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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

Form 10-K

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

For the fiscal year ended December 31, 2019

Commission file number: **1-34283**

Rosetta Stone Inc.

(Exact name of registrant as specified in its charter)

Delaware	**043837082**
(State of incorporation)	(I.R.S. Employer Identification No.)
1621 North Kent Street, Suite 1200 **Arlington, Virginia** (Address of principal executive offices)	**22209** (Zip Code)

Registrant's telephone number, including area code: **703-387-5800**

Securities Registered Pursuant to Section 12(b) of the Act:

Title of Each Class	Trading Symbol	Name of Each Exchange on Which Registered
Common Stock, par value $0.00005 per share	**RST**	**New York Stock Exchange**

Securities Registered Pursuant to Section 12(g) of the Act: **None**

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

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

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

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted 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. (Check one):

Large accelerated filer	☐		Smaller reporting company	☐
Accelerated filer	☒	(Do not check if a smaller reporting company)	Emerging growth company	☐
Non-accelerated filer	☐			

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 Act). Yes ☐ No ☒

The aggregate market value of the common stock held by non-affiliates of the registrant was approximately $306.1 million as of June 28, 2019 (based on the last sale price of such stock as quoted on the New York Stock Exchange). All executive officers and directors of the registrant and all persons filing a Schedule 13D with the Securities and Exchange Commission in respect of registrant's common stock have been deemed, solely for the purpose of the foregoing calculation, to be "affiliates" of the registrant.

As of March 03, 2020, there were 24,851,283 shares of common stock outstanding.

Documents incorporated by reference: Portions of the definitive Proxy Statement to be delivered to stockholders in connection with the 2020 Annual Meeting of Stockholders to be held on June 11, 2020 are incorporated by reference into Part III.

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PART I

FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K (this "Report") and other statements or presentations made from time to time by the Company, including the documents incorporated by reference, contain forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Forward-looking statements can be identified by non-historical statements and often include words such as "outlook," "potential," "believes," "expects," "anticipates," "estimates," "intends," "plans," "seeks" or words of similar meaning, or future-looking or conditional verbs, such as "will," "should," "could," "may," "might," "aims," "intends," or "projects," or similar words or phrases. These statements may include, but are not limited to, statements related to:

- our business strategy; guidance or projections related to revenue;
- Adjusted EBITDA, sales, and other measures of future economic performance;
- the contributions and performance of our businesses, including acquired businesses and international operations;
- projections for future capital expenditures; and
- other guidance, projections, plans, objectives, and related estimates and assumptions.

A forward-looking statement is neither a prediction nor a guarantee of future events or circumstances. In addition, forward-looking statements are based on the Company's current assumptions, expectations and beliefs and are subject to certain risks and uncertainties that could cause actual results to differ materially from our present expectations or projections. Some important factors that could cause actual results, performance or achievement to differ materially from those expressed or implied by these forward-looking statements include, but are not limited to:

- the risk that we are unable to execute our business strategy;
- declining demand for our language learning and literacy solutions;
- the risk that we are not able to manage and grow our business;
- the impact of any revisions to our pricing strategy;
- the risk that we might not succeed in introducing and producing new products and services;
- the impact of foreign exchange fluctuations;
- the adequacy of internally generated funds and existing sources of liquidity, such as bank financing, as well as our ability to raise additional funds;
- the risk that we cannot effectively adapt to and manage complex and numerous technologies;
- the risk that businesses acquired by us might not perform as expected; and
- the risk that we are not able to successfully expand internationally.

We expressly disclaim any obligation to update or revise any forward-looking statements, whether as a result of new information, future developments or otherwise, except as required by law. These factors should not be construed as exhaustive and should be read in conjunction with the other cautionary statements risks and uncertainties that are more fully described in the Company's filings with the U.S. Securities and Exchange Commission (SEC), including those described below in this Annual Report on Form 10-K in Part I, Item 1A: "Risk Factors" and Part II, Item 7. "Management's Discussion and Analysis of Financial Condition and Results of Operations," those described elsewhere in this Annual Report on Form 10-K, and those described from time to time in our future reports filed with the Securities and Exchange Commission.

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Item 1. Business

Overview

Rosetta Stone Inc. (“Rosetta Stone,” “the Company,” “we” or “us”) is dedicated to changing people's lives through the power of language and literacy education. Our innovative digital solutions drive positive learning outcomes for the inspired learner at home or in schools and workplaces around the world.

Founded in 1992, Rosetta Stone's language division uses cloud-based solutions to help all types of learners read, write, and speak world languages. Lexia Learning, Rosetta Stone's literacy education division, was founded more than 30 years ago and is a leader in the literacy education space. Today, Lexia helps students build foundational reading skills through its rigorously researched, independently evaluated, and widely respected instruction and assessment programs. Rosetta Stone Inc. was incorporated in Delaware in 2005.

As our Company has evolved, we believe that our current portfolio of language and literacy products and our Software-as-a-Service (“SaaS”) based delivery model provide multiple opportunities for long-term value creation. We believe the demand is growing for e-learning based literacy solutions in the U.S. and English language-learning around the globe, and we are uniquely positioned with the power of our global brand to meet the growing needs of global learners.

We continue to emphasize the development of products and solutions for learners who need to speak and read English. This focus extends to the Consumer Language segment, where we continue to make product investments serving the needs of passionate language-learners who are mobile, results-focused and value a quality language-learning experience.

To position the organization for success, our focus is on the following priorities:

1. Continued growth of our K-12 business;
2. Leverage our iconic Rosetta Stone brand;
3. Position ourselves as a leader in adaptive blended learning; and
4. Accelerate growth and increase intrinsic value.

In late 2019, a strain of the Coronavirus (COVID-19) surfaced in Wuhan, China. As the virus has spread, it has significantly impacted the health and economic environment in China and in other parts of the world. In these areas, local authorities have taken a variety of steps to protect its citizens, including closing schools and workplaces and requiring people to stay at home and to not congregate in large numbers. These actions have had negative impacts on the economic environment. We do not have significant supply chain dependencies outside the United States. Also, we deliver our products under a SaaS subscription model that allows us to deliver our services remotely, which may be important in situations in which schools and workplaces might be closed. Although COVID-19 has not materially impacted our ability to operate our business to date, we are continuing to monitor the situation and are reviewing our preparedness plans should we begin to experience material impacts.

Business Segments

Our business is organized into three operating segments: Literacy, E&E Language, and Consumer Language. The Literacy segment derives revenue under a SaaS model from the sales of literacy solutions to educational institutions serving grades K through 12. The E&E Language segment derives language-learning revenues from sales to educational institutions, corporations, and government agencies worldwide under a SaaS model. The Consumer Language segment derives revenue from sales to individuals and retail partners worldwide and across a 100% digital subscription software business. For additional information regarding our segments, see Note 17 of Item 8, *Financial Statements and Supplementary Data*. Prior periods are presented consistently with our current operating segments and definition of segment contribution.

Products and Services

Literacy:

Literacy Solutions: Our Literacy segment is comprised solely of our Lexia business. The Lexia Learning suite of subscription-based English literacy-learning and assessment solutions provide explicit, systematic, personalized learning on foundational literacy skills for students of all abilities. This research-proven technology based approach accelerates reading skills development, predicts students' year-end performance and provides teachers with data-driven action plans to help differentiate instruction. Lexia Reading Core5 is available for all abilities from pre-K through grade 5. PowerUp Literacy is designed for non-proficient readers in grades 6 and above. Lexia RAPID Assessment is a computer-adaptive screener and diagnostic tool for grades K-12 that identifies and monitors reading and language skills to provide actionable data for instructional planning. Lexia's solutions deliver performance data and analysis to enable teachers to monitor and modify their instruction to address specific student needs. These literacy solutions are provided under web-based subscriptions. Our service offerings provide schools with product implementation services to support strong educator and student use. These services are purchased through annual or multi-year service contracts. In addition, we are developing a learning product for emerging bilinguals for English in grades K-6 called Rosetta Stone English. This product is in beta testing and we expect a full release in the second half of 2020.

E&E Language:

E&E Language-Learning Solutions: Rosetta Stone provides a series of web-based subscriptions to interactive language-learning solutions for schools, businesses and other organizations that are primarily available online. Our core language-learning suite offers courses and practice applications in multiple languages, each leveraging our proprietary context-based immersion methodology, speech recognition engine and innovative technology features. Available in 24 languages and designed for beginner to intermediate language learners, Rosetta Stone Foundations builds fundamental language skills. Rosetta Stone Advantage is available for all proficiency levels in 9 of the 24 languages and focuses on improving everyday and business language skills. Our Fluency Builder solution (formerly referred to as Advanced English for Business) serves multinational companies seeking to build their employees' English language proficiency so they are able to communicate and operate in a global business environment. Our Rosetta Stone Enterprise product (formerly referred to as Catalyst) consolidates and aligns our Foundations, Advantage and Fluency Builder products into a single solution for our enterprise customers. Rosetta Stone Enterprise provides streamlined access and simplified pricing for the full suite of English and world language learning content, along with assessment, placement, ongoing reporting and demonstration of results, all of which address important customer needs to focus and demonstrate payback. Specifically designed for use with our language-learning solutions, our E&E Language customers may also purchase live tutoring sessions to enhance the learning experience.

Our E&E Language customers can maximize their learning solutions with administrative tools, professional services and custom solutions. Our E&E Language learning programs come with a set of administrative tools for performance monitoring, and to measure and track learner progress. Administrators can use these tools to access real-time dynamic reports and identify each learner's strengths and weaknesses. Professional services provide our customers with access to experienced training, implementation and support resources. Our team works directly with customers to plan, deploy, and promote the program for each organization, incorporate learning goals into implementation models, prepare and motivate learners, and integrate the E&E Language solutions into technical infrastructure. We offer tailored solutions to help organizations maximize the success of their learning programs. Our current custom solutions include curriculum development, global collaboration programs that combine language education with business culture training, group and live tutoring, and language courses for government programs.

Consumer Language:

Rosetta Stone also offers a broad portfolio of technology-based learning products for personal use to the global consumer. Our interactive portfolio of language-learning solutions is powered by our widely recognized brand, and building on our more than 25-year heritage in language-learning. The intuitive, easy-to-use language-learning programs can be purchased primarily as a software subscription via the web, mobile in-app purchase, or through retail partners.

Many of our consumer products and services are available in flexible and convenient formats for tablets and smartphones. Our mobile apps enable learners to continue their lessons on the go and extend the learning experience away from a computer. Progress is automatically synchronized across devices to meet our customers' lifestyles. These apps may be available for download through the Apple App Store, Google Play, Amazon App Store for Android and Samsung Galaxy App Store.

Our language-learning suite offers courses and practice applications in multiple languages, each leveraging our proprietary immersion methodology, speech recognition engine and innovative technology features. Beginner to intermediate language-learning products are available in 25 languages to build fundamental language skills. More advanced language-learning products are available in 9 of the 25 languages. We also offer online services to enhance and augment our learners' capabilities. Our Online Tutoring is an online video service that provides either one-on-one or group conversational coaching sessions with native speakers to practice skills and experience direct interactive dialogue. Our current suite of mobile language-learning apps includes downloadable lessons which enables learners to access their language program anytime anywhere.

Software Development:

Our offering portfolio is a result of significant investment in software development. Our software development efforts include the design and build of software solutions across a variety of devices, pedagogy and curriculum development, and the creation of learning content. Our development teams build new solutions and enhance or maintain existing solutions. We have specific expertise in speech recognition technology, iterative and customer-focused software development, instructional design, and language acquisition. We continue to evaluate changes to our solutions to strengthen our brand and improve the relevance of our offering portfolio.

Customers and Distribution Channels

No customer accounted for more than 10% of consolidated revenue during the years ended December 31, 2019, 2018, and 2017. Most of our business is SaaS-based; consequently, backlog is not significant.

Literacy:

Our Literacy distribution channel in the United States utilizes a direct sales force as well as relationships with third-party resellers focused on the sale of Lexia solutions to K-12 schools. International distribution is primarily managed through independent resellers based in the United Kingdom, Australia and New Zealand.

E&E Language:

Our E&E Language distribution channel is focused on targeted sales activity primarily through a direct sales force in five markets: K-12 schools, higher education, government agencies, not-for-profit organizations, and corporations. Our E&E Language-learning customers include the following:

Educational Institutions. These customers include primary and secondary schools and colleges and universities.

Government Agencies and Not-for-Profit Organizations. These customers include government agencies and organizations developing workforces that serve non-native speaking populations, offering literacy programs, and preparing members for overseas missions.

Corporations. We promote interest in this market with onsite visits, trade show and seminar attendance, speaking engagements, and direct mailings.

Third-party Resellers and Partners. We utilize third-party resellers and partners to provide our language-learning solutions to businesses, schools, and public-sector organizations in markets predominantly outside the U.S.

As part of our K-12 customer activities, our Literacy and E&E Language segments interact with employees of school districts including superintendents, procurement officers, principals and teachers. For instance, we participate in associations and events, including as a sponsor, at which such employees are present. We also invite these employees to events hosted by us, at which we discuss general educational developments as well as our products and services, and to serve on customer advisory boards to provide feedback on our products and services. We sometimes, and as permissible, pay the travel expenses of school district employees who attend company-sponsored events or serve on an advisory board.

Consumer Language:

Our Consumer Language distribution channel comprises a mix of our websites, third party e-commerce websites, app-stores, consignment distributors, select retailers, and call centers. We believe these channels complement each other, as consumers who have seen our direct-to-consumer advertising may purchase at our retailers, and vice versa.

Direct to consumer ("DTC"). Sales generated through our e-commerce website at *www.rosettastone.com*, app stores such as Apple App Store, Google Play, Amazon App Store for Android and Samsung Galaxy App Store and our call centers.

Indirect to consumer. Sales generated through arrangements with third-party e-commerce websites and consignment distributors such as Software Packaging Associates.

Retailers. Our retailers enable us to provide additional points of contact to educate consumers about our solutions, expand our presence beyond our own websites, and further strengthen and enhance our brand image. Our retail relationships include Amazon.com, Barnes & Noble, Target, Best Buy, and others in and outside of the U.S. We may also partner at times with daily deal partners and home shopping resellers.

Home School. We promote interest in the language-learning market through advertising in publications focused on home schooling and attending local trade shows.

Sourcing and Fulfillment

Our Literacy, E&E Language and Consumer Language segments utilize a SaaS model in order to provide a learner experience with instant fulfillment and mobile availability. Consequently, sourcing and fulfillment of physical inventory is not significant. The physical inventory that we do carry has a flexible and low-cost manufacturing base. We use a third-party logistics company to obtain substantially all of our packaging components, which primarily consist of boxes for our language learning product and reference materials, and to manufacture and fulfill finished product. We believe that we have good relationships with our vendors and that there are alternative sources in the event that one or more of these vendors is not available. We continually review our manufacturing and supply needs against the capacity of our contract manufacturers and suppliers with a view to ensuring that we are able to meet our production goals, reduce costs and operate more efficiently.

Competition

The business environment in which we operate is rapidly evolving, highly fragmented and intensely competitive. Within the technology-based learning industry, Rosetta Stone competes in several categories, including literacy, enterprise and educational language learning, and consumer language learning.

With Lexia, we compete primarily in the K-12 digital literacy space in the U.S.

Within the language-learning market, we compete against companies providing a variety of instructional and learning modes: classroom instruction utilizing the traditional approach of memorization, grammar and translation; immersion-based classroom instruction; self-study books, audio recordings and software that rely primarily on grammar and translation; and free online and mobile offerings that provide content and opportunities to practice writing and speaking.

Our competitors vary depending on the category, but generally consist of public and private companies who offer online, mobile, in-person, instructional or self-directed educational products and services.

Seasonality

Our business is affected by variations in seasonal trends. Within our Literacy segment and K-12 Language education sales channel, sales are seasonally stronger in the second and third quarters of the calendar year corresponding to the end and beginning of school district budget years. E&E Language segment sales in our government and corporate sales channels are seasonally stronger in the second half of the calendar year due to purchasing and budgeting cycles. Consumer Language sales are affected by seasonal trends associated with the holiday shopping season. In particular, we generate a large portion of our Consumer Language sales in the fourth quarter during the period beginning on Black Friday through the end of the calendar year.

Our operating segments are affected by different sales-to-cash patterns. Consumer Language sales typically turn to cash more quickly than E&E Language and Literacy sales, which tend to have longer collection cycles. Historically, in the first half of the year we have been a net user of cash and in the second half of the year we have been a net generator of cash.

Intellectual Property

Our intellectual property is critical to our success. We rely on a combination of measures to protect our intellectual property, including patents, trade secrets, trademarks, trade dress, copyrights and non-disclosure and other contractual arrangements. In certain circumstances, we may sub-license our intellectual property including our trademarks and software for use in certain markets.

We have seventeen U.S. patents, fourteen foreign patents and several U.S. and foreign patent applications pending that cover various aspects of our language-learning and literacy technologies.

We have registered a variety of trademarks, including our primary or house marks, *Rosetta Stone,* The Blue Stone Logo, *Lexia, Lexia PowerUP Literacy,* and *TruAccent*. These trademarks are the subject of either registrations or pending applications in the U.S., as well as numerous countries worldwide where we do business. We have been issued trademark registrations for our yellow color from the U.S. Patent and Trademark Office. We intend to continue to strategically register, both domestically and internationally, trademarks we use today and those we develop in the future. We believe that the distinctive marks that we use in connection with our solutions are important in building our brand image and distinguishing our offerings from those of our competitors. These marks are among our most valuable assets.

In addition to our distinctive marks, we own numerous registered and unregistered copyrights, and trade dress rights, to our products and packaging. We intend to continue to strategically register copyrights in our various products. We also place significant value on our trade dress, which is the overall image and appearance of our products, as we believe that our trade dress helps to distinguish our products in the marketplace from our competitors.

Since 2006, we have held a perpetual, irrevocable and worldwide license from the University of Colorado allowing us to use speech recognition technology for language-learning solutions. Since 2014, we have also held a commercial license from the Florida State University Research Foundation allowing us to use certain computer software and technology in our literacy offerings. These types of arrangements are often subject to royalty or license fees.

We diligently protect our intellectual property through the use of patents, trademarks and copyrights and through enforcement efforts in litigation. We routinely monitor for potential infringement in the countries where we do business. In addition, our employees, contractors and other parties with access to our confidential information are required to sign agreements that prohibit the unauthorized disclosure of our proprietary rights, information and technology.

Employees

As of December 31, 2019, we had 1,147 total employees, consisting of 746 full-time and 401 part-time employees. We have employees in France and Spain who benefit from a collective bargaining agreement. We believe that we have good relations with our employees.

Available Information

This Annual Report on Form 10-K, along with our Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934 (the "Exchange Act"), are available free of charge through our website as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC. Our website address is *www.rosettastone.com*. The information contained in, or that can be accessed through, our website is not part of, and is not incorporated into, this Annual Report on Form 10-K.

The SEC maintains a website that contains reports, proxy statements and other information regarding issuers that file electronically with the SEC. These materials may be obtained electronically by accessing the SEC's website at *www.sec.gov*.

Item 1A. Risk Factors

The following description of risk factors includes any material changes to, and supersedes the description of, risk factors associated with our business previously disclosed in our Quarterly Report on Form 10-Q filed on November 6, 2019 with the SEC for the period ended September 30, 2019. An investment in our common stock involves a substantial risk of loss. Investors should carefully consider these risk factors, together with all of the other information included herewith, before deciding to purchase shares of our common stock. If any of the following risks actually occur, our business, financial condition, or results of operations could be materially adversely affected. In such case, the market price of our common stock could decline and all or part of an investment may be lost.

The risks described below are not the only ones facing us. Our business is also subject to the risks that affect many other companies, such as general economic conditions and geopolitical events. Further, additional risks not currently known to us or that we currently believe are immaterial could have a material adverse effect on our business, financial condition, cash flows and results of operations. In addition to the other information set forth in this annual report on Form 10-K, you should carefully consider the risk factors discussed below and in other documents we file with the SEC that could materially affect our business, financial condition, cash flows or future results.

We might not be successful in executing our strategy of focusing on learners who need to speak and read English and passionate language learners who are mobile.

We are continuing to implement our strategy to emphasize the development of products and solutions for learners who need to speak and read English. This focus extends to the Consumer Language segment, where we continue to make product investments serving the needs of passionate language learners who are mobile, results-focused and value a quality language-learning experience. If we do not successfully execute our strategy, our revenue and profitability could decline, which could have an adverse effect on our business and financial results.

Our actual operating results may differ significantly from ou r guidance. As a result, we may fail to meet or exceed the expectations of research analysts or investors, which could cause our stock price to decline.

Historically, our practice has been to release guidance regarding our future performance that represents management's estimates as of the date of release. This guidance, which includes forward-looking statements, is based on projections prepared by management. These projections are not prepared with a view toward compliance with published guidelines of the American Institute of Certified Public Accountants, and neither our registered public accountants nor any other independent expert or outside party confirms or examines the projections and, accordingly, no such person expresses any opinion or any other form of assurance with respect thereto.

