.

- ***Selectively pursue acquisitions and partnerships.*** We plan to continue identifying and evaluating 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, and Able Health. 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, and scalable 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 Platform - the Data Operating System (DOS)

DOS is a healthcare-specific, open, flexible, and scalable data platform that allows customers to integrate and organize their disparate data sources to enable analytics. It serves as a digital backbone, allowing customers to easily 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 and through our private data center. In order to enable more advanced feature development and functionality, we are in the process of migrating our customers hosted in our private data center, and a few remaining on-premise customers, to Microsoft Azure.

DOS was uniquely designed and purpose-built to handle the complex, ever-evolving nature of healthcare-specific data. This includes healthcare-specific terminology, data governance, and meta-data management. 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 EHR.

Differentiating attributes of our DOS include:

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

- *Source connectors.* Our platform is designed to quickly ingest data from the numerous information 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. 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 easily 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.

- *Closed-loop EHR integration.* Bridges the gap between insight and action by reducing data lag, interjecting knowledge at the point of decision-making, including back into the workflow of source systems, such as an EHR.

- *Text processing.* Enables the extraction of additional data currently trapped in various unstructured text blocks. 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.

Analytics Applications

We have thoughtfully developed 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 two categories: foundational software applications and domain-specific software applications. In addition, we have created a suite of analytics accelerators, which provide customers with a starting point to leverage for tailored insights.

Foundational Software Applications

- *Registry and Measures Authoring (Population Builder).* Enables non-SQL writers like clinicians and administrators to dynamically author, manage, view, and publish pre-built and custom population ruleset definitions using an elegant 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.

- *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.

- *Dashboards and Reporting (Leading Wisely).* Enables users to quickly and easily 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.

Domain-Specific Software Applications

- *Activity-Based Costing (CORUS).* 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.

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

- *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.

- *Population Health Foundations.* Product suite designed to help health systems manage risk-based contracts and bundled payment models and allow providers to tailor patient care based upon population metrics and benchmarks.

- *Quality and Regulatory Measures.* 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. The acquisition of Able Health will further strengthen our existing Quality and Regulatory Measures capabilities.

Analytics Accelerators

- To further enhance our analytics applications we have also developed a library of tailored analytics accelerators. Analytics accelerators are pre-built data models and customizable visualizations that leverage the broad set of integrated data stored within our DOS platform for a specific analytic use-case. Customers who utilize our analytics accelerators achieve a much faster time-to-value compared to building an analytic model from the ground up. Our customers frequently rely on our analytics expertise to customize our analytics accelerators, as well as our domain expertise in order to successfully leverage our analytics accelerators to drive data-informed improvement. The breadth of our analytics accelerators facilitates analytic insights across clinical, financial, and operational use-cases. Our suite of more than 30 analytics accelerators provides highly-specific clinical, financial, and operational insights. Examples of these accelerators include:

    - *Clinical:* Sepsis, Readmissions, Heart Failure, Joint Replacement, CLABSI, and COPD;

    - *Financial:* Payment Model Analyzer, Financial Management, Revenue Cycle, and Hierarchical Condition Categories; and

    - *Operational:* Supply Chain, Patient Flow, Surgical Services, Labor Management, and Practice Management.

Services 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 team is comprised of over 250 analytics experts and over 70 domain experts, including several nationally-recognized healthcare and analytics leaders.

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

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.

- *Analytic Engineer 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.

Clinical, Financial, and Operational services 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.

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, data and analytics have transitioned from a discussion with members of the IT department to an enterprise-wide, strategic discussion with the C-suite and other leadership members. Certain customers have participated as investors in our prior sales of redeemable convertible preferred stock, including Partners Healthcare and UPMC.

One customer represented 12% of our total revenue for the year ended December 31, 2017. No other customer represented more than 10% of our total revenue for the years ended December 31, 2019, 2018, and 2017.

Team Members and Culture

We currently employ more than 900 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 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 virtuous cycle that further reinforces our culture and fuels our growth.

Our team member satisfaction 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. Moreover, we have received numerous awards and recognition for our culture and service to our customers. In total, we have been recognized over 50 times as a “best place to work” by Glassdoor, Gallup, Inc., and Modern Healthcare, among others. Additionally, we have received multiple awards for customer satisfaction and excellence from KLAS, Chilmark Research, and Black Book. 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 Canada, the United Kingdom, and Southeast Asia. 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.

Research and development expenses were $46.3 million, $38.6 million, and $28.5 million for our years ended December 31, 2019, 2018, and 2017, respectively.

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, 2019, we had nine 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 five 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, and Qlik. EHR companies include Cerner Systems and Epic Systems. Point solution companies include Optum Analytics, Premier, Strata Decision Technology, 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 Information

Privacy and Security Laws and Regulations. HIPAA contains substantial restrictions and requirements with respect to the use and disclosure of individuals' PHI. These are embodied in the implementing regulations' privacy standards (Privacy Rule) and security standards (Security Rule). The Privacy and Security Rules apply directly to covered entities, including certain healthcare providers who engage in HIPAA-defined standard electronic transactions, health plans and healthcare clearinghouses, and business associates who perform certain services involving PHI on their behalf. The HIPAA Privacy Rule prohibits a covered entity or business associate from using or disclosing an individual's PHI unless the use or disclosure is authorized by the individual or is specifically required or permitted under the Privacy Rule. The Privacy Rule imposes a complex set of requirements on covered entities and business associates to comply with these standards. The Security Rule requires covered entities and business associates to establish administrative, physical and technical safeguards to protect the confidentiality, integrity, and availability of electronic PHI maintained or transmitted by them or by others on their behalf. In addition, HIPAA regulations in some cases require covered entities and business associates to provide notice in the event of an unauthorized disclosure of PHI.

Since we provide services that require us to use and disclose protected health information on behalf of our covered entity customers, we are also a business associate. The Privacy Rule requires us to enter into business associate agreements with our customers. Such agreements must, among other things, provide adequate written assurances:

- as to how we will use and disclose PHI;
- that we will enter into similar agreements with our agents and subcontractors that have access to the information;

- that we will report security incidents and other inappropriate uses or disclosures of PHI; and

- that we will assist the covered entity with certain of its duties under the Privacy Rule.

In addition, we are also required to maintain business associate agreements (BAAs), which contain similar provisions, with our subcontractors that access or otherwise process PHI on our behalf.

State Laws. In addition to the HIPAA Privacy and Security Rules, 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.

Consumer Protection Laws. 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

A number of federal and state laws, generally referred to as fraud, waste, and abuse laws, are used to prosecute healthcare providers, physicians and others that make, offer, seek, or receive referrals or payments for products or services that may be paid for through any federal or state healthcare program and in some instances any private program. Given the breadth of these laws and regulations, they are potentially applicable to our business and to the financial arrangements through which we market, sell and provide our services. These laws and regulations include:

Anti-Kickback and Anti-Self Referral Laws. There are numerous federal and state laws that govern patient referrals, physician financial relationships, and inducements to healthcare providers and patients. The federal Anti-Kickback Statute makes it illegal for any person, including a prescription drug manufacturer (or a party acting on its behalf) 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. 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 (see below) or federal civil money penalties statute. There are several limited statutory exceptions and regulatory exclusions (known as safe harbors) that may protect some arrangements from enforcement penalties. These exceptions and safe harbors have very limited application and must be strictly adhered to in order to obtain protection thereunder. Many states have similar anti-kickback laws, some of which are not limited to items or services for which payment is made by government healthcare programs. In addition, the federal anti-referral law (the Stark Law) is very complex in its application, and prohibits physicians (and certain other healthcare professionals) from making a referral for a designated health service to a provider in which the referring healthcare professional (or spouse or any immediate family member) has a financial or ownership interest, unless an enumerated exception applies. The Stark Law also prohibits the billing for services rendered resulting from an impermissible referral. Many states also have similar anti-referral laws that are not necessarily limited to items or services for which payment is made by a federal healthcare program, and may include patient disclosure requirements.

False Claims Laws. There are numerous federal and state laws that prohibit submission of false information or the failure to disclose information in connection with the submission and payment of physician claims for reimbursement.

- The federal civil and criminal false claims laws and civil monetary penalties laws, such as the federal False Claims Act, 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 may deem entities to have "caused" the submission of false or fraudulent claims by, for example, providing inaccurate billing or coding information to our customers.

- 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.

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. In addition, 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.

Corporate Practice of Medicine Laws

In many states, there are laws that prevent corporations from being licensed as practitioners and that prohibit licensed medical practitioners from practicing medicine in partnership with non-physicians, such as business corporations. 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 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.

In February 2019, ONC and CMS proposed complementary new rules to support access, exchange, and use of EHI. The proposed rules are intended to clarify provisions of the 21st Century Cures Act regarding interoperability and "information blocking," and, if adopted, will create significant new requirements for health care industry participants. The proposed ONC rule, if adopted, would require 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. The ONC rule would also implement provisions of the 21st Century Cures Act requiring that patients be provided with electronic access to all of their EHI (structured and/or unstructured) at no cost. Finally, the proposed ONC rule would also implement the information blocking provisions of the 21st Century Cures Act, and proposes seven "reasonable and necessary activities" that will not be considered information blocking as long as specific conditions are met. The CMS proposed rule focuses on health plans, payors, and health care 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 or when these proposed rules, and others released simultaneously, will be adopted, in whole or in part. If adopted, the rules 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.

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

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 FDCA. However, the FDA exercises enforcement discretion for certain low-risk software, as described in its guidance documents for Mobile Medical Applications, General Wellness: Policy for Low Risk Devices, and Medical Device Data Systems, Medical Image Storage Devices, and Medical Image Communications Devices. In addition, the 21st Century Cures Act includes exemptions for certain medical-related software, including software used for administrative support functions at a healthcare facility, software intended for maintaining or encouraging a healthy lifestyle, EHR software, software for transferring, storing, or displaying medical device data or in vitro diagnostic data, and certain clinical decision support software. The FDA has also issued draft guidance documents to clarify how it intends to interpret and apply the exemptions under the 21st Century Cures Act.

FDA regulations govern, among other things, product development, testing, manufacture, packaging, labeling, storage, clearance or approval, advertising and promotion, sales and distribution, and import and export. FDA requirements with respect to devices that are determined to pose lesser risk to the public include:

- registration and device listing with FDA;
- the Quality System Regulation (QSR), which requires manufacturers, including third-party or contract manufacturers, to follow stringent design, testing, control, documentation, and other quality assurance procedures during all aspects of manufacturing;
- labeling regulations and FDA prohibitions against the advertising and promotion of products for uncleared, unapproved off-label uses and other requirements related to advertising and promotional activities;
- medical device reporting regulations, which require that manufacturers report to the FDA if their device may have caused or contributed to a death or serious injury or malfunctioned in a way that would likely cause or contribute to a death or serious injury if the malfunction were to recur;
- corrections and removal 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; and
- post-market surveillance regulations, which apply when necessary to protect the public health or to provide additional safety and effectiveness data for the device.

Non-compliance with applicable FDA requirements can result in, among other things, public warning letters, fines, injunctions, civil penalties, recall or seizure of products, total or partial suspension of production, failure of the FDA to grant marketing approvals, withdrawal of marketing approvals, a recommendation by the FDA to disallow us from entering into government contracts and criminal prosecutions. The FDA also has the authority to request repair, replacement, or refund of the cost of any device.

Foreign Regulations

Our subsidiaries in the United Kingdom and Singapore are subject to additional regulations by the Government of the United Kingdom, as well as its subdivisions, and the Government of Singapore, 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 EU is governed by various laws concerning privacy, data protection and data security, most notably the GDPR. The GDPR applies to any company established in the EU as well as to those outside the EU if they collect and use personal data in connection with offering goods or services to individuals in the EU 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 EU to other countries, including the United States. 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. We may become subject to similar laws and regulations in other countries outside of the EU 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 3165 Millrock Drive #400, Salt Lake City, Utah 84121, 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.

We are an "emerging growth company," as defined in the Jumpstart Our Business Startups Act of 2012, and, as such, we have elected to comply with certain reduced public company reporting requirements. We will cease to be an "emerging growth company" upon the earliest to occur of: (i) the last day of the fiscal year in which we have more than $1.07 billion in annual revenues; (ii) the date we qualify as a large accelerated filer, with at least $700 million of equity securities held by non-affiliates; (iii) the issuance, in any three-year period, by us of more than $1.0 billion in non-convertible debt securities; and (iv) December 31, 2024.

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

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.

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 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.

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; and
- the business environment of our customers and, in particular, headcount reductions by our customers.

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 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 who engage in information blocking practices that may inhibit our ability to access the relevant data on behalf of customers. A proposed rulemaking issued on March 3, 2019 (the Proposed Rule) pursuant to the 21st Century Cures Act anti-information blocking provisions prohibits practices that are meant to prevent, materially discourage, or otherwise inhibit access, exchange, or use of electronic health information. The Proposed Rule allows for certain exceptions such as allowing vendors to charge a reasonable cost for access to interoperability elements of its technology to enable data access. However, the Proposed Rule may not be finalized for some time, and the final rule may be modified in ways that are less discouraging of information blocking practices than is the Proposed Rule. Further, healthcare organizations and vendors may decide in the interim not to observe the provisions of the 21st Century Cures Act or may adapt interpretations of the 21st Century Cures Act, the Proposed Rule, and/or the final rule that justify the continuation of various information blocking practices. 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). 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. 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. 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.

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.

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 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. 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. 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 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 Flexential, 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 2020. 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 has also 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.

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 customer, from the time of prospect qualification to the completion of the first sale, has averaged 11 months and in some cases has exceeded 24 months. 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 impracticable. 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.

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.

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 2019 comprised 4.6%, 3.6%, and 3.6% of our revenue, or 11.8% in the aggregate. Our three largest customers during 2018 comprised 7.6%, 5.4%, and 4.5% of our revenue, or 17.5% 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 health care 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.

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.

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.

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.

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.

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 $60.1 million and $62.0 million in the years ended December 31, 2019 and 2018, respectively. We had an accumulated deficit of $610.5 million as of December 31, 2019. 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 sale of redeemable convertible preferred stock, revenue from sales of our Solution and the incurrence of indebtedness. 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.

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. This has already occurred with one of the two co-founders of our company, Steven Barlow, who in November 2016 was called to serve from June 2017 to June 2020 in a full-time capacity. At the time of his call, he was serving as the President of our professional services organization and was one of the most senior leaders of our company. In connection with this call to serve, Mr. Barlow took a leave-of-absence from his company responsibilities starting in March 2017, and his leave of absence will likely extend until 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.

The terms of our credit facility require us to meet certain operating and financial covenants and place restrictions on our operating and financial flexibility. If we raise additional capital through debt financing, the terms of any new debt could further restrict our ability to operate our business.

On February 6, 2019, we entered into a term loan facility with OrbiMed Royalty Opportunities II, LP (OrbiMed) in the amount of $80.0 million (the OrbiMed Credit Facility) as further described in detail in Note 10 in the consolidated financial statements. The OrbiMed Credit Facility is secured by a lien covering substantially all of our assets, including our intellectual property. Subject to the terms of the Credit Agreement entered into in connection with the OrbiMed Credit Facility (the OrbiMed Credit Agreement), amounts borrowed under the facility are repaid in twelve monthly installments beginning on the amortization commencement date, as defined in the OrbiMed Credit Agreement, prior to the February 6, 2024 maturity date, at which time all amounts borrowed will be due and payable. In addition, our revolving line of credit with Silicon Valley Bank (SVB) includes certain restrictive covenants (the SVB Credit Agreement).

The OrbiMed Credit Agreement and SVB Credit Agreement contain customary affirmative and negative covenants, indemnification provisions, and events of default. The affirmative covenants include, among others, covenants requiring us to maintain our legal existence and regulatory authorizations, deliver certain financial reports, and maintain certain intellectual property rights. The negative covenants include, among others, restrictions on transferring or licensing our assets, changing our business, incurring additional indebtedness, engaging in mergers or acquisitions, paying dividends or making other distributions, and creating other liens on our assets, in each case subject to customary exceptions. If we default under the OrbiMed Credit Agreement, the lender will be able to declare all obligations immediately due and payable and take control of our pledged assets, potentially requiring us to renegotiate our agreement on terms less favorable to us or to immediately cease operations. 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. The lender could declare a default under the OrbiMed Credit Agreement upon the occurrence of any event that has had or could reasonably be expected to have a material adverse effect as defined under the OrbiMed Credit Agreement, thereby requiring us to repay the loan immediately or to attempt to reverse the declaration of default through negotiation or litigation. Any declaration by the lender of an event of default could significantly harm our business and prospects and could cause the price of our common shares to decline. If we raise any additional debt financing, the terms of such additional debt could further restrict our operating and financial flexibility.

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, in June 2018 we acquired the interoperability services of the Medicity business and in February 2020 we acquired Able Health, Inc., both 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 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 company;

- 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. In February 2019, we entered into the OrbiMed Credit Facility. The OrbiMed Credit Agreement, along with the SVB Credit Agreement, restricts our ability to pursue certain mergers, acquisitions, or consolidations that we may believe to be in our best interest. 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.

We may not be able to generate sufficient cash to service our indebtedness.

It is possible that we will in the future draw down on our credit facilities with OrbiMed or SVB or enter into new debt obligations. Our ability to make scheduled payments or to refinance such debt obligations depends on numerous factors, including the amount of our cash balances and our actual and projected financial and operating performance. We may be unable to maintain a level of cash balances or cash flows sufficient to permit us to pay the principal, premium, if any, and interest on our existing or future indebtedness. If our cash flows and capital resources are insufficient to fund our debt service obligations, we may be forced to reduce or delay capital expenditures, sell assets or operations, seek additional capital, or restructure or refinance our indebtedness.

We may not be able to take any of these actions, and even if we are, these actions may be insufficient to permit us to meet our scheduled debt service obligations. In addition, in the event of our breach of the OrbiMed Credit Agreement, we may be required to repay any outstanding amounts earlier than anticipated. If for any reason we become unable to service our debt obligations under the OrbiMed Credit Agreement, or any new debt obligations that we may enter into from time to time, holders of our common stock would be exposed to the risk that their holdings could be lost in an event of a default under such debt obligations and a foreclosure and sale of our assets for an amount that is less than the outstanding debt.

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, 2019, we had filed applications for a number of patents, and we have nine issued U.S., three issued Canadian patents, one issued Great Britain patent, and one issued European patent. We also have twenty-six registered trademarks in the United States, Canada, 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.

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.

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.

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.

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. However, we are not currently required to comply with the SEC rules that implement Section 404 of the Sarbanes-Oxley Act and are therefore not required to make a formal assessment of the effectiveness of our internal control over financial reporting for that purpose.

As a public company, we are required to provide an annual management report on the effectiveness of our internal control over financial reporting commencing with our second annual report on Form 10-K. 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 in the future we are unable to comply with the requirements of Section 404 of the Sarbanes-Oxley Act in a timely manner, 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.

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

As of December 31, 2019, we had net operating loss (NOL) carryforwards for federal and state income tax purposes of approximately $269.1 million and $215.2 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 (including, potentially, in connection with this offering) 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. 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), (iii) a limitation of the deduction for NOLs to 80% of current year taxable income in respect of NOLs generated during or after 2018 and elimination of net operating loss carrybacks, (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 limits a taxpayer's ability to utilize federal NOL carryforwards 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 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 may have on our results of operations and financial condition.