Projections are based upon a number of assumptions and estimates that, while presented with numerical specificity, are inherently subject to significant business, economic and competitive uncertainties and contingencies, many of which are beyond our control and are based upon specific assumptions with respect to future business decisions, some of which will change. We generally state possible outcomes as high and low ranges or as single point estimates, but actual results could differ materially. The principal reason that we release guidance is to provide a basis for management to discuss our business outlook with analysts and investors. We do not accept any responsibility for any projections or reports published by any such persons.

Guidance is necessarily speculative in nature, and it can be expected that some or all of the assumptions in the guidance furnished by us will not materialize or will vary significantly from actual results. Accordingly, our guidance is only an estimate of what management believes is realizable as of the date of release. Actual results may vary from our guidance and the variations may be material. We expressly disclaim any obligations to update or revise any guidance, whether as a result of new information, future events or otherwise, except as required by law. In light of the foregoing, investors are urged not to rely upon, or otherwise consider, our guidance in making an investment decision in respect of our common stock.

Any failure to successfully implement our strategy or the occurrence of any of the events or circumstances set forth in these "Risk Factors" and elsewhere in this annual report on Form 10-K could result in the actual operating results being different from our guidance, and such differences may be adverse and material.

Intense competition in our industry may hinder our ability to attract and retain customers and generate revenue, and may diminish our margins.

The business environment in which we operate is rapidly evolving, highly fragmented and intensely competitive, and we expect competition to persist and intensify. Increased competition could adversely affect operating results by causing lower demand for our products and services, reduced revenue, more product returns, price reductions or concessions, reduced gross margins and loss of customers.

Many of the current and potential competitors in our Literacy and E&E Language segments have substantially greater financial, technical, sales, marketing and other resources than we do, as well as greater name recognition in some locations, as well as in some cases, lower costs. Some competitors offer more differentiated products (for example, online learning as well as physical classrooms and textbooks) that may allow them to more flexibly meet changing customer preferences. The resources of our competitors also may enable them to respond more rapidly to new or emerging technologies and changes in customer requirements and preferences and to offer lower prices than ours or to offer free language-learning software or online services. We may not be able to compete successfully against current or future competitors.

There are a number of free online language-learning opportunities to learn grammar, pronunciation, vocabulary (including specialties in areas such as medicine and business), reading, and conversation by means of podcasts and MP3s, mobile applications, audio courses and lessons, videos, games, stories, news, digital textbooks, and through other means, which compete with our Consumer Language segment. We estimate that there are thousands of free mobile applications on language-learning; free products are provided in at least 50 languages by private companies, universities, and government agencies. Low barriers to entry allow start-up companies with lower costs and less pressure for profitability to compete with us. Competitors that are focused more on user acquisition rather than profitability and funded by venture capital may be able to offer products at significantly lower prices or for free. As free online translation services improve and become more widely available and used, people may generally become less interested in language learning. Although we also offer free products such as mobile apps, if we cannot successfully attract users of these free products and convert a sufficient portion of these free users into paying customers, our business could be adversely affected. If free products become more engaging and competitive or gain widespread acceptance by the public, demand for our products could decline or we may have to lower our prices, which could adversely impact our revenue and other results.

Historically a substantial portion of our revenue has been generated from our Consumer Language business. If we fail to accurately anticipate consumer demand and trends in consumer preferences, our brands, sales and customer relationships may be harmed.

Demand for our consumer focused language-learning software products and related services is subject to rapidly changing consumer demand and trends in consumer preferences. Therefore, our success depends upon our ability to:

- identify, anticipate, understand and respond to these trends in a timely manner;
- introduce appealing new products and performance features on a timely basis;
- provide appealing solutions that engage our customers;
- adapt and offer our products and services using rapidly evolving, widely varying and complex technologies;
- anticipate and meet consumer demand for additional languages, learning levels and new platforms for delivery;
- effectively position and market our products and services;
- identify and secure cost-effective means of marketing our products to reach the appropriate consumers;
- identify cost-effective sales distribution channels and other sales outlets where interested consumers will buy our products;
- anticipate and respond to consumer price sensitivity and pricing changes of competitive products; and
- identify and successfully implement ways of building brand loyalty and reputation.

We anticipate having to make investments in new products in the future and we may incur significant expenses without achieving the anticipated benefits of our investment or preserving our brand and reputation. Investments in new products and technology are speculative, the development cycle for products may exceed planned estimates and commercial success depends on many factors, including innovativeness, developer support, and effective distribution and marketing. Customers might not perceive our latest offerings as providing significant new value and may reduce their purchases of our offerings, unfavorably impacting revenue. We might not achieve significant revenue from new product and service investments for a number of years, if at all. We also might not be able to develop new solutions or enhancements in time to capture business opportunities or achieve sustainable acceptance in new or existing marketplaces. Furthermore, consumers may defer purchases of our solutions in anticipation of new products or new versions from us or our competitors. A decline in consumer demand for our solutions, or any failure on our part to satisfy such changing consumer preferences, could harm our business and profitability.

If the recognition by schools and other organizations of the value of technology-based education does not continue to grow, our ability to generate revenue from organizations could be impaired.

Our success depends in part upon the continued adoption by organizations and potential customers of technology-based education initiatives. Some academics and educators oppose online education in principle and have expressed concerns regarding the perceived loss of control over the education process that could result from offering courses online. If the acceptance of technology-based education does not continue to grow, our ability to continue to grow our Literacy and E&E Language businesses could be impaired.

We depend on discretionary consumer spending in the Consumer Language segment of our business. Adverse trends in general economic conditions, including retail and online shopping patterns or consumer confidence, as well as other external consumer dynamics may compromise our ability to generate revenue.

The success of our business depends to a significant extent upon discretionary consumer spending, which is subject to a number of factors, including general economic conditions, consumer confidence, employment levels, business conditions, interest rates, availability of credit, inflation, and taxation. Adverse trends in any of these economic indicators may cause consumer spending to decline, which could adversely affect our sales and profitability.

Because a portion of our Consumer Language sales are made to or through retailers and distributors, none of which has any obligation to sell our products, the failure or inability of these parties to sell our products effectively could reduce our revenue and profitability.

We rely on retailers and distributors, together with our direct sales force, to sell our products. Our sales to retailers and distributors are concentrated on a key group that is comprised of a mix of websites, such as Amazon.com, app stores, such as the Apple App Store Google Play Store, Amazon App Store for Android and Samsung Galaxy App Store, select retail resellers, such as Barnes & Noble, Target, and Best Buy, and consignment distributors such as Software Packaging Associates.

We have no control over the quantity of products that retailers and distributors purchase from us or sell on our behalf, we do not have long-term contracts with any of them, and they have no obligation to offer or sell our products or to give us any particular shelf space or product placement within their stores. Thus, there is no guarantee that this source of revenue will continue at the same level as it has in the past or that these retailers and distributors will not promote competitors' products over our products or enter into exclusive relationships with our competitors. Any material adverse change in the principal commercial terms, material decrease in the volume of sales generated by our larger retailers or distributors or major disruption or termination of a relationship with these retailers and distributors could result in a significant decline in our revenue and profitability. Furthermore, product display locations and promotional activities that retailers, websites and app stores undertake can affect the sales of our products. The fact that we also sell our products directly could cause retailers , websites, app stores or distributors to reduce their efforts to promote our products or stop selling our products altogether.

Many traditional physical retailers are experiencing diminished foot traffic and sales. For our retail business, even though online sales have increased in popularity and are growing in importance, we continue to depend on sales that take place in physical stores and shopping malls. Reduced customer foot traffic in these stores and malls is likely to reduce their sales of our products. In addition, if one or more of these retailers or distributors are unable to meet their obligations with respect to accounts payable to us, we could be forced to write off accounts receivable with such accounts. Any bankruptcy, liquidation, insolvency or other failure of any of these retailers or distributors could result in significant financial loss and cause us to lose revenue in future periods.

Price changes, varying subscription terms, and other concessions could reduce our revenue.

We continue to test and offer changes to the pricing of our products. If we reduce our prices in an effort to increase our sales, this could have an adverse impact on our revenue to the extent that unit sales do not increase in a sufficient amount to compensate for the lower pricing. Reducing our pricing to individual consumers could also cause us to have to lower pricing to our E&E Language customers. Any increase in the taxation of online sales could have the effect of a price increase to consumers and could cause us to have to lower our prices or could cause sales to decline. It is uncertain whether we will need to lower prices to effectively compete and what other short-term or long-term impacts could be.

Additionally, our online and app-based products are sold under different subscription terms, from short-term (less than one year) to long-term (typically 12 to 24 months) subscriptions with a corresponding license term, and lifetime subscriptions without a fixed duration. Online and app-based subscription customers could be less likely to renew their subscriptions beyond the initial term and lifetime subscribers have no need to renew. Consequently, we could earn less revenue over time from each customer than historically, which could have a substantially negative impact on our revenue, results of operations and cash flow in any quarterly reporting period.

In the U.S. and Canada, we offer consumers who purchase our web-based software directly from us a 30-day, unconditional, full money-back refund. We also permit some of our retailers and distributors to return products, subject to certain limitations. We establish revenue reserves for product returns based on historical experience, estimated channel inventory levels, the timing of new product introductions and other factors. If product returns exceed our reserve estimates, the excess would offset reported revenue, which could adversely affect our reported financial results.

Our future growth and profitability will depend in large part upon the effectiveness and efficiency of our marketing.

Our future growth and profitability will depend in large part upon the effectiveness and efficiency of our marketing, including our ability to:

- appropriately and efficiently allocate our marketing for multiple products;
- accurately identify, target and reach our audience of potential customers with our marketing messages;
- select the right marketplace, media and specific media vehicle in which to advertise;
- identify the most effective and efficient level of spending in each marketplace, media and specific media vehicle;
- determine the appropriate creative message and media mix for advertising, marketing and promotional expenditures;
- effectively manage marketing costs, including creative and media expenses, in order to maintain acceptable customer acquisition costs;
- differentiate our products as compared to other products;
- create greater awareness of our new products, our brands and learning solutions;
- drive traffic to our e-commerce website, call centers, distribution channels and retail partners; and
- convert customer inquiries into actual orders.

Our planned marketing may not result in increased revenue or generate sufficient levels of product and brand name awareness, and we may not be able to increase our net sales at the same rate as we increase our advertising expenditures.

We engage in an active public relations program, including through social media sites such as Facebook and Twitter. We also seek new customers through our online marketing efforts, including paid search listings, banner ads, text links and permission-based e-mails, as well as our affiliate and reseller programs. If one or more of the search engines or other online sources on which we rely for website traffic were to modify their general methodology for how they display our websites, resulting in fewer consumers clicking through to our websites, our sales could suffer. If any free search engine on which we rely begins charging fees for listing or placement, or if one or more of the search engines or other online sources on which we rely for purchased listings, modifies or terminates its relationship with us, our expenses could rise, we could lose customers and traffic to our websites could decrease.

We dynamically adjust our mix of marketing programs to acquire new customers at a reasonable cost with the intention of achieving overall financial goals. If we are unable to maintain or replace our sources of customers with similarly effective sources, or if the cost of our existing sources increases, our customer levels and marketing expenses may be adversely affected.

Our business depends on our strong brands, and failing to maintain or enhance the Rosetta Stone brands in a cost-effective manner could harm our operating results.

Maintaining and enhancing our brands is an important aspect of our efforts to attract new customers and expand our business. We believe that maintaining and enhancing our brands will depend largely on our ability to provide high-quality, innovative products, and services, which we might not do successfully. Our brands may be negatively impacted by a number of factors such as service outages, product malfunctions, data protection and security issues, and exploitation of our trademarks by others without permission.

Further, while we attempt to ensure that the quality of our brands is maintained by our licensees, our licensees might take actions that could impair the value of our brands, our proprietary rights, or the reputation of our products. If we are unable to maintain or enhance our brands in a cost-effective manner, or if we incur excessive expenses in these efforts, our business, operating results and financial condition could be harmed.

Our international businesses may not succeed and may impose additional and unique risks.

The success of our international operations depends on our ability to successfully market, sell, deliver and support our products and services internationally. In 2016, we decided to eliminate our direct sales presence in almost all of our non-U.S. and non-northern European geographies related to the distribution of the E&E Language offerings, relying instead on indirect sales channels through reseller and other arrangements with third parties in those geographies. We also optimized certain of our website sales channels in Europe, Asia and Latin America. In addition, our international businesses expose us to risks including, but not limited to:

- tariffs and trade barriers;
- currency fluctuations, which could decrease our revenues or increase our costs in the United States;
- regulations related to customs and import/export matters;
- tax issues, such as tax law changes and variations in tax laws;
- restrictions on the repatriation of profits or payment of dividends;
- inadequate banking systems;
- crime, strikes, riots, civil disturbances, terrorist attacks or wars;
- law enforcement authorities and courts that are weak or inexperienced in commercial matters; and
- deterioration of political relations among countries.

If we are unable to conduct our international operations successfully and market, sell, deliver and support our products and services internationally to the extent we expect, our business, revenue and financial results could be harmed.

If we are unable to continually adapt our products and services to mobile devices and technologies other than personal computers and laptops, and to adapt to other technological changes and customer needs generally, we may be unable to attract and retain customers, and our revenue and business could suffer.

We need to anticipate, develop and introduce new products, services and applications on a timely and cost-effective basis that keeps pace with technological developments and changing customer needs. The process of developing new high technology products, services and applications and enhancing existing products, services and applications is complex, costly and uncertain, and any failure by us to anticipate customers' changing needs and emerging technological trends accurately could significantly harm our ability to attract and retain customers and our results of operations. For example, the number of individuals who access the Internet through devices other than a personal computer, such as tablet computers, mobile devices, televisions and set-top box devices, has increased dramatically and this trend is likely to continue. Our products and services may not work or be viewable on these devices because each manufacturer or

distributor may establish unique technical standards fo r such devices. Accordingly, we may need to devote significant resources to the creation, support and maintenance of such versions. If we fail to develop or sell products and services on a cost-effective basis that respond to these or other technological developments and changing customer needs, we may be harmed in our ability to attract and retain customers, and our revenue and business could suffer. Furthermore, our customers who view our advertising via mobile devices might not buy our products to the same extent that they do when viewing our advertising via personal computers or laptops. Accordingly, if we cannot convince customers to purchase our products via mobile devices, our business and results of operations could be harmed to the extent that the trend to mobile devices continues.

We offer our software products on operating systems and platforms including Windows, Macintosh, Apple OS, Android, and Amazon apps. The demand for traditional desktop computers has been declining, while the demand for mobile devices such as notebook computers, smartphones and tablets has been increasing, which means that we must be able to market to potential customers and to provide customers with access to and use of our products and services on many platforms and operating systems, as they may be changed from time to time. To the extent new releases of operating systems, including for mobile and non-PC devices, or other third-party products, platforms or devices make it more difficult for our products to perform, and our customers use alternative technologies, our business could be harmed.

Our software products must interoperate with computer operating systems of our customers. If we are unable to ensure that our products interoperate properly with customer systems, our business could be harmed.

Our products must interoperate with our customers' computer systems, including the network, security devices and settings, and student learning management systems of our E&E Language and Literacy customers. As a result, we must continually ensure that our products interoperate properly with these varied and customized systems. Changes in operating systems, the technologies we incorporate into our products or the computer systems our customers use may damage our business.

Our products and internal systems rely on software that is highly technical and maintained by third parties. If such third-party software contains undetected errors or vulnerabilities, or if it is not supported or updated to keep pace with current computer hardware, our business could be adversely affected.

Our products and internal systems rely on software, including software developed or maintained internally and/or by third parties, that is highly technical and complex. In addition, our products and internal systems depend on the ability of such software to store, retrieve, process, and manage immense amounts of data. Such software has contained, and may now or in the future contain, undetected errors, bugs, or vulnerabilities. Some errors may only be discovered after the code has been released for external or internal use. Errors, vulnerabilities, or other design defects within the software on which we rely may result in a negative experience for users and marketers who use our products, delay product introductions or enhancements, result in measurement or billing errors, compromise our ability to protect the data of our users and/or our intellectual property or lead to reductions in our ability to provide some or all of our services.

For example, although we have modified our products to eliminate reliance on Adobe Flash, we still have customers who use older versions of our products that rely on Adobe Flash. In July 2015, certain vulnerabilities discovered in Adobe Flash led to temporary interruption of support for Adobe Flash by popular web browsers. If similar interruptions occur in the future and disrupt our ability to provide our products to some or all of our users, our ability to generate revenue would be harmed. Additionally, if Adobe Flash were to become deleted from Adobe’s product line or become not supported or updated to keep pace with current computer hardware, then our software products that continue to rely on Adobe Flash would become obsolete very quickly. Any errors, bugs, vulnerabilities, or defects discovered in the software on which we rely, and any associated degradations or interruptions of service, could result in damage to our reputation, loss of users, loss of revenue, or liability for damages, any of which could adversely affect our business and financial results.

If there are changes in the spending policies or budget priorities for government funding of colleges, universities, schools, other education providers, or government agencies, we could lose revenue.

Many of our E&E Language and Literacy customers are colleges, universities, primary and secondary schools and school districts, other education providers, armed forces and government agencies that depend substantially on government funding. Accordingly, any general decrease, delay or change in federal, state or local funding for colleges, universities, primary and secondary schools and school districts, or other education providers or government agencies that use our products and services could cause our current and potential customers to reduce their purchases of our products and services, to exercise their right to terminate licenses, or to decide not to renew licenses, any of which could cause us to lose revenue. In addition, a specific reduction in governmental funding support for products such as ours would also cause us to lose revenue and could adversely affect our overall gross margins.

Some of our E&E Language and Literacy business is characterized by a lengthy and unpredictable sales cycle, which could delay new sales.

We face a lengthy sales cycle between our initial contact with some potential E&E Language and Literacy customers and the signing of license agreements with these customers. As a result of this lengthy sales cycle, we have only a limited ability to forecast the timing of such E&E Language and Literacy sales. A delay in or failure to complete license transactions could cause us to lose revenue, and could cause our financial results to vary significantly from quarter to quarter. Our sales cycle varies widely, reflecting differences in our potential E&E Language and Literacy customers' decision-making processes, procurement requirements and budget cycles, and is subject to significant risks over which we have little or no control, including:

- customers' budgetary constraints and priorities;
- the timing of our customers' budget cycles;
- the need by some customers for lengthy evaluations that often include administrators and faculties; and
- the length and timing of customers' approval processes.

Our revenue is subject to seasonal and quarterly variations, which could cause our financial results to fluctuate significantly.

We have experienced, and we believe we will continue to experience, substantial seasonal and quarterly variations in our revenue, cash flows and net income. These variations are primarily related to increased sales of our Consumer Language products and services in the fourth quarter, especially during the holiday selling season, as well as higher sales to governmental, educational institutions, and corporations in the second half of the calendar year. We sell to a significant number of our retailers, distributors and E&E Language customers on a purchase order basis and we receive orders when these customers need products and services. As a result, their orders are typically not evenly distributed throughout the year. Our quarterly results of operations also may fluctuate significantly as a result of a variety of other factors, including the timing of holidays and advertising initiatives, changes in our products, services and advertising initiatives and changes in those of our competitors. Budgetary constraints of our E&E Language and Literacy customers may also cause our quarterly results to fluctuate.

As a result of these seasonal and quarterly fluctuations, we believe that comparisons of our results of operations between different quarters are not necessarily meaningful and that these comparisons are not reliable as indicators of our future performance. In addition, these fluctuations could result in volatility and adversely affect our cash flows. Any seasonal or quarterly fluctuations that we report in the future may differ from the expectations of market analysts and investors, which could cause the price of our common stock to fluctuate significantly.

Acquisitions, joint ventures and strategic alliances may have an adverse effect on our business.

We have made and may continue to make acquisitions or enter into joint ventures and strategic alliances as part of our long-term business strategy. Such transactions may result in use of our cash resources, dilutive issuances of our equity securities, or incurrence of debt. Such transactions also involve significant challenges and risks including that the transaction does not advance our business strategy, that we do not realize a satisfactory return on our investment, that we experience difficulty integrating new technology, employees, and business systems, that we divert management's attention from our other businesses or that we acquire undiscovered liabilities such as patent infringement claims or violations of the U.S. Foreign Corrupt Practices Act and similar worldwide anti-bribery laws. It may take longer than expected to realize the full benefits, such as increased revenue, enhanced efficiencies, or more customers, or those benefits may ultimately be smaller than anticipated, or may not be realized. These events and circumstances could harm our operating results or financial condition.

The possession and use of personal, financial and other information by us and our third party service providers presents risks and expenses that could harm our business. If we or our service providers are unable to protect our information technology networks against service interruption or failure, misappropriation or unauthorized disclosure or manipulation of data, whether through breach of our network security or otherwise, we could be subject to costly government enforcement actions and litigation and our reputation may be damaged.

Our business involves the collection, storage and transmission of personal, financial or other information that is entrusted to us by our customers and employees. Our information systems also contain the Company's proprietary and other confidential information related to our business. Our efforts to protect such information may be unsuccessful due to the actions of third parties, computer viruses, physical or electronic break-ins, catastrophic events, employee error or malfeasance or other attempts to harm our systems. Possession and use of personal information in conducting our business subjects us to legislative and regulatory obligations that could require notification of data breaches, restrict our use of personal information, and hinder our ability to acquire new customers or market to existing customers. Our use of new and emerging technologies such as cloud-based services and mobile applications continues to evolve, presenting new and additional risks in managing access to our data, including relying on third parties to manage and safeguard data. These third party service providers receive or store information provided by us, our users or our employees. If these third parties fail to adopt or adhere to adequate information security practices, or fail to comply with our online policies, or in the event of a breach of their networks, our customers' or employees' data may be improperly accessed, used or disclosed. As our business and the regulatory environment evolve in the U.S. and internationally, we may become subject to additional and even more stringent legal obligations concerning our treatment of customer information. We have incurred, and will continue to incur, expenses to comply with privacy and security standards and protocols imposed by law, regulation, industry standards or contractual obligations.

Despite our precautions and significant ongoing investments to protect against security risks, data protection breaches, cyber-attacks and other intentional disruptions of our products and offerings, we may be a target of attacks specifically designed to impede the performance of our products and offerings and harm our reputation as a company. If our systems are harmed or fail to function properly or if third parties improperly obtain and use the personal information of our customers or employees, we may be required to expend significant resources to repair or replace systems or to otherwise protect against security breaches or to address problems caused by the breaches. A major breach of our network security and systems could have serious negative consequences for our businesses, including possible fines, penalties and damages, reduced customer demand for our products and services, harm to our reputation and brand, and loss of our ability to accept and process customer credit card orders. Any such access, disclosure or loss of information could result in legal claims or proceedings and regulatory penalties, disrupt our operations or result in a loss of confidence in our products and services, which could lead to a material and adverse effect on our business, reputation or financial results.

We may incur significant costs related to maintaining data security and in the event of any data security breaches that could compromise our information technology network security, trade secrets and customer data.

The secure processing, maintenance and transmission of personal, financial or other information that is entrusted to us by our customers is critical to our operations and business strategy, and we devote significant resources to protecting such information. The expenses associated with protecting such information could reduce our operating margins. Additionally, threats to our information technology network security can take a variety of forms. Individual hackers and groups of hackers, and sophisticated organizations or individuals may threaten our information technology network security. Cyber attackers may develop and deploy malicious software to attack our services and gain access to our networks or data centers, hold access to critical systems or information for ransom, or act in a coordinated manner to launch distributed denial of service or other coordinated attacks. Cyber threats and attacks are constantly evolving, thereby increasing the difficulty of detecting and successfully implementing measures to defend against them. We may be unable to anticipate potential techniques or implement adequate preventative measures in time. Cyber threats and attacks can have cascading impacts that unfold with increasing speed across internal networks and systems. Breaches of our network, credit card processing information, or data security could disrupt the security of our internal systems and business applications, impair our ability to provide services to our customers and protect the privacy of their data, cause product development delays, compromise confidential or technical business information harming our competitive position, result in theft or misuse of our intellectual property or other assets, expose us to contractual or regulatory audit or investigation, require us to allocate additional resources to alternative and potentially more costly technologies more frequently than anticipated, or otherwise adversely affect our business. We maintain cyber risk insurance, but our policy coverage limits may not be sufficient to cover all of our losses caused by any future information security-related breaches or events.

Our business is subject to complex and evolving U.S. and foreign laws and regulations regarding privacy and data protection. Changes in regulations or customer concerns regarding privacy and protection of customer data, or any failure to comply with such laws, could adversely affect our business.

Federal, state, and international laws and regulations govern the collection, use, retention, disclosure, sharing and security of data that we receive from and about our customers. The use of personal data by online service providers and advertising networks is a topic of active interest among federal, state, and international regulatory bodies, as well as among data subjects, and the regulatory environment is unsettled and rapidly evolving. Many jurisdictions have passed new laws impacting technical and organizational measures to be put in place and require notifications to data subjects and/or state agencies where there is a security breach involving personal data, such as California’s Information Practices Act. Despite the technical and organizational measures we have in place, we could suffer successful breaches, employee malfeasance, or human or technological error which could result in, for example, unauthorized access to, disclosure, modification, misuse, loss, or destruction of company, customer, or other third party data or systems; theft of sensitive, regulated, or confidential data including personal information; the loss of access to critical data or systems through ransomware, destructive attacks or other means; and business delays, service or system disruptions or denials of service.

We also face similar risks in international markets where our products, services and apps are offered. Foreign data protection, privacy, competition, and other laws and regulations can impose different obligations or be more restrictive than those in the U.S. We are subject to international laws and regulations that dictate whether, how, and under what circumstances we can transfer, process and/or receive transnational data that is critical to our operations and ability to provision our products and perform services for our customers, including data relating to users, customers, employees, or partners outside the U.S., and those laws and regulations are uncertain and subject to change.

Legal developments in Europe have created complexity and compliance uncer tainty regarding certain transfers of information from Europe to the U.S. For example, in October 2015, the European Court of Justice invalidated the 2000 US-EU Safe Harbor program as a legitimate and legally authorized basis on which U.S. companies, including Rosetta Stone, could rely for the transfer of personal data from the European Union to the U.S. The European Union and U.S. agreed to an alternative transfer framework for data transferred from the European Union to the U.S. called the Privacy Shield Framework. Rosetta Stone participates in and has certified to its compliance to the Privacy Shield Framework. However, this framework also faces a number of legal challenges, is subject to an annual review that could result in changes to our obligations, and also may be challenged by national regulators or private parties. In addition, other available bases on which to rely for the transfer of European Union personal data outside of the European Economic Area, such as Standard Contractual Clauses (SCCs), have also been subjected to regulatory or judicial scrutiny. This has resulted in some uncertainty, and compliance obligations could cause us to incur costs or require us to change our business practices in a manner adverse to our business. Additionally, the United Kingdom's decision to withdraw from the European Union also has resulted in uncertainty with regard to compliance obligations for data transfers between the European Union and the United Kingdom and the U.S.

If one or more of the legal bases for transferring personal data from Europe to the U.S. is invalidated, or if we are unable to transfer personal data between and among countries and regions in which Rosetta Stone operates, it could affect the manner in which we provide our services or adversely affect our financial results. Any failure, or perceived failure, by us to comply with or make effective modifications to our policies, or to comply with any federal, state, or international privacy, data-protection-related laws, regulations, orders or industry self-regulatory principles could result in proceedings or actions against us by governmental entities or others, a loss of customer confidence, damage to the Rosetta Stone brands, and a loss of customers, which could potentially have an adverse effect on our business.

In addition, various federal, state and foreign legislative or regulatory bodies may enact new or additional laws and regulations concerning privacy, data-protection issues, including laws or regulations mandating disclosure to domestic or international law enforcement bodies, which could adversely impact our business, our brand or our reputation with customers. For example, some countries are considering laws mandating that personal data regarding customers in their country be maintained solely in their country. Having to maintain local data centers and design product, service and business operations to limit personal data processing within individual countries could increase our operating costs significantly. In addition, the European Commission approved a data protection regulation, known as the General Data Protection Regulation (GDPR), which became effective in May 2018. The GDPR includes additional operational and other requirements for companies that receive or process personal data of residents of the European Union as well as significant penalties for non-compliance. California recently enacted the Consumer Privacy Act of 2018, effective January 1, 2020, which greatly expands the definition of what constitutes personal data and requires companies, among other things, to give California consumers information about what data they collect and to delete data about consumers if requested.

The interpretation and application of privacy and data protection laws and regulations are often uncertain and in flux in the U.S. and internationally. Complying with these varying international requirements could cause us to incur substantial costs or require us to change our business practices in a manner adverse to our business and operating results. In addition, these laws may be interpreted and applied inconsistently from country to country and inconsistently with our current policies and practices, complicating long-range business planning decisions. If privacy or data protection laws are interpreted and applied in a manner that is inconsistent with our current policies and practices we may be deemed non-compliant, subject to legal or regulatory process, fined or ordered to change our business practices in a manner that could cause use to incur substantial costs, or that adversely impacts our business or operating results.

We are subject to U.S. and foreign government regulation of online services which could subject us to claims, judgments, and remedies, including monetary liabilities and limitations on our business practices.

We are subject to regulations and laws directly applicable to providers of online services. The application of existing domestic and international laws and regulations to us relating to issues such as user privacy and data protection, data security, defamation, promotions, billing, consumer protection, accessibility, content regulation, quality of services, and intellectual property ownership and infringement is unclear or unsettled in many instances. Also, the collection and protection of information from children under the age of 13 is subject to the provisions of the Children's Online Privacy Protection Act (COPPA), which is particularly relevant to our learning solutions focused on children. In addition, we will also be subject to any new laws and regulations directly applicable to our domestic and international activities. Internationally, we may also be subject to laws regulating our activities in foreign countries and to foreign laws and regulations that are inconsistent from country to country. We may incur substantial liabilities for expenses necessary to defend litigation in connection with such regulations and laws or to comply with these laws and regulations, as well as potential substantial penalties for any failure to comply.

Changes in how network operators handle and charge for access to data that travel across their networks could adversely impact our business.

We rely upon the ability of customers to access many of our products through the Internet. To the extent that network operators implement usage based pricing, including meaningful bandwidth caps, or otherwise try to monetize access to their networks by data providers, we could incur greater operating expenses and our customer acquisition and retention could be negatively impacted. Furthermore, to the extent network operators were to create tiers of Internet access service and either charge us for or prohibit us from being available through these tiers, our business could be negatively impacted.

We are exposed to risks associated with credit card and payment fraud, and with our obligations under rules on credit card processing and alternative payment methods, which could cause us to lose revenue or incur costs. We depend upon our credit card processors and payment card associations.

As an e-commerce provider that accepts debit and credit cards for payment, we are subject to the Payment Card Industry Data Security Standard ("PCI DSS"), issued by the PCI Council. PCI DSS contains compliance guidelines and standards with regard to our network security surrounding the physical and electronic storage, processing and transmission of individual cardholder data. Despite our compliance with these standards and other information security measures, we cannot guarantee that all our information technology systems are able to prevent, contain or detect any cyber attacks, cyber terrorism, or security breaches from currently known viruses or malware, or viruses or malware that may be developed in the future. To the extent any disruption results in the loss, damage or misappropriation of information, we may be adversely affected by claims from customers, financial institutions, regulatory authorities, payment card associations and others. In addition, the cost of complying with stricter privacy and information security laws and standards could be significant.

We are subject to rules, regulations and practices governing our accepted payment methods which could change or be reinterpreted to make it difficult or impossible for us to comply. A failure to comply with these rules or requirements could make us subject to fines and higher transaction fees and we could lose our ability to accept these payment methods. We depend upon our credit card processors to carry out our sales transactions and remit the proceeds to us. At any time, credit card processors have the right to withhold funds otherwise payable to us to establish or increase a reserve based on their assessment of the inherent risks of credit card processing and their assessment of the risks of processing our customers' credit cards. If our credit card processors exercise their right to establish or increase a reserve, it may adversely impact our liquidity. Our business and results of operations could be adversely affected if these changes were to occur.

The uncertainty surrounding the terms of the United Kingdom's withdrawal from the European Union and its consequences could cause disruptions to, and create uncertainty in, our businesses.

The United Kingdom formally left the European Union on January 31, 2020, immediately entering an eleven month transition period running until the end of December 2020. During this transition period, the United Kingdom's trading relationship with the European Union will remain unchanged, allowing time to agree and implement a new future trading relationship. However, the terms of the United Kingdom's relationship with the European Union after the end of the transition period remain subject to negotiations yet to come, and there is substantial uncertainty about the terms of the final agreements. Therefore, the ultimate effects of Brexit on us are difficult to predict, but because we currently conduct business in the United Kingdom and in Europe, the results of the withdrawal could cause disruptions and create uncertainty to our businesses, including affecting the business of and/or our relationships with our customers and suppliers, as well as altering the relationship among tariffs and currencies, including the value of the British pound and the Euro relative to the U.S. dollar. Such disruptions and uncertainties could adversely affect our financial condition, operating results, and cash flows. Additionally, Brexit could result in legal uncertainty and potentially divergent national laws and regulations as new legal relationships between the United Kingdom and the European Union, and between the United Kingdom and countries outside of the European Union, including the United States of America, are established. The ultimate effects of Brexit on us will also depend on the terms of agreements, if any, the United Kingdom and the European Union make to retain access to each other's respective markets either during an additional transitional period or more permanently. There is also the risk that other countries may decide to leave the European Union. Any of these effects, among others, may have a materially adverse effect on global economic conditions and the stability of global financial markets, which in turn could materially adversely affect our business, business opportunities, results of operations, and financial condition.

The United States government may make substantial changes to fiscal, political, regulatory and other federal or foreign policies that may adversely affect our business, financial condition, operating results and cash flows.

Changes or uncertainty in general economic or political conditions in the United States or other regions could adversely affect our business. For example, the administration under President Donald Trump has made, or has indicated that it may propose, significant changes with respect to a variety of issues, including education standards and funding, international trade agreements, import and export regulations, tariffs and customs duties, foreign relations, and immigration laws, that could have a materially adverse effect on our business, business opportunities, results of operations and financial condition.

Furthermore, there is uncertainty as to the position the United States government will take with respect to world affairs and events. This uncertainty may include such issues as U.S. support for existing treaty and trade relationships with other countries. This uncertainty, together with other key global events during recent years (such as the continuing uncertainty arising from the United Kingdom's withdrawal from the EU as well as ongoing terrorist activity), may adversely impact (i) the ability or willingness of non-U.S. companies to transact business in the U.S., including with the Company (ii) regulation and trade agreements affecting U.S. companies, (iii) global stock markets (including the New York Stock Exchange on which our common stock is traded), and (iv) general global economic conditions. All of these factors are outside of our control, but may nonetheless cause us to adjust our strategy in order to compete effectively in global markets. Any change in strategy may not be successful, and could have a materially adverse effect on our business, business opportunities, results of operations and financial condition.

Natural disasters, public health crises, political crises, and other catastrophic events or other events outside of our control may impact our facilities or the facilities of third parties on which we depend, and could impact consumer spending.

If any of our facilities, facilities of third parties on which we depend, or our customers are affected by natural disasters, such as earthquakes, tsunamis, power shortages or outages, floods, public health crises, such as pandemics and epidemics, political crises, such as terrorism, war, political instability or other conflict, or other events outside of our control, our business and operating results could suffer. Disasters or public health crisis or political crises affecting or occurring at our or our third party facilities could also impact our operations, our reputation and our customers' perception of our brands. Moreover, these types of events could negatively impact consumer and business spending in the impacted regions or depending upon the severity, globally, which could adversely impact our operating results. For example, in December 2019, a strain of coronavirus was reported to have surfaced in Wuhan, China. The extent to which the coronavirus may impact our business is uncertain, however we continue to monitor its effect.

Any significant interruptions in the operations of our website, call center or third-party call centers, especially during the holiday shopping season, could cause us to lose sales and disrupt our ability to process orders and deliver our solutions in a timely manner.

We rely on our website, an in-house call center and third-party call centers, over which we have little or no control, to sell our solutions, respond to customer service and technical support requests and process orders. These activities are especially important during the holiday season and in particular the period beginning on Black Friday through the end of the calendar year. Any significant interruption in the operation of these facilities, including an interruption caused by our failure to successfully expand or upgrade our systems or to manage these expansions or upgrades, or a failure of third-party call centers to handle higher volumes of use, could reduce our ability to receive and process orders and provide products and services, which could result in cancelled sales and loss of revenue and damage to our brand and reputation. These risks are more important during the holiday season, when many sales of our products and services take place.

We structure our marketing and advertising to drive potential customers to our website and call centers to purchase our solutions. If we experience technical difficulties with our website or if our call center operators do not convert inquiries into sales at expected rates, our ability to generate revenue could be impaired. Training and retaining qualified call center operators is challenging due to the expansion of our product and service offerings and the seasonality of our business. If we do not adequately train our call center operators, they may not convert inquiries into sales at an acceptable rate.

If any of our products or services contain defects or errors or if new product releases or services are delayed, our reputation could be harmed, resulting in significant costs to us and impairing our ability to sell our solutions.

If our products or services contain defects, errors or security vulnerabilities, our reputation could be harmed, which could result in significant costs to us and impair our ability to sell our products in the future. In the past, we have encountered product development delays due to errors or defects. We would expect that, despite our testing, errors could be found in new products and product enhancements in the future. Significant errors in our products or services could lead to, among other things:

- delays in or loss of marketplace acceptance of our products and services;
- diversion of our resources;
- a lower rate of license renewals or upgrades for Consumer Language, Literacy and E&E Language customers;
- injury to our reputation;
- increased service expenses or payment of damages; or
- costly litigation.

If we fail to effectively upgrade our information technology systems, we may not be able to accurately report our financial results or prevent fraud.

As part of our efforts to continue improving our internal control over financial reporting, we may decide to upgrade our existing financial information technology systems in order to automate controls that are currently performed manually. We may experience difficulties in transitioning to these upgraded systems, including loss of data and decreases in productivity, as personnel become familiar with these new systems. In addition, our management information systems will require modification and refinement as our business needs change, which could prolong difficulties we experience with systems transitions, and we may not always employ the most effective systems for our purposes. If we experience difficulties in implementing new or upgraded information systems or experience significant system failures, or if we are unable to successfully modify our management information systems or respond to changes in our business needs, we may not be able to effectively manage our business and we may fail to meet our reporting obligations. In addition, as a result of the automation of these manual processes, the data produced may cause us to question the accuracy of previously reported financial results.

Failure to maintain the availability of the systems, networks, databases and software required to operate and deliver our Internet-based products and services could damage our reputation and cause us to lose revenue.

We rely on internal and external systems, networks and databases maintained by us and third-party providers to process customer orders, handle customer service requests, and host and deliver our Internet-based learning solutions. Any damage, interruption or failure of our systems, networks and databases could prevent us from processing customer orders and result in degradation or interruptions in delivery of our products and services. Notwithstanding our efforts to protect against interruptions in the availability of our e-commerce websites and Internet-based products and services, we do occasionally experience unplanned outages or technical difficulties. In addition, we do not have complete redundancy for all of our systems. In the event of an interruption or system event we may be unable to meet contract service level requirements, or we could experience an unrecoverable loss of data which could cause us to lose customers and could harm our reputation and cause us to face unexpected liabilities and expenses. If we continue to expand our business, we will put additional strains on these systems. As we continue to move additional product features to online systems or place more of our business online, all of these considerations will become more significant.

We may also need to grow, reconfigure or relocate our data centers in response to changing business needs, which may be costly and lead to unplanned disruptions of service.

We may incur losses associated with currency fluctuations and may not be able to effectively hedge our exposure, which could impair our financial performance.

Our operating results are subject to fluctuations in foreign currency exchange rates. We currently do not attempt to mitigate a portion of these risks through foreign currency hedging, based on our judgment of the appropriate trade-offs among risk, opportunity and expense. In the future, we might choose to engage in foreign currency hedging transactions, which would involve different risks and uncertainties.

Our credit facility contains financial and other restrictive covenants and the failure to comply with such covenants could prevent us from borrowing funds, and could cause any outstanding debt to become immediately payable, which might adversely impact our business.

Our credit facility contains a number of restrictive covenants, including restrictions on incurring additional debt, making investments and other restricted payments, selling assets, paying dividends and redeeming or repurchasing capital stock and debt, subject to certain exceptions. Collectively, these covenants could constrain our ability to grow our business through acquisition or engage in other transactions. During the term of our $25.0 million credit facility, we are also subject to certain financial covenants that require us to maintain a minimum liquidity coverage ratio and minimum financial performance requirements, as defined in the credit facility. If we are not able to comply with all of these covenants, for any reason, we would not be able to borrow funds under the facility, and some or all of any outstanding debt could become immediately due and payable which could have a material adverse effect on our liquidity and ability to conduct our business.

We might be required to raise additional funds from the capital markets and/or renegotiate our banking covenants to support our business, which might not be available on acceptable terms or at all.