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.

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.

Risks Related to Governmental Regulation

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

The healthcare industry is highly regulated and is subject to changing political, legislative, regulatory, and other influences. Existing and new laws and regulations affecting the healthcare industry, or changes to existing laws and regulations, including the potential amendment or repeal of all or parts of the Affordable Care Act (ACA), could create unexpected liabilities for us, cause us to incur additional costs, and 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.

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 from healthcare regulation are described below:

- *False Claims Laws*. There are numerous federal and state laws that prohibit submission of false information, or the failure to disclose information, in connection with submission and payment of physician claims for reimbursement. 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. 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. If our advisory services 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 accountable. Any determination by a court or regulatory agency that we 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.

- *Health Data Privacy Laws*. There are numerous federal and state laws related to health information privacy. In particular, the federal Health Insurance Portability and Accountability Act of 1996, as amended by the Health Information Technology for Economic and Clinical Health Act (HITECH) and their implementing regulations, which we collectively refer to as HIPAA, include privacy standards that protect individual privacy by limiting the uses and disclosures of PHI and implementing data security standards that require covered entities to implement administrative, physical, and technological safeguards to ensure the confidentiality, integrity, availability, and security of PHI in electronic form. HIPAA also specifies formats that must be used in certain electronic transactions, such as admission and discharge messages. By processing and maintaining PHI on behalf of our covered entity customers, we are a HIPAA business associate and mandated by HIPAA to enter into written agreements with our covered entity clients – known as BAAs – that require us to safeguard PHI. BAAs typically include:

- a description of our permitted uses of PHI;

- a covenant not to disclose that information except as permitted under the BAA and to require that our subcontractors, if any, are subject to the substantially similar restrictions;

- assurances that reasonable and appropriate administrative, physical, and technical safeguards are in place to prevent misuse of PHI;

- an obligation to report to our customer any use or disclosure of PHI other than as provided for in the BAA;

- a prohibition against our use or disclosure of PHI if a similar use or disclosure by our customer would violate the HIPAA standards;

- the ability of our customers to terminate the underlying support agreement if we breach a material term of the BAA and are unable to cure the breach;

- the requirement to return or destroy all PHI at the end of our services agreement; and

- access by the Department of Health and Human Services (HHS) to our internal practices, books, and records to validate that we are safeguarding PHI.

In addition, we are also required to maintain BAAs, which contain similar provisions, 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. For example, in 2018, the HHS Office for Civil Rights published a Request for Information in the Federal Register seeking comments on a number of areas in which HHS is considering making both minor and significant modifications to the HIPAA privacy and security standards to, among other things, improve care coordination. We are unable to predict what, if any, impact the changes in such standards will have on our compliance costs or our Solution.

Finally, 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.

In addition to the HIPAA privacy and security standards, most states have enacted patient confidentiality laws that protect against the disclosure of confidential medical and other personally identifiable information (PII) and many states have adopted or are considering new privacy laws, including legislation that would mandate new privacy safeguards, security standards, and data security breach notification requirements. Such state laws, if more stringent than HIPAA requirements, are not preempted by the federal requirements, and we are required to comply with them.

Failure by us to comply with any of the federal and state standards regarding patient privacy and/or privacy more generally may subject us to penalties, including significant civil monetary penalties and, in some circumstances, criminal penalties. In addition, such failure may injure our reputation and adversely affect our ability to retain customers and attract new customers.

Even an unsuccessful challenge by regulatory authorities of our activities could result in adverse publicity and could require a costly response from us.

- *Anti-Kickback and Anti-Bribery Laws*. There are federal and state laws that prohibit payment for patient referrals, patient brokering, remuneration of patients, or billing based on referrals between individuals or entities that have various financial, ownership, or other business relationships with healthcare providers. In particular, the federal Anti-Kickback Statute prohibits 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 health care 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. In addition, the federal anti-referral law—the Stark Law—is very complex in its application, and prohibits physicians (and certain other healthcare professionals) from making a referral for a designated health service to a provider in which the referring healthcare professional (or spouse or any immediate family member) has a financial or ownership interest, unless an enumerated exception applies. The Stark Law also prohibits the billing for services rendered resulting from an impermissible referral. Many states also have similar anti-referral laws that are not necessarily limited to items or services for which payment is made by a federal healthcare program and may include patient disclosure requirements. Moreover, both federal and state laws prohibit bribery and similar behavior. Any determination by a state or federal regulatory agency that we or any of our customers, vendors, or partners violate or have violated any of these laws could subject us to significant civil or criminal penalties, 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. Even an unsuccessful challenge by regulatory authorities of our activities could result in adverse publicity and could require a costly response from us.

- *Corporate Practice of Medicine Laws and Fee-Splitting Laws*. Many states have laws prohibiting physicians from practicing medicine in partnership with non-physicians, such as business corporations. In some states, including New York, these take the form of laws or regulations prohibiting splitting of physician fees with non-physicians or others. Any determination by a state court or regulatory agency that our service contracts with our clients violate these laws could subject us to civil or criminal penalties, invalidate all or portions of some of those contracts, require us to change 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.

- *Medical professional regulation*. The practice of most healthcare professions requires licensing under applicable state law. In addition, the laws in some states prohibit business entities from practicing medicine. We employ and contract with physicians who assist our customers with the customers' care coordination, care management, population health management, and patient safety activities. We do not intend to provide medical care, treatment, or advice. However, any determination that we are acting in the capacity of a healthcare provider and acted improperly as 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 business.

- *Medical Device Laws*. 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 "device" under the federal Food, Drug, and Cosmetic Act (FDCA). However, the FDA exercises enforcement discretion for certain low-risk software, as described in its guidance documents for Mobile Medical Applications, General Wellness: Policy for Low Risk Devices, and Medical Device Data Systems, Medical Image Storage Devices, and Medical Image Communications Devices. In addition, in December of 2016, President Obama signed into law the 21st Century Cures Act, which included exemptions for certain medical-related software, including software used for administrative support functions at a healthcare facility, software intended for maintaining or encouraging a healthy lifestyle, EHR software, software for transferring, storing, or displaying medical device data or in vitro diagnostic data, and certain clinical decision support software. The FDA has also issued draft guidance documents to clarify how it intends to interpret and apply the new exemptions under the 21st Century Cures Act. Although we believe that our software products are currently not subject to active FDA regulation, we continue to follow the FDA's developments in this area. There is a risk that the FDA could disagree with our determination or that the FDA could develop new final guidance documents that would subject our Solution to active FDA oversight. If the FDA determines that any of our current or future analytics applications are regulated as medical devices, we would become subject to various requirements under the FDCA and the FDA's implementing regulations. Depending on the functionality and FDA classification of our analytics applications, we may be required to:

    - register and list our analytics applications with the FDA;

    - notify the FDA and demonstrate substantial equivalence to other products on the market before marketing our analytics applications;

    - submit a de novo request to the FDA to down-classify our analytics applications prior to marketing; or

    - obtain FDA approval by demonstrating safety and effectiveness before marketing our analytics applications.

The FDA can impose extensive requirements governing pre- and post-market conditions, such as service investigation and others relating to approval, labeling, and manufacturing. In addition, the FDA can impose extensive requirements governing software development controls and quality assurance processes.

These laws and regulations may change rapidly, and it is frequently unclear how they apply to our business. Any failure of our products or services to comply with these laws and regulations could result in substantial civil or criminal liability and could, among other things, adversely affect demand for our services, force us to expend significant capital, research and development, and other resources to address the failure, invalidate all or portions of some of our contracts with our customers, require us to change or terminate some portions of our business, require us to refund portions of our revenue, cause us to be disqualified from serving customers doing business with government payors, and give our customers the right to terminate our contracts with them, any one of which could have an adverse effect on our business. Additionally, the introduction of new services may require us to comply with additional, yet undetermined, laws and regulations.

The security measures that we and our third-party vendors and subcontractors have in place to ensure compliance with privacy and data protection laws may not protect our facilities and systems from security breaches, acts of vandalism or theft, computer viruses, misplaced or lost data, programming and human errors, or other similar events. Under the HITECH Act, as a business associate, we may also be liable for privacy and security breaches and failures of our subcontractors. Even though we provide for appropriate protections through our agreements with our subcontractors, we still have limited control over their actions and practices. A breach of privacy or security of individually identifiable health information by a subcontractor may result in an enforcement action, including criminal and civil liability, against us. We are not able to predict the extent of the impact such incidents may have on our business.

Our failure to comply may result in criminal and civil liability because the potential for enforcement action against business associates is now greater. Enforcement actions against us could be costly and could interrupt regular operations, which may adversely affect our business. While we have not received any notices of violation of the applicable privacy and data protection laws and believe we are in compliance with such laws, there can be no assurance that we will not receive such notices in the future.

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 deidentified, 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 California Consumer Privacy Act, which went into effect January 1, 2020, and we cannot yet determine the impact such future 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 platform, increase our costs, and impair our ability to maintain and grow our customer base and increase our revenue. New laws, amendments to or re-interpretations of existing laws and regulations, industry standards, contractual obligations, and other obligations may require us to incur additional costs and restrict our business operations. In view of new or modified federal, state, or foreign laws and regulations, industry standards, contractual obligations, and other legal obligations, or any changes in their interpretation, we may find it necessary or desirable to fundamentally change our business activities and practices or to expend significant resources to modify our software or platform and otherwise adapt to these changes.

Any failure or perceived failure by us to comply with 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.

Further, on February 11, 2019, ONC and CMS proposed complementary new rules to support access, exchange, and use of EHI. The proposed rules are intended to clarify provisions of the 21st Century Cures Act regarding interoperability and "information blocking," and, if adopted, will create significant new requirements for health care industry participants. The proposed ONC rule, if adopted, would require 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. The ONC rule would also implement provisions of the 21st Century Cures Act requiring that patients be provided with electronic access to all of their EHI (structured and/or unstructured) at no cost. Finally, the proposed ONC rule would also implement the information blocking provisions of the 21st Century Cures Act, and proposes seven "reasonable and necessary activities" that will not be considered information blocking as long as specific conditions are met.

The CMS proposed rule focuses on health plans, payors, and health care 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 or when these rules, and others released simultaneously, will be adopted, in whole or in part. If adopted, the rules 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.

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.

- *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 California Consumer Privacy Act (CCPA), which went into effect on January 1, 2020. The CCPA has been characterized as the first "GDPR-like" privacy statute to be enacted in the United States because it mirrors a number of the key provisions of the GDPR (discussed below). 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. 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.

- *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.

- *GDPR and Foreign Data Privacy Protection Laws* - In addition, several foreign governments have regulations dealing with the collection and use of personal information obtained from their residents. For example, in the European Union, (EU), the General Data Protection Regulation (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 introduced new data protection requirements in the EU 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. Data protection authorities of the different EU Member States may 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 EU. 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. Similarly, Canada's Personal Information and Protection of 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 healthcare 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.

- *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.

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. Whether and how existing local and international privacy and data protection laws in various jurisdictions apply to the Internet and other online technologies is still uncertain and may take years to resolve. Current and future privacy laws and regulations, if drafted or interpreted broadly, could be deemed to apply to the technology we use and could restrict our information collection methods or decrease the amount and utility of the information that we would be permitted to collect. The costs of compliance with, and the other burdens imposed by, these and other laws or regulatory actions may prevent us from selling our Solution, or increase the costs of doing so, and may affect our ability to invest in or jointly develop our analytics applications. In addition, a determination by a court or government agency that any of our practices, or those of our agents, do not meet these standards could result in civil and/or criminal liability, result in adverse publicity, and adversely affect our business.

The healthcare regulatory and political framework is uncertain and evolving.

Healthcare laws and regulations are rapidly evolving and may change significantly in the future, which could adversely affect our financial condition and results of operations. For example, in March 2010, the Patient Protection and ACA was adopted, which is a healthcare reform measure that provides healthcare insurance for approximately 30 million more Americans. The ACA includes a variety of healthcare reform provisions and requirements that substantially changed the way healthcare is financed by both governmental and private insurers, which may significantly impact our industry and our business. Many of the provisions of the ACA phase in over the course of the next several years, and we may be unable to predict accurately what effect the ACA or other healthcare reform measures that may be adopted in the future, including amendments to the ACA, will have on our business. On December 14, 2018, a U.S. District Court Judge in the Northern District of Texas, ruled that the individual mandate is a critical and inseverable feature of the ACA, and therefore, because it was repealed as part of the Tax Act, the remaining provisions of the ACA are invalid as well. On December 18, 2019, the Fifth Circuit U.S. Court of Appeals held that the individual mandate is unconstitutional, and remanded the case to the lower court to reconsider its earlier invalidation of the full ACA. Pending review, the ACA remains in effect, but it is unclear at this time what effect the latest ruling will have on the status of the ACA.

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 Ownership of Our Common Stock

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 Medicity in June 2018. Our limited operating history, in particular with respect to the Medicity business, 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, 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.

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.

We are an emerging growth company, and any decision on our part to comply only with certain reduced reporting and disclosure requirements applicable to emerging growth companies could make our common stock less attractive to investors.

We are an emerging growth company, and, for as long as we continue to be an emerging growth company, we may choose to take advantage of exemptions from various reporting requirements applicable to other public companies but not to "emerging growth companies," including:

- not being required to have our independent registered public accounting firm attest to our internal control over financial reporting under Section 404 of the Sarbanes Oxley Act;
- reduced disclosure obligations regarding executive compensation in our periodic reports and annual report on Form 10-K; and
- exemptions from the requirements of holding a non-binding advisory vote on executive compensation and stockholder approval of any golden parachute payments not previously approved.

We could be an emerging growth company for up to five years following the completion of this offering. Our status as an emerging growth company will end as soon as any of the following takes place:

- the last day of the fiscal year in which we have more than $1.07 billion in annual revenue;
- the date we qualify as a "large accelerated filer," with at least $700 million of equity securities held by non-affiliates;
- the date on which we have issued, in any three-year period, more than $1.0 billion in non-convertible debt securities; or
- the last day of the fiscal year ending after the fifth anniversary of the completion of this offering.

We cannot predict if investors will find our common stock less attractive if we choose to rely on the exemptions afforded emerging growth companies. If some investors find our common stock less attractive because we rely on any of these exemptions, there may be a less active trading market for our common stock and the market price of our common stock may be more volatile.

Under the JOBS Act, emerging growth companies can also delay adopting new or revised accounting standards until such time as those standards apply to private companies. We have irrevocably elected not to avail ourselves of this accommodation allowing for delayed adoption of new or revised accounting standards, and therefore, we will be subject to the same new or revised accounting standards as other public companies that are not emerging growth companies.

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.

Sales of substantial amounts of our common stock in the public markets, such as when our lock-up restrictions are released, or the perception that sales of common stock might occur, could cause the market price of our common stock to decline.

Sales of a substantial number of shares of our common stock into the public market, particularly sales by our directors, executive officers, and principal stockholders, or the perception that these sales might occur, could cause the market price of our common stock to decline. As of December 31, 2019, we had a total of 36,731,632 legally issued and outstanding shares of common stock. This assumes no exercise of outstanding options or warrants.

In addition, as of December 31, 2019, we had 7,847,716 options outstanding that, if fully exercised, would result in the issuance of shares of common stock. All of the shares of common stock issuable upon the exercise of stock options and the shares reserved for future issuance under our equity incentive plans will be registered for public resale under the Securities Act. Accordingly, these shares will be able to be freely sold in the public market upon issuance, subject to existing lock-up or market standoff agreements, volume limitations under Rule 144 for our executive officers and directors, and applicable vesting requirements.

Our management has broad discretion in the use of proceeds from our IPO 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 cannot specify with certainty our plans for the use of the net proceeds we received from this offering. However, we intend to use the net proceeds we received from our IPO for working capital and other general corporate purposes. Our management has broad discretion over the specific use of the net proceeds we received in our IPO 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 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. 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 acquisition of Able Health, Inc. in February 2020. 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 our debt facilities with OrbiMed and SVB contain, and 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.

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 provide, to the fullest extent permitted by law, that a state or federal court located within 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;
- 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 asserting a claim against us that is governed by the internal affairs doctrine.

This exclusive forum provision will not apply to any causes of action arising under the Securities Act or the Exchange Act or any other claim for which the federal courts have exclusive jurisdiction. Nothing in our amended and restated bylaws precludes stockholders that assert claims under the Securities Act or the Exchange Act from bringing such claims in state or federal court, subject to applicable law. 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.

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.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

Our principal executive offices are located in Salt Lake City, Utah where we occupy facilities totaling approximately 60,358 square feet under a lease that expires on December 31, 2020. 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, Pittsburgh, Pennsylvania, and Cambridge, Massachusetts.

We intend to procure additional space as we add team members and expand geographically. 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, 2019, there were 143 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.

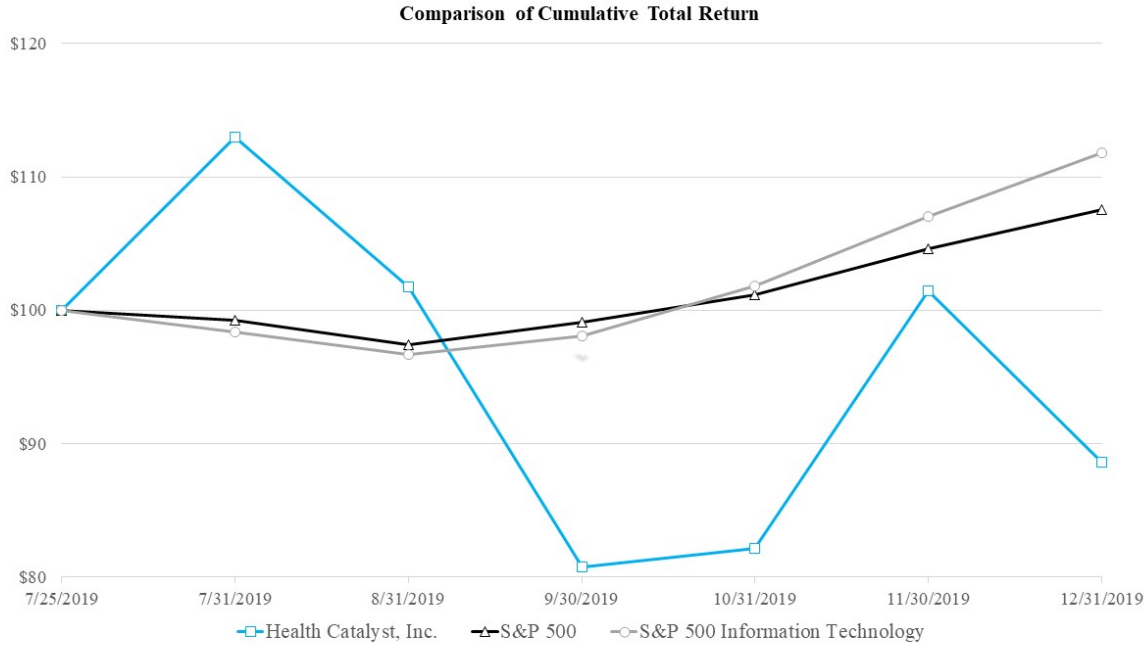
Securities Authorized for Issuance under Equity Compensation Plans

The information required by this item with respect to our equity compensation plans is incorporated by reference in our proxy statement for the 2020 Annual Meeting of Stockholders to be filed with the SEC within 120 days of the year ended December 31, 2019.