While we anticipate that our existing cash and cash equivalents, together with availability under our existing credit facility, cash balances and cash from operations, will be sufficient to fund our operations for at least the next 12 months, we may need to raise additional capital in order to meet our business objectives in the future. Such objectives may include, among other things, developing or enhancing future technologies and services, funding expansion, increasing working capital, acquiring businesses, products or technologies, and responding to competitive pressures. To the extent we face economic difficulties, our revenue, profitability and cash flows could be significantly reduced. A lack of sufficient capital resources could significantly limit our ability to take advantage of business and strategic opportunities, require us to reduce costs, require a renegotiation of our banking covenants or require us to raise additional funds through public or private financings or borrowings in order to maintain our operations at their current level. If we seek to raise additional capital in order to meet various objectives, additional financing might not be available on terms that are favorable to us, if at all. If we raise additional funds through the issuance of debt, equity or convertible debt securities, these securities might have rights, preferences and privileges senior to those of our current stockholders. Any additional capital raised through the sale of equity securities would also dilute our stock ownership. If adequate additional funds are not available, our business, business opportunities, results of operations and financial condition may be harmed.

If our goodwill or indefinite-lived intangible assets become impaired, we may be required to record a significant non-cash charge to earnings.

Under accounting principles generally accepted in the U.S. ("GAAP"), we review our goodwill and indefinite lived intangible assets for impairment at least annually and when there are changes in circumstances. Factors that may be considered a change in circumstances include a decline in stock price and market capitalization, expected future cash flows and slower growth rates in our industry. We may be required to record significant charges to earnings in our financial statements during the period in which any impairment of our goodwill or indefinite lived intangible assets is determined, resulting in a negative effect on our results of operations.

We may have exposure to greater than anticipated tax liabilities.

We are subject to income and indirect tax in the U.S. and many foreign jurisdictions. The application of indirect taxes (such as sales and use tax, value-added tax, goods and services tax, business tax and gross receipt tax) to our businesses and to our users is complex, uncertain and evolving, in part because many of the fundamental statutes and regulations that impose indirect taxes were established before the adoption and growth of the Internet and e-commerce. We are subject to audit by multiple tax authorities throughout the world. Although we believe our tax estimates are reasonable and accurate, the final determination of tax audits and any related litigation could be materially different from our historical tax provisions and accruals. The results of an audit or litigation could have a material adverse effect on our financial statements in the period or periods for which that determination is made.

In addition, the United States government and other governments may adopt tax measures that could impact future effective tax rates favorably or unfavorably affected by changes in tax rates, changes in the valuation of our deferred tax assets or liabilities, or changes in tax laws or their interpretation. Although we cannot predict whether or in what form any other legislation changes may pass, if enacted it could have a material adverse impact on our tax expense, deferred tax assets and cash flows.

Our deferred tax assets may not be fully realizable.

We record tax valuation allowances to reflect uncertainties about whether we will be able to realize some of our deferred tax assets before they expire. Our tax valuation allowance is based on our estimates of taxable income for the jurisdictions in which we operate and the period over which our deferred tax assets will be realizable. In the future, we could be required to increase the valuation allowance to take into account additional deferred tax assets that we may be unable to realize. An increase in the valuation allowance would have an adverse impact, which could be material, on our income tax provision and net income in the period in which we record the increase.

Protection of our intellectual property is limited, and any misuse of our intellectual property by others, including software piracy, could harm our business, reputation and competitive position.

Our intellectual property is important to our success. We believe our trademarks, copyrights, trade secrets, patents, pending patent applications, trade dress and designs are valuable and integral to our success and competitive position. To protect our proprietary rights, we rely on a combination of patents, copyrights, trademarks, trade dress, trade secret laws, confidentiality procedures, contractual provisions and technical measures. However, even if we are able to secure such rights in the United States, the laws of other countries in which our products are sold may not protect our intellectual property rights to the same extent as the laws of the United States.

In addition to issued patents, we have several patent applications on file in the U.S. and other countries. However, we do not know whether any of our pending patent applications will result in the issuance of patents or whether the examination process will require us to narrow our claims. Even if patents are issued from our patent applications, which are not certain, they may be challenged, circumvented or invalidated in the future. Moreover, the rights granted under any issued patents may not provide us with proprietary protection or competitive advantages, and, as with any technology, competitors may be able to develop similar or superior technologies now or in the future. In addition, we have not emphasized patents as a source of significant competitive advantage and have instead sought to primarily protect our proprietary rights under laws affording protection for trade secrets, copyright and trademark protection of our products, brands, and other intellectual property where available and appropriate. These measures afford only limited protection and may be challenged, invalidated or circumvented by third parties. In addition, these protections may not be adequate to prevent our competitors or customers from copying or reverse-engineering our products. Third parties could copy all or portions of our products or otherwise obtain, use, distribute and sell our proprietary information without authorization. Third parties may also develop similar or superior technology independently by designing around our intellectual property, which would decrease demand for our products. In addition, our patents may not provide us with any competitive advantages and the patents of others may seriously impede our ability to conduct our business.

We protect our products, trade secrets and proprietary information, in part, by requiring all of our employees to enter into agreements providing for the maintenance of confidentiality and the assignment of rights to inventions made by them while employed by us. We also enter into non-disclosure agreements with our technical consultants, customers, vendors and resellers to protect our confidential and proprietary information. We cannot guarantee that our confidentiality agreements with our employees, consultants and other third parties will not be breached, that we will be able to effectively enforce these agreements, that we will have adequate remedies for any breach, or that our trade secrets and other proprietary information will not be disclosed or will otherwise be protected.

We rely on contractual and license agreements with third parties in connection with th eir use of our products and technology. There is no guarantee that such parties will abide by the terms of such agreements or that we will be able to adequately enforce our rights, in part because we rely, in many instances, on "click-wrap" and "shrink-wrap" licenses, which are not negotiated or signed by individual licensees. Accordingly, some provisions of our licenses, including provisions protecting against unauthorized use, copying, transfer, resale and disclosure of the licensed software program, could be unenforceable under the laws of several jurisdictions.

Protection of trade secret and other intellectual property rights in the places in which we operate and compete is highly uncertain and may involve complex legal questions. The laws of countries in which we operate may afford little or no protection to our trade secrets and other intellectual property rights. Although we defend our intellectual property rights and combat unlicensed copying and use of software and intellectual property rights through a variety of techniques, preventing unauthorized use or infringement of our intellectual property rights is inherently difficult. Despite our enforcement efforts against software piracy, we could lose significant revenue due to illegal use of our software and from counterfeit copies of our software. If piracy activities increase, it could further harm our business.

We also suspect that competitors might try to illegally use our proprietary information and develop products that are similar to ours, which may infringe on our proprietary rights. In addition, we could potentially lose trade secret protection for our source code if any unauthorized disclosure of such code occurs. The loss of trade secret protection could make it easier for third parties to compete with our products by copying functionality. In addition, any changes in, or unexpected interpretations of, the trade secret and other intellectual property laws in any country in which we operate may compromise our ability to enforce our trade secret and intellectual property rights. Costly and time-consuming litigation could be necessary to enforce and determine the scope of our confidential information and trade secret protection. If we are unable to protect our proprietary rights or if third parties independently develop or gain access to our or similar technologies, our business, revenue, reputation and competitive position could be harmed.

Third-party use of our trademarks as keywords in Internet search engine advertising programs may direct potential customers to competitors' websites, which could harm our reputation and cause us to lose sales.

Competitors and other third parties, including counterfeiters, purchase our trademarks and confusingly similar terms as keywords in Internet search engine advertising programs in order to divert potential customers to their websites. Preventing such unauthorized use is inherently difficult. If we are unable to protect our trademarks and confusingly similar terms from such unauthorized use, competitors and other third parties may drive potential online customers away from our websites to competing and unauthorized websites, which could harm our reputation and cause us to lose sales.

Our trademarks are limited in scope and geographic coverage and might not significantly distinguish us from our competition.

We own several U.S. trademark registrations, including registrations of *Rosetta Stone,* the Blue Stone logo, *Lexia, Lexia PowerUP Literacy,* and *TruAccent* trademarks, as well as U.S. registrations of the color yellow as a trademark. In addition, we hold common law trademark rights and have trademark applications pending in the U.S. and abroad for additional trademarks. Even if federal registrations and registrations in other countries are granted to us, our trademark rights may be challenged. It is also possible that our competitors will adopt trademarks similar to ours, thus impeding our ability to build brand identity and possibly leading to customer confusion. In fact, various third parties have registered trademarks that are similar to ours in the U.S. and overseas. Furthermore, notwithstanding the fact that we may have secured trademark rights for our various trademarks in the U.S. and in some countries where we do business, in other countries we may not have secured similar rights and, in those countries there may be third parties who have prior use and prior or superior rights to our own. That prior use, prior or superior right could limit use of our trademarks and we could be challenged in our efforts to use our trademarks. We could incur substantial costs in prosecuting or defending trademark infringement suits. If we fail to effectively enforce our trademark rights, our competitive position and brand recognition may be diminished.

We must monitor and protect our Internet domain names to preserve their value. We may be unable to prevent third parties from acquiring domain names that are similar to, infringe on or otherwise decrease the value of our trademarks.

We own several domain names related to our business. Third parties may acquire substantially similar domain names or Top Level Domains ("TLDs") that decrease the value of our domain names and trademarks and other proprietary rights which may adversely affect our business. Third parties also may acquire country-specific domain names in the form of Country Code TLDs that include our trademarks or similar terms and which prevent us from operating country-specific websites from which customers can view our products and engage in transactions with us. Moreover, the regulation of domain names in the U.S. and foreign countries is subject to change. Governing bodies could appoint additional domain name registrars, modify the requirements for holding domain names or release additional TLDs. As a result, we may have to incur additional costs to maintain control over potentially relevant domain names or may not maintain exclusive rights to all potentially relevant domain names in the U.S. or in other countries in which we conduct business, which could harm our business or reputation. Moreover, attempts may be made to register our trademarks as new TLDs or as domain names within new TLDs and we will have to make efforts to enforce our rights against such registration attempts.

Claims that we misuse the intellectual prop erty of others could subject us to significant liability and disrupt our business.

As we expand our business and develop new technologies, products and services, we may become subject to material claims of infringement by competitors and other third parties with respect to current or future products, e-commerce and other web-related technologies, online business methods, trademarks or other proprietary rights. Our competitors, some of which may have made significant investments in competing products and technologies, and may have, or seek to apply for and obtain, patents, copyrights or trademarks that will prevent, limit or interfere with our ability to make, use and sell our current and future products and technologies, and we may not be successful in defending allegations of infringement of these patents, copyrights or trademarks. Further, we may not be aware of all of the patents and other intellectual property rights owned by third parties that may be potentially adverse to our interests. We may need to resort to litigation to enforce our proprietary rights or to determine the scope and validity of a third-party's patents or other proprietary rights, including whether any of our products, technologies or processes infringe the patents or other proprietary rights of third parties. We may incur substantial expenses in defending against third-party infringement claims regardless of the merit of such claims. The outcome of any such proceedings is uncertain and, if unfavorable, could force us to discontinue advertising and sale of the affected products or impose significant penalties, limitations or restrictions on our business. We do not conduct comprehensive patent searches to determine whether the technologies used in our products infringe upon patents held by others. In addition, product development is inherently uncertain in a rapidly evolving technological environment in which there may be numerous patent applications pending, many of which are confidential when filed, with regard to similar technologies.

We do not own all of the software, other technologies and content used in our products and services, and the failure to obtain rights to use such software, other technologies and content could harm our business.

Some of our products and services contain intellectual property owned by third parties, including software that is integrated with internally developed software and voice recognition software, which we license from third parties. From time to time we may be required to renegotiate with these third parties or negotiate with new third parties to include their technology or content in our existing products, in new versions of our existing products or in wholly new products. We may not be able to negotiate or renegotiate licenses on commercially reasonable terms, or at all, and the third-party software may not be appropriately supported, maintained or enhanced by the licensors. If we are unable to obtain the rights necessary to use or continue to use third-party technology or content in our products and services, this could harm our business, by resulting in increased costs, or in delays or reductions in product shipments until equivalent software could be developed, identified, licensed and integrated.

Our use of open source software could impose limitations on our ability to commercialize our products.

We incorporate open source software into our products and may use more open source software in the future. The use of open source software is governed by license agreements. The terms of many open source licenses have not been interpreted by U.S. courts, and there is a risk that these licenses could be construed in a manner that could impose unanticipated conditions or restrictions on our ability to commercialize our products. Therefore, we could be required to seek licenses from third parties in order to continue offering our products, make generally available, in source code form, proprietary code that links to certain open source modules, re-engineer our products, discontinue the sale of our products if re-engineering could not be accomplished on a cost-effective and timely basis, or become subject to other consequences. In addition, open source licenses generally do not provide warranties or other contractual protections regarding infringement claims or the quality of the code. Thus, we may have little or no recourse if we become subject to infringement claims relating to the open source software or if the open source software is defective in any manner.

We offer Consumer language-learning packages that bundle software and online services that have increased our costs as a percentage of revenue, and these and future product introductions may not succeed and may harm our business, financial results and reputation.

Our Consumer language-learning packages integrate our language-learning software solutions with online services, which provide opportunities for practice with dedicated language conversation coaches and other language learners to increase language socialization. The costs associated with the online services included with these software packages decrease margins. Customers may choose to not engage with conversation coaches or be willing to pay higher prices to do so. We cannot provide assurances that our future software package offerings will be successful or profitable, or if they are profitable, that they will provide an adequate return on invested capital. If our software package offerings are not successful, our business, financial results and reputation may be harmed.

Substantially all of our inventory is managed by a single third party logistics company. A disagreement with, or production disruption at, this entity could cause financial loss, including loss of revenue and harm to our reputation.

Substantially all of our inventory, which consists primarily of boxes for our language learning product and reference materials, is produced by a single third party logistics company. We could experience an interruption in our operations if we have a disagreement with this company or if this company suffers a production disruption or event that results in the damage or destruction of our inventory. We might be unable to meet our contractual obligations as a result of such an interruption, which could cause us financial loss, including loss of revenue and harm to our reputation. As our business has moved online, we expect that this risk will diminish over time.

We rely on highly skilled personnel and, if we are unable to retain or motivate k ey personnel or hire qualified personnel, we may not be able to achieve results or grow effectively.

Our performance is largely dependent on the talents and efforts of highly skilled individuals. Our future success depends on our continuing ability to identify, hire, develop, motivate and retain highly skilled personnel for all areas of our organization.

We compete with other companies both within and outside of our industry for talented employees, and we may lose talented employees or fail to attract, train, and retain other talented employees. Any such loss or failure could adversely affect our product sales, financial condition, and operating results. In addition, we may not be able to locate suitable replacements for certain critical employees who leave, or offer employment to potential replacements on reasonable terms, all of which could adversely affect our product sales, financial condition, and operating results.

Our stock price is volatile and purchasers of our common stock could incur substantial losses.

The market price of our common stock could fluctuate significantly for many reasons, including in response to the risks described in this "Risk Factors" section, or for reasons unrelated to our operations, such as reports by media or industry analysts, investor perceptions or negative announcements about our performance, as well as industry conditions and general financial, economic and political instability. From January 1, 2019 through March 3, 2020, our common stock has traded as high as $26.33 per share and as low as $14.34 per share. The stock market in general has experienced extreme volatility that has often been unrelated to the operating performance of particular companies. The market price of our common stock may be influenced by many factors, including, among others:

- announcements of acquisitions, collaborations, financings or other strategic business transactions by us;
- termination or delay of a product;
- public concern as to the efficacy of our products;
- the recruitment or departure of key personnel; and
- the other factors described in this “Risk Factor” section.

Our business could be impacted as a result of actions by activist stockholders or others.

We may be subject, from time to time, to legal and business challenges in the operation of our company due to proxy contests, stockholder proposals, media campaigns and other such actions instituted by activist stockholders or others. Responding to such actions could be costly and time-consuming, disrupt our operations, may not align with our business strategies and could divert the attention of our Board of Directors and senior management from the pursuit of current business strategies. Perceived uncertainties as to our future direction as a result of stockholder activism or potential changes to the composition of the Board of Directors may lead to the perception of a change in the direction of the business or other instability that may make it more difficult to attract and retain qualified personnel and business partners, and could have a materially adverse effect on the Company’s stock price.

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

The trading market for our shares of common stock depends, in part, on the research and reports that securities or industry analysts publish about us or our business. We do not have any control over these analysts. If securities or industry analysts do not continue to cover us, the trading price for our shares of common stock may be negatively impacted. If one or more of the analysts who covers us downgrades our shares of common stock, changes their opinion of our shares or publishes inaccurate or unfavorable research about our business, our share price would likely decline. If one or more of these analysts ceases coverage of us or fails to publish reports on us regularly, demand for our shares of common stock could decrease and we could lose visibility in the financial markets, which could cause our share price and trading volume to decline.

Provisions in our organizational documents and in the Delaware General Corporation Law may prevent takeover attempts that could be beneficial to our stockholders.

Provisions in our second amended and restated certificate of incorporation and third amended and restated bylaws, and in the Delaware General Corporation Law, may make it difficult and expensive for a third party to pursue a takeover attempt we oppose even if a change in control of our Company would be beneficial to the interests of our stockholders. Any provision of our second amended and restated certificate of incorporation or third amended and restated bylaws or Delaware law that has the effect of delaying or deterring a change in control could limit the opportunity for our stockholders to receive a premium for their shares of our common stock, and could also affect the price that some investors are willing to pay for our common stock. Our Board of Directors has the authority to issue up to 10,000,000 shares of preferred stock in one or more series and to fix the powers, preferences and rights of each series without stockholder approval. The ability to issue preferred stock could discourage unsolicited acquisition proposals or make it more difficult for a third party to gain control of our Company, or otherwise could adversely affect the market price of our common stock. Further, as a Delaware corporation, we are subject to Section 203 of the Delaware General Corporation Law. This section generally prohibits us from engaging in mergers and other business combinations with stockholders that beneficially own 15% or more of our voting stock, or with their affiliates, unless our directors or stockholders approve the business combination in the prescribed manner.

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

Pursuant to the Company's bylaws, unless the Company consents in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware shall be the sole and exclusive forum for (i) any derivative action or proceeding brought on behalf of the Company, (ii) any action asserting a claim for breach of a fiduciary duty owed by an director, officer, employee or agent of the Company to the Company or the Company's stockholders, (iii) any action asserting a claim arising pursuant to any provision of the DGCL, the certificate of incorporation or the bylaws of the Company or (iv) any action asserting a claim governed by the internal affairs doctrine, in each case subject to the Court of Chancery having personal jurisdiction over the indispensable parties named as defendants therein. Any person of 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 these provisions of the Company's bylaws. This choice of forum provision may limit the Company's stockholders' ability to bring a claim in a judicial forum that they find favorable for disputes with the Company or the Company's directors, officers, employees or agents, which may discourage such lawsuits against the Company and the Company's directors, officers, employees and agents even though an action, if successful, might benefit the Company's stockholders. Stockholders who do bring a claim in the Court of Chancery could face additional litigation costs in pursuing any such claim, particularly if they do not reside in or near Delaware. The Court of Chancery may also reach different judgments or results than would other courts, including courts where a stockholder considering an action may be located or would otherwise choose to bring the action, and such judgments or results may be more favorable to the Company than to the Company's stockholders. Alternatively, if a court were to find these provisions of the Company's bylaws inapplicable to, or unenforceable in respect of, one or more of the specified types of actions or proceedings, the Company may incur additional costs associated with resolving such matters in other jurisdictions, which could have a material adverse effect on the Company's business, financial condition or results of operations.

Section 27 of the Exchange Act creates exclusive federal jurisdiction over all suits brought to enforce any duty or liability created by the Exchange Act or the rules and regulations thereunder. As a result, the exclusive forum provision will not apply to suits brought to enforce any duty or liability created by the Exchange Act or any other claim for which the federal courts have exclusive jurisdiction. In addition, Section 22 of the Securities Act creates concurrent jurisdiction for federal and state courts over all suits brought to enforce any duty or liability created by the Securities Act or the rules and regulations thereunder. As a result, the exclusive forum provision will not apply to suits brought to enforce any duty or liability created by the Securities Act or any other claim for which the federal and state courts have concurrent jurisdiction.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

As of December 31, 2019, our corporate headquarters are located in Arlington, Virginia, where we occupy approximately 13,000 square feet of space on the top floor of an office building under a lease that ends April, 2023. For more information about our Arlington, Virginia lease and subleases, please see Note 7 of Item 8, *Financial Statements and Supplementary Data.*

In addition to our Arlington, Virginia office, we currently own one facility in Harrisonburg, Virginia, that provides operations and customer support services.

The Company also leases property in various locations in the U.S. and around the world, including Concord, MA, Seattle, WA and Cologne, Germany, as sales offices, for research and development activities, operations, product distribution, data centers, and market research. We believe our offices and facilities are adequate for our current needs.

Item 3. Legal Proceedings

Information with respect to this item may be found in Note 11 of Item 8, *Financial Statements and Supplementary Data*, which is incorporated herein by reference.