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 Standard & Poor's 500 Index (the S&P 500) and the S&P 500 Information Technology Index between July 25, 2019 (the date our common stock commenced trading) through December 31, 2019. 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 and the S&P 500 Information Technology Index 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]	July 31, 2019	Aug. 31, 2019	Sept. 30, 2019	Oct. 31, 2019	Nov. 30, 2019	Dec. 31, 2019
Health Catalyst, Inc.	100	113	102	81	82	101	89
S&P 500	100	99	97	99	101	105	108
S&P 500 Information Technology	100	98	97	98	102	107	112

(1) Base period

Unregistered Sales of Equity Securities and Use of Proceeds

Unregistered Sales of Equity Securities

During the year ended December 31, 2019, 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.

Use of Proceeds

On July 29, 2019, we closed our IPO in which we issued and sold 8,050,000 shares of common stock at a price to the public of $26.00 per share, including shares sold in connection with the exercise of the underwriters' option to purchase additional shares. The offer and sale of the shares in our IPO were registered under the Securities Act pursuant to a registration statement on Form S-1 (File No. 333-232400), which was declared effective by the SEC on July 24, 2019. We raised $194.6 million after deducting underwriting discounts and commissions of $14.7 million and before deducting offering costs of $4.6 million.

There has been no material change in the planned use of proceeds from our initial public offering as described in our final prospectus filed with the SEC on July 25, 2019 pursuant to Rule 424(b)(4) under the Securities Act.

Issuer Purchases of Equity Securities

None.

Item 6. Selected Consolidated Financial and Other Data

You should read the selected consolidated financial data below in conjunction with "Management's Discussion and Analysis of Financial Condition and Results of Operations" and the consolidated financial statements, related notes, and other financial information included elsewhere in this Annual Report on Form 10-K. The selected consolidated financial data in this section are not intended to replace the consolidated financial statements and are qualified in their entirety by the consolidated financial statements and related notes included elsewhere in this Annual Report on Form 10-K.

The following selected consolidated statements of operations data for the years ended December 31, 2019, 2018, and 2017, and the consolidated balance sheet data as of December 31, 2019 and 2018 have been derived from our audited consolidated financial statements included elsewhere in this Annual Report on Form 10-K. The consolidated balance sheet data as of December 31, 2017 has been derived from our audited financial statements not included in this Annual Report on Form 10-K. Our historical results are not necessarily indicative of the results that may be expected in the future.

	Year Ended December 31,		
	2019	2018	2017
Consolidated Statements of Operations Data:	(in thousands, except per share data)		
Revenue:			
Technology	$ 83,975	$ 57,224	$ 31,693
Professional services	70,966	55,350	41,388
Total revenue	154,941	112,574	73,081
Cost of revenue, excluding depreciation and amortization:			
Technology[1][2]	27,797	19,429	11,610
Professional services[1][2][3]	47,548	40,423	32,032
Total cost of revenue, excluding depreciation and amortization	75,345	59,852	43,642
Operating expenses:			
Sales and marketing[1][2][3]	47,284	44,123	25,920
Research and development[1][2][3]	46,252	38,592	28,470
General and administrative[1][2][3]	31,713	22,690	14,697
Depreciation and amortization	9,212	7,412	5,892
Total operating expenses	134,461	112,817	74,979
Loss from operations	(54,865)	(60,095)	(45,540)
Loss on extinguishment of debt	(1,670)	—	—
Interest and other expense, net	(3,419)	(2,024)	(1,469)
Loss before income taxes	(59,954)	(62,119)	(47,009)
Income tax provision (benefit)	142	(135)	26
Net loss	$ (60,096)	$ (61,984)	$ (47,035)
Less: accretion of redeemable convertible preferred stock	180,826	52,037	11,745
Net loss attributable to common stockholders	$ (240,922)	$ (114,021)	$ (58,780)
Net loss per share attributable to common stockholders, basic and diluted	$ (12.86)	$ (23.76)	$ (12.13)
Weighted-average number of shares outstanding used in calculating net loss per share attributable to common stockholders, basic and diluted	18,741	4,798	4,847

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

	Year Ended December 31,		
	2019	2018	2017
Stock-Based Compensation Expense:	(in thousands)		
Cost of revenue, excluding depreciation and amortization:			
Technology	$ 200	$ 78	$ 65
Professional services	968	480	514
Sales and marketing expenses	3,811	1,514	1,192
Research and development expenses	4,841	787	707
General and administrative expenses	8,024	1,339	1,763
Total	$ 17,844	$ 4,198	$ 4,241

(2)Includes tender offer payments deemed compensation expense, as follows:

	Year Ended December 31,		
	2019	2018	2017
Tender Offer Payments Deemed Compensation Expense:	(in thousands)		
Cost of revenue, excluding depreciation and amortization:			
Technology	$ —	$ 28	$ —
Professional services	—	284	—
Sales and marketing expenses	—	3,967	—
Research and development expenses	—	906	—
General and administrative expenses	—	3,133	—
Total	$ —	$ 8,318	$ —

(3)Includes post-acquisition restructuring costs, as follows:

	Year Ended December 31,		
	2019	2018	2017
Post-Acquisition Restructuring Costs:	(in thousands)		
Cost of revenue, excluding depreciation and amortization:			
Technology	$ —	$ —	$ —
Professional services	108	337	—
Sales and marketing expenses	306	780	—
Research and development expenses	32	513	—
General and administrative expenses	—	484	—
Total	$ 446	$ 2,114	$ —

	As of December 31,		
	2019	2018	2017
Consolidated Balance Sheet Data:	(in thousands)		
Cash and cash equivalents	$ 18,032	$ 28,431	$ 22,978
Short-term investments	210,245	4,761	28,484
Working capital[(1)]	246,675	49,807	51,337
Total assets	302,360	110,975	110,268
Deferred revenue, current and non-current	32,112	32,035	10,718
Long-term debt, net of current portion	48,200	18,814	9,618
Redeemable convertible preferred stock	—	409,845	321,569
Accumulated deficit	(610,514)	(374,772)	(259,468)
Total stockholders' equity (deficit)	200,644	(374,768)	(259,475)

(1) Working capital is calculated as current assets less current liabilities, excluding current deferred revenue. See our consolidated financial statements and the related notes included elsewhere in this Annual Report on Form 10-K for further details regarding our current assets, current liabilities, and deferred revenue.

	Year Ended December 31,		
	2019	2018	2017
Non-GAAP Financial Data:	(in thousands, except percentages)		
Adjusted Technology Gross Profit[1]	$ 56,378	$ 37,901	$ 20,148
Adjusted Technology Gross Margin[1]	67%	66%	64%
Adjusted Professional Services Gross Profit[1]	$ 24,494	$ 16,028	$ 9,870
Adjusted Professional Services Gross Margin[1]	35%	29%	24%
Total Adjusted Gross Profit[1]	$ 80,872	$ 53,929	$ 30,018
Total Adjusted Gross Margin[1]	52%	48%	41%
Adjusted EBITDA[1]	$ (27,363)	$ (38,053)	$ (35,407)

(1) These measures are not calculated in accordance with GAAP. See "Reconciliation of Non-GAAP Financial Measures" for more information about these financial measures, including the limitations of such measures and a reconciliation of each measure to the most directly comparable measure calculated in accordance with GAAP.

Other Key Metrics

	As of December 31,		
	2019	2018	2017
DOS Subscription Customers[1]	65	50	34

(1) See "Management's Discussion and Analysis of Financial Condition and Results of Operations - Other Key Metrics" for more information about this metric.

	Year Ended December 31,		
	2019	2018	2017
Dollar-based Retention Rate[1]	109%	107%	108%

(1) See "Management's Discussion and Analysis of Financial Condition and Results of Operations - Other Key Metrics" for more information about this metric.

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 and excluding stock-based compensation, tender offer payments deemed compensation, and post-acquisition restructuring costs. We define Adjusted Gross Margin as our Adjusted Gross Profit divided by our revenue. Adjusted Technology Gross Profit and Adjusted Professional Services Gross Profit are the portions of Adjusted Gross Profit related to technology and professional services, respectively. We believe these non-GAAP financial 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 operating performance.

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, 2019, 2018, and 2017:

	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
Post-acquisition restructuring costs[2]	$ —	$ 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%

	Year Ended December 31, 2018 (in thousands, except percentages)		
	Technology	Professional Services	Total
Revenue	$ 57,224	$ 55,350	$ 112,574
Cost of revenue, excluding depreciation and amortization	(19,429)	(40,423)	(59,852)
Gross profit, excluding depreciation and amortization	37,795	14,927	52,722
Add:			
Stock-based compensation	78	480	558
Tender offer payments deemed compensation[1]	28	284	312
Post-acquisition restructuring costs[2]	—	337	337
Adjusted Gross Profit	$ 37,901	$ 16,028	$ 53,929
Gross margin, excluding depreciation and amortization	66%	27%	47%
Adjusted Gross Margin	66%	29%	48%

	Year Ended December 31, 2017 (in thousands, except percentages)		
	Technology	Professional Services	Total
Revenue	$ 31,693	$ 41,388	$ 73,081
Cost of revenue, excluding depreciation and amortization	(11,610)	(32,032)	(43,642)
Gross profit, excluding depreciation and amortization	20,083	9,356	29,439
Add:			
Stock-based compensation	65	514	579
Adjusted Gross Profit	$ 20,148	$ 9,870	$ 30,018
Gross margin, excluding depreciation and amortization	63%	23%	40%
Adjusted Gross Margin	64%	24%	41%

(1) Tender offer payments deemed compensation relate to employee compensation from repurchases of common stock at a price in excess of its estimated fair value. For additional details refer to Note 12 in the consolidated financial statements.
(2) Post-acquisition restructuring costs related to severance charges following the acquisition of Medicity.

Adjusted Technology Gross Margin increased from 66% for the year ended December 31, 2018 to 67% for the year ended December 31, 2019. We expect Adjusted Technology Gross Margin to fluctuate and potentially decline in the near term, primarily due to additional costs associated with transitioning 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 29% for the year ended December 31, 2018 to 35% for the year ended December 31, 2019, due primarily to utilization efficiencies as well as a year-over-year increase in higher gross margin services. Our professional services are comprised of data and analytics services, domain expertise services, outsourcing services, and implementation services. While the majority of our professional services revenue is generated from data and analytic services and domain expertise services, the delivery mix between these services in a given quarter can lead to fluctuations in our Adjusted Professional Services Gross Margin. Adjusted Professional Services Gross Margin may fluctuate and will likely decline in the near term due to changes in the mix of services we provide and additional compensation costs related to an increase in headcount.

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, tender offer payments deemed compensation, and post-acquisition restructuring costs. 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, 2019, 2018, and 2017:

	Year Ended December 31,		
	2019	2018	2017
	(in thousands)		
Net loss	$ (60,096)	$ (61,984)	$ (47,035)
Add:			
Interest and other expense, net	3,419	2,024	1,469
Loss on extinguishment of debt	1,670	—	—
Income tax provision (benefit)	142	(135)	26
Depreciation and amortization	9,212	7,412	5,892
Stock-based compensation	17,844	4,198	4,241
Tender offer payments deemed compensation[1]	—	8,318	—
Post-acquisition restructuring costs[2]	446	2,114	—
Adjusted EBITDA	$ (27,363)	$ (38,053)	$ (35,407)

(1) Tender offer payments deemed compensation relate to employee compensation from repurchases of common stock at a price in excess of its estimated fair value. For additional details refer to Note 12 in the consolidated financial statements.
(2) Post-acquisition restructuring costs relate to severance charges following the acquisition of Medicity.

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 and the accompanying notes included elsewhere in this Annual Report on Form 10-K. This discussion contains forward-looking statements that involve risks and uncertainties. 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, 2019 compared to the year ended December 31, 2018 is presented below. A discussion regarding our financial condition and results of operations for the year ended December 31, 2018 compared to the year ended December 31, 2017 is included under "Management's Discussion and Analysis of Financial Condition and Results of Operations" in our prospectus filed pursuant to Rule 424(b) on July 25, 2019.

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.

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 900 team members. For the years ended December 31, 2019, 2018, and 2017, our total revenue was $154.9 million, $112.6 million, and $73.1 million, respectively.

For the years ended December 31, 2019, 2018, and 2017, we incurred net losses of $60.1 million, $62.0 million, and $47.0 million, respectively. For the years ended December 31, 2019, 2018, and 2017, our Adjusted EBITDA was $(27.4) million, $(38.1) million, and $(35.4) million, respectively. See “Selected Consolidated Financial and Other Data—Reconciliation of Non-GAAP Financial Measures” 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.

On July 29, 2019, we closed our IPO in which we issued and sold 8,050,000 shares of common stock at a price to the public of $26.00 per share for aggregate net proceeds of $190.0 million after deducting underwriting discounts and commissions and offering expenses payable by us.

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 access our DOS platform via a technology subscription contract. Other Customers generally include DOS non-subscription customers and Medicity interoperability customers. As of December 31, 2019, 2018, and 2017, we had 65, 50, and 34 DOS Subscription Customers with active subscriptions, respectively. As of December 31, 2019, 2018, and 2017, we had 65, 76, and 12 active Other Customers, respectively. The significant increase in Other Customers from 2017 to 2018 was primarily due to our acquisition of Medicity on June 29, 2018.

We derive substantially all of our revenue through subscriptions for use of our technology and professional services on a recurring basis. In 2019, 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 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 109% for the year ended December 31, 2019.

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 operate a private data center where certain customers are hosted and 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 customer is approximately 11 months and generally ranges from 4 to 17 months. 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 heavily 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,		
	2019	2018	2017
	(in thousands, except percentages)		
Total revenue	$ 154,941	$ 112,574	$ 73,081
Adjusted Technology Gross Profit	56,378	37,901	20,148
Adjusted Technology Gross Margin	67%	66%	64%
Adjusted Professional Services Gross Profit	$ 24,494	$ 16,028	$ 9,870
Adjusted Professional Services Gross Margin	35%	29%	24%
Total Adjusted Gross Profit	$ 80,872	$ 53,929	$ 30,018
Total Adjusted Gross Margin	52%	48%	41%
Adjusted EBITDA	$ (27,363)	$ (38,053)	$ (35,407)

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 employee 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 and excluding stock-based compensation, tender offer payments deemed compensation, and post-acquisition restructuring costs. 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 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.

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, tender offer payments deemed compensation, and post-acquisition restructuring costs. 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 “Selected Consolidated Financial and Other Data - Reconciliation of Non-GAAP Financial Measures” 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,		
	2019	2018	2017
DOS Subscription Customers	65	50	34

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, which represents customers with active subscriptions at period end, is the best representation of our market penetration and the growth of our business.

	Year Ended December 31,		
	2019	2018	2017
Dollar-based Retention Rate	109%	107%	108%

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 we acquired Medicity in 2018, and because our primary business model is to contract for our DOS platform, analytics applications, and professional services, Medicity customers are not included in the Dollar-based Retention Rate metrics.

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.

- ***Add new customers.*** We believe that 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 CORUS, Touchstone, Patient Safety Monitor, 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 Medicity acquisition on growth.*** Our customer base includes over 50 health systems and regional healthcare information exchanges added in the Medicity acquisition, representing an opportunity for us to cross-sell our Solution to Medicity customers. We are in the early phases of that cross-selling initiative and do not have full visibility into the incremental growth opportunities from that effort. Historically, 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. If our cross-sell efforts and technology integration strategies are successful, this could offset revenue declines from Medicity customers. Overall, the impact of the Medicity acquisition could negatively impact our revenue growth rates over time.

- ***Changing revenue mix***. Our technology and professional services offerings have materially different gross margin profiles. While our professional services help our customers achieve measurable improvements and make them stickier, they have lower gross margins than technology revenue. In 2019, our technology revenue and professional services revenue represented 54% and 46% 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 "Selected Consolidated Financial and Other Data—Reconciliation of Non-GAAP Financial Measures" 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 also operate a private data center where we host DOS for certain customers and we maintain a small number of customers that have deployed DOS on-premise. We are in the process of transitioning customers we host in our private data center and 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 our private data center and on-premise deployments on a per-customer basis. This transition will result in higher cost of technology revenue and provide a headwind against increases in Adjusted Technology Gross Margin.

- ***Refinement of pricing for our Solution.*** In the past, we have adjusted our prices as a result of offering new applications and services and customer demand. In the fourth quarter of 2018, we began to introduce new pricing for our Solution for new customers to account for the addition of new analytics applications and associated services. We expect to realize fully the effect of this pricing adjustment in future years as new customers renew their technology and services subscription contracts. Because these price adjustments were primarily related to new applications and services added to our Solution, our prior experience pricing these offerings is limited. As we gain more experience marketing and delivering these new analytics applications and associated services, we may need to further refine our pricing, which could result in either increases or decreases to the price of our Solution. During the years ended December 31, 2019 and 2018, there were no material revenue increases from the pricing adjustments made in 2018 as the increase in technology revenue from current customers is primarily attributable to contractual, annual escalators as opposed to pricing changes.

Medicity Acquisition

In June 2018, we acquired 100% of the LLC interests in Medicity from Aetna, Inc. (Aetna). The acquisition of Medicity was one element of an integrated transaction whereby we also issued 707,613 shares of our Series E redeemable convertible preferred stock to Aetna in exchange for $15.0 million in cash. The acquisition was accounted for as a business combination as specified under ASC 805, *Business Combinations*.

As part of the post-acquisition activities, we agreed to pay $2.6 million in cash as involuntary termination payments to certain Medicity team members. The termination expense was recognized as compensation expense when management committed to the plan and the severance terms were communicated to the team members.

Medicity's customer base is comprised of large health systems and regional healthcare information exchanges. We have invested in sales and marketing resources tasked with cross-selling our Solution to the Medicity customer base. We are in the early phases of that cross-selling initiative and do not have full visibility into additional revenue growth opportunities from that customer base.

Medicity's technology platform also included significant technical functionality related to real-time interoperability with transactional software systems like EHRs. We plan to integrate portions of Medicity's technology into the DOS platform and are currently in the process of that technical integration. In addition, Medicity's technology platform houses data that can be added to DOS to leverage in the future.

Components of Our Results of Operations

Revenue

We derive our revenue from sales of technology and professional services. For the years ended December 31, 2019, 2018, and 2017, technology revenue represented 54%, 51%, and 43% of total revenue, respectively, and professional services revenue represented 46%, 49%, and 57% 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 vast majority are terminable after one year upon 90 days' notice. A majority of our DOS Subscription Customers access our technology through all-access subscriptions, which in the vast majority of cases 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 transition customers to third-party hosted data centers with Microsoft Azure and increase headcount to accommodate growth, 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 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 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, and directors' fees.

Due to the closing of our IPO on July 29, 2019, we incurred and expect to continue to incur additional costs as a result of operating as a public company, including costs related to compliance and reporting obligations of public companies, and increased costs for insurance, investor relations, and corporate governance. As a result, 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 income from our investment holdings and interest expense. Interest expense is primarily attributable to our revolving line of credit, 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.

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 deferred tax assets, including net operating loss carryforwards (NOLs) and tax credits related primarily to research and development.

As of December 31, 2019, we had federal and state NOLs of $269.1 million and $215.2 million, respectively, which will begin to expire for federal and state tax purposes in 2032 and 2024, respectively. Our existing NOLs may be subject to limitations arising from ownership changes and, if we undergo an ownership change, 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.

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,		
	2019	2018	2017
	(in thousands)		
Revenue:			
Technology	$ 83,975	$ 57,224	$ 31,693
Professional services	70,966	55,350	41,388
Total revenue	154,941	112,574	73,081
Cost of revenue, excluding depreciation and amortization shown below:			
Technology[1][2]	27,797	19,429	11,610
Professional services[1][2][3]	47,548	40,423	32,032
Total cost of revenue, excluding depreciation and amortization	75,345	59,852	43,642
Operating expenses:			
Sales and marketing[1][2][3]	47,284	44,123	25,920
Research and development[1][2][3]	46,252	38,592	28,470
General and administrative[1][2][3]	31,713	22,690	14,697
Depreciation and amortization	9,212	7,412	5,892
Total operating expenses	134,461	112,817	74,979
Loss from operations	(54,865)	(60,095)	(45,540)
Loss on extinguishment of debt	(1,670)	—	—
Interest and other expense, net	(3,419)	(2,024)	(1,469)
Loss before income taxes	(59,954)	(62,119)	(47,009)
Income tax provision (benefit)	142	(135)	26
Net loss	$ (60,096)	$ (61,984)	$ (47,035)

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

	Year Ended December 31,		
	2019	2018	2017
Stock-Based Compensation Expense:	(in thousands)		
Cost of revenue, excluding depreciation and amortization:			
Technology	$ 200	$ 78	$ 65
Professional services	968	480	514
Sales and marketing	3,811	1,514	1,192
Research and development	4,841	787	707
General and administrative	8,024	1,339	1,763
Total	$ 17,844	$ 4,198	$ 4,241

(2)Includes tender offer payments deemed compensation expense, as follows:

	Year Ended December 31,		
	2019	2018	2017
Tender Offer Payments Deemed Compensation Expense:		(in thousands)	
Cost of revenue, excluding depreciation and amortization:			
Technology	$ —	$ 28	$ —
Professional services	—	284	—
Sales and marketing	—	3,967	—
Research and development	—	906	—
General and administrative	—	3,133	—
Total	$ —	$ 8,318	$ —

(3)Includes post-acquisition restructuring costs, as follows:

	Year Ended December 31,		
	2019	2018	2017
Post-Acquisition Restructuring Costs:		(in thousands)	
Cost of revenue, excluding depreciation and amortization:			
Technology	$ —	$ —	$ —
Professional services	108	337	—
Sales and marketing	306	780	—
Research and development	32	513	—
General and administrative	—	484	—
Total	$ 446	$ 2,114	$ —

	Year Ended December 31,		
	2019	2018	2017
Revenue:			
Technology	54 %	51 %	43 %
Professional services	46	49	57
Total revenue	100	100	100
Cost of revenue, excluding depreciation and amortization shown below:			
Technology	18	17	16
Professional service	31	36	44
Total cost of revenue, excluding depreciation and amortization	49	53	60
Operating expenses:			
Sales and marketing	31	39	35
Research and development	30	34	39
General and administrative	20	20	20
Depreciation and amortization	6	7	8
Total operating expenses	87	100	102
Loss from operations	(36)	(53)	(62)
Loss on extinguishment of debt	(1)	—	—
Interest and other expense, net	(2)	(2)	(2)
Loss before income taxes	(39)	(55)	(64)
Income tax provision (benefit)	—	—	—
Net loss	(39)%	(55)%	(64)%

Discussion of the Years Ended December 31, 2019 and 2018

Revenue

	Year Ended December 31,			
	2019	2018	$ Change	% Change
	(in thousands, except percentages)			
Revenue:				
Technology	$ 83,975	$ 57,224	$ 26,751	47%
Professional services	70,966	55,350	15,616	28%
Total revenue	$ 154,941	$ 112,574	$ 42,367	38%
Percentage of revenue:				
Technology	54%	51%		
Professional services	46	49		
Total	100%	100%		

Total revenue was $154.9 million for the year ended December 31, 2019, compared to $112.6 million for the year ended December 31, 2018, an increase of $42.4 million, or 38%.

Technology revenue was $84.0 million, or 54% of total revenue, for the year ended December 31, 2019, compared to $57.2 million, or 51% of total revenue, for the year ended December 31, 2018. The increase in technology revenue was partially due to the year ended December 31, 2018 only including approximately six months of Medicity revenue as a result of the Medicity acquisition closing on June 29, 2018. There was $12.2 million of technology revenue from Medicity during the six months ended June 30, 2019, with no corresponding revenue in the comparative prior-year period. The remaining technology revenue growth was from new DOS Subscription Customers and existing customers paying higher technology access fees from contractual, annual escalators, and new offerings of expanded support services. The revenue growth amounts presented are net of a $1.8 million decrease in one-time technology revenue.

Professional services revenue was $71.0 million, or 46% of total revenue, for the year ended December 31, 2019, compared to $55.4 million, or 49% of total revenue, for the year ended December 31, 2018. The professional services revenue growth is primarily due to implementation, analytics, and improvement services being provided to new DOS Subscription Customers and expanded services with existing customers.

Cost of revenue, excluding depreciation and amortization

	Year Ended December 31,			
	2019	2018	$ Change	% Change
	(in thousands, except percentages)			
Cost of revenue, excluding depreciation and amortization:				
Technology	$ 27,797	$ 19,429	$ 8,368	43%
Professional services	47,548	40,423	7,125	18%
Total cost of revenue, excluding depreciation and amortization	$ 75,345	$ 59,852	$ 15,493	26%
Percentage of total revenue	49%	53%		

Cost of technology revenue, excluding depreciation and amortization, was $27.8 million for the year ended December 31, 2019, compared to $19.4 million for the year ended December 31, 2018, an increase of $8.4 million, or 43%. The increase in cost of technology revenue was primarily due to an increase of $6.4 million in salary and related personnel costs from an increase in cloud services and support headcount, an increase of $4.9 million in cloud computing and hosting costs largely from the expanded use of Microsoft Azure, and an increase of $1.4 million in subscription costs to serve existing and new customers. These increases in cost of technology revenue were partially offset by a $4.1 million decrease in outside contractor fees.

Cost of professional services revenue was $47.5 million for the year ended December 31, 2019, compared to $40.4 million for the year ended December 31, 2018, an increase of $7.1 million, or 18%. This increase is primarily due to an increase in salary and related personnel costs from an increase in our professional services headcount.

Operating Expenses

Sales and marketing

	Year Ended December 31,			
	2019	2018	$ Change	% Change
	(in thousands, except percentages)			
Sales and marketing	$ 47,284	$ 44,123	$ 3,161	7%
Percentage of total revenue	31%	39%		

Sales and marketing expenses were $47.3 million for the year ended December 31, 2019, compared to $44.1 million for the year ended December 31, 2018, an increase of $3.2 million, or 7%. This increase was primarily due to an increase of $3.7 million in salary and related personnel costs from additional sales, marketing, and account management headcount. There was a $2.3 million increase in stock-based compensation, including a cumulative catch-up of $0.4 million related to two-tier stock options upon the closing of the IPO, and a $1.1 million increase in travel-related costs. These increases were partially offset by $4.0 million of tender offer payments deemed compensation expense during the year ended December 31, 2018 that did not recur in the year ended December 31, 2019.

Sales and marketing expense as a percentage of total revenue decreased from 39% in the year ended December 31, 2018 to 31% in the year ended December 31, 2019.

Research and development

	Year Ended December 31,			
	2019	2018	$ Change	% Change
	(in thousands, except percentages)			
Research and development	$ 46,252	$ 38,592	$ 7,660	20%
Percentage of total revenue	30%	34%		

Research and development expenses were $46.3 million for the year ended December 31, 2019, compared to $38.6 million for the year ended December 31, 2018, an increase of $7.7 million, or 20%. The increase was primarily due to an increase of $4.1 million in stock-based compensation, including a cumulative catch-up of $2.1 million related to two-tier stock options upon the closing of the IPO. There was also an increase of $2.6 million in salary and related personnel costs from additional development team headcount largely as a result of the Medicity acquisition and an increase of $1.5 million in third-party hosting costs. These increases were partially offset by $0.9 million of tender offer payments deemed compensation during the year ended December 31, 2018 that did not recur in the year ended December 31, 2019.

Research and development expense as a percentage of revenue decreased from 34% in the year ended December 31, 2018 to 30% in the year ended December 31, 2019.

General and administrative

	Year Ended December 31,			
	2019	2018	$ Change	% Change
	(in thousands, except percentages)			
General and administrative	$ 31,713	$ 22,690	$ 9,023	40%
Percentage of total revenue	20%	20%		

General and administrative expenses were $31.7 million for the year ended December 31, 2019, compared to $22.7 million for the year ended December 31, 2018, an increase of $9.0 million, or 40%. The increase was primarily due to an increase of $6.7 million in stock-based compensation, including a cumulative catch-up of $3.5 million related to two-tier stock options upon the closing of the IPO and an increase of $2.2 million in salary and related personnel costs from additional general and administrative headcount. Other increases included increased contractor costs of $0.9 million, insurance costs of $0.6 million, and subscription costs of $0.6 million. These increases were partially offset by $3.1 million of tender offer payments deemed compensation expense during the year ended December 31, 2018 that did not recur in the year ended December 31, 2019.

General and administrative expense as a percentage of revenue remained consistent at 20% in both of the years ended December 31, 2019 and 2018.

Depreciation and amortization

	Year Ended December 31,			
	2019	2018	$ Change	% Change
	(in thousands, except percentages)			
Depreciation and amortization	$ 9,212	$ 7,412	$ 1,800	24%
Percentage of total revenue	6%	7%		

Depreciation and amortization expenses were $9.2 million for the year ended December 31, 2019, compared to $7.4 million for the year ended December 31, 2018, an increase of $1.8 million, or 24%. This increase was primarily due to the amortization of capitalized internal-use software costs and additional depreciation and amortization on property, equipment, and intangibles from the Medicity acquisition and current year capital expenditures.

Depreciation and amortization expense as a percentage of revenue decreased from 7% in the year ended December 31, 2018 to 6% in the year ended December 31, 2019.

Loss on extinguishment of debt

	Year Ended December 31,			
	2019	2018	$ Change	% Change
	(in thousands, except percentages)			
Loss on extinguishment of debt	$ (1,670)	$ —	$ (1,670)	n/m[(1)]

(1) Not meaningful.

On February 6, 2019, we entered into the OrbiMed Credit Facility that established a senior term loan facility of up to $80.0 million under certain conditions and we simultaneously borrowed $50.0 million. The use of proceeds from the OrbiMed senior term loan included an immediate repayment of our $20.0 million term loan from SVB that required a prepayment premium of $0.5 million and the write-off of deferred debt issuance costs of $1.2 million, resulting in a $1.7 million loss on extinguishment of debt.

Interest and other expense, net

	Year Ended December 31,			
	2019	2018	$ Change	% Change
	(in thousands, except percentages)			
Interest income	$ 2,810	$ 602	$ 2,208	367 %
Interest expense	(6,261)	(2,587)	(3,674)	142 %
Other income (expense)	32	(39)	71	(182)%
Total interest and other expense, net	$ (3,419)	$ (2,024)	$ (1,395)	69 %

Interest and other expense, net increased $1.4 million, or 69%, for the year ended December 31, 2019 compared to the year ended December 31, 2018. This increase is primarily due to an increase in interest expense of $3.7 million from an increase in net borrowings under the OrbiMed Credit Facility, which was partially offset by an increase in interest income of $2.2 million due to the increase in cash equivalents and short-term investments from the IPO proceeds received in July 2019.

Income tax provision (benefit)

	Year Ended December 31,			
	2019	2018	$ Change	% Change
	(in thousands, except percentages)			
Income tax provision (benefit)	$ 142	$ (135)	$ 277	n/m[(1)]

(1) Not meaningful.

Income tax provision (benefit) consists of current and deferred taxes for U.S. federal, state, and foreign income taxes. On December 22, 2017, federal tax legislation was enacted that included lowering the U.S. corporate income tax rate to 21% effective in 2018. We remeasured certain deferred tax assets and liabilities based on the tax rates at which they are expected to reverse in the future, which is generally 21%. As we had a full valuation allowance on deferred tax assets, the allowance was adjusted accordingly based on the remeasured deferred tax asset and liability position. As a result, the federal tax legislation had a limited impact on our income tax provision (benefit).

Quarterly Results of Operations

The following table sets forth our unaudited quarterly consolidated statements of operations data for each of the eight quarters in the period ended December 31, 2019. The unaudited consolidated statements of operations data set forth below has been prepared on the same basis as our audited consolidated financial statements and, in the opinion of management, reflect all adjustments, consisting only of normal recurring adjustments, that are necessary for the fair presentation of such data. Our historical results are not necessarily indicative of the results that may be expected in the future and the results for any quarter are not necessarily indicative of results to be expected for a full year or any other period. The following quarterly financial data should be read in conjunction with our consolidated financial statements and the related notes included elsewhere in this Annual Report on Form 10-K.

	Three Months Ended							
	Mar. 31, 2018	Jun. 30, 2018	Sep. 30, 2018	Dec. 31, 2018	Mar. 31, 2019	Jun. 30, 2019	Sep. 30, 2019	Dec. 31, 2019
	(in thousands, except per share data)							
Revenue:								
Technology	$ 9,451	$ 10,725	$ 18,283	$ 18,765	$ 20,148	$ 20,085	$ 21,160	$ 22,582
Professional services	11,181	12,265	14,585	17,319	15,065	16,719	18,263	20,919
Total revenue	20,632	22,990	32,868	36,084	35,213	36,804	39,423	43,501
Cost of revenue, excluding depreciation and amortization:								
Technology[1][2]	3,359	3,291	6,132	6,647	6,752	7,044	6,740	7,261
Professional services[1][2][3]	8,251	9,227	10,865	12,080	10,574	10,666	11,892	14,416
Total cost of revenue, excluding depreciation and amortization	11,610	12,518	16,997	18,727	17,326	17,710	18,632	21,677
Operating expenses:								
Sales and marketing[1][2][3]	6,721	12,004	13,771	11,627	10,473	10,385	14,721	11,705
Research and development[1][2][3]	8,705	8,487	10,839	10,561	10,022	9,710	13,477	13,043
General and administrative[1][2][3]	3,902	7,241	5,605	5,942	6,174	6,146	11,013	8,380
Depreciation and amortization	1,550	1,551	2,151	2,160	2,312	2,216	2,316	2,368
Total operating expenses	20,878	29,283	32,366	30,290	28,981	28,457	41,527	35,496
Loss from operations	(11,856)	(18,811)	(16,495)	(12,933)	(11,094)	(9,363)	(20,736)	(13,672)
Loss on extinguishment of debt	—	—	—	—	(1,670)	—	—	—
Interest and other expense, net	(509)	(506)	(374)	(635)	(945)	(1,320)	(659)	(495)
Loss before income taxes	(12,365)	(19,317)	(16,869)	(13,568)	(13,709)	(10,683)	(21,395)	(14,167)
Income tax provision (benefit)	(156)	7	7	7	11	11	21	99
Net loss	$ (12,209)	$ (19,324)	$ (16,876)	$ (13,575)	$ (13,720)	$ (10,694)	$ (21,416)	$ (14,266)
Less: accretion (reversal of accretion) of redeemable convertible preferred stock	(10,481)	(2,078)	514	64,082	64,015	98,641	18,170	—
Net loss attributable to common stockholders	$ (1,728)	$ (17,246)	$ (17,390)	$ (77,657)	$ (77,735)	$ (109,335)	$ (39,586)	$ (14,266)
Net loss per share attributable to common stockholders, basic and diluted	$ (0.36)	$ (3.53)	$ (3.71)	$ (16.33)	$ (16.21)	$ (21.98)	$ (1.40)	$ (0.39)
Weighted-average shares outstanding used in calculating net loss per share attributable to common stockholders, basic and diluted	4,867	4,888	4,686	4,755	4,795	4,975	28,223	36,519

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

	Three Months Ended							
	Mar. 31, 2018	Jun. 30, 2018	Sep. 30, 2018	Dec. 31, 2018	Mar. 31, 2019	Jun. 30, 2019	Sep. 30, 2019	Dec. 31, 2019
Stock-Based Compensation Expense:	(in thousands)							
Cost of revenue, excluding depreciation and amortization:								
Technology	$ 14	$ 17	$ 18	$ 29	$ 33	$ 31	$ 64	$ 72
Professional services	100	105	120	155	148	140	306	374
Sales and marketing	430	295	298	491	783	497	1,358	1,173
Research and development	177	176	179	255	222	213	3,067	1,339
General and administrative	319	321	318	381	470	517	5,179	1,858
Total	$ 1,040	$ 914	$ 933	$ 1,311	$ 1,656	$ 1,398	$ 9,974	$ 4,816

(2)Includes tender offer payments deemed compensation expense, as follows:

	Three Months Ended							
	Mar. 31, 2018	Jun. 30, 2018	Sep. 30, 2018	Dec. 31, 2018	Mar. 31, 2019	Jun. 30, 2019	Sep. 30, 2019	Dec. 31, 2019
Tender Offer Payments Deemed Compensation Expense:	(in thousands)							
Cost of revenue, excluding depreciation and amortization:								
Technology	$ —	$ 28	$ —	$ —	$ —	$ —	$ —	$ —
Professional services	—	284	—	—	—	—	—	—
Sales and marketing	—	3,967	—	—	—	—	—	—
Research and development	—	906	—	—	—	—	—	—
General and administrative	—	3,133	—	—	—	—	—	—
Total	$ —	$ 8,318	$ —	$ —	$ —	$ —	$ —	$ —

(3)Includes post-acquisition restructuring costs, as follows:

	Three Months Ended							
	Mar. 31, 2018	Jun. 30, 2018	Sep. 30, 2018	Dec. 31, 2018	Mar. 31, 2019	Jun. 30, 2019	Sep. 30, 2019	Dec. 31, 2019
Post-Acquisition Restructuring Costs:	(in thousands)							
Cost of revenue, excluding depreciation and amortization:								
Technology	$ —	$ —	$ —	$ —	$ —	$ —	$ —	$ —
Professional services	—	—	332	5	108	—	—	—
Sales and marketing	—	—	749	31	306	—	—	—
Research and development	—	—	484	—	32	—	—	—
General and administrative	—	—	513	—	—	—	—	—
Total	$ —	$ —	$ 2,078	$ 36	$ 446	$ —	$ —	$ —

The following table sets forth our unaudited quarterly consolidated results of operations data for each of the periods indicated as a percentage of total revenue.