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 for Common Stock

Our common stock is listed on the New York Stock Exchange, or NYSE, under the symbol "RST." There were approximately 183 stockholders of record of our common stock as of March 3, 2020 when the last reported sales price of our common stock on the NYSE was $16.86 per share.

Dividends

We have never declared or paid any cash dividends on our capital stock. We currently intend to retain earnings, if any, to finance the growth and development of our business and do not expect to pay any cash dividends on our common stock in the foreseeable future.

Securities Authorized For Issuance Under Equity Compensation Plans

For information regarding securities authorized for issuance under equity compensation plans, see Part III "Item 12—Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters."

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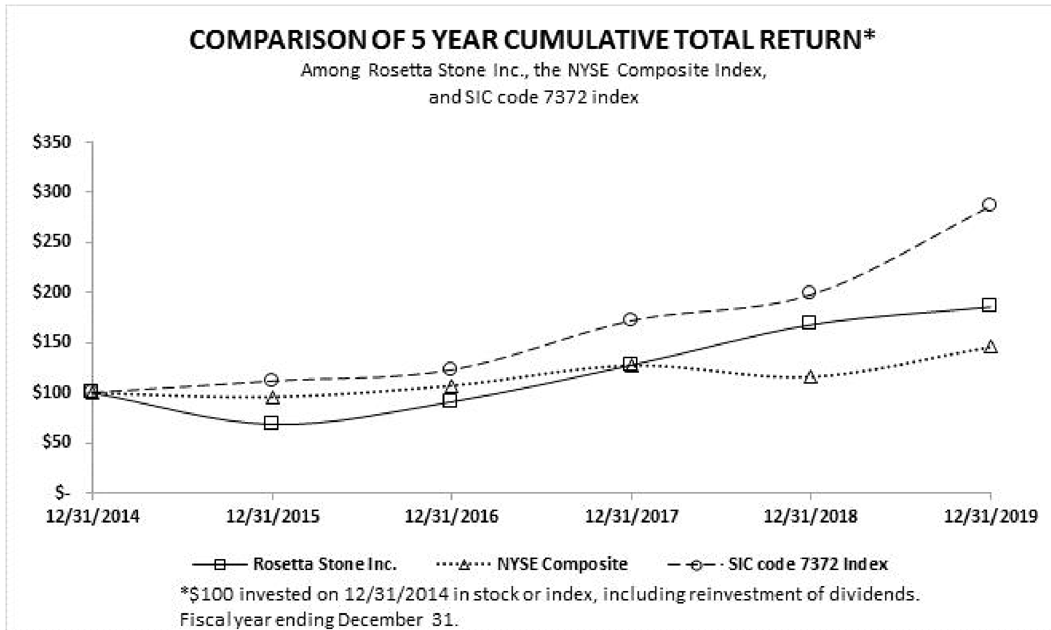
Stockholder Return Performance Presentation

The performance graph shall not be deemed "soliciting material" or to be "filed" with the SEC for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, or otherwise subject to liabilities under that Section, and shall not be deemed to be incorporated by reference into any filing of the Company under the Securities Act of 1933, as amended, or the Exchange Act, except to the extent we specifically incorporate the performance graph by reference.

The following graph compares the change in the cumulative total stockholder return on our common stock during the 5-year period from December 31, 2014 through December 31, 2019, with the cumulative total return on the NYSE Composite Index and the SIC Code Index that includes all U.S. public companies in the Standard Industrial Classification (SIC) Code 7372-Prepackaged Software. The comparison assumes that $100 was invested on December 31, 2014 in our common stock and in each of the foregoing indices and assumes reinvestment of dividends, if any. The stock price performance of the following graph is not necessarily indicative of future stock price performance.



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Item 6. Selected Consolidated Financial Data

The following tables set forth our selected consolidated financial data for the periods indicated. The selected consolidated financial data should be read in conjunction with the information under “Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations,” our consolidated financial statements, the related notes and the accompanying independent registered public accounting firm’s report, which are included in “Item 8. *Financial Statements and Supplementary Data*.”

The selected consolidated statement of operations data for the years ended December 31, 2019, 2018, 2017, 2016, and 2015, and the selected consolidated balance sheet data as of December 31, 2019, 2018, 2017, 2016, and 2015 have been derived from our audited consolidated financial statements.

Our historical results for any prior period are not necessarily indicative of results to be expected in any future period.

	Year Ended December 31,				
	2019	2018	2017	2016(1)	2015(2)
	(in thousands, except per share data)				
Selected Statements of Operations Data:					
Revenue	$ 182,702	$ 173,634	$ 184,593	$ 194,089	$ 217,670
Gross profit	145,441	137,712	150,972	159,768	179,143
Loss from operations	(12,938)	(19,619)	(4,501)	(26,920)	(43,813)
Net loss	(12,956)	(21,473)	(1,546)	(27,550)	(46,796)
Loss per share attributable to common stockholders:					
Basic	$ (0.55)	$ (0.95)	$ (0.07)	$ (1.25)	$ (2.17)
Diluted	$ (0.55)	$ (0.95)	$ (0.07)	$ (1.25)	$ (2.17)
Other Selected Data:					
Total stock-based compensation expense	$ 4,359	$ 4,475	$ 4,141	$ 4,906	$ 7,195
Total intangible amortization expense	$ 1,532	$ 3,311	$ 3,839	$ 4,351	$ 5,192

(1) The Company announced and initiated restructuring actions in the first quarter of 2016 to exit the direct sales presence in almost all of its non-U.S. and non-northern European geographies related to the distribution of its E&E Language offerings. Under this initiative, the Company made headcount reductions, office lease terminations, and other cost reductions in France, China, Brazil, Canada, Spain, Mexico, U.S. and the U.K.

(2) The Company undertook restructuring actions in the first quarter of 2015 to focus on the E&E Language business and optimize the Consumer Language business for profitability. Under this initiative, the Company undertook headcount and cost reductions to areas including Consumer Language sales and marketing, Consumer Language product investment, and general and administrative functions.

	As of December 31,				
	2019	2018	2017	2016	2015
	(in thousands)				
Selected Consolidated Balance Sheet Data:					
Cash and cash equivalents	$ 43,010	$ 38,092	$ 42,964	$ 36,195	$ 47,782
Total assets (3)	201,107	187,258	194,755	194,310	228,543
Total deferred revenue	177,617	162,885	151,263	141,457	142,748
Notes payable and financing lease obligation	1,388	1,787	2,300	2,559	3,143
Total stockholders' equity (deficit)	(16,192)	(12,008)	2,423	(1,659)	22,410

(3) Effective January 1, 2019 we adopted ASC 842 using the comparatives under 840 option such that prior comparative information continues to be reported under the accounting standards in effect for those periods. The 2019 Total Assets amount includes $5.8 million in operating lease right of use assets. See Note 2 and Note 7 of Item 8, *Financial Statements and Supplemental Data*, for additional disclosures regarding lease accounting and the impact of adoption of ASC 842.

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

This Management's Discussion and Analysis of Financial Condition and Results of Operations ("MD&A") contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. The MD&A should be read in conjunction with our consolidated financial statements and notes thereto which appear elsewhere in this Annual Report on Form 10-K. Our actual results may differ materially from those currently anticipated and expressed in such forward-looking statements as a result of a number of factors, including those discussed under ("Risk Factors") and elsewhere in this Annual Report on Form 10-K.

Overview

Rosetta Stone is dedicated to changing people's lives through the power of language and literacy education. Our innovative digital solutions drive positive learning outcomes for the inspired learner at home or in schools and workplaces around the world. Founded in 1992, Rosetta Stone's language division uses cloud-based solutions to help all types of learners read, write, and speak world languages. Lexia Learning, Rosetta Stone's literacy education division, was founded more than 30 years ago and is a leader in the literacy education space. Today, Lexia helps students build foundational reading skills through its rigorously researched, independently evaluated, and widely respected instruction and assessment programs. Rosetta Stone Inc. was incorporated in Delaware in 2005.

We currently have three operating segments, Literacy, E&E Language, and Consumer Language. We discuss the profitability of each segment in terms of segment contribution. Segment contribution is the measure of profitability used by our Chief Operating Decision Maker. Prior periods have been reclassified to reflect our current segment presentation and definition of segment contribution. See Note 17 of Item 8, *Financial Statements and Supplementary Data* for additional information about the definition, calculation, and presentation of segment contribution.

The Literacy segment derives the majority of its revenue from sales of literacy solutions to educational institutions serving grades K through 12. The E&E Language segment derives revenue from sales of language-learning solutions to educational institutions, corporations, and government agencies worldwide. The Consumer Language segment derives the majority of revenue from sales of language-learning solutions to individuals and retail partners. Our Literacy distribution channel utilizes a direct sales force as well as relationships with third-party resellers focused on the sale of Lexia Learning solutions to K-12 schools. Our E&E Language distribution model is focused on targeted sales activity primarily through a direct sales force in five markets: K-12 schools; higher education; federal government agencies; corporations; and not-for-profit organizations. Our Consumer Language distribution channel comprises a mix of our call centers, websites, app-stores, third party e-commerce websites, select retail resellers, such as Amazon.com, Barnes & Noble, Target, and Best Buy, consignment distributors such as Software Packaging Associates, and daily deal partners and home shopping resellers.

As our Company has evolved, we believe that our current portfolio of language and literacy products and our SaaS-based delivery model provides multiple opportunities for long-term value creation. We also believe the demand is growing for e-learning based literacy solutions in the U.S. and English language-learning around the globe, and we are uniquely positioned with the power of our global brand to meet the growing needs of global learners.

We continue to emphasize the development of products and solutions for learners who need to speak and read English. This focus extends to the Consumer Language segment where we continue to make product investments serving the needs of passionate language learners who are mobile, results-focused and value a quality language-learning experience.

To position the organization for success, our focus is on the following priorities:

1. Continued growth of our K-12 business;
2. Leverage our iconic Rosetta Stone brand;
3. Position ourselves as a leader in adaptive blended learning; and
4. Accelerate growth and increase intrinsic value.

In late 2019, a strain of the Coronavirus (COVID-19) surfaced in Wuhan, China. As the virus has spread, it has significantly impacted the health and economic environment in China and in other parts of the world. In these areas, local authorities have taken a variety of steps to protect its citizens, including closing schools and workplaces and requiring people to stay at home and to not congregate in large numbers. These actions have had negative impacts on the economic environment. We do not have significant supply chain dependencies outside the United States. Also, we deliver our products under a SaaS subscription model that allows us to deliver our services remotely, which may be important in situations in which schools and workplaces might be closed. Although COVID-19 has not materially impacted our ability to operate our business to date, we are continuing to monitor the situation and are reviewing our preparedness plans should we begin to experience material impacts.

Components of Our Statements of Operations

Revenue

We derive revenue from sales of language-learning and literacy solutions. Our revenue consists of fees associated with web-based software subscriptions, online services, professional services, and mobile applications. Subscription revenue is generated from contracts with customers that provide access to hosted software over a contract term without the customer taking possession of the software. Subscription revenue is recognized ratably over the contract period as the performance obligation is satisfied. Subscription revenue is generated by all three reportable segments and range from short-term to multi-year contracts. Online services are typically sold in short-term service periods and include dedicated online conversational coaching services and access to online communities of language learners. Professional services include training and implementation services. Online services revenue and professional services revenue are recognized as the services are provided. Expired services are forfeited and revenue is recognized upon expiry.

We sell our solutions directly and indirectly to individuals, educational institutions, corporations, and governmental agencies. We sell to enterprise and education organizations primarily through our direct sales force as well as through our network of resellers and organizations who typically gain access to our solutions under a web-based subscription service. We distribute our Consumer Language products predominantly through our direct sales channels, primarily utilizing our websites, mobile applications and call centers, which we refer to as our direct-to-consumer ("DTC") channel. We also distribute our Consumer Language products through select third-party retailers and distributors. For purposes of explaining variances in our revenue, we separately discuss changes in our E&E Language, Literacy, and our Consumer Language segments because the customers and revenue drivers of these channels are different.

Literacy segment sales are seasonally stronger in the second and third quarters of the calendar year corresponding to the end and beginning of school district budget years. Within our E&E Language segment, sales in our education, government, and corporate sales channels are seasonally stronger in the second half of the calendar year due to purchasing and budgeting cycles. Consumer Language sales are affected by seasonal trends associated with the holiday shopping season. We expect these trends to continue.

Cost of Revenue

Cost of revenue primarily represents costs associated with supporting our web-based subscription services and online language-learning services, which includes online language conversation coaching, hosting costs, and depreciation. We also include the cost of credit card processing and customer technical support in cost of revenue. Cost of revenue also includes third-party royalty fees and inventory storage, obsolescence and shrinkage.

Operating Expenses

We classify our operating expenses into the following categories: sales and marketing, research and development, and general and administrative. Our operating expenses primarily consist of personnel costs, direct advertising and marketing expenses, and professional fees associated with contract product development, legal, accounting and consulting. Personnel costs for each category of operating expenses include salaries, bonuses, stock-based compensation and employee benefit costs.

Sales and Marketing. Our sales and marketing expenses consist primarily of direct advertising expenses related to television, print, radio, online and other direct marketing activities, personnel costs for our sales and marketing staff, and commissions earned by our sales personnel and app stores. Sales commissions are generally paid when a customer contract is recorded either as revenue or as deferred revenue. However, sales commissions are deferred and recognized as expense in proportion to when the related revenue is recognized.

Research and Development. Research and development expenses consist primarily of employee compensation costs, consulting fees, and overhead costs associated with development of our solutions. Our development efforts are primarily based in the U.S. and are devoted to modifying and expanding our offering portfolio through the addition of new content, as well as new paid and complementary products and services to our language-learning and literacy solutions.

General and Administrative. General and administrative expenses consist primarily of shared services, such as personnel costs of our executive, finance, legal, human resources and other administrative personnel, as well as accounting and legal professional services fees including professional service fees related to other corporate expenses.

Interest and Other Income (Expense)

Interest and other income (expense) primarily consist of interest income, interest expense, and foreign exchange gains and losses. Interest income represents interest received on our cash and cash equivalents. Interest expense is primarily related to interest on our finance leases, interest on borrowings associated with our credit facility, and amortization of deferred financing fees associated with our credit facility. Fluctuations in foreign currency exchange rates in our foreign subsidiaries cause foreign exchange gains and losses. Other income (expense) can also include the gains and losses associated with non-customer transactions.

Income Tax Expense (Benefit)

Income tax expense (benefit) consists of federal, state and foreign income taxes.

We regularly evaluate the recoverability of our deferred tax assets and establish a valuation allowance, if necessary, to reduce the deferred tax assets to an amount that is more likely than not to be realized (a likelihood of more than 50 percent). Significant judgment is required to determine whether a valuation allowance is necessary and the amount of such valuation allowance, if appropriate.

The establishment of a valuation allowance has no effect on the ability to use the deferred tax assets in the future to reduce cash tax payments. We assess the likelihood that the deferred tax assets will be realizable at each reporting period, and the valuation allowance will be adjusted accordingly, which could materially affect our financial position and results of operations.

Critical Accounting Policies and Estimates

In presenting our financial statements in conformity with GAAP, we are required to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues, costs and expenses, and related disclosures.

Some of the estimates and assumptions we are required to make relate to matters that are inherently uncertain as they pertain to future events. We base these estimates and assumptions on historical experience or on various other factors that we believe to be reasonable and appropriate under the circumstances. On an ongoing basis, we reconsider and evaluate our estimates and assumptions. Our future estimates may change if the underlying assumptions change. Actual results may differ significantly from these estimates.

We believe that the following critical accounting policies involve our more significant judgments, assumptions and estimates and, therefore, could have the greatest potential impact on our consolidated financial statements. In addition, we believe that a discussion of these policies is necessary for readers to understand and evaluate our consolidated financial statements contained in this annual report on Form 10-K. See Note 2 of Item 8, *Financial Statements and Supplementary Data* for a complete description of our significant accounting policies.

Revenue Recognition

Nature of Revenue: We account for revenue contracts with customers by applying the five step model in ASC 606. Our primary sources of revenue are web-based software subscriptions, mobile application, online services, and professional services. Revenue is recognized upon transfer of control of promised goods or services to customers in an amount that reflects the consideration expected to be received in exchange for those goods or services. Revenue is recognized net of allowances for returns. Revenue is also recognized net of any taxes collected from customers, which are subsequently remitted to governmental authorities.

The majority of our revenue is recognized from non-cancellable web-based software subscriptions, online services, professional services, and mobile applications. Subscription revenue is generated from contracts with customers that provide access to hosted software over a contract term without the customer taking possession of the software. Subscription revenue is recognized ratably over the contract period as the performance obligation is satisfied. Subscription revenue is generated by all three reportable segments and range from short-term to multi-year contracts. Online services are typically sold in short-term service periods and include dedicated online conversational coaching services and access to online communities of language learners. Professional services include implementation services. Online services revenue and professional services revenue are recognized as the services are provided. Expired services are forfeited and revenue is recognized upon expiry.

Some contracts with customers include promises to transfer multiple products and services to a customer. Determining whether products and services are considered distinct performance obligations that should be accounted for separately, versus together, requires significant judgment. This includes determining whether distinct services are part of a series of distinct services that are substantially the same. When subscription services are sold with professional services, judgment is required to determine whether the professional services are distinct and can be accounted for separately. In the E&E Language segment, we have concluded that each promised service within the language-learning subscription is delivered concurrently with all other promised services over the contract term and, as such, concluded that these promises are a single performance obligation that includes a series of distinct services that have the same pattern of transfer to the customer. When there are multiple performance obligations, revenue is allocated to each performance obligation based on its relative standalone selling price (“SSP”). Judgment is required to determine the SSP for each distinct performance obligation where SSP is not directly observable, such as when the product or service is not sold separately, SSP is determined using internally published price lists which include suggested sales prices for each performance obligation based on the type of client and volume purchased. These price lists are derived from past experience and from the expectation of obtaining a reasonable margin based on the cost to fulfill each performance obligation.

Subscription revenue is recognized ratably over the contract period as the performance obligation is satisfied. Certain Consumer Language offerings have contracts with no fixed duration and are marketed as lifetime subscriptions. For these lifetime subscriptions, we estimate the expected contract period as the greater of the average c ustomer life or the longest fixed-period duration subscription th at is currently marketed. Our current expected contract period for lifetime subscriptions is 24 months.

Certain Consumer Language offerings are sold with a right of return and we may provide other credits or incentives. These rights are accounted for as variable consideration when estimating the amount of revenue to recognize by utilizing the expected value method. Returns and credits are estimated at contract inception based on historical return rates, estimated channel inventory levels, the timing of new product introductions and other factors. Reserves for returns and credits are updated at the end of each reporting period as additional information becomes available.

We distribute products and services both directly to the end customer and indirectly through resellers. Resellers earn commissions generally calculated as a fixed percentage of the gross sale amount to the end customer. We evaluate each of our reseller relationships to determine whether it is the principal (where revenue is recognized at the gross amount) or agent (where revenue is recognized net of the reseller commission). In making this determination we evaluate a variety of factors including the amount of control we are able to exercise over the transactions.

The allowance for doubtful accounts reflects the best estimate of probable losses inherent in the accounts receivable balance. We establish an allowance for doubtful accounts based on specific risks identified, historical experience, and other currently available evidence.

Stock-Based Compensation

All stock-based awards, including employee stock option grants, are recorded at fair value as of the grant date. We use our own historical stock price data to estimate a forfeiture rate over the most recent period commensurate with the estimated expected term.

Our restricted stock and restricted stock unit grants are accounted for as equity awards. Stock-based compensation expense associated with service-based equity awards is recognized in the statement of operations on a straight-line basis over the requisite service period, which is the vesting period.

For equity awards granted with performance-based conditions, stock compensation expense is recognized in the statement of operations ratably for each vesting tranche based on the probability that operating performance conditions will be met and to what extent. Changes in the probability estimates associated with performance-based awards are accounted for in the period of change using a cumulative catch-up adjustment to retroactively apply the new probability estimate. In any period in which we determine the achievement of the performance metrics is not probable, we cease recording compensation expense and all previously recognized compensation expense for the performance-based award is reversed. \

Goodwill

The value of goodwill is primarily derived from the acquisition of Rosetta Stone Ltd. (formerly known as Fairfield & Sons, Ltd.) in January 2006, the acquisition of certain assets of SGLC International Co. Ltd ("SGLC") in November 2009, the acquisitions of Livemocha and Lexia in 2013, and the acquisition of Tell Me More in 2014.

We routinely review goodwill at the reporting unit level for potential impairment as part of our internal control framework and we test goodwill for impairment annually on June 30 of each year at the reporting unit level using a fair value approach or more frequently, if impairment indicators arise. We have the option to first assess qualitative factors to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying value. The factors that we consider important in a qualitative assessment and which could trigger a quantitative test include, but are not limited to: a significant decline in the market value of our common stock for a sustained period; a material adverse change in economic, financial, market, industry, or sector trends; a material failure to achieve operating results relative to historical levels or projected future levels; and significant changes in operations or business strategy. If, based on a review of qualitative factors, it is more likely than not that the fair value of a reporting unit is less than its carrying value, we perform a quantitative impairment test by comparing the fair value of a reporting unit with its carrying amount. If the carrying value exceeds the fair value, we measure the amount of impairment loss, if any.