	Three Months Ended							
	Mar. 31, 2018	Jun. 30, 2018	Sep. 30, 2018	Dec. 31, 2018	Mar. 31, 2019	Jun. 30, 2019	Sep. 30, 2019	Dec. 31, 2019
Revenue:								
Technology	46 %	47 %	56 %	52 %	57 %	55 %	54 %	52 %
Professional services	54	53	44	48	43	45	46	48
Total revenue	100	100	100	100	100	100	100	100
Cost of revenue, excluding depreciation and amortization:								
Technology	16	14	19	18	19	19	17	17
Professional services	40	40	33	33	30	29	30	33
Total cost of revenue, excluding depreciation and amortization	56	54	52	51	49	48	47	50
Operating expenses:								
Sales and marketing	33	52	42	32	30	28	37	27
Research and development	42	37	33	29	28	26	34	30
General and administrative	19	31	17	16	18	17	28	19
Depreciation and amortization	8	7	7	6	7	6	6	5
Total operating expenses	102	127	99	83	83	77	105	81
Loss from operations	(58)	(81)	(51)	(34)	(32)	(25)	(52)	(31)
Loss on extinguishment of debt	—	—	—	—	(5)	—	—	—
Interest and other expense, net	(2)	(2)	(1)	(2)	(3)	(4)	(2)	(1)
Loss before income taxes	(60)	(83)	(52)	(36)	(40)	(29)	(54)	(32)
Income tax provision (benefit)	(1)	—	—	—	—	—	—	—
Net loss	(59)%	(83)%	(52)%	(36)%	(40)%	(29)%	(54)%	(32)%

Quarterly revenue trends

Our quarterly technology revenue increased sequentially in all but one of the periods presented due primarily to increases in the number of customers as well as the expansion of technology offerings to existing customers. Contracting activity can vary quarterly as a result of large healthcare provider buying patterns, though this seasonality is sometimes not apparent in our technology revenue because we generally recognize technology revenue over the term of the contract. The significant increase in quarterly technology revenue beginning in the third quarter of 2018 was primarily attributable to the acquisition of Medicity as of June 29, 2018.

Our quarterly professional services revenue generally increased over the periods presented due to increases in the number of customers as well as the expansion of professional services arrangements with existing customers. The increase in the fourth quarter of 2018 was primarily due to performance-based revenue arrangements whereby performance was measured and achieved. In 2019, performance-based revenue arrangements represented a smaller portion of our overall revenue base. The increase in the fourth quarter of 2019 was primarily due to increased professional services revenue from Medicity, which is now referred to as Health Catalyst Interoperability or HCI.

Quarterly cost of revenue, excluding depreciation and amortization trends

Our quarterly cost of revenue, excluding depreciation and amortization, has generally increased over the quarterly periods due to increased cloud computing and hosting costs and an increase in technology and professional services headcount to serve existing and new customers. The significant increase in quarterly technology cost of revenue, excluding depreciation and amortization, beginning in the third quarter of 2018 was primarily attributable to the Medicity acquisition.

Quarterly operating expenses trends

Total operating expenses fluctuate from quarter to quarter, but have generally increased for the periods presented, primarily due to the addition of personnel in connection with the expansion of our business. The significant increase in the second quarter of 2018 is primarily attributable to deemed compensation expense associated with a tender offer for the repurchase of common stock at a price in excess of its estimated fair value. The additional increase in total operating expenses beginning in the third quarter of 2018 is primarily attributable to the Medicity acquisition. Total operating expenses increased significantly again in the third quarter of 2019, partially due to a cumulative catch-up of $6.0 million related to two-tier stock-based awards upon the closing of the IPO.

Sales and marketing expenses generally grew sequentially over the periods, due to the continued expansion of our sales, marketing, and account management teams. Sales and marketing expenses are higher in the third quarter due to our Healthcare Analytics Summit which is typically held in September. Research and development expenses have generally increased sequentially for the periods presented, due to continued investment in developing our Solution. Sales and marketing expenses and research and development expenses decreased slightly during the fourth quarter of 2018 and the first quarter of 2019 compared to the third quarter of 2018 primarily as a result of HCI operational synergies achieved after closing the acquisition. General and administrative expenses generally increased over the periods presented due primarily to the expansion of the legal, finance, and IT teams and due to increased costs for accounting, legal, and outside contractors.

Our quarterly results of operations may fluctuate due to various factors affecting our performance. As noted above, we generally recognize revenue from technology ratably over the term of the contract. Therefore, changes in our contracting activity in the near term may not be apparent as a change to our reported revenues until future periods. Most of our expenses are recorded as period costs and thus factors affecting our cost structure may be reflected in our financial results sooner than changes to our contracting activity.

Liquidity and Capital Resources

As of December 31, 2019, we had cash, cash equivalents, and short-term investments of $228.3 million, which were held primarily for working capital purposes. 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, and our recent IPO. 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, and development 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.

SVB Debt Agreements and OrbiMed Financings

In October 2017, we entered into the Amended Loan and Security Agreement and the Mezzanine Loan and Security Agreement (the SVB Debt Agreements) with SVB. The SVB Debt Agreements originally established a revolving line of credit and a term loan facility of up to $20.0 million under certain conditions and $20.0 million, respectively.

SVB Revolving Line of Credit

As of January 1, 2019, the Amended Loan and Security Agreement allowed us to borrow up to $20.0 million in advances on the revolving line of credit with a contractual interest rate of prime plus 0.5% and a maturity date of December 2019. On February 6, 2019, the Amended Loan and Security Agreement was further amended to reduce the revolving line of credit from up to $20.0 million to $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, as well as extend the maturity date to February 6, 2021. The line may be increased by $5.0 million upon request and approval by SVB. The revolving line of credit is subject to certain covenants and, as of both December 31, 2019 and 2018, we were in compliance with these covenants. As of December 31, 2019, the interest rate was 5.25% and we had not drawn any amounts under this revolving line of credit.

SVB Term Loan

As of December 31, 2018, the SVB Debt Agreements allowed us to borrow up to $20.0 million in term loans with a contractual interest rate of prime plus 6.25%. We were contractually allowed to prepay all outstanding principal and accrued interest at any time together with a prepayment penalty of $0.5 million. As of December 31, 2019, we had repaid the full $20.0 million previously borrowed under this term loan.

OrbiMed Financings

On February 6, 2019, we entered into the OrbiMed Credit Facility that established a senior term loan facility of up to $80.0 million under certain conditions with a maturity date of February 6, 2024. 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 OrbiMed Debt Agreement with principal payments due beginning in 2023, and we simultaneously repaid our term loan and revolver from SVB in full. The OrbiMed Credit Facility was subject to certain covenants and, as of December 31, 2019, we were in compliance with these covenants. As of December 31, 2019, the interest rate was 10.0% and we owed $50.0 million under the OrbiMed Credit Facility.

In addition, 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.

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.

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.

Cash Flows

The following table summarizes our cash flows for the years ended December 31, 2019, 2018, and 2017:

	Year Ended December 31,		
	2019	2018	2017
		(in thousands)	
Net cash used in operating activities	$ (32,184)	$ (40,296)	$ (36,829)
Net cash (used in) provided by investing activities	(209,602)	21,403	22,408
Net cash provided by financing activities	231,381	24,346	24,871
Effect of exchange rate changes on cash and cash equivalents	6	—	—
Net (decrease) increase in cash and cash equivalents	$ (10,399)	$ 5,453	$ 10,450

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, 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.

For the year ended December 31, 2018, net cash used in operating activities was $40.3 million, which included a net loss of $62.0 million. Non-cash charges primarily consisted of $4.2 million in stock-based compensation and $7.4 million in depreciation and amortization of property, equipment, and intangible assets. The 2018 net loss also included an $8.3 million charge that was paid in association with the repurchase of common stock at a price in excess of its estimated fair value as part of the 2018 tender offer that is further described in Note 12 to the audited consolidated financial statements. The tender offer cash payments are not expected to be recurring in future periods.

For the year ended December 31, 2017, net cash used in operating activities was $36.8 million, which included a net loss of $47.0 million. Non-cash charges primarily consisted of $4.2 million in stock-based compensation and $5.9 million in depreciation and amortization of property, equipment, and intangible assets.

Investing Activities

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.

Net cash provided by investing activities for the year ended December 31, 2018 of $21.4 million was primarily due to $37.9 million provided from the sale and maturity of short-term investments, reduced by $14.0 million used to purchase short-term investments and $2.5 million in purchases of property, equipment, and intangible assets.

Net cash provided by investing activities for the year ended December 31, 2017 of $22.4 million primarily was due to $72.1 million provided from the sale and maturity of short-term investments, reduced by $46.4 million used to purchase short-term investments and $3.3 million in purchases of property, equipment, and intangible assets.

Financing Activities

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.

Net cash provided by financing activities for the year ended December 31, 2018 of $24.3 million was primarily the result of $34.0 million in proceeds from the issuance of Series E redeemable convertible preferred stock, $10.0 million in proceeds drawn under the SVB Debt Agreements and $3.0 million in stock option exercise proceeds, reduced by an $8.7 million repurchase of our common stock, and $13.9 million in payments of acquisition-related obligations.

Net cash provided by financing activities for the year ended December 31, 2017 of $24.9 million was primarily the result of $23.8 million in proceeds from the issuance of Series E redeemable convertible preferred stock and $9.8 million in proceeds drawn under the SVB Debt Agreements, reduced by $8.8 million in payments of acquisition-related obligations.

Contractual Obligations and Commitments

The following table presents a summary of our payments due under contractual arrangements as of December 31, 2019:

	Payments Due by Period				
	Total	Less Than 1 Year	1 to 3 Years	3 to 5 Years	More Than 5 Years
	(in thousands)				
Long-term debt[1]	71,039	5,123	10,219	55,697	—
Operating lease obligations[2]	4,785	3,000	1,223	562	—
Acquisition-related consideration	4,250	2,250	2,000	—	—
Total	$ 80,074	$ 10,373	$ 13,442	$ 56,259	$ —

(1) On February 6, 2019, we borrowed $50.0 million under the OrbiMed Debt Agreement, and simultaneously repaid our $20.0 million term loan from SVB in full. We also repaid in full our $1.3 million SVB revolving line of credit. The contractual commitment amounts above include interest payments of $18.5 million and a 5% exit fee.
(2) We lease our facilities under long-term operating leases, which expire at various dates through 2024.

The contractual commitment amounts in the table above 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.

Off-Balance Sheet Arrangements

As of December 31, 2019, 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.

Stock-Based Compensation

Stock-based awards, including stock options and RSUs, are measured and recognized in the consolidated financial statements based on the fair value of the award on the grant date. For awards subject to performance conditions, we record expense when the performance condition becomes probable. We record forfeitures of stock-based awards as the actual forfeitures occur.

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 expense on a straight-line basis over the vesting period. Two-tier employee stock-based awards contain 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 an initial public offering by the Company. A change in control event and effective registration event are not deemed probable until consummated; accordingly, no expense is recorded related to two-tier stock-based awards until the performance condition becomes probable of occurring.

Awards that contain both service-based and performance conditions are recognized using the accelerated attribution method once the performance condition is probable of occurring. The service-based condition is generally a service period of four years. Upon closing our IPO, 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 grant date fair value of RSUs is determined using the market closing price of our common stock on the date of grant. We estimate the fair value of our stock option awards on the grant date using the Black-Scholes option-pricing model. This requires the input of highly subjective assumptions, including the expected term of stock options, 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. If factors change and different assumptions are used, our stock-based compensation expense could be materially different in the future. The resulting fair value, net of actual forfeitures, is recognized on a straight-line basis over the period during which an employee is required to provide service in exchange for the award.

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.

These assumptions used in the Black-Scholes option-pricing model, other than the fair value of our common stock, are estimated as follows:

- *Expected volatility*. Since a public market for our common stock did not exist prior to our IPO and, therefore, we did not have a sufficient trading history of our common stock, we estimated the expected volatility based on the volatility of similar publicly-held entities (guideline companies) over a period equivalent to the expected term of the pre-IPO awards. In evaluating the similarity of guideline companies to us, we considered factors such as industry, stage of life cycle, size, and financial leverage. We intend to primarily use the volatility history of the share price of our common stock as it becomes available.

- *Expected term*. We estimate the expected term using the simplified method, as we do not have sufficient historical exercise activity to develop reasonable expectations about future exercise patterns and post-vesting employment termination behavior. The simplified method calculates the average period the stock options are expected to remain outstanding as the midpoint between the vesting date and the contractual expiration date of the award.

- *Risk-free interest rate*. The risk-free interest rate is based on the U.S. Treasury yield curve in effect at the time of grant for maturities corresponding with the expected term of the award.

- *Expected dividend yield*. We have never declared or paid any dividends and do not presently plan to pay dividends in the foreseeable future. Consequently, we use an expected dividend yield of zero.

Prior to the adoption of ASU No. 2018-07, *Compensation — Stock Compensation* (ASU 2018-17), which simplifies the accounting for non-employee share-based payment transactions, the fair value measurement date for non-employee awards was the date the performance of services was completed. Upon adoption of ASU 2018-07 on January 1, 2019, 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.

JOBS Act Accounting Election

We are an emerging growth company, as defined in the JOBS Act. Under the JOBS Act, emerging growth companies can delay adopting new or revised accounting standards issued subsequent to the enactment of the JOBS Act until such time as those standards apply to private companies. We have irrevocably elected not to avail ourselves of this exemption from new or revised accounting standards, and therefore, we will be subject to the same new or revised accounting standards as other public companies that are not emerging growth companies.

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 $228.3 million and $33.2 million as of December 31, 2019 and 2018, 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.

Under our debt agreements, we pay interest on any outstanding balances based on variable market rates. A significant increase in these market rates may adversely affect our results of operations.

As of December 31, 2019 and 2018, 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.

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. Nonetheless, 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, 2019 and 2018, 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, 2019, 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, 2019 and 2018, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2019, in conformity with U.S. generally accepted accounting principles.

Basis for Opinion

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

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

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

/s/ Ernst & Young LLP

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

Salt Lake City, Utah
February 27, 2020

HEALTH CATALYST, INC.

Consolidated Balance Sheets

(in thousands, except share and per share data)

	As of December 31,	
	2019	**2018**
Assets		
Current assets:		
Cash and cash equivalents	$ 18,032	$ 28,431
Short-term investments	210,245	4,761
Accounts receivable, net[(1)]	27,570	27,696
Deferred costs	937	649
Prepaid expenses and other assets	7,455	5,321
Total current assets	264,239	66,858
Property and equipment, net	4,295	4,676
Intangible assets, net	25,535	28,304
Operating lease right-of-use assets	3,787	6,344
Other assets	810	1,099
Goodwill	3,694	3,694
Total assets	$ 302,360	$ 110,975
Liabilities, redeemable convertible preferred stock, and stockholders' equity (deficit)		
Current liabilities:		
Accounts payable	$ 3,622	$ 1,812
Accrued liabilities	8,944	9,203
Acquisition-related consideration payable[(1)]	2,192	2,172
Deferred revenue[(1)]	30,653	24,755
Operating lease liabilities	2,806	2,577
Current portion of long-term debt	—	1,287
Total current liabilities	48,217	41,806
Long-term debt, net of current portion	48,200	18,814
Acquisition-related consideration payable, net of current portion[(1)]	1,860	3,770
Deferred revenue, net of current portion	1,459	7,280
Operating lease liabilities, net of current portion	1,654	4,228
Other liabilities	326	—
Total liabilities	101,716	75,898
Commitments and contingencies (Notes 8 and 16)		
Redeemable convertible preferred stock, $0.001 par value; no shares and 45,427,441 shares authorized as of December 31, 2019 and 2018, respectively; no shares and 22,713,694 shares issued and outstanding as of December 31, 2019 and 2018, respectively; aggregated liquidation preference of $306,192 as of December 31, 2018	—	409,845
Stockholders' equity (deficit):		
Preferred stock, $0.001 par value per share; 25,000,000 and no shares authorized as of December 31, 2019 and 2018, respectively; no shares issued and outstanding as of December 31, 2019 and 2018	—	—
Common stock, $0.001 par value; 500,000,000 and 72,565,312 shares authorized as of December 31, 2019 and 2018, respectively; 36,678,854 and 4,779,356 shares issued and outstanding as of December 31, 2019 and 2018, respectively	37	5
Additional paid-in capital	811,049	—
Accumulated deficit	(610,514)	(374,772)
Accumulated other comprehensive income (loss)	72	(1)
Total stockholders' equity (deficit)	200,644	(374,768)
Total liabilities, redeemable convertible preferred stock, and stockholders' equity (deficit)	$ 302,360	$ 110,975

(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,		
	2019	**2018**	**2017**
Revenue[1]:			
Technology	$ 83,975	$ 57,224	$ 31,693
Professional services	70,966	55,350	41,388
Total revenue	154,941	112,574	73,081
Cost of revenue, excluding depreciation and amortization[1]:			
Technology	27,797	19,429	11,610
Professional services	47,548	40,423	32,032
Total cost of revenue, excluding depreciation and amortization	75,345	59,852	43,642
Operating expenses[1]:			
Sales and marketing	47,284	44,123	25,920
Research and development	46,252	38,592	28,470
General and administrative	31,713	22,690	14,697
Depreciation and amortization	9,212	7,412	5,892
Total operating expenses	134,461	112,817	74,979
Loss from operations	(54,865)	(60,095)	(45,540)
Loss on extinguishment of debt	(1,670)	—	—
Interest and other expense, net	(3,419)	(2,024)	(1,469)
Loss before income taxes	(59,954)	(62,119)	(47,009)
Income tax provision (benefit)	142	(135)	26
Net loss	$ (60,096)	$ (61,984)	$ (47,035)
Less: accretion of redeemable convertible preferred stock	180,826	52,037	11,745
Net loss attributable to common stockholders	$ (240,922)	$ (114,021)	$ (58,780)
Net loss per share attributable to common stockholders, basic and diluted	$ (12.86)	$ (23.76)	$ (12.13)
Weighted-average shares outstanding used in calculating net loss per share attributable to common stockholders, basic and diluted	18,741	4,798	4,847

(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,		
	2019	**2018**	**2017**
Net Loss	$ (60,096)	$ (61,984)	$ (47,035)
Other comprehensive gain (loss):			
Change in unrealized gain (loss) on investments	75	11	17
Change in foreign currency translation adjustment	(2)	—	—
Comprehensive loss	$ (60,023)	$ (61,973)	$ (47,018)

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 Loss	Total Stockholders' Deficit
	Shares	Amount	Shares	Amount				
Balance as of January 1, 2017	19,985,139	$ 286,037	4,840,810	$ 5	$ —	$ (206,383)	$ (29)	$ (206,407)
Issuance of Series E redeemable convertible preferred stock, net of issuance costs of $53	1,124,632	23,787	—	—	—	—	—	—
Exercise of stock options	—	—	13,031	—	76	—	—	76
Stock-based compensation	—	—	—	—	4,223	—	—	4,223
Common stock warrants	—	—	—	—	1,396	—	—	1,396
Net loss	—	—	—	—	—	(47,035)	—	(47,035)
Other comprehensive gain	—	—	—	—	—	—	17	17
Accretion of redeemable convertible preferred stock	—	11,745	—	—	(5,695)	(6,050)	—	(11,745)
Balance as of December 31, 2017	21,109,771	$ 321,569	4,853,841	$ 5	$ —	$ (259,468)	$ (12)	$ (259,475)
Issuance of Series E redeemable convertible preferred stock, net of issuance costs of $13	1,603,923	36,239	—	—	—	—	—	—
Repurchase of common stock	—	—	(798,372)	(1)	(8,711)	—	—	(8,712)
Exercise of stock options	—	—	723,887	1	3,044	—	—	3,045
Stock-based compensation	—	—	—	—	4,198	—	—	4,198
Common stock warrants	—	—	—	—	186	—	—	186
Net loss	—	—	—	—	—	(61,984)	—	(61,984)
Other comprehensive gain	—	—	—	—	—	—	11	11
Accretion of redeemable convertible preferred stock	—	52,037	—	—	1,283	$ (53,320)	—	(52,037)
Balance as of December 31, 2018	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 employee stock purchase plan	—	—	134,766	—	2,978	—	—	2,978
Net loss	—	—	—	—	—	(60,096)	—	(60,096)
Other comprehensive gain	—	—	—	—	—	—	73	73
Balance as of December 31, 2019	—	$ —	36,678,854	$ 37	$ 811,049	$ (610,514)	$ 72	$ 200,644

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,		
	2019	**2018**	**2017**
Cash flows from operating activities			
Net loss	$ (60,096)	$ (61,984)	$ (47,035)
Adjustments to reconcile net loss to net cash used in operating activities:			
Depreciation and amortization	9,212	7,412	5,892
Loss on extinguishment of debt	1,670	—	—
Amortization of debt discount and issuance costs	1,081	533	153
Investment discount and premium (accretion) amortization	(615)	(143)	72
Change in fair value of warrant liability	—	(34)	47
Gain on sale of property and equipment	(39)	(29)	(47)
Stock-based compensation expense	17,844	4,198	4,241
Deferred tax provision (benefit)	40	(163)	14
Other	(15)	—	—
Change in operating assets and liabilities:			
Accounts receivable	127	(3,627)	4,442
Deferred costs	(288)	113	461
Prepaid expenses and other assets	(1,308)	(1,334)	(815)
Operating lease right-of-use assets	2,557	(3,942)	1,650
Accounts payable, accrued liabilities, and other liabilities	(86)	4,588	(6,289)
Deferred revenue	77	10,317	2,126
Operating lease liabilities	(2,345)	3,799	(1,741)
Net cash used in operating activities	(32,184)	(40,296)	(36,829)
Cash flows from investing activities			
Purchases of property and equipment	(2,399)	(2,275)	(2,466)
Proceeds from the sale of property and equipment	62	29	47
Purchase of short-term investments	(256,007)	(13,993)	(46,422)
Proceeds from the sale and maturity of short-term investments	50,677	37,870	72,127
Purchase of intangible assets	(1,935)	(228)	(878)
Net cash (used in) provided by investing activities	(209,602)	21,403	22,408
Cash flows from financing activities			
Proceeds from initial public offering, net of underwriters' discounts and commissions	194,649	—	—
Proceeds from the issuance of redeemable convertible preferred stock, net of issuance costs	12,073	33,987	23,787
Proceeds from exercise of stock options	2,656	3,045	76
Proceeds from employee stock purchase plan	2,978	—	—
Repurchase of common stock	—	(8,712)	—
Payment of SVB line of credit and mezzanine loan	(21,821)	—	—
Proceeds from credit facilities, net of debt issuance costs	47,169	9,950	9,787
Payments of acquisition-related consideration	(1,713)	(13,924)	(8,779)
Payments of deferred offering costs	(4,610)	—	—
Net cash provided by financing activities	231,381	24,346	24,871
Effect of exchange rate changes on cash and cash equivalents	6	—	—
Net (decrease) increase in cash and cash equivalents	(10,399)	5,453	10,450
Cash and cash equivalents at beginning of period	28,431	22,978	12,528
Cash and cash equivalents at end of period	$ 18,032	$ 28,431	$ 22,978
Supplemental disclosures of cash flow information			
Cash paid for income taxes	$ 19	$ 31	$ 66
Cash paid for interest	5,557	3,937	1,032
Supplemental disclosures of non-cash investing and financing information			
Redeemable convertible preferred stock accretion	$ 180,826	$ 52,037	$ 11,745
Deferred offering costs included in accounts payable and accrued liabilities	—	100	—
Series E redeemable convertible preferred stock allocated to business combination	—	2,252	—
Purchase of intangible assets included in accounts payable and accrued liabilities	1,626	—	675
Purchase of property and equipment included in accounts payable and accrued liabilities	209	84	3
Supplemental disclosures of cash flow information related to leases			
Cash paid for operating lease liabilities in operating cash flows	$ 3,248	$ 3,146	$ 1,891

Operating lease right-of-use assets obtained in exchange for operating lease obligations	581	6,641	—

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

HEALTH CATALYST, INC.

Notes to the 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). We have reclassified certain prior period amounts to conform to the current period presentation.

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.

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 doubtful accounts, 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, redeemable convertible preferred stock accretion, stock-based compensation, 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), purchase rights committed under the employee stock purchase plan, and warrants to purchase common stock 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.

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.

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 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, 2019, 2018, and 2017, the unbilled accounts receivable included in accounts receivable on our consolidated balance sheets was $2.9 million, $3.4 million and $2.8 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, 2019, 2018, and 2017, the total of current and non-current deferred revenue on our consolidated balance sheets was $32.1 million, $32.0 million, and $10.7 million, respectively.

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.

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, 2019 and 2018, we had deferred contract fulfillment costs of $0.9 million and $0.6 million, respectively.

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 that mature in less than 12 months. We classify our short-term investments as available for sale.

Accounts receivable

Accounts receivable are non-interest bearing and are recorded at the original invoiced amount less an allowance for doubtful accounts based on the probability of future collections. When we become aware of circumstances that may decrease the likelihood of collections, we record a specific allowance against amounts due, which reduces the receivable amount to the amount reasonably believed to be collected. For all other customers, we determine and periodically adjust the allowance based on historical loss patterns and current receivables aging. As of December 31, 2019 and 2018, we had an allowance for doubtful accounts of $0.4 million and $0.5 million, respectively.

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 years
Leasehold improvements	Lesser of lease term or estimated useful life
Computer software	2-3 years
Capitalized internal-use software costs	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. We did not incur any long-lived impairment charges for the years ended December 31, 2019, 2018, and 2017.

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	2-10 years
Customer relationships and contracts	6 years
Computer software licenses	2-5 years
Trademarks	2 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 is assessed for impairment annually or more frequently if indicators of impairment are present or circumstances suggest that impairment may exist. The first step of the goodwill impairment test compares 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, the second step of the goodwill impairment test is performed to measure the amount of impairment loss, if any. The second step of the goodwill impairment test compares the implied fair value of the affected reporting unit's goodwill with the carrying value of that goodwill. There was no impairment of goodwill for the years ended December 31, 2019, 2018, and 2017.

Deferred offering costs

Deferred offering costs, which consist of legal, consulting, banking, and accounting fees directly attributable to the IPO, were capitalized and then offset against proceeds upon the consummation of the IPO. During the year ended December 31, 2019, we reclassified $4.6 million of offering costs into stockholders' equity as a reduction of the net proceeds received from the IPO.

Common stock warrants

We account for freestanding warrants to purchase shares of our common stock that are not considered indexed to our own stock as warrant liabilities on our consolidated balance sheets until the point in time that they qualify for equity classification. We record liability-classified common stock warrants at their estimated fair value because they are free standing and the number of shares exercisable increases as we make advances on our credit facility.

At the end of each reporting period, we record the change in the estimated fair value of the warrants to purchase common stock as a change in fair value of warrant liability within interest and other expense, net in our consolidated statements of operations. We reclassify the warrants from liability-classified to equity-classified as exercise contingencies related to the warrants become resolved. 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). During the year ended December 31, 2019, all outstanding warrants were exercised through a cashless exercise.

Business combinations

We account for an acquisition as a business combination if we obtain control of a business. Assets and liabilities acquired in a business combination generally are recorded at fair value and any associated acquisition costs are expensed as incurred in general and administrative expenses.

Advertising costs

All advertising costs are expensed as incurred. For the years ended December 31, 2019, 2018, and 2017, we incurred $4.9 million, $5.0 million, and $5.9 million in advertising costs, respectively.

Development costs and internal-use software

Our technology products are generally developed to be sold externally. We determined that technological feasibility for our technology products to be sold externally 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.

Stock-based compensation

Stock-based awards, including stock options and RSUs, are measured and recognized in the consolidated financial statements based on the fair value of the award on the grant date. For awards subject to performance conditions, we record expense when the performance condition becomes probable. We record forfeitures of stock-based awards as the actual forfeitures occur.

We estimate the fair value of stock option awards on the grant date using the Black-Scholes option pricing model. 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 expense on a straight-line basis over the vesting period. Two-tier employee stock-based awards contain 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 an initial public offering by the Company. A change in control event and effective registration event are not deemed probable until consummated; accordingly, no expense is recorded related to two-tier stock options until the performance condition becomes probable of occurring. Awards that contain both service-based and performance conditions are recognized using the accelerated attribution method once the performance condition is probable of occurring. The service-based condition is generally a service period of four years. Upon closing our IPO, 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 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. The impact on our consolidated financial statements was immaterial.

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.

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 doubtful accounts for amounts that we determine are not collectible.

The following table depicts the largest customers' outstanding net accounts receivable balance as a percentage of the total outstanding net accounts receivable balance:

	As of December 31,	
	2019	2018
Customer A	less than 10%	13%

There were no other customers with outstanding net accounts receivable balances as a percentage of total outstanding net accounts receivable balance greater than 10% as of December 31, 2019 and 2018.

We had one customer that accounted for 12% of our total revenues in 2017. There were no other customers with revenue as a percentage of total revenue greater than 10% for the years ended December 31, 2019, 2018, and 2017.

Income taxes

Deferred income tax balances are accounted for using the 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.

On December 22, 2017, the 2017 Tax Cuts and Jobs Act (Tax Act) was enacted into law and the new legislation contains several key tax provisions that affect us, including the reduction of the corporate income tax rate to 21%, effective January 1, 2018. We were required to recognize the effect of the tax law changes in the period of enactment. As such, we remeasured our consolidated deferred tax assets and liabilities as of December 31, 2017 to reflect the lower rate and also reassessed the net realizability of those deferred tax assets and liabilities.

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, such as the Tax Act, 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, 2019 and 2018. Money market funds and short-term investments are measured at fair value on a recurring basis.

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.

Leases

We account for our leases in accordance with Accounting Standards Codification Topic 842, *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 (deficit). 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

In June 2018, the FASB issued ASU 2018-07, *Improvements to Nonemployee Share-Based Payment Accounting (ASU 2018-07)*. ASU 2018-07 simplifies the accounting for share-based payments to nonemployees by aligning it with the accounting for share-based payments to employees, with certain exceptions. The new standard became effective for fiscal years beginning after December 15, 2018, and interim periods within those annual periods. We adopted ASU 2018-07 as of January 1, 2019 and applied the standard prospectively. The adoption of this standard did not have a material impact on our consolidated financial statements.

Recent accounting pronouncements

In June 2016, FASB issued ASU 2016-13, *Financial Instruments - Credit Losses (Topic 326)*, which requires the measurement and recognition of expected credit losses for certain financial instruments, which includes our accounts receivable and available-for-sale debt securities. ASU 2016-13 replaces the existing incurred loss impairment model with an expected loss model which requires the use of forward-looking information to calculate credit loss estimates. These changes will result in earlier recognition of credit losses. We will adopt ASU 2016-13 effective January 1, 2020. We are currently evaluating new credit loss models and updating our processes and controls in connection with the adoption of ASU 2016-13. Based on the current composition of our investment portfolio, current market conditions, and historical credit loss activity, we expect that the initial adoption of this ASU will not have a material impact on our consolidated financial statements and related disclosures.

In January 2017, FASB issued ASU 2017-04, *Intangibles-Goodwill and Other - Simplifying the Test for Goodwill Impairment (Topic 350)*, that simplifies how an entity is required to test goodwill for impairment by eliminating the second step of the impairment test. The second step measures a goodwill impairment loss by comparing the fair value of a reporting unit to the carrying amount. Under the new standard, if the carrying amount of the reporting unit exceeds its fair value, the carrying amount of goodwill is reduced by the excess reporting unit carrying amount up to the carrying amount of the goodwill. We will adopt ASU 2017-04 for annual or interim goodwill impairment tests in reporting periods beginning after December 15, 2019. This ASU will apply to our reporting requirements in performing goodwill impairment testing; however, we expect that the initial adoption of this ASU will not have a material impact on our consolidated financial statements.

In August 2018, the FASB issued ASU 2018-13, *Fair Value Measurement (Topic 820), Disclosure Framework - Changes to the Disclosure Requirements for Fair Value Measurement*, which eliminates certain disclosure requirements for fair value measurements for all entities, requires public entities to disclose certain new information and modifies some disclosure requirements. The new guidance is effective for all entities for fiscal years beginning after December 15, 2019 and for interim periods within those fiscal years. We expect that the disclosure changes that result from the adoption of this ASU will not have a material impact on our consolidated financial statements.

HEALTH CATALYST, INC.

Notes to the Consolidated Financial Statements

2. Revenue

Disaggregation of revenue

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

	Year Ended December 31,		
	2019	2018	2017
Recurring technology	$ 83,791	$ 55,266	$ 28,003
One-time technology (i.e., perpetual license)	184	1,958	3,690
Professional services	70,966	55,350	41,388
Total revenue	$ 154,941	$ 112,574	$ 73,081

For the years ended December 31, 2019, 2018, and 2017, 99.7%, 99.4%, and 99.5% of revenue was related to contracts with customers located in the United States.

3. 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,	
	2019	2018
Technology	$ 2,912	$ 2,912
Professional services	782	782
Total goodwill	$ 3,694	$ 3,694

As of December 31, 2019, intangible assets consisted of the following (in thousands):

	Gross	Accumulated Amortization	Net
Developed technologies	$ 36,129	$ (16,548)	$ 19,581
Customer relationships and contracts	4,164	(2,773)	1,391
Computer software licenses	7,114	(2,576)	4,538
Trademarks	100	(75)	25
Total intangible assets	$ 47,507	$ (21,972)	$ 25,535

As of December 31, 2018, intangible assets consisted of the following (in thousands):

	Gross	Accumulated Amortization	Net
Developed technologies	$ 36,129	$ (12,720)	$ 23,409
Customer relationships and contracts	4,164	(2,080)	2,084
Computer software licenses	3,554	(818)	2,736
Trademarks	100	(25)	75
Total intangible assets	$ 43,947	$ (15,643)	$ 28,304

Amortization expense for intangible assets for the years ended December 31, 2019, 2018, and 2017 was $6.3 million, $5.1 million, and $4.5 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, 2019 is as follows:

	Weighted-Average Remaining Amortization Period (years)
Developed technologies	5.4
Customer relationships and contracts	2.5
Computer software licenses	2.3
Trademarks	0.5

As of December 31, 2019, future amortization expense for finite-lived intangible assets is estimated to be as follows (in thousands):

Year Ending December 31,	
2020	$ 6,627
2021	5,945
2022	4,716
2023	3,171
2024	3,041
Thereafter	2,035
Total future amortization expense	$ 25,535

4. Property and Equipment

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

	As of December 31,	
	2019	2018
Computer equipment	$ 7,951	$ 6,769
Leasehold improvements	2,234	1,704
Furniture and fixtures	1,030	1,406
Capitalized internal-use software costs	1,866	1,482
Computer software	972	972
Capital lease equipment	37	37
Total property and equipment	14,090	12,370
Less: accumulated depreciation	(9,795)	(7,694)
Property and equipment, net	$ 4,295	$ 4,676

Our long-lived assets are located in the United States. Depreciation expense for the years ended December 31, 2019, 2018, and 2017 was $2.9 million, $2.3 million, and $1.4 million, respectively. Depreciation expense includes amortization of assets recorded under a capital lease and the amortization of capitalized internal-use software costs.

We capitalized $0.4 million, $0.2 million, and $1.3 million of internal-use software costs for the years ended December 31, 2019, 2018, and 2017, respectively. We incurred $0.5 million, $0.4 million, and $0.1 million of capitalized internal-use software cost amortization expense for the years ended December 31, 2019, 2018, and 2017, respectively.

5. Short-term Investments

Our investment policy limits investments to highly-rated instruments that mature in less than 12 months. 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, 2019, 2018, and 2017. 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, 2019:

	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value	Cash equivalents	Short-term Investments
Money market funds	17,175	—	—	17,175	17,175	—
U.S. treasury notes	58,130	34	—	58,164	—	58,164
Commercial paper	46,973	—	—	46,973	—	46,973
Corporate bonds	64,978	27	(5)	65,000	—	65,000
Asset-backed securities	40,090	18	—	40,108	—	40,108
Total	$ 227,346	$ 79	$ (5)	$ 227,420	$ 17,175	$ 210,245

The following table summarizes, by major security type, our cash equivalents and short-term investments (in thousands) as of December 31, 2018:

	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value	Cash equivalents	Short-term Investments
Money market funds	23,085	—	—	23,085	23,085	—
U.S. treasury notes	4,175	—	(1)	4,174	1,396	2,778
Commercial paper	3,976	—	—	3,976	1,993	1,983
Corporate bonds	998	—	—	998	998	—
Total	$ 32,234	$ —	$ (1)	$ 32,233	$ 27,472	$ 4,761

As 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, we do not consider the investments with an unrealized loss to be other-than-temporarily impaired as of December 31, 2019.

6. Fair Value of Financial Instruments

Assets and liabilities measured at fair value on a recurring basis as of December 31, 2019 were as follows (in thousands):

	December 31, 2019			
	Level 1	Level 2	Level 3	Total
Assets:				
Money market funds	$ 17,175	$ —	$ —	$ 17,175
U.S. Treasury notes	58,164	—	—	58,164
Commercial paper	—	46,973	—	46,973
Corporate bonds	—	65,000	—	65,000
Asset-backed securities	—	40,108	—	40,108
Total assets measured at fair value on a recurring basis	$ 75,339	$ 152,081	$ —	$ 227,420

Assets and liabilities measured at fair value on a recurring basis as of December 31, 2018 were as follows (in thousands):

	December 31, 2018			
	Level 1	Level 2	Level 3	Total
Assets:				
Money market funds	$ 23,085	$ —	$ —	$ 23,085
U.S. Treasury notes	4,174	—	—	4,174
Commercial paper	—	3,976	—	3,976
Corporate bonds	—	998	—	998
Total assets measured at fair value on a recurring basis	$ 27,259	$ 4,974	$ —	$ 32,233

There were no transfers between Level 1 and Level 2 of the fair value measurement hierarchy during the years ended December 31, 2019 and 2018.

In October 2017, we issued common stock warrants which required fair value measurements. The fair value of the warrants was measured using an option pricing model. Inputs used to determine the estimated fair value of the warrants include the estimated value of the underlying common stock at the valuation measurement date, the term of the warrants, risk-free interest rates, and estimated volatility. Estimated volatility is based on the volatility of a peer group. In addition to the above, significant inputs include the likelihood of the exercise contingencies being met. 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). See Note 12 for further information regarding the fair value of the warrants.

7. Accrued liabilities

As of December 31, 2019 and 2018, accrued liabilities consisted of the following (in thousands):

	As of December 31,	
	2019	2018
Accrued compensation and benefit expenses	$ 4,278	$ 5,888
Other accrued liabilities	4,666	3,315
Total accrued liabilities	$ 8,944	$ 9,203

8. Leases

Operating leases

We lease office space and certain equipment under operating leases that expire between 2020 and 2024. 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.