For our annual goodwill test performed as of June 30, 2019, we began our annual test with the qualitative test. We concluded that there were no indicators of impairment that would cause us to believe that it is more likely than not that the fair value of our reporting units with remaining goodwill balances were less than the carrying value. Accordingly, a quantitative impairment test was not performed and no goodwill impairment charges were recorded in connection with the annual impairment test. There was no goodwill impairment during the years ended December 31, 2019, 2018 and 2017.

Going Concern Assessment

As part of our internal control framework, we routinely perform an assessment to determine the Company's ability to continue as a going concern. As further described below, we have concluded based on projections that the cash balance, funds available from credit facility, and the cash flows from operations are sufficient to meet the liquidity needs through the one year period following the financial statement issuance date.

The consolidated financial statements have been prepared on a going concern basis, which contemplates the realization of assets and the satisfaction of liabilities in the normal course of business. Management has evaluated whether relevant conditions or events, considered in the aggregate, indicate that there is substantial doubt about the Company's ability to continue as a going concern. Substantial doubt exists when conditions and events, considered in the aggregate, indicate it is probable that the Company will be unable to meet its obligations as they become due within one year after the financial statement issuance date. The assessment is based on the relevant conditions that are known or reasonably knowable as of March 11, 2020.

The assessment of our ability to meet our future obligations is inherently judgmental, subjective and susceptible to change. The inputs that we considered important in a going concern analysis, include, but are not limited to, our 2020 cash flow forecast, 2020 operating budget, and long-term plan that extends beyond 2020. These inputs consider information including, but not limited to, our financial condition, liquidity sources, obligations due within one year after the financial statement issuance date, funds necessary to maintain operations, and financial conditions, including negative financial trends or other indicators of possible financial difficulty.

We have considered both quantitative and qualitative factors as part of the assessment that are known or reasonably knowable as of March 11, 2020, and concluded that conditions and events considered in the aggregate, do not indicate that it is probable that we will be unable to meet obligations as they become due through the one year period following the financial statement issuance date.

Recently Issued Accounting Standards

For a summary of recent accounting pronouncements applicable to our consolidated financial statements see Note 2 of Item 8, *Financial Statements and Supplementary Data* , which is incorporated herein by reference.

Results of Operations

The following table sets forth our consolidated statement of operations for the periods indicated.

	Year Ended December 31,		
	2019	2018	2017
	(in thousands, except per share data)		
Statements of Operations Data:			
Revenue	$ 182,702	$ 173,634	$ 184,593
Cost of revenue	37,261	35,922	33,621
Gross profit	145,441	137,712	150,972
Operating expenses			
Sales and marketing	99,572	98,911	96,660
Research and development	24,510	25,210	24,747
General and administrative	34,297	33,210	34,066
Total operating expenses	158,379	157,331	155,473
Loss from operations	(12,938)	(19,619)	(4,501)
Other income and (expense):			
Interest income	61	103	66
Interest expense	(316)	(313)	(491)
Other income and (expense)	554	165	881
Total other income and (expense)	299	(45)	456
Loss before income taxes	(12,639)	(19,664)	(4,045)
Income tax expense (benefit)	317	1,809	(2,499)
Net loss	$ (12,956)	$ (21,473)	$ (1,546)
Loss per share:			
Basic	$ (0.55)	$ (0.95)	$ (0.07)
Diluted	$ (0.55)	$ (0.95)	$ (0.07)
Common shares and equivalents outstanding:			
Basic weighted average shares	23,444	22,705	22,244
Diluted weighted average shares	23,444	22,705	22,244

Comparison of the Year Ended December 31, 2019 and the Year Ended December 31, 2018

The following table sets forth revenue, the corresponding percent of total revenue, segment contribution, and segment contribution margin for each of our operating segments for the years ended December 31, 2019 and 2018:

	Year ended December 31,				2019 versus 2018	
	2019		2018		Change	% Change
	(in thousands, except percentages)					
Revenue and Revenue as a Percent of Total Revenue						
Literacy	$ 62,625	34.3%	$ 52,766	30.4%	$ 9,859	18.7%
E&E Language	56,812	31.1%	60,376	34.8%	(3,564)	(5.9)%
Consumer Language	63,265	34.6%	60,492	34.8%	2,773	4.6%
Total Revenue	182,702	100.0%	173,634	100.0%	9,068	5.2%
Segment Contribution and Segment Contribution Margin						
Literacy	$ 10,095	16.1%	$ 7,173	13.6%	$ 2,922	40.7%
E&E Language	22,735	40.0%	22,852	37.8%	(117)	(0.5)%
Consumer Language	14,983	23.7%	12,771	21.1%	2,212	17.3%
Language Shared Services	(14,611)		(16,153)		1,542	9.5%
Total Segment Contribution	$ 33,202		$ 26,643		$ 6,559	24.6%

Literacy Segment

The increase in Literacy segment revenue reflects sales growth and strong dollar-based renewal rates, which has been positively impacted by increases in our implementation and training services as well as the release of PowerUp in early 2018, which was incorporated into our suite of Literacy solutions. We anticipate continued investments in product and sales personnel in the Literacy business to grow this segment and achieve scale. Our Literacy business is seasonal with sales consolidating into the third calendar quarter corresponding to the beginning of the school district operating budget years.

The Literacy segment contribution dollar and margin increases were primarily due to the larger revenue base on which segment contribution is calculated, partially offset by increases in direct sales and marketing, cost of sales, and research and development expenses due to the continued ramp up of our direct sales team, investments made to improve the Literacy product portfolio and infrastructure and higher implementation and training services costs in support of Literacy sales growth.

E&E Language Segment

Approximately $2.1 million of the overall decline in E&E Language segment revenue was attributable to the enterprise category while the North America K-12 category was down by approximately $1.5 million. Within the enterprise category, the reseller and affiliate sales channels were $1.8 million of the total decline in E&E Language revenue. We expect to continue to balance investments and adjust our cost structure to align scale without impacting growth.

Before shared Language research and development expense, the E&E Language segment contribution margin increased on lower direct sales and marketing costs, despite the reduction in E&E Language revenue. The dollar value of E&E Language segment contribution was flat year over year.

Consumer Language Segment

Consumer Language segment revenue increased as app store revenue was higher by $6.5 million, partially offset by a decrease in retail channel revenue of $2.1 million and a decrease of approximately $0.9 million related to the absence of FitBrains subscription revenue associated with our brain fitness consumer business that was shuttered in 2018. During 2019, there was a higher mix of more expensive, longer duration subscriptions sold as compared to 2018, with long term subscriber base growth of 24%. We expect to invest in mobile and scaled media to drive growth in this segment. Our Consumer business is seasonal and consumer sales typically peak in the fourth quarter during the holiday shopping season.

Before shared Language research and development expense, the Consumer Language segment contribution dollar and margin improvements were primarily due to higher revenue and lower direct cost of sales, partially offset by higher direct sales and marketing expenses. The decrease in cost of revenue was primarily due to the $1.3 million inventory obsolescence charge in the first quarter of 2018 associated with the switch from packaged perpetual products to subscription-based offerings in the retail and DTC channels of the Consumer Language segment which did not recur in 2019. The increase in direct sales and marketing expense was due to higher marketing and media expense related to a $1.5 million targeted offline marketing campaign that was launched in the second quarter covering TV, radio and satellite radio in select US cities. We continue to test our marketing and media campaigns to optimize our media investment and minimize the cost to acquire customers.

Revenue by Geographic Area

The following table sets forth revenue by geographic area and the corresponding percent of total revenue for the years ended December 31, 2019 and 2018:

	Year ended December 31,				2019 versus 2018	
	2019		2018		Change	% Change
	(in thousands, except percentages)					
United States	$ 164,080	89.8%	$ 152,407	87.8%	$ 11,673	7.7%
International	18,622	10.2%	21,227	12.2%	(2,605)	(12.3)%
Total revenue	$ 182,702	100.0%	$ 173,634	100.0%	$ 9,068	5.2%

United States Revenue

United States revenue increased primarily due to the increase in Literacy revenue from our Lexia business, which is predominately recorded as domestic revenue. Additionally, app store revenue in the US increased $5.2 million as compared to prior year.

International Revenue

Approximately $0.9 million of the decrease in international revenue reflects the absence of FitBrains subscription revenue associated with our Canadian brain fitness consumer business that was shuttered in 2018. Revenue in the E&E Language France and Spain education business declined $1.2 million due to the exit of those unprofitable geographies in 2016.

Cost of Revenue, and Gross Profit

The following table sets forth revenue, cost of revenue, and gross profit for the years ended December 31, 2019 and 2018:

	Year ended December 31,				2019 versus 2018	
	2019		2018		Change	% Change
	(in thousands, except percentages)					
Revenue	182,702	100.0%	173,634	100.0%	$ 9,068	5.2%
Cost of revenue	37,261	20.4%	35,922	20.7%	1,339	3.7%
Gross profit	$ 145,441	79.6%	$ 137,712	79.3%	$ 7,729	5.6%

Cost of Revenue

The increase in cost of revenue was primarily due to $2.3 million higher payroll and benefits costs, primarily driven by an increase in headcount and $2.3 million in increased amortization of previously capitalized software costs. These increases were partially offset by a $3.3 million decline in inventory costs, due in part to the $1.3 million inventory obsolescence charge in the first quarter of 2018 associated with the switch from packaged perpetual products to subscription-based offerings in the retail and DTC channels of the Consumer Language segment which did not recur in 2019.

Gross Profit

The increase in gross profit and gross profit percentage were primarily attributable to the increases in revenue previously discussed.

Operating Expenses

The following table sets forth operating expenses and the corresponding percentage of total revenue for the years ended December 31, 2019 and 2018:

	Year ended December 31,				2019 versus 2018	
	2019		2018		Change	% Change
	(in thousands, except percentages, which reflect expense as a percentage of total revenue)					
Sales and marketing	$ 99,572	54.5%	$ 98,911	57.0%	$ 661	0.7%
Research and development	24,510	13.4%	25,210	14.5%	(700)	(2.8)%
General and administrative	34,297	18.8%	33,210	19.1%	1,087	3.3%
Total operating expenses	$ 158,379		$ 157,331		$ 1,048	0.7%

Sales and Marketing Expenses

The slight increase in sales and marketing expense was primarily due to higher selling related expense, which increased commensurate with the increase in revenue recognized year over year, partially offset by lower intangible amortization expense of $1.0 million from the completed amortization period of certain acquired intangibles.

Research and Development Expenses

Research and development expenses decreased, primarily due to $0.8 million in lower intangible amortization expense from the completed amortization period of certain acquired intangibles and as more of our internal-use software development costs were capitalized related to development initiatives in Literacy and Language.

General and Administrative Expenses

General and administrative expenses were up due to higher variable compensation expense of $0.3 million on higher funding levels as compared to 2018, higher stock compensation expense of $0.3 million associated with the departure of an executive early in the third quarter, and a $0.2 million increase in bad debt expense.

Interest and Other Income and (Expense)

	Year ended December 31,		2019 versus 2018	
	2019	2018	Change	% Change
	(in thousands, except percentages)			
Interest income	$ 61	$ 103	$ (42)	(40.8)%
Interest expense	(316)	(313)	(3)	(1.0)%
Other income and (expense)	554	165	389	235.8%
Total other income and (expense)	$ 299	$ (45)	$ 344	764.4%

Interest income represents interest earned on our cash and cash equivalents. Interest expense primarily represents interest on our financing leases, interest on borrowings associated with our credit facility, and the recognition of our deferred financing fees associated with our credit facility. The change in other income and (expense) was primarily attributable to a $1.4 million gain on the sale of certain idle assets in the first quarter of 2019, partially offset by unfavorable foreign exchange fluctuations.

Income Tax Expense

	Year ended December 31,		2019 versus 2018	
	2019	2018	Change	% Change
	(in thousands, except percentages)			
Income tax expense	$ 317	$ 1,809	$ (1,492)	(82.5)%

In the first quarter of 2019, the state of Virginia adopted an indefinite carry forward of net operating losses resulting in a release of our state valuation allowance and recognition of $0.6 million in state tax benefit. In the third quarter of 2019, the full valuation allowance of $0.7 million was released related to one of our French subsidiaries. The tax benefit related to these valuation allowance releases was partially offset by income tax expense in the U.K., Germany, Canada, France, Brazil and China and deferred tax expense related to the tax impact of amortization of indefinite lived intangible assets.

Comparison of the Year Ended December 31, 2018 and the Year Ended December 31, 2017

The following table sets forth revenue, the corresponding percent of total revenue, segment contribution, and segment contribution margin for each of our operating segments for the years ended December 31, 2018 and 2017:

	Year ended December 31,				2018 versus 2017	
	2018		2017 (1)		Change	% Change
	(in thousands, except percentages)					
Revenue and Revenue as a Percent of Total Revenue						
Literacy	$ 52,766	30.4%	$ 43,608	23.6%	$ 9,158	21.0%
Enterprise & Education Language	60,376	34.8%	65,267	35.4%	(4,891)	(7.5)%
Consumer Language	60,492	34.8%	75,718	41.0%	(15,226)	(20.1)%
Total Revenue	$ 173,634	100.0%	$ 184,593	100.0%	$ (10,959)	(5.9)%
Segment Contribution and Segment Contribution Margin						
Literacy	$ 7,173	13.6%	$ 4,964	11.4%	$ 2,209	44.5%
Enterprise & Education Language	22,852	37.8%	26,897	41.2%	(4,045)	(15.0)%
Consumer Language	12,771	21.1%	24,849	32.8%	(12,078)	(48.6)%
Language Shared Services	(16,153)		(17,369)		1,216	(7.0)%
Total Segment Contribution	$ 26,643		$ 39,341		$ (12,698)	(32.3)%

(1) Effective January 1, 2018 we adopted ASC 606 using the modified retrospective approach. Revenue in prior comparative periods reflects amounts previously reported and has not been restated.

Literacy Segment

The increase in Literacy segment revenue reflects sales growth and strong retention rates, which has been positively impacted by increases in our implementation and training services as well as the release of PowerUp in early 2018, which has been incorporated into our suite of Literacy solutions.

The Literacy segment contribution dollar and margin increases were primarily due to the larger r evenue base on which segment contribution is calculated, partially offset by increases in direct sales and marketing, cost of sales, and research and development expenses due to the transition to a direct sales team, and investments made to improve the Literacy product portfolio and infrastructure. Additionally, the higher direct Literacy expenses reflect the higher implementation and training services costs in support of Literacy sales growth.

E&E Language Segment

The decrease in E&E Language segment revenue reflects lower performance from non-strategic custom-content and affiliate sales channels. Revenue declined approximately $3.0 million, or 8% in the enterprise category and approximately $1.9 million, or 7% in the North America K-12 category. The enterprise revenue decline was driven by $2.0 million in lower revenue from the reseller channel.

Before shared Language research and development expense, the E&E Language segment contribution dollar and margin decreases were primarily due to lower revenue as direct costs were comparable year-over-year.

Consumer Language Segment

The decrease in Consumer Language segment revenue was largely due to the transition of the segment to subscription-based sales, which are recognized over time, from the sale of perpetual products that were historically recognized up front at the time of sale. The SaaS transition within the Consumer Language segment's DTC channel was largely completed by the end of 2017 and the migration from CD-based product sales to subscriptions in the retail channel was largely complete in the middle of 2018. The decline in Consumer Language segment revenue also reflects the absence of $2.5 million in FitBrains subscription revenue from our brain fitness business that was recently shuttered.

Before shared Language research and development expense, the Consumer Language segment contribution dollar and margin decreases were primarily due to lower revenue recognized year over year, primarily due to the SaaS transition and absence of FitBrains revenue described above. The declines in segment revenue were partially offset by year-over-year reductions in direct cost of sales and a direct sales and marketing expense.

Revenue by Geographic Area

The following table sets forth revenue by geographic area and the corresponding percent of total revenue for the years ended December 31, 2018 and 2017:

	Year ended December 31,				2018 versus 2017	
	2018		2017 (1)		Change	% Change
	(in thousands, except percentages)					
United States	$ 152,407	87.8%	$ 158,825	86.0%	$ (6,418)	(4.0)%
International	21,227	12.2%	25,768	14.0%	(4,541)	(17.6)%
Total revenue	$ 173,634	100.0%	$ 184,593	100.0%	$ (10,959)	(5.9)%

(1) Effective January 1, 2018 we adopted ASC 606 using the modified retrospective approach. Revenue in prior comparative periods reflects amounts previously reported and has not been restated.

United States Revenue

The decrease in United States revenue reflects the Consumer SaaS transition described above as the majority of Consumer sales are made domestically. The decline in United States revenue was partially offset by the increase in Literacy revenue from our Lexia business, which is predominately recorded as domestic revenue.

International Revenue

Nearly half of the decrease in international revenue reflects the absence of Fit Brains subscription revenue associated with our Canadian brain fitness consumer business that was recently shuttered. Revenue in the E&E Language France and Spain education business declined $1.9 million due to the exit of those unprofitable geographies as part of the 2016 Restructuring Plan.

Cost of Revenue, and Gross Profit

The following table sets forth revenue, cost of revenue, and gross profit for the years ended December 31, 2018 and December 31, 2017:

	Year ended December 31,				2018 versus 2017	
	2018		2017 (1)		Change	% Change
	(in thousands, except percentages)					
Revenue	173,634	100.0%	184,593	100.0%	$ (10,959)	(5.9)%
Cost of revenue	35,922	20.7%	33,621	18.2%	2,301	6.8%
Gross profit	$ 137,712	79.3%	$ 150,972	81.8%	$ (13,260)	(8.8)%

(1) Effective January 1, 2018 we adopted ASC 606 using the modified retrospective approach. Revenue in prior comparative periods reflects amounts previously reported and has not been restated.

Cost of Revenue

The increase in cost of subscription and service revenue was primarily due to higher amortization expense from capitalized internal-use software costs associated with the Literacy PowerUp SaaS offering that was released in early 2018. Additionally, there was a $2.1 million inventory obsolescence charge during 2018 associated with the SaaS transition.

Gross Profit

The declines in gross profit and gross profit percentage were primarily attributable to the decline in revenue previously discussed.

Operating Expenses

The following table sets forth operating expenses and the corresponding percentage of total revenue for the years ended December 31, 2018 and 2017:

	Year ended December 31,				2018 versus 2017	
	2018		2017		Change	% Change
	(in thousands, except percentages, which reflect expense as a percentage of total revenue)					
Sales and marketing	$ 98,911	57.0%	$ 96,660	52.4%	$ 2,251	2.3%
Research and development	25,210	14.5%	24,747	13.4%	463	1.9%
General and administrative	33,210	19.1%	34,066	18.5%	(856)	(2.5)%
Total operating expenses	$ 157,331		$ 155,473		$ 1,858	1.2%

Sales and Marketing Expenses

The slight increase in sales and marketing expense was primarily due to investments in sales and marketing for Lexia. We anticipate sales and marketing expenses will increase year-over-year as the Company funds its growth initiatives in the Literacy, E&E Language and Consumer Language segments.

Research and Development Expenses

Research and development expense was nearly flat year-over-year. We expect research and development expenses will decline slightly in the near future as we anticipate more of our internal-use software development costs will be capitalizable as we execute our SaaS software development plans.

General and Administrative Expenses

General and administrative expenses were down slightly year-over-year. The dollar reduction was primarily due to lower variable incentive compensation expenses based on reduced funding expectations. We expect general and administrative expenses will increase in the near term.

Other Income and (Expense)

	Year ended December 31,		2018 versus 2017	
	2018	2017	Change	% Change
	(in thousands, except percentages)			
Interest income	$ 103	$ 66	$ 37	56.1%
Interest expense	(313)	(491)	178	(36.3)%
Other income and (expense)	165	881	(716)	(81.3)%
Total other income and (expense)	$ (45)	$ 456	$ (501)	(109.9)%

Interest income represents interest earned on our cash and cash equivalents. Interest expense primarily represents interest on our financing leases and the recognition of our financing fees associated with our undrawn credit facility. The change in other income and (expense) was primarily attributable to foreign exchange fluctuations and the absence of the gain on sale associated with the sale of our Korea subsidiary in 2017.

Income Tax Expense (Benefit)

	Year ended December 31,		2018 versus 2017	
	2018	2017	Change	% Change
	(in thousands, except percentages)			
Income tax expense (benefit)	$ 1,809	$ (2,499)	$ 4,308	(172.4)%

The 2017 income tax benefit reflects the $5.5 million deferred tax benefit associated with the reduction in the corporate tax rate from 35% to 21% under the Tax Act. The 2018 income tax expense relates to current year tax expense due to profits of operations in certain foreign jurisdictions and deferred tax expense related to indefinite-lived intangible assets.