Our operating lease expense for the years ended December 31, 2019, 2018, and 2017, was $3.2 million, $2.2 million, and $1.8 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, 2019, 2018, and 2017, was $0.2 million, $0.5 million, and $0.6 million, respectively.

Maturities of lease liabilities under operating leases at December 31, 2019 are as follows (in thousands):

Year ending December 31:	
2020	$ 3,000
2021	824
2022	399
2023	410
2024	152
Thereafter	—
Total lease payments	4,785
Less: Imputed interest	(325)
Total lease liability	$ 4,460

Supplemental balance sheet information related to leases as of December 31, 2019 and 2018 is as follows (in thousands other than weighted average amounts):

	As of December 31,	
	2019	2018
Operating lease right-of-use assets	$ 3,787	$ 6,344
Operating lease liabilities, current	$ 2,806	$ 2,577
Operating lease liabilities, noncurrent	1,654	4,228
Total operating lease liabilities	$ 4,460	$ 6,805
Weighted-average remaining operating lease term (years)	2.2	2.6
Weighted-average operating lease discount rate	5.6%	5.5%

9. Acquisition-related consideration payable

Future minimum cash commitments as part of prior-year asset acquisitions and business combinations as of December 31, 2019 are as follows (in thousands):

Year ending December 31:	
2020	2,250
2021	2,000
Total cash commitments as part of acquisitions	4,250
Less: Imputed interest	(198)
Total acquisition-related consideration payable	$ 4,052

The remaining obligations from the acquisition-related consideration payable, net of imputed interest, are recorded as liabilities on our consolidated balance sheets.

10. Credit Facilities

As of December 31, 2019, our term credit facilities consisted of the following, excluding debt discount and issue costs of $1.8 million (in thousands):

	Balance	Remaining Capacity	Interest Rate	Basis Rate
OrbiMed term loan	$ 50,000	$ 30,000	10.00%	Higher of LIBOR plus 7.5% and 10.0%
SVB revolving line of credit	—	5,000	5.25%	Prime plus 0.50%
Total credit facilities	50,000	$ 35,000		
Less: Current portion of credit facilities	—			
Credit facilities, less current portion	$ 50,000			

As of December 31, 2018, our term credit facilities consisted of the following, excluding debt discount and issue costs of $1.2 million (in thousands):

	Balance	Remaining Capacity	Interest Rate	Basis Rate
SVB term loan	$ 20,000	$ —	11.75%	Prime plus 6.25%
SVB revolving line of credit	1,321	18,679	6.00%	Prime plus 0.50%
Total credit facilities	21,321	$ 18,679		
Less: Current portion of credit facilities	(1,321)			
Credit facilities, less current portion	$ 20,000			

In June 2016, we signed a Loan and Security Agreement with Silicon Valley Bank (SVB) which established a revolving line of credit based on a formula amount and secured $1.3 million in advances from the revolving line of credit. In October 2017, we signed a Mezzanine Loan and Security Agreement with SVB which allows access to term loan borrowings of up to $20.0 million and drew $10.0 million at closing. As of December 31, 2018, the maturity date of any borrowings under the agreement was April 2021. We paid $0.2 million in fees related to the establishment of the term loan and were required to pay an additional commitment fee each time we draw funds based on a formula and the amount of funds borrowed. In October 2018, we drew an additional $10.0 million under the Mezzanine Loan and Security Agreement.

Amounts borrowed under the SVB Mezzanine Loan and Security Agreement were secured by a first priority security interest in substantially all of our assets other than intellectual property. In the event of default, SVB had the right to accelerate amounts outstanding, terminate the credit facility, and foreclose on the collateral. The agreement also includes a financial covenant requiring the achievement of minimum annual recurring revenue amounts in order to draw upon the remaining available credit. We were in compliance with this covenant under the terms of the credit facility as of December 31, 2018.

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 is 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 is the higher of LIBOR plus 7.5% and 10.0%. Interest payments are required at the end of each month and monthly installment payments on principal begin in February 2023 and will be based on the then outstanding principal balance divided by 12. The maturity date of the OrbiMed term loan is February 6, 2024. Upon the payment of all or any portion of the principal amount on the OrbiMed term loan, we are required to pay an exit fee of 5% of the principal amount paid. This exit fee is being accreted as interest expense over the contractual term of the loan. If we elect to prepay portions

of the principal balance prior to the 48-month anniversary of the closing date we would be required to pay a repayment premium ranging from 1% to 12% of the principal balance prepaid depending on the period in which the prepayment is made.

Amounts borrowed under the OrbiMed term loan are secured by a first priority security interest in substantially all of our assets other than intellectual property. In the event of default, OrbiMed may accelerate amounts outstanding, terminate the credit facility, and foreclose on the collateral. The agreement also includes 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 December 31, 2019.

The use of proceeds from the senior term loan included an immediate repayment of our $20.0 million term loan from SVB that required a prepayment premium of $0.5 million and the write-off of deferred debt discount and issuance costs of $1.2 million, resulting in a $1.7 million loss on extinguishment of debt. In addition, we repaid in full the outstanding balance of $1.3 million under the SVB revolving line of credit.

On February 6, 2019, we amended the Loan and Security 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.

11. Redeemable Convertible Preferred Stock

We had 45,427,441 shares of $0.001 par value redeemable convertible preferred stock authorized, of which 22,713,694 shares were issued and outstanding, as of December 31, 2018. The issued and outstanding redeemable convertible preferred shares as of December 31, 2018 consisted of 3,587,499 designated Series A redeemable convertible preferred stock, 4,986,827 designated Series B redeemable convertible preferred stock, 4,794,007 designated Series C redeemable convertible preferred stock, 3,314,612 designated Series D redeemable convertible preferred stock, and 6,030,749 designated Series E 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, 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. The shares of redeemable convertible preferred stock were accreted to the estimated fair value of $409.8 million as of December 31, 2018.

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 (Deficit)

Amendment and Restatement of Certificate of Incorporation

In connection with the 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, 2019 and 2018, no shares of this preferred stock were issued and outstanding.

Common stock

We had 500,000,000 and 72,565,312 shares of $0.001 par value common stock authorized, of which 36,731,632 and 4,832,134 shares were legally issued and outstanding as of December 31, 2019 and 2018, respectively. The shares legally issued and outstanding include 52,778 shares issued to former employees with notes determined to be substantively nonrecourse and, as such, for accounting purposes are 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, 2019.

During 2018, as part of a tender offer we repurchased 798,372 shares of common stock from team members, which shares were received by the exercise of stock options or contractual arrangements, for cash consideration of $16.9 million. The estimated fair value of the repurchased common stock of $8.6 million and offering costs of $0.1 million were recorded as a reduction to common stock and additional paid-in capital. The excess of the repurchase price over the estimated fair value of the common stock redeemed from team members of $8.3 million was accounted for as compensation expense on the consolidated statement of operations.

The effects of the excess of the tender offer repurchase price over the estimated fair value of the common stock redeemed from team members on the statement of operations for the year ended December 31, 2018 are summarized in the following table (in thousands):

	2018
Cost of revenue	$ 312
Sales and marketing	3,967
Research and development	906
General and administrative	3,133
Total compensation expense from repurchase	$ 8,318

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 was paid off in full, 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 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,		
	2019	2018	2017
Numerator:			
Net loss attributable to common stockholders	$ (240,922)	$ (114,021)	$ (58,780)
Denominator:			
Weighted-average number of shares used in calculating net loss per share attributable to common stockholders, basic and diluted	18,741,119	4,798,363	4,846,511
Net loss per share attributable to common stockholders, basic and diluted	$ (12.86)	$ (23.76)	$ (12.13)

During the years ended December 31, 2019, 2018 and 2017, we incurred net losses and, therefore, the effect of our common stock options, restricted stock units, common stock warrants, and redeemable convertible preferred stock (as converted) 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,		
	2019	2018	2017
Redeemable convertible preferred stock	—	22,713,694	21,109,771
Common stock options	7,847,716	7,237,417	4,705,171
Restricted stock units	503,861	—	—
Common stock warrants	—	255,336	255,336
Total potentially dilutive securities	8,351,577	30,206,447	26,070,278

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 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 nonstatutory stock options, restricted and unrestricted stock, RSUs, and stock appreciation rights to our directors, team members, or consultants.

We have 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 December 31, 2019 and 2018, there were 11,272,878 and 8,772,878 shares authorized for grant, respectively, and 2,309,370 and 1,296,793 shares available for grant, respectively, under the 2019 Plan and 2011 Plan (collectively the 'Stock Incentive Plan').

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, we recorded cumulative share-based compensation expense 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, is estimated on the date of grant using the Black-Scholes option pricing model. The absence of an active market for our common stock requires 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 are based on historical volatilities of comparable companies. The expected term of the options is based on the simplified method outlined in the SEC Staff accounting guidance, under which we estimate the term as the average of the option's contractual term and the option's weighted average vesting period. The risk-free rate represents 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, 2019 and 2018 are expected to vest according to their specific schedules.

The fair value of our option grants is estimated at the grant date using the Black-Scholes option-pricing model based on the following weighted-average assumptions:

	Year Ended December 31,		
	2019	2018	2017
Expected volatility	43.8%-44.5%	43.6%-47.6%	46.5%-48.4%
Expected term (in years)	6.3	6.3	6.3
Risk-free interest rate	2.4%-2.5%	2.5%-3.0%	2.0%-2.2%
Expected dividends	—	—	—

Prior to the adoption of ASU 2018-17, the fair value measurement date for non-employee awards was the date the performance of services was completed. Upon adoption of ASU 2018-07 on January 1, 2019, 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.

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,		
	2019	2018	2017
Options	$ 14,837	$ 4,037	$ 4,241
Restricted stock units	2,034	—	—
Employee stock purchase plan	973	—	—
Other	—	161	—
Total stock-based compensation	$ 17,844	$ 4,198	$ 4,241

	Year Ended December 31,		
	2019	2018	2017
Cost of revenue	$ 1,168	$ 558	$ 579
Sales and marketing	3,811	1,514	1,192
Research and development	4,841	787	707
General and administrative	8,024	1,339	1,763
Total stock-based compensation	$ 17,844	$ 4,198	$ 4,241

The current year 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. We did not capitalize any stock-based compensation expense to deferred costs for the years ended December 31, 2019, 2018, and 2017.

A summary of the share option activity under the Health Catalyst Stock Plan for the years ended December 31, 2019 and 2018, is as follows:

	Time-Based Option Shares	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life in Years	Aggregate Intrinsic Value
Outstanding at January 1, 2018	4,705,171	$ 7.88		
Options granted	3,352,644	10.84		
Options exercised	(723,902)	4.20		
Options cancelled/forfeited	(96,496)	9.32		
Outstanding at December 31, 2018	7,237,417	$ 9.60	7.9	$ 45,159,058
Options granted	1,198,121	16.00		
Options exercised	(373,292)	7.11		
Options cancelled/forfeited	(214,530)	10.53		
Outstanding at December 31, 2019	7,847,716	$ 10.67	7.1	$ 188,573,947
Vested and expected to vest as of December 31, 2019	7,847,716	$ 10.67	7.1	$ 188,573,947
Vested and exercisable as of December 31, 2019	4,248,921	$ 9.10	5.8	$ 108,735,716

The weighted-average grant-date fair value for stock options granted during the years ended December 31, 2019, 2018, and 2017 was $9.31, $5.30, and $5.14, respectively. The aggregate intrinsic value of stock options exercised was $6.5 million, $10.9 million, and $0.1 million for the years ended December 31, 2019, 2018, and 2017, respectively. The total grant-date fair value of stock options vested during the years ended December 31, 2019, 2018, and 2017 was $8.1 million, $3.3 million, and $3.6 million, respectively. As of December 31, 2019, approximately $16.2 million of unrecognized compensation expense related to our stock options is expected to be recognized over a weighted-average period of 2.3 years.

The options outstanding include 52,778 of shares issued to former employees with notes determined to be substantively nonrecourse and, as such, for accounting purposes are not considered to be exercised stock options.

Restricted Stock Units

The service-based condition for RSUs is 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, 2019:

	Restricted Stock Units	Weighted Average Grant Date Fair Value
Unvested and outstanding at January 1, 2019	—	$ —
RSUs granted	504,361	37.57
RSUs forfeited	(500)	44.43
Unvested and outstanding at December 31, 2019	503,861	$ 37.57

As of December 31, 2019, we had $16.9 million of unrecognized stock-based compensation expense related to outstanding RSUs expected to be recognized over a weighted-average period of 3.4 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) 1% 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 and not to accrue at a rate which exceeds $25,000 of the fair value of the stock (determined on the option grant date(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 is estimated on the date of grant using the Black-Scholes model with the following assumptions for the initial offering period:

Expected volatility	44.2%
Expected term (in years)	0.4
Risk-free interest rate	2.1%
Expected dividends	—

During the year ended December 31, 2019, we issued 134,766 shares under the ESPP, with a weighted-average purchase price per share of $22.10. Total cash proceeds from the purchase of shares under the ESPP in 2019 were $3.0 million. As of December 2019, 615,234 shares are reserved for future issuance under the ESPP.

15. Income Taxes

For the years ended December 31, 2019, 2018, and 2017, the income tax provision (benefit) consisted of the following (in thousands):

	Year Ended December 31,		
	2019	2018	2017
Current taxes:			
Federal	$ 11	$ —	$ —
Foreign	10	—	—
State	81	28	12
Total current tax provision	102	28	12
Deferred taxes:			
Federal	33	(135)	—
State	7	(28)	14
Total deferred provision (benefit)	40	(163)	14
Total income tax provision (benefit)	$ 142	$ (135)	$ 26

A reconciliation of the statutory U.S. federal income tax rate to our effective income tax rate is as follows:

	Year Ended December 31,		
	2019	2018	2017
Tax at U.S. statutory rates	21.0 %	21.0 %	34.0 %
State income tax, net of federal tax effect	(0.1)	—	—
Federal research and development credits	17.2	0.7	1.0
Stock-based compensation	(1.5)	(0.4)	(2.0)
Change in valuation allowance	(36.6)	(20.9)	23.8
U.S. tax reform	—	—	(56.7)
Other, net	(0.2)	(0.2)	(0.2)
Effective income tax rate	(0.2)%	0.2 %	(0.1)%

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, 2019 and 2018 (in thousands):

	As of December 31,	
	2019	2018
Deferred income tax assets:		
Net operating loss carryforwards	$ 68,643	$ 59,645
Research and development credits	16,348	2,372
Intangible assets	5,354	5,393
Stock-based compensation	4,562	1,398
Deferred revenue	1,779	1,500
Interest limitation carryforward	1,983	554
Operating lease liabilities	1,219	1,808
Property and equipment	511	120
Accrued expenses	556	512
Allowance for bad debt	106	122
Other	52	63
Total deferred income tax assets	101,113	73,487
Valuation allowance	(98,370)	(70,258)
Net deferred income tax assets	2,743	3,229
Deferred income tax liabilities:		
Prepaid expenses	(1,537)	(1,229)
Operating lease right-of-use assets	(967)	(1,618)
Deferred contract costs	(239)	(155)
Indefinite-lived intangible assets	(41)	(227)
Total deferred income tax liabilities	(2,784)	(3,229)
Net deferred income tax liabilities	$ (41)	$ —

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 full valuation allowance for our net deferred tax assets at December 31, 2019 and 2018, 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. During the years ended December 31, 2019 and 2018, respectively, the valuation allowance increased by $28.1 million and $15.9 million, respectively.

On December 22, 2017, the Tax Act was enacted into law and the new legislation contains several key tax provisions that affect our consolidated financial statements, including the reduction of the corporate income tax rate to 21%, effective January 1, 2018. We are required to recognize the effect of the tax law changes in the period of enactment. As such, we have remeasured our consolidated deferred tax assets and liabilities to reflect the lower rate and has also reassessed the realizability of those deferred tax assets and liabilities.

In December 2017, the SEC staff issued Staff Accounting Bulletin No. 118, Income Tax Accounting Implications of the Tax Cuts and Jobs Act (SAB 118), which allows us to record provisional amounts during a measurement period not to extend beyond one year of the enactment date. As of December 31, 2018, we consider the accounting of the deferred tax remeasurements and state tax conformity to be complete.

As of December 31, 2019, we had approximately $269.1 million of consolidated federal net operating loss carryforwards and 215.2 million of 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 2024, respectively. We have federal research and development credit carryforwards of $13.5 million and state research and development credit carryforwards of $5.9 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.

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 2016.

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, 2019 and 2018 (in thousands):

	Year Ended December 31,		
	2019	2018	2017
Beginning balance	$ 2,372	$ 1,939	$ 1,305
Decrease in unrecognized tax benefits taken in prior years	(957)	—	—
Increase in unrecognized tax benefits related to the current year	401	433	634
Ending balance	$ 1,816	$ 2,372	$ 1,939

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, 2019 and 2018, 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, 2019, 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, 2019, approximately 15% 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 $54.6 million of revenue on unsatisfied performance obligations as of December 31, 2019. We expect to recognize approximately 80% of the remaining performance obligations over the next 24 months, with the balance recognized thereafter.

18. Related Parties

We have entered into arrangements with customers where the customer's management is currently or was previously a member of our board of directors. An executive officer at Allina Health served on our board of directors until December 31, 2017. The board seat vacated by the Allina Health executive officer was replaced in January 2018 by an executive of a Partners Healthcare affiliate.

For the years ended December 31, 2019, 2018, and 2017, we recognized $3.0 million, $3.8 million, and $8.6 million in revenue from related parties, respectively. We also leased building space from a related party and recognized 0.6 million in rent expense related to this lease arrangement during the year ended December 31, 2017.

As of December 31, 2019 and 2018, we had receivables from related parties of $0.6 million and $0.1 million, respectively, and deferred revenue with related parties of $0.5 million and $0.4 million, respectively. As of December 31, 2019 and 2018, we also had acquisition-related consideration payable to a 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 and $3.3 million as of December 31, 2019 and 2018, respectively.

We have also entered into revenue arrangements with customers that are also our investors. None of these customers hold a significant amount of ownership in our equity interests.

19. Employee Benefit Plans

We have a 401(k) defined contribution plan covering eligible employees. Our contributions were $5.3 million, $4.6 million, and $3.5 million for the years ended December 31, 2019, 2018, and 2017, respectively. We match 100% of the first 6% of an employees' salary deferral.

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, 2019, 2018, and 2017 were as follows (in thousands):

	Year Ended December 31,		
	2019	2018	2017
Revenue:			
Technology	$ 83,975	$ 57,224	$ 31,693
Professional Services	70,966	55,350	41,388
Total revenue	$ 154,941	$ 112,574	$ 73,081

	Year Ended December 31,		
	2019	2018	2017
Adjusted Gross Profit:			
Technology	$ 56,378	$ 37,901	$ 20,148
Professional Services	24,494	16,028	9,870
Total reportable segments Adjusted Gross Profit	80,872	53,929	30,018
Less Adjusted Gross Profit reconciling items:			
Stock-based compensation	(1,168)	(558)	(579)
Tender offer payments deemed compensation[1]	—	(312)	—
Post-acquisition restructuring costs[2]	(108)	(337)	—
Less other reconciling items:			
Sales and marketing	(47,284)	(44,123)	(25,920)
Research and development	(46,252)	(38,592)	(28,470)
General and administrative	(31,713)	(22,690)	(14,697)
Depreciation and amortization	(9,212)	(7,412)	(5,892)
Debt extinguishment costs	(1,670)	—	—
Interest and other expense, net	(3,419)	(2,024)	(1,469)
Net loss before income taxes	$ (59,954)	$ (62,119)	$ (47,009)

(1) Tender offer payments deemed compensation included in the Adjusted Gross Profit reconciliation above relate to employee compensation from repurchases of common stock at a price in excess of its estimated fair value. For additional details refer to Note 12 in the consolidated financial statements.
(2) Post-acquisition restructuring costs included in the Adjusted Gross Profit reconciliation above relate to severance charges following the acquisition of Medicity.

21. Subsequent Events

Acquisition of Able Health, Inc.

On February 21, 2020, we completed a business combination by acquiring Able Health, Inc. (“Able Health”), a leading SaaS provider of quality and regulatory measurement tracking and reporting to healthcare providers and risk-bearing entities, pursuant to the Agreement and Plan of Reorganization (the “Acquisition Agreement”), dated February 13, 2020. We believe this acquisition will strengthen Health Catalyst’s existing Quality and Regulatory Measures capabilities.

Pursuant to the Acquisition Agreement, we acquired all of the equity interests in Able Health for preliminary consideration of approximately $19 million, consisting of approximately $15 million in cash and 110,662 shares of our common stock issued on the closing date at $30.11 per share. The final purchase price consideration will also include an estimate for contingent consideration of up to an additional 145,036 shares of our common stock if certain incremental billing targets for Able Health are met during an earn-out period that ends on December 31, 2020. The fair value estimate of contingent consideration is in the early stages of analysis. The purchase price is also subject to certain working capital adjustments, which are expected to be finalized within 90 days of the closing date.

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 quarter ending March 31, 2020.

An additional 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 is subject to one year of continuous service by the applicable team members and shall vest on the one-year anniversary of the acquisition closing date. We expect to recognize $5.4 million in stock-based compensation related to these restricted shares over the service period.

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

This Annual Report on Form 10-K does not include a report of management's assessment regarding internal control over financial reporting or an attestation report of our independent registered public accounting firm due to a transition period established by the rules of SEC for newly public companies.

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 this Annual Report on Form 10-K 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.

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 2020 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, 2019.

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 2020 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, 2019.

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 2020 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, 2019.

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 2020 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, 2019.

Item 14. Principal Accountant Fees and Services

The information required by this item is incorporated by reference to our proxy statement relating to our 2020 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, 2019.

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 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
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.	Filed herewith		
10.1	Lease for 3165 Millrock Drive #400 Salt Lake City, Utah 84121, dated September 1, 2016, by and between the Registrant and EOS at Millrock Park LLC.	S-1	10.1	June 27, 2019
10.2	First Amendment to Lease for 3165 Millrock Drive #400 Salt Lake City, Utah 84121, dated July 30, 2018, by and between the Registrant and EOS at Millrock Park LLC.	S-1	10.2	June 27, 2019
10.3	Mezzanine Loan and Security Agreement, dated October 6, 2017, by and between the Registrant and Silicon Valley Bank, as amended.	S-1	10.3	June 27, 2019
10.4	Amended and Restated Loan and Security Agreement, dated October 6, 2017, by and between the Registrant and Silicon Valley Bank, as amended.	S-1	10.4	June 27, 2019
10.5	Credit Agreement, dated February 6, 2019, by and between the Registrant and OrbiMed Royalty Opportunities II, LP.	S-1	10.5	June 27, 2019
10.6#	Non-Employee Director Compensation Policy.	10-Q	10.1	August 23, 2019
10.7#	2019 Stock Option and Incentive Plan, and forms of agreements thereunder.	S-1/A	10.12	July 12, 2019
10.8#	Amended and Restated 2011 Stock Incentive Plan, and forms of agreements thereunder.	S-1	10.13	June 27, 2019
10.9#	2019 Employee Stock Purchase Plan.	S-1/A	10.14	July 12, 2019
10.10#	Executive Severance Plan.	S-1/A	10.16	July 12, 2019
10.11#	Offer Letter, dated September 26, 2011, between the Registrant and Daniel Burton.	S-1	10.6	June 27, 2019

10.12#	Offer Letter, dated October 24, 2011, between the Registrant and Dale Sanders.	S-1	10.7	June 27, 2019
10.13#	Offer Letter, dated May 20, 2013, between the Registrant and J. Patrick Nelli.	S-1	10.8	June 27, 2019
10.14#	Offer Letter, dated September 26, 2011, between the Registrant and Paul Horstmeier.	S-1	10.9	June 27, 2019
10.15#	Offer Letter, dated May 22, 2013, between the Registrant and Linda Llewelyn.	S-1	10.10	June 27, 2019
10.16#	Offer Letter, dated December 3, 2015, between the Registrant and Daniel Orenstein.	S-1	10.11	June 27, 2019
10.17#	Senior Executive Cash Incentive Bonus Plan.	S-1	10.15	June 27, 2019
10.18	Form of Indemnification Agreement, between the Registrant and each of its directors.	S-1	10.18	June 27, 2019
10.19	Warrant to Purchase Common Stock issued to Silicon Valley Bank by the Registrant, dated October 6, 2017.	S-1	10.19	June 27, 2019
10.20	Warrant to Purchase Stock issued to WestRiver Mezzanine Loans - Loan Pool 5, LLC by the Registrant, dated October 6, 2017.	S-1	10.20	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

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# 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: 2/27/2020 By: /s/ J. Patrick Nelli

J. Patrick Nelli

Chief Financial Officer

(Principal Financial and Accounting Officer)

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints each of Daniel Burton, J. Patrick Nelli, 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 Daniel Burton	Chief Executive Officer and Director *(Principal Executive Officer)*	2/27/2020
/s/ J. Patrick Nelli J. Patrick Nelli	Chief Financial Officer *(Principal Financial Officer and Principal Accounting Officer)*	2/27/2020
/s/ Fraser Bullock Fraser Bullock	Director	2/27/2020
/s/ Todd Cozzens Todd Cozzens	Director	2/27/2020
/s/ Michael Dixon Michael Dixon	Director	2/27/2020
/s/ Timothy G. Ferris Timothy G. Ferris	Director	2/27/2020
/s/ Duncan Gallagher Duncan Gallagher	Director	2/27/2020
/s/ Promod Haque Promod Haque	Director	2/27/2020
/s/ John A. Kane John A. Kane	Director	2/27/2020
/s/ Anita V. Pramoda Anita V. Pramoda	Director	2/27/2020
/s/ Julie Larson-Green Julie Larson-Green	Director	2/27/2020
/s/ S. Dawn Smith S. Dawn Smith	Director	2/27/2020

DESCRIPTION OF THE REGISTRANT'S SECURITIES REGISTERED PURSUANT TO SECTION 12 OF THE SECURITIES EXCHANGE ACT OF 1934, AS AMENDED

As of December 31, 2019, Health Catalyst, Inc. (the "Company," "we," "us," and "our") had one class of securities registered under Section 12 of the Securities Exchange Act of 1934, as amended: our common stock.

Description of Common Stock

The following descriptions of our common stock, certain provisions of our amended and restated certificate of incorporation and amended and restated bylaws, and certain provisions of Delaware law are summaries and do not purport to be complete. You should also refer to our amended and restated certificate of incorporation and our amended and restated bylaws, each of which are incorporated by reference as an exhibit to the Annual Report on Form 10-K of which this Exhibit 4.6 is a part, and by applicable law. We encourage you to read our amended and restated certificate of incorporation, our amended and restated bylaws and the applicable provisions of the Delaware General Corporation Law for additional information.

Authorized Capital Stock

Our authorized capital stock consists of 500,000,000 shares of common stock, par value $0.001 per share ("Common Stock"), and 25,000,000 shares of preferred stock, par value $0.001 per share ("Preferred Stock"), all of which shares of Preferred Stock are undesignated.

Common Stock

Our Common Stock is entitled to one vote for each share held of record on all matters submitted to a vote of the stockholders, including the election of directors, and does not have cumulative voting rights. Accordingly, the holders of a majority of the shares of our Common Stock entitled to vote in any election of directors can elect all of the directors standing for election. Subject to preferences that may be applicable to any then outstanding Preferred Stock, the holders of Common Stock are entitled to receive dividends, if any, as may be declared from time to time by our board of directors out of legally available funds. In the event of our liquidation, dissolution or winding up, holders of our Common Stock will be entitled to share ratably in the net assets legally available for distribution to stockholders after the payment of all of our debts and other liabilities, subject to the satisfaction of any liquidation preference granted to the holders of any outstanding shares of Preferred Stock. Holders of our Common Stock have no preemptive, conversion, or subscription rights, and there are no redemption or sinking fund provisions applicable to our Common Stock. The rights, preferences, and privileges of the holders of our Common Stock are subject to, and may be adversely affected by, the rights of the holders of shares of any series of our Preferred Stock that we may designate and issue in the future. All of our outstanding shares of Common Stock are fully paid and nonassessable.

Our Common Stock is listed on The Nasdaq Global Select Market under the symbol "HCAT".

The transfer agent and registrar for our Common Stock is American Stock Transfer & Trust Company, LLC.

Preferred Stock - Limitations on Rights of Holders of Common Stock

Our board of directors has the authority, without further action by the stockholders, to issue up to 25,000,000 shares of Preferred Stock in one or more series, to establish from time to time the number of shares to be included in each such series, to fix the rights, preferences, and privileges of the shares of each wholly unissued series and any qualifications, limitations, or restrictions thereon and to increase or decrease the number of shares of any such series, but not below the number of shares of such series then outstanding. Our board of directors may authorize the issuance of Preferred Stock with voting or conversion rights that could adversely affect the voting power or other rights of the holders of the Common Stock. The issuance of Preferred Stock, while providing flexibility in connection with possible acquisitions and other corporate purposes, could, among other things, have the effect of delaying, deferring or preventing a change in our control that may otherwise benefit holders of our

Common Stock and may adversely affect the market price of the Common Stock and the voting and other rights of the holders of Common Stock.

Registration Rights

Certain holders of our Common Stock are entitled to certain rights with respect to registration of such shares under the Securities Act, pursuant to the terms of a registration agreement. These shares are collectively referred to herein as registrable securities. The registration agreement provides the holders of registrable securities with demand, piggyback and S-3 registration rights as described more fully below.

Demand Registration Rights

The holders of a majority of our registrable securities then outstanding have the right to make up to two demands that we file a registration statement under the Securities Act covering registrable securities then outstanding having an aggregate offering price of at least $20.0 million, subject to specified exceptions.

Piggyback Registration Rights

If we register any securities for public sale, the holders of our registrable securities then outstanding will each be entitled to notice of the registration and will have the right to include their shares in the registration statement. These piggyback registration rights are subject to specified conditions and limitations, including the right of the underwriters of any underwritten offering to limit the number of shares with registration rights to be included in the registration statement.

Registration on Form S-3

If we are eligible to file a registration statement on Form S-3, the holders of registrable securities have the right to demand that we file registration statements on Form S-3; provided, that the aggregate price to the public of the securities to be sold under the registration statement is at least $5.0 million. The right to have such shares registered on Form S-3 is further subject to other specified conditions and limitations.

Expenses of Registration

We will pay all expenses relating to any demand, piggyback or Form S-3 registration, other than underwriting discounts and commissions, subject to specified conditions and limitations.

Termination of Registration Rights

The registration rights will terminate with respect to any particular stockholder when such stockholder is able to sell its shares without limitation pursuant to Rule 144 under the Securities Act.

Forum Selection

The Court of Chancery of the State of Delaware will be the sole and exclusive forum for the following types of actions or proceedings under Delaware statutory or common law: (i) any derivative action or proceeding brought on behalf of the company, (ii) any action asserting a claim of breach of fiduciary duty owed by any director, officer, or other employee of the company to the company or the company's stockholders, (iii) any action asserting a claim arising pursuant to any provision of the Delaware General Corporation Law, or (iv) any action asserting a claim governed by the internal affairs doctrine. This exclusive forum provision will not apply to any causes of action arising under the Securities Act or the Exchange Act or any other claim for which the federal courts have exclusive jurisdiction. Any person or entity purchasing or otherwise acquiring any interest in shares of capital stock of the company shall be deemed to have notice of and consented to the foregoing forum selection provisions. The provision would not apply to suits brought to enforce a duty or liability created by the Exchange Act.

Anti-Takeover Statute

We are subject to Section 203 of the Delaware General Corporation Law, or the DGCL, which generally prohibits a publicly held Delaware corporation from engaging in any business combination with any interested stockholder for a period of three years after the date that such stockholder became an interested stockholder, with the following exceptions:

- before such date, the board of directors of the corporation approved either the business combination or the transaction that resulted in the stockholder becoming an interested stockholder;
- upon completion of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction began, excluding for purposes of determining the voting stock outstanding, but not the outstanding voting stock owned by the interested stockholder, those shares owned (1) by persons who are directors and also officers and (2) employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; or
- on or after such date, the business combination is approved by the board of directors and authorized at an annual or special meeting of the stockholders, and not by written consent, by the affirmative vote of at least 66 2/3% of the outstanding voting stock that is not owned by the interested stockholder.

In general, Section 203 defines a "business combination" to include the following:

- any merger or consolidation involving the corporation and the interested stockholder;
- any sale, transfer, pledge, or other disposition of 10% or more of the assets of the corporation involving the interested stockholder;
- subject to certain exceptions, any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder;
- any transaction involving the corporation that has the effect of increasing the proportionate share of the stock or any class or series of the corporation beneficially owned by the interested stockholder; or
- the receipt by the interested stockholder of the benefit of any loans, advances, guarantees, pledges, or other financial benefits by or through the corporation.

In general, Section 203 defines an "interested stockholder" as an entity or person who, together with the person's affiliates and associates, beneficially owns, or within three years prior to the time of determination of interested stockholder status did own, 15% or more of the outstanding voting stock of the corporation.

Anti-Takeover Effects of Certain Provisions of our Amended and Restated Certificate of Incorporation and Amended and Restated Bylaws

Our amended and restated certificate of incorporation and our amended and restated bylaws include a number of provisions that could deter hostile takeovers or delay or prevent changes in control of our board of directors or management team, including the following:

- *Board of Directors Vacancies*. Our amended and restated certificate of incorporation and our amended and restated bylaws authorize only our board of directors to fill vacant directorships, including newly created seats. In addition, the number of directors constituting our board of directors is permitted to be set only by a resolution adopted by a majority vote of our entire board of directors. These provisions would prevent a stockholder from increasing the size of our board of directors and then gaining control of our board of directors by filling the resulting vacancies with its own nominees. This makes it more difficult to change the composition of our board of directors and promotes continuity of management.

- *Classified Board*. Our amended and restated certificate of incorporation and our amended and restated bylaws provide that our board of directors is classified into three classes of directors. A third party may be discouraged from making a tender offer or otherwise attempting to obtain

control of us as it is more difficult and time consuming for stockholders to replace a majority of the directors on a classified board of directors.

- *Stockholder Action; Special Meeting of Stockholders*. Our amended and restated certificate of incorporation provides that our stockholders may not take action by written consent, but may only take action at annual or special meetings of our stockholders. As a result, a holder controlling a majority of our capital stock would not be able to amend our amended and restated bylaws or remove directors without holding a meeting of our stockholders called in accordance with our amended and restated bylaws. Our amended and restated bylaws further provide that special meetings of our stockholders may be called only by a majority of our board of directors, the Chairperson of our board of directors, our Chief Executive Officer, or our President, thus prohibiting a stockholder from calling a special meeting. These provisions might delay the ability of our stockholders to force consideration of a proposal or for stockholders controlling a majority of our capital stock to take any action, including the removal of directors.

- *Advance Notice Requirements for Stockholder Proposals and Director Nominations*. Our amended and restated bylaws provide advance notice procedures for stockholders seeking to bring business before our annual meeting of stockholders or to nominate candidates for election as directors at our annual meeting of stockholders. Our amended and restated bylaws also specify certain requirements regarding the form and content of a stockholder's notice. These provisions might preclude our stockholders from bringing matters before our annual meeting of stockholders or from making nominations for directors at our annual meeting of stockholders if the proper procedures are not followed. We expect that these provisions may also discourage or deter a potential acquirer from conducting a solicitation of proxies to elect the acquirer's own slate of directors or otherwise attempting to obtain control of our company.

- *No Cumulative Voting*. The Delaware General Corporation Law provides that stockholders are not entitled to cumulate votes in the election of directors unless a corporation's certificate of incorporation provides otherwise. Our amended and restated certificate of incorporation does not provide for cumulative voting.

- *Directors Removed Only for Cause*. Our amended and restated certificate of incorporation provides that stockholders may remove directors only for cause.

- *Amendment of Charter Provisions*. Any amendment of the above provisions in our amended and restated certificate of incorporation would require approval by holders of at least two-thirds of our then outstanding Common Stock.

- *Issuance of Undesignated Preferred Stock*. Our board of directors has the authority, without further action by the stockholders, to issue up to 25,000,000 shares of undesignated Preferred Stock with rights and preferences, including voting rights, designated from time to time our board of directors. The existence of authorized but unissued shares of Preferred Stock would enable our board of directors to render more difficult or to discourage an attempt to obtain control of us by means of a merger, tender offer, proxy contest or other means.

The combination of these provisions will make it more difficult for another party to obtain control of us by replacing our board of directors. Since our board of directors has the power to retain and discharge our officers, these provisions could also make it more difficult for another party to effect a change in management.

These provisions are intended to enhance the likelihood of continued stability in the composition of our board of directors and its policies and to discourage coercive takeover practices and inadequate takeover bids. These provisions are also designed to reduce our vulnerability to hostile takeovers and to discourage certain tactics that may be used in proxy fights. However, such provisions could have the effect of discouraging others from making tender offers for our shares and may have the effect of delaying changes in our control or management.

As a consequence, these provisions may also inhibit fluctuations in the market price of our stock that could result from actual or rumored takeover attempts. We believe that the benefits of these provisions, including increased protection of our potential ability to negotiate with the proponent of an unfriendly or unsolicited proposal to acquire or restructure our company, outweigh the disadvantages of discouraging takeover proposals, because negotiation of takeover proposals could result in an improvement of their terms.

Exhibit 21.1

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)

Able Health LLC (Delaware, United States)

Exhibit 23.1

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the 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. of our report dated February 27, 2020, with respect to the consolidated financial statements of Health Catalyst, Inc. included in this Annual Report (Form 10-K) for the year ended December 31, 2019.

/s/ Ernst & Young LLP

Salt Lake City, UT
February 27, 2020

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: February 27, 2020

/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, J. Patrick Nelli, 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: February 27, 2020

/s/ J. Patrick Nelli

J. Patrick Nelli

Chief Financial Officer

(Principal Financial Officer and Principal Accounting 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, 2019, 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 J. Patrick Nelli, 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: February 27, 2020

/s/ Daniel Burton

Daniel Burton
Chief Executive Officer
(Principal Executive Officer)

/s/ J. Patrick Nelli

J. Patrick Nelli
Chief Financial Officer
(Principal Financial Officer and Principal Accounting Officer)