Liquidity and Capital Resources

Liquidity

Our principal source of liquidity at December 31, 2019 consisted of $43.0 million in cash and cash equivalents and short-term investments, an increase of $4.9 million, from $38.1 million compared to December 31, 2018. Our primary operating cash requirements include the payment of salaries, employee benefits and other personnel related costs, as well as direct advertising expenses, costs of office facilities, and costs of information technology systems. Historically, we have primarily funded these requirements through cash flow from our operations. For the year ended December 31, 2019, we generated $17.2 million in cash flows from operations as reflected in our consolidated statements of cash flows.

Our operating segments are affected by different sales-to-cash patterns. Within our E&E Language and Literacy segments, revenue in our education, government, and corporate sales channels are seasonally stronger in the second half of the calendar year due to purchasing and budgeting cycles. Our Consumer Language revenue is affected by seasonal trends associated with the holiday shopping season. Consumer Language sales typically turn to cash more quickly than E&E Language and Literacy sales, which tend to have longer collection cycles. Historically, in the first half of the year we have been a net user of cash and in the second half of the year we have been a net generator of cash. We expect the trend to use cash in the first half of the year and generate cash in the second half of the year to continue.

On October 28, 2014, we executed a Loan and Security Agreement with Silicon Valley Bank ("Bank") to obtain a credit facility. Since the original date of execution, we have executed several amendments to the credit facility to reflect updates to our financial outlook and extend the credit facility. Under the eighth amendment executed on March 10, 2020, we may borrow up to $25.0 million, including a sub-facility, which reduces available borrowings, for letters of credit in the aggregate availability amount of $4.0 million. The credit facility has a term that expires on April 1, 2023, during which time we may borrow and re-pay loan amounts and re-borrow the loan amounts subject to customary borrowing conditions. However, we must have less than $5.0 million in outstanding borrowings for 30 consecutive days during each twelve month period beginning as of the date of execution. Interest will accrue at the greater of Prime Rate or 1.5% and must be paid quarterly.

As of the date of this filing, no borrowings are outstanding under the credit agreement. During our seasonal low point of cash in the first half of 2019, we borrowed $10.5 million in short-term borrowings that were fully repaid by the end of the third quarter. We are subject to certain financial and restrictive covenants under the credit facility. As of December 31, 2019, we were in compliance with all of the covenants under the credit facility. Consistent with the seasonality of cash we saw in 2019, we expect to make short term borrowings under our credit facility in the second quarter of 2020 and expect to have no borrowings outstanding at the calendar end of 2020. We believe the borrowing availability under the credit facility is sufficient to provide liquidity during our mid-year seasonal cash low point.

The total amount of cash that was held by foreign subsidiaries as of December 31, 2019 was $5.4 million. As of December 31, 2019, if we were to repatriate this foreign cash, no tax liability would result due to the current period and carryforward net operating losses.

During the last three years, inflation has not had a material effect on our business and we do not expect that inflation or changing prices will materially affect our business in the foreseeable future.

Capital Resources

We believe our current cash and cash equivalents, short-term investments, borrowings under our credit facility, and funds generated from our sales will be sufficient to meet our cash needs for at least the next twelve months from the date of issuance of this report. We have generated significant operating losses as reflected in our accumulated loss and we may continue to incur operating losses in the future that may continue to require additional working capital to execute strategic initiatives. Our future capital requirements will depend on many factors, including development of new products, market acceptance of our products, the levels of advertising and promotion required to launch additional products and improve our competitive position in the marketplace, the expansion of our sales, support and marketing organizations, the optimization of office space in the U.S. and worldwide, building the infrastructure necessary to support our growth, the response of competitors to our products and services, and our relationships with suppliers. We extend payments to certain vendors in order to minimize the amount of working capital deployed in the business. In order to maximize our cash position, we will continue to manage our existing inventory, accounts receivable, and accounts payable balances. Borrowings under our credit facility can be utilized to meet working capital requirements, anticipated capital expenditures, and other obligations. We expect the trends experienced with revenue and expenses during 2019 will continue for 2020.

Cash Flow Analysis for the Year ended December 31, 2019 as compared to the year ended December 31, 2018

	Year ended December 31,		2019 versus 2018	
	2019	2018	Change	% Change
	(in thousands, except percentages)			
Net cash provided by operating activities	$ 17,191	$ 10,443	6,748	64.6%
Net cash used in investing activities	$ (15,370)	$ (16,872)	1,502	8.9%
Net cash provided by financing activities	$ 3,065	$ 1,791	1,274	71.1%

Net Cash Provided By Operating Activities

Net cash provided by operating activities was higher in 2019 as compared to 2018 reflecting an improvement in net loss year over year. One factor impacting the increase in cash provided by operating activities was a large custom content deal closed with a Native American tribe that contributed to $7.4 million in cash flow in the third quarter of 2019. Additionally, the overall increase in bookings resulted in higher cash flow in the year-to-date period of 2019 as compared to the same period in 2018. Offsetting these increases in cash flow was the timing of cash receipts from our contractual relationship with SOURCENEXT whereby we received one-time cash inflows of approximately $4.5 million in the first quarter of 2018 as compared to $0.5 million in cash inflows during the second quarter of 2019.

Net Cash Used in Investing Activities

Net cash used in investing activities was slightly lower in 2019 as compared to 2018, primarily due to $1.4 million in proceeds from the sale of certain idle non-current assets in the first quarter of 2019.

Net Cash Provided by Financing Activities

Net cash provided by financing activities increased in 2019 as compared to 2018 primarily due to a $1.3 million increase in proceeds from stock option exercises. During the second quarter of 2019, a net $9.9 million of borrowings were made under the credit facility in order to meet our seasonal cash flow needs. These borrowings were fully repaid during the third quarter of 2019.

Cash Flow Analysis for the Year ended December 31, 2018 as compared to the year ended December 31, 2017

	Year ended December 31,		2018 versus 2017	
	2018	2017	Change	% Change
	(in thousands, except percentages)			
Net cash provided by operating activities	$ 10,443	$ 18,960	(8,517)	(44.9)%
Net cash used in investing activities	$ (16,872)	$ (12,822)	(4,050)	(31.6)%
Net cash provided by (used in) financing activities	$ 1,791	$ (118)	1,909	1617.8%

Net Cash Provided By Operating Activities

Net cash provided by operating activities was $10.4 million for the year ended December 31, 2018 compared to $19.0 million for the year ended December 31, 2017. One factor impacting the decline in cash provided by operating activities was the timing of cash receipts from our contractual relationship with SOURCENEXT. We received cash inflows of approximately $4.5 million in 2018, a decrease of $8.7 million as compared to the cash inflows of $13.2 million in 2017. After normalizing for the non-recurring cash received from SOURCENEXT, cash flows provided by operating activities is nearly flat year-over-year.

Net Cash Used in Investing Activities

Net cash used in investing activities was $16.9 million for the year ended December 31, 2018, compared to $12.8 million for the year ended December 31, 2017. The increase in cash used was primarily driven by an increase in capitalized software costs primarily related projects in connection with our Adobe Flash phase-out, our mobile English tutoring offering, and our English language learning offering for children.

Net Cash Used in Financing Activities

Net cash provided by financing activities was $1.8 million for the year ended December 31, 2018, compared to net cash used in financing activities of $0.1 million for the year ended December 31, 2017. The favorable change was primarily driven by an increase in proceeds from the exercise of stock options in 2018 as compared to 2017.

Off-Balance Sheet Arrangements

We do not engage in any off-balance sheet financing arrangements. We do not have any material interest in entities referred to as variable interest entities, which include special purpose entities and other structured finance entities.

Contractual Obligations

As discussed in Note 7 of Item 8, *Financial Statements and Supplementary Data*, we lease buildings, parking spaces, equipment, and office space under operating lease agreements. We also lease a building in France, certain equipment, and certain software under financing lease agreements. The following table summarizes our future minimum rent payments under non-cancellable operating and financing lease agreements as of December 31, 2019 and the effect such obligations are expected to have on our liquidity and cash flow in future periods.

	Total	Less than 1 Year	1-3 Years	3-5 Years	More than 5 Years
			(in thousands)		
Financing leases	$ 1,485	$ 528	$ 924	$ 33	$ —
Operating leases	6,179	1,706	3,276	1,121	76
Total	$ 7,664	$ 2,234	$ 4,200	$ 1,154	$ 76

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

Foreign Currency Exchange Risk

The functional currency of our foreign subsidiaries is their local currency. Accordingly, our results of operations and cash flows are subject to fluctuations due to changes in foreign currency exchange rates. The volatility of the prices and applicable rates are dependent on many factors that we cannot forecast with reliable accuracy. In the event our foreign sales and expenses increase, our operating results may be more greatly affected by fluctuations in the exchange rates of the currencies in which we do business. At this time we do not, but we may in the future, invest in derivatives or other financial instruments in an attempt to hedge our foreign currency exchange risk.

Interest Rate Sensitivity

Interest income and expense are sensitive to changes in the general level of U.S. interest rates. However, based on the nature and current level of our marketable securities, which are primarily short-term investment grade and government securities and our notes payable, we believe that there is no material risk of exposure.

Credit Risk

Accounts receivable and cash and cash equivalents present the highest potential concentrations of credit risk. We reserve for credit losses and do not require collateral on our trade accounts receivable. In addition, we maintain cash and investment balances in accounts at various banks and brokerage firms. We have not experienced any losses on cash and cash equivalent accounts to date. We sell products to retailers, resellers, government agencies, and individual consumers and extend credit based on an evaluation of the customer's financial condition, without requiring collateral. Exposure to losses on accounts receivable is principally dependent on each customer's financial condition. We monitor exposure for credit losses and maintain allowances for anticipated losses. We maintain trade credit insurance for certain customers to provide coverage, up to a certain limit, in the event of insolvency of some customers.

Item 8. Financial Statements and Supplementary Data

Our consolidated financial statements, together with the related notes and the report of independent registered public accounting firm, are set forth on the pages indicated in Item 15.

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

Management, with the participation of our Chief Executive Officer and our Chief Financial Officer, evaluated the effectiveness of our disclosure controls and procedures as of December 31, 2019. The term "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"), means controls and other procedures of a company that are designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the SEC's rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is accumulated and communicated to the Company's management, including its principal executive and principal financial officers, as appropriate to allow timely decisions regarding required disclosure. Management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives, and management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Based on the evaluation of our disclosure controls and procedures as of December 31, 2019, our Chief Executive Officer and Chief Financial Officer concluded that, as of such date, our disclosure controls and procedures were effective at the reasonable assurance level.

Management's annual report on internal control over financial reporting

Management is responsible for establishing and maintaining adequate internal control over our financial reporting. Management has assessed the effectiveness of internal control over financial reporting as of December 31, 2019. Management's assessment was based on criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission, or COSO, in Internal Control—Integrated Framework (2013).

Our internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. Our internal control over financial reporting includes those policies and procedures that:

(1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect our transactions and dispositions of our assets;
(2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that our receipts and expenditures are being made only in accordance with authorizations of management and Board of Directors; and
(3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of our assets that could have a material effect on the financial statements.

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

Based on using the COSO criteria, management believes our internal control over financial reporting as of December 31, 2019 was effective.

Our independent registered public accounting firm, Deloitte & Touche LLP, has audited the financial statements included in this Annual Report on Form 10-K and has issued a report on the effectiveness of our internal control over financial reporting. The attestation report of Deloitte & Touche LLP is included on page F-3 of this Form 10-K.

Changes in Internal Control over Financial Reporting

There was no change in our internal control over financial reporting identified in connection with the evaluation required by Rule 13a-15(d) or 15d-15(d) of the Exchange Act that occurred during the quarter ended December 31, 2019 that had materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information

None.

PART III

Certain information required by Part III is omitted from this Annual Report on Form 10-K as we intend to file our definitive Proxy Statement for the 2020 Annual Meeting of Stockholders pursuant to Regulation 14A of the Securities Exchange Act of 1934, as amended, not later than 120 days after the end of the fiscal year covered by this Annual Report, and certain information included in the Proxy Statement is incorporated herein by reference.

Item 10. Directors, Executive Officers and Corporate Governance

The information required by this Item is hereby incorporated by reference to our definitive Proxy Statement relating to our 2020 Annual Meeting of Stockholders to be filed with the SEC no later than 120 days after the fiscal year ended December 31, 2019 (the "2020 Proxy Statement").

Code of Ethics and Business Conduct

We have adopted a code of ethics and business conduct ("code of conduct") that applies to all of our employees, officers and directors, including without limitation our principal executive officer, principal financial officer, and principal accounting officer. Copies of both the code of conduct, as well as any waiver of a provision of the code of conduct granted to any senior officer or director or material amendment to the code of conduct, if any, are available, without charge, under the "Corporate Governance" tab of the "Investor Relations" section on our website at *www.rosettastone.com*. We intend to disclose any amendments or waivers of this code on our website.

Item 11. Executive Compensation

The information required by this Item is hereby incorporated by reference to the 2020 Proxy Statement.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

The information required by this Item is hereby incorporated by reference to the 2020 Proxy Statement.

Item 13. Certain Relationships and Related Transactions, and Director Independence

The information required by this Item is hereby incorporated by reference to the 2020 Proxy Statement.

Item 14. Principal Accounting Fees and Services

The information required by this Item is hereby incorporated by reference to the 2020 Proxy Statement.

PART IV

Item 15. Exhibits and Financial Statement Schedules

(a) ***Consolidated Financial Statements***

1. *Consolidated Financial Statements.* The consolidated financial statements as listed in the accompanying "Index to Consolidated Financial Information" are filed as part of this Annual Report.
2. *Consolidated Financial Statement Schedules.* Schedules have been omitted because they are not applicable or are not required or the information required to be set forth in those schedules is included in the consolidated financial statements or related notes.

All other schedules not listed in the accompanying index have been omitted as they are either not required or not applicable, or the required information is included in the consolidated financial statements or the notes thereto.

(b) ***Exhibits***

The exhibits listed in the Index to Exhibits are filed as part of this Annual Report on Form 10-K.

EXHIBIT INDEX

	Index to exhibits
2.1#	Purchase and Sale Agreement by and among Rosetta Stone Ltd., Rosetta Stone Japan Inc., and SOURCENEXT Corporation, dated April 25, 2017 (incorporated herein by reference to Exhibit 2.1 filed with the Company's Current Report on Form 8-K filed on April 25, 2017).
3.1	Second Amended and Restated Certificate of Incorporation (incorporated herein by reference to Exhibit 3.2 to Amendment No. 3 to the Company's Registration Statement on Form S-1 (No. 333-153632) filed on February 23, 2009).
3.2	Third Amended and Restated Bylaws (incorporated herein by reference to Exhibit 3.1 filed with the Company's Current Report on Form 8-K filed on November 22, 2016).
4.1	Specimen certificate evidencing shares of common stock (incorporated herein by reference to Exhibit 4.1 to Amendment No. 3 to the Company's Registration Statement on Form S-1 (No. 333-153632) filed on February 23, 2009).
4.2*	Description of Registrant's Securities.
10.1+	2009 Omnibus Incentive Plan, as amended and restated and effective May 19, 2017 (incorporated herein by reference to Appendix A to the Company's Definitive Proxy Statement filed on April 7, 2017).
10.2+	2019 Omnibus Incentive Plan, effective May 16, 2019 (incorporated herein by reference to Appendix B to the Company's Definitive Proxy Statement filed on April 5, 2019).
10.3+	Director Form of Option Award Agreement (incorporated herein by reference to Exhibit 10.6 to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2014).
10.4+	Executive Form of Option Award Agreement under the 2009 Plan (incorporated herein by reference to Exhibit 10.5 to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2014).
10.5+	Amended Executive Form of Option Award Agreement under 2009 Plan effective for awards after October 1, 2011 (incorporated herein by reference to Exhibit 10.25 in the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2011).
10.6+	Amended Executive Form of Option Award Agreement effective for awards granted May 9, 2016 (incorporated herein by reference to Exhibit 10.3 in the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 2016.)
10.7+	Form of Annual Performance-Based Nonqualified Stock Option Award Agreement, dated April 4, 2016, between the Company and John Hass (incorporated herein by reference to Exhibit 10.3 in the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2017).
10.8+	Form of Long-Term Performance-Based Nonqualified Stock Option Award Agreement, dated April 4, 2016, between the Company and John Hass (incorporated herein by reference to Exhibit 10.4 in the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2017).
10.9+	Form of Restricted Stock Award Agreement (incorporated herein by reference to Exhibit 10.13 to Amendment No. 4 to the Company's Registration Statement on Form S-1 (No. 333-153632), filed on March 17, 2009).
10.10+	Amended Executive Form of Restricted Stock Award Agreement under 2009 Plan effective for awards after February 1, 2016 (incorporated herein by reference to Exhibit 10.11 in the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2015).
10.11+	Director Form of Restricted Stock Unit Award Agreement under the 2009 Plan (for awards prior to June 2015) (incorporated herein by reference to Exhibit 10.12 in the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2014).
10.12+	Director Form of Restricted Stock Unit Award Agreement (for awards beginning June 2015) (incorporated herein by reference to Exhibit 10.2 of the Company's Quarterly Report on Form 10-Q for the period ended June 30, 2015).
10.13+	Form of Annual Performance-Based Restricted Stock Award Agreement, dated April 4, 2016, between the Company and John Hass (incorporated herein by reference to Exhibit 10.1 in the Company's Quarterly Report on Form 10-Q for the period ended March 31, 2017).

10.14+	Form of Long-Term Performance-Based Restricted Stock Award Agreement, dated April 4, 2016, between the Company and John Hass (incorporated herein by reference to Exhibit 10.2 in the Company's Quarterly Report on Form 10-Q for the period ended March 31, 2017).
10.15+	Policy on Recoupment of Performance Based Compensation (Clawback Policy) (incorporated herein by reference to Exhibit 10.26 in the Company’s Annual Report on Form 10-K for the fiscal year ended December 31, 2014).
10.16+	Rosetta Stone Inc. Change in Control Severance Plan (incorporated herein by reference to Exhibit 10.18 in the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2015.)
10.17	Form of Indemnification Agreement to be entered into with each director and executive officer, revised as of August 2015 (incorporated herein by reference to Exhibit 10.1 of the Company’s Quarterly Report on Form 10-Q for the period ended September 30, 2015).
10.18+	Executive Employment Agreement between Rosetta Stone Ltd. and Thomas Pierno effective as of May 2, 2012 (incorporated herein by reference to Exhibit 10.1 to the Company’s Current Report on Form 8-K filed on May 1, 2012).
10.19+	Director Agreement between Rosetta Stone Inc. and A. John Hass III effective as of November 18, 2014 (incorporated herein by reference to Exhibit 10.31 in the Company’s Annual Report on Form 10-K for the fiscal year ended December 31, 2014).
10.20+	Executive Employment Agreement between Rosetta Stone Ltd. and A. John Hass III effective as of April 1, 2016 (incorporated herein by reference to Exhibit 10.1 in the Company's Quarterly Report on Form 10-Q for the period ended June 30, 2016.)
10.21+	Executive Employment Agreement between the Company and Sonia Cudd, effective as of January 2, 2015 (incorporated herein by reference to Exhibit 10.2 of the Company’s Quarterly Report on Form 10-Q for the period ended March 31, 2015).
10.22+	Executive Employment Agreement between the Company and Mathew Hulett, effective as of August 4, 2017 (incorporated herein by reference to Exhibit 10.23 of the Company’s Annual Report on Form 10-K for the fiscal year ended December 31, 2017).
10.23+	Executive Employment Agreement between the Company and Nicholas Gaehde, effective as of August 21, 2017 (incorporated herein by reference to Exhibit 10.24 of the Company’s Annual Report on Form 10-K for the fiscal year ended December 31, 2017).
10.24*+	Executive Employment Agreement between the Company and Sean Klein, effective as of July 1, 2019 .
10.25+	Agreement and General Release dated July 1, 2019 by and between Rosetta Stone Ltd. and Sonia Galindo (incorporated herein by reference to Exhibit 10.1 filed with the Company’s Form 10-Q for the period ended June 30, 2019).
10.26+	Form of 2018 Annual Performance Stock Award Agreement with CEO (incorporated herein by reference to Exhibit 10.1 of the Company’s Quarterly Report on Form 10-Q for the period ended March 31, 2018).
10.27+	Form of 2018 Long-Term Performance Stock Award Agreement with executive officers (incorporated herein by reference to Exhibit 10.2 of the Company’s Quarterly Report on Form 10-Q for the period ended March 31, 2018).
10.28#	Software License Agreement by and between The Regents of the University of Colorado and Fairfield & Sons Ltd. dated as of December 22, 2006 (incorporated herein by reference to Exhibit 10.12 to Amendment No. 2 to the Company’s Registration Statement on Form S-1 (No. 333-153632), filed on January 21, 2009).
10.29	Loan and Security Agreement between Rosetta Stone Ltd. and Silicon Valley Bank, executed on October 28, 2014 (incorporated herein by reference to Exhibit 99.3 filed to the Company’s Current Report on Form 8-K filed on October 29, 2014).
10.30	First Amendment to Loan and Security Agreement between Rosetta Stone Ltd. and Silicon Valley Bank, effective as of March 31, 2015 (incorporated herein by reference to Exhibit 10.1 of the Company’s Quarterly Report on Form 10-Q for the period ended March 31, 2015).
10.31	Second Amendment to Loan and Security Agreement between Rosetta Stone Ltd. and Silicon Valley Bank, effective as of May 1, 2015 (incorporated herein by reference to Exhibit 10.3 of the Company’s Quarterly Report on Form 10-Q for the period ended March 31, 2015).

10.32	Third Amendment to Loan and Security Agreement dated as of June 29, 2015 between Silicon Valley Bank and Rosetta Stone Ltd. (incorporated herein by reference to Exhibit 10.1 of the Company’s Quarterly Report on Form 10-Q for the period ended June 30, 2015).
10.33	Fourth Amendment to Loan and Security Agreement dated as of December 29, 2015 between Silicon Valley Bank and Rosetta Stone Ltd (incorporated herein by reference to Exhibit 10.42 of the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2015.).
10.34	Fifth Amendment to Loan and Security Agreement dated as of March 14, 2016 between Silicon Valley Bank and Rosetta Stone Ltd. (incorporated herein by reference to Exhibit 10.1 of the Company’s Quarterly Report on Form 10-Q for the period ended March 31, 2016).
10.35	Sixth Amendment to Loan and Security Agreement dated as of March 10, 2017 between Silicon Valley Bank and Rosetta Stone Ltd. (incorporated herein by reference to Exhibit 10.45 of the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2016).
10.36	Seventh Amendment to Loan and Security Agreement dated as of March 4, 2019 between Silicon Valley Bank and Rosetta Stone Ltd. and Lexia Learning Systems LLC (incorporated herein by reference to Exhibit 10.35 filed with the Company’s Annual Report on Form 10-K for the fiscal year ended December 31, 2018).
10.37*	Eighth Amendment to Loan and Security Agreement dated as of March 10, 2020 between Silicon Valley Bank and Rosetta Stone Ltd. and Lexia Learning Systems LLC.
21.1*	Rosetta Stone Inc. Subsidiaries.
23.1*	Consent of Deloitte & Touche LLP, independent registered public accounting firm.
24.1*	Power of Attorney.
31.1*	Certifications of Principal Executive Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2*	Certifications of Principal Financial Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1**	Certifications of Principal Executive Officer Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2**	Certifications of Principal Financial Officer Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101.INS	XBRL Instance Document.
101.SCH	XBRL Taxonomy Extension Schema.
101.CAL	XBRL Taxonomy Extension Calculation Linkbase.
101.DEF	XBRL Taxonomy Extension Definition Linkbase.
101.LAB	XBRL Taxonomy Extension Label Linkbase.
101.PRE	XBRL Taxonomy Extension Presentation Linkbase.

* Filed herewith.

** Furnished herewith.

Portions of this exhibit have been omitted in accordance with Item 601(b)(2) of Regulation S-K. An unredacted copy of the exhibit will be furnished supplementally to the Securities and Exchange Commission upon request.

+ Identifies management contracts and compensatory plans or arrangements.

Item 16. Form 10-K Summary

Not applicable.

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SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, as amended, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

ROSETTA STONE INC.

By: /s/ A. JOHN HASS III
A. John Hass III
Chief Executive Officer
and Chairman of the Board

Date: March 11, 2020

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 and in the capacities and on the dates indicated.

Signature	Title	Date
/s/ A. JOHN HASS III A. John Hass III	Chief Executive Officer and Chairman of the Board (Principal Executive Officer)	March 11, 2020
/s/ THOMAS PIERNO Thomas Pierno	Chief Financial Officer (Principal Financial Officer)	March 11, 2020
/s/ M. SEAN HARTFORD M. Sean Hartford	Vice President, Controller and Principal Accounting Officer (Principal Accounting Officer)	March 11, 2020
/s/ LAURENCE FRANKLIN Laurence Franklin	Director	March 11, 2020
/s/ PATRICK GROSS Patrick Gross	Director	March 11, 2020
/s/ AEDHMAR HYNES Aedhmar Hynes	Director	March 11, 2020
/s/ GEORGE LOGUE George Logue	Director	March 11, 2020
/s/ DAVID NIERENBERG David Nierenberg	Director	March 11, 2020
/s/ KATHRYN EBERLE WALKER Kathryn Eberle Walker	Director	March 11, 2020
/s/ JESSIE WOOLLEY-WILSON Jessie Woolley-Wilson	Director	March 11, 2020
/s/ STEVEN YANKOVICH Steven Yankovich	Director	March 11, 2020

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the stockholders and Board of Directors of Rosetta Stone Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Rosetta Stone Inc. and subsidiaries (the "Company") as of December 31, 2019 and 2018, and the related consolidated statements of operations, comprehensive loss, changes in 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 "financial statements"). In our opinion the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2019 and 2018, and the results of operations and its cash flows for each of the three years in the period ended December 31, 2019, in conformity with accounting principles generally accepted in the United States of America.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control - Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated March 11, 2020, expressed an unqualified opinion on the Company's internal control over financial reporting.

Basis of Opinion

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

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ DELOITTE & TOUCHE LLP

McLean, Virginia
March 11, 2020
We have served as the Company's auditor since 2004.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the stockholders and Board of Directors of Rosetta Stone Inc.

Opinion on Internal Control over Financial Reporting

We have audited the internal control over financial reporting of Rosetta Stone Inc. and subsidiaries (the “Company”) as of December 31, 2019, based on criteria established in *Internal Control-Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control - Integrated Framework (2013)* issued by COSO.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated financial statements as of and for the year ended December 31, 2019 of the Company and our report dated March 11, 2020, expressed an unqualified opinion on those financial statements.

Basis for Opinion

The Company’s management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying *Management’s annual report on internal control over financial reporting*. Our responsibility is to express an opinion on the Company’s internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control over Financial Reporting

A company’s internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company’s internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company’s assets that could have a material effect on the financial statements.

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

/s/ DELOITTE & TOUCHE LLP

McLean, Virginia
March 11, 2020

ROSETTA STONE INC.
CONSOLIDATED BALANCE SHEETS
(in thousands, except per share amounts)

	As of December 31,	
	2019	**2018**
Assets		
Current assets:		
Cash and cash equivalents	$ 43,010	$ 38,092
Restricted cash	54	82
Accounts receivable (net of allowance for doubtful accounts of $510 and $372, at December 31, 2019 and December 31, 2018, respectively)	22,919	21,950
Inventory	1,545	933
Deferred sales commissions	11,558	11,597
Prepaid expenses and other current assets	4,172	4,041
Total current assets	83,258	76,695
Deferred sales commissions	7,682	6,933
Property and equipment, net	39,251	36,405
Operating lease right-of-use assets	5,818	—
Intangible assets, net	14,317	15,850
Goodwill	48,958	49,239
Other assets	1,823	2,136
Total assets	$ 201,107	$ 187,258
Liabilities and stockholders' deficit		
Current liabilities:		
Accounts payable	$ 7,534	$ 8,938
Accrued compensation	9,854	9,046
Income tax payable	78	328
Operating lease liabilities	1,455	—
Other current liabilities	13,090	13,925
Deferred revenue	119,851	113,378
Total current liabilities	151,862	145,615
Deferred revenue	57,766	49,507
Deferred income taxes	2,590	2,776
Operating lease liabilities	4,167	—
Other long-term liabilities	914	1,368
Total liabilities	217,299	199,266
Commitments and contingencies (Note 11)		
Stockholders' deficit:		
Preferred stock, $0.001 par value; 10,000 and 10,000 shares authorized, zero and zero shares issued and outstanding at December 31, 2019 and December 31, 2018, respectively)	—	—
Non-designated common stock, $0.00005 par value, 190,000 and 190,000 shares authorized, 25,060 and 24,426 shares issued, and 24,060 and 23,426 shares outstanding, at December 31, 2019 and December 31, 2018, respectively)	2	2
Additional paid-in capital	210,846	202,355
Treasury stock, at cost; 1,000 and 1,000 shares at December 31, 2019 and December 31, 2018, respectively)	(11,435)	(11,435)
Accumulated loss	(212,548)	(199,592)
Accumulated other comprehensive loss	(3,057)	(3,338)
Total stockholders' deficit	(16,192)	(12,008)
Total liabilities and stockholders' deficit	$ 201,107	$ 187,258

See accompanying notes to consolidated financial statements

ROSETTA STONE INC.
CONSOLIDATED STATEMENTS OF OPERATIONS
(in thousands, except per share amounts)

	Years Ended December 31,		
	2019	2018	2017
Revenue	182,702	173,634	184,593
Cost of revenue	37,261	35,922	33,621
Gross profit	145,441	137,712	150,972
Operating expenses			
Sales and marketing	99,572	98,911	96,660
Research and development	24,510	25,210	24,747
General and administrative	34,297	33,210	34,066
Total operating expenses	158,379	157,331	155,473
Loss from operations	(12,938)	(19,619)	(4,501)
Other income and (expense):			
Interest income	61	103	66
Interest expense	(316)	(313)	(491)
Other income and (expense)	554	165	881
Total other income and (expense)	299	(45)	456
Loss before income taxes	(12,639)	(19,664)	(4,045)
Income tax expense (benefit)	317	1,809	(2,499)
Net loss	$ (12,956)	$ (21,473)	$ (1,546)
Loss per share:			
Basic	$ (0.55)	$ (0.95)	$ (0.07)
Diluted	$ (0.55)	$ (0.95)	$ (0.07)
Common shares and equivalents outstanding:			
Basic weighted average shares	23,444	22,705	22,244
Diluted weighted average shares	23,444	22,705	22,244

See accompanying notes to consolidated financial statements

ROSETTA STONE INC.
CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
(in thousands)

	Years Ended December 31,		
	2019	2018	2017
Net loss	$ (12,956)	$ (21,473)	$ (1,546)
Other comprehensive income (loss), net of tax:			
Foreign currency translation gain (loss)	281	(440)	811
Other comprehensive income (loss)	281	(440)	811
Comprehensive loss	$ (12,675)	$ (21,913)	$ (735)

See accompanying notes to consolidated financial statements

ROSETTA STONE INC.
CONSOLIDATED STATEMENTS OF CHANGES IN STOCKHOLDERS' (DEFICIT) EQUITY
(in thousands)

	Non-Designated Common Stock		Additional Paid-in Capital	Treasury Stock	Accumulated Loss	Accumulated Other Comprehensive Loss	Total Stockholders' (Deficit) / Equity
	Shares	Amount					
Balance—January 1, 2017	22,074	$ 2	$ 190,827	$ (11,435)	$ (177,344)	$ (3,709)	$ (1,659)
Stock issued upon the exercise of stock options	79	—	676	—	—	—	676
Restricted stock award vesting	163	—	—	—	—	—	—
Stock-based compensation expense	—	—	4,141	—	—	—	4,141
Net loss	—	—	—	—	(1,546)	—	(1,546)
Other comprehensive income	—	—	—	—	—	811	811
Balance—December 31, 2017	22,316	$ 2	$ 195,644	$ (11,435)	$ (178,890)	$ (2,898)	$ 2,423
Stock issued upon the exercise of stock options	207	—	2,236	—	—	—	2,236
Restricted stock award and performance stock unit vesting	389	—	—	—	—	—	—
Stock-based compensation expense	—	—	4,475	—	—	—	4,475
Net loss	—	—	—	—	(21,473)	—	(21,473)
Cumulative effect adjustment - adoption of ASC 606	—	—	—	—	771	—	771
Other comprehensive loss	—	—	—	—	—	(440)	(440)
Balance—December 31, 2018	22,912	$ 2	$ 202,355	$ (11,435)	$ (199,592)	$ (3,338)	$ (12,008)
Stock issued upon the exercise of stock options	349	—	3,556	—	—	—	3,556
Restricted stock award and performance stock unit vesting	369	—	—	—	—	—	—
Unrestricted common stock issued in lieu of cash bonus	37	—	576	—	—	—	576
Stock-based compensation expense	—	—	4,359	—	—	—	4,359
Net loss	—	—	—	—	(12,956)	—	(12,956)
Other comprehensive income	—	—	—	—	—	281	281
Balance—December 31, 2019	23,667	$ 2	$ 210,846	$ (11,435)	$ (212,548)	$ (3,057)	$ (16,192)

See accompanying notes to consolidated financial statements

ROSETTA STONE INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)

	Years Ended December 31,		
	2019	2018	2017
CASH FLOWS FROM OPERATING ACTIVITIES:			
Net loss	$ (12,956)	$ (21,473)	$ (1,546)
Non-cash adjustments to reconcile net loss to cash provided by operating activities:			
Stock-based compensation expense	4,359	4,475	4,141
Loss (gain) on foreign currency transactions	619	(298)	(573)
Bad debt expense (recovery)	393	168	(51)
Depreciation and amortization	15,181	14,616	12,009
Operating lease costs	2,157	—	—
Deferred income tax (benefit) expense	(376)	792	(4,201)
(Gain) loss on disposal or sale of assets	(1,389)	21	(5)
Amortization of deferred financing costs	68	114	296
Loss from equity method investments	—	—	100
Gain on divestiture of subsidiary	—	—	(506)
Net change in:			
Accounts receivable	(1,350)	2,219	7,584
Inventory	(611)	2,603	3,266
Deferred sales commissions	(713)	(781)	491
Prepaid expenses and other current assets	(278)	375	(604)
Income tax receivable or payable	(254)	(60)	(447)
Other assets	133	(525)	(455)
Accounts payable	(1,406)	4	(1,765)
Accrued compensation	1,389	(1,863)	69
Other current liabilities	(175)	(2,885)	(6,450)
Operating lease liabilities	(2,251)	—	—
Other long-term liabilities	(31)	—	(1,243)
Deferred revenue	14,682	12,941	8,850
Net cash provided by operating activities	17,191	10,443	18,960
CASH FLOWS FROM INVESTING ACTIVITIES:			
Purchases of property and equipment	(16,766)	(16,889)	(12,944)
Proceeds from sale of assets	1,396	17	12
Proceeds on divestiture of subsidiary	—	—	110
Net cash used in investing activities	(15,370)	(16,872)	(12,822)
CASH FLOWS FROM FINANCING ACTIVITIES:			
Proceeds from the exercise of stock options	3,556	2,236	676
Proceeds from borrowings under credit facility	10,500	—	—
Repayments of borrowings under credit facility	(10,500)	—	—
Payment of deferred financing costs	(47)	(4)	(232)
Payments under financing lease liabilities	(444)	(441)	(562)
Net cash provided by (used in) financing activities	3,065	1,791	(118)
Increase (decrease) in cash, cash equivalents, and restricted cash	4,886	(4,638)	6,020
Effect of exchange rate changes in cash, cash equivalents, and restricted cash	4	(224)	419
Net increase (decrease) in cash, cash equivalents, and restricted cash	4,890	(4,862)	6,439
Cash, cash equivalents, and restricted cash—beginning of year	38,174	43,036	36,597
Cash, cash equivalents, and restricted cash—end of year	$ 43,064	$ 38,174	$ 43,036
SUPPLEMENTAL CASH FLOW DISCLOSURE:			
Cash paid during the periods for:			
Interest	$ 248	$ 199	$ 195
Income taxes, net of refund	$ 377	$ 1,626	$ 1,896
Noncash operating, investing and financing activities:			
Operating right-of-use assets obtained in exchange for operating lease liabilities	$ 2,373	$ —	$ —
Financing right-of-use assets obtained in exchange for financing lease liabilities	$ 95	$ 25	$ —
Accrued liability for purchase of property and equipment	$ 977	$ 1,277	$ 967

See accompanying notes to consolidated financial statements

ROSETTA STONE INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. NATURE OF OPERATIONS

Rosetta Stone Inc. and its subsidiaries ("Rosetta Stone," or the "Company") develop, market and support a suite of language-learning and literacy solutions consisting of web-based software subscriptions, online services, professional services, and mobile applications. The Company's offerings are sold on a direct basis and through select third party retailers and distributors. The Company provides its solutions to customers domestically and in certain international markets.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Principles of Consolidation

The accompanying consolidated financial statements include the accounts of Rosetta Stone Inc. and its wholly owned subsidiaries. All intercompany accounts and transactions have been eliminated in consolidation.

Use of Estimates

The preparation of financial statements in accordance with GAAP requires management to make certain estimates and assumptions. The amounts reported in the consolidated financial statements include significant estimates and assumptions that have been made, including, but not limited to, those related to revenue recognition, allowance for doubtful accounts, estimated sales returns and reserves, stock-based compensation, fair value of intangibles and goodwill, disclosure of contingent assets and liabilities, disclosure of contingent litigation, allowance for valuation of deferred tax assets, and the Company's quarterly going concern assessment. The Company bases its estimates and assumptions on historical experience and on various other judgments that are believed to be reasonable under the circumstances. The Company continuously evaluates its estimates and assumptions. Actual results may differ from these estimates and assumptions.

Basis of Presentation

As discussed in this Note 2, the Company adopted certain recently issued accounting standards. The Company adopted the new lease standard (“ASC 842”) effective January 1, 2019 using the modified retrospective approach. The Company elected the comparatives under 840 option, and as such, the comparative information has not been restated under ASC 842 and continues to be reported under the accounting standards in effect for those prior comparative periods. See the Company’s Annual Report on Form 10-K filed with the SEC on March 6, 2019 for lease policies that were in effect in prior periods before adoption of ASC 842. The Company adopted the new revenue recognition standard ("ASC 606") effective January 1, 2018 using the modified retrospective method. As such, the comparative information prior to the date of adoption has not been restated under ASC 606 and continues to be reported under the accounting standards in effect for those prior comparative periods. See the Company’s Annual Report on Form 10-K filed with the SEC on March 7, 2018 for revenue recognition policies that were in effect in prior periods before adoption of ASC 606 and the impact of adoption.

Recently Issued Accounting Standards

Accounting Standards Adopted During the Period: During 2019, the Company adopted the following recently issued Accounting Standard Updates ("ASU"):

In February 2016, the FASB issued ASU No. 2016-02, *Leases (Topic 842)*, which was further amended by additional ASUs that collectively created ASC 842. Under ASC 842, entities are required to record most leases on their balance sheets. A lessee would recognize a lease liability for the obligation to make lease payments and a right-of-use asset for the right to use the underlying asset for the lease term. Lease expense recognition guidance was largely unchanged. ASC 842 was effective for the Company on January 1, 2019 and was adopted on that date using the modified retrospective approach and the Company elected the comparatives under 840 option. In accordance with the standard, the comparative information has not been restated and continues to be reported under the accounting standards in effect for those periods. ASC 842 provided a package of practical expedients that allow an entity to not reassess (1) whether any expired or existing contracts contain a lease, (2) the lease classification of any expired or existing lease, and (3) initial direct costs for any existing leases. The Company elected to apply the package of practical expedients and adoption of ASC 842 did not result in the recognition of a cumulative-effect adjustment to the opening balance of retained earnings in the period of adoption. The most significant impacts of ASC 842 adoption as of January 1, 2019 related to (1) the recognition of $5.3 million in operating right-of-use assets and a corresponding total of $5.2 million in total operating lease liabilities on the Company’s balance sheet, and (2) the additional presentation and disclosure requirements that are further discussed in Note 7 “Leases”. Prior to the adoption of ASC 842, operating leases were not included on the balance sheets.

ROSETTA STONE INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Accounting Standards Not Yet Adopted: The following ASUs were recently issued but have not yet been adopted by the Company:

In August 2018, the FASB issued ASU No. 2018-13, Fair Value Measurement (Topic 820): Disclosure Framework—Changes to the Disclosure Requirements for Fair Value Measurement ("ASU 2018-13"). ASU 2018-13 modifies the disclosure requirements for fair value measurements by removing, modifying, or adding certain disclosures. ASU 2018-13 is effective for fiscal years beginning after December 15, 2019, and interim periods within those fiscal years, with early adoption permitted for any eliminated or modified disclosures. The Company will adopt this guidance effective January 1, 2020 with minimal impacts to the disclosure requirements in the Company's consolidated financial statements.

In January 2017, the FASB issued ASU No. 2017-04, Intangibles - Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment ("ASU 2017-04"). ASU 2017-04 simplifies the subsequent measurement of goodwill and eliminates Step 2 from the goodwill impairment test. ASU 2017-04 is effective for annual and interim goodwill tests beginning after December 15, 2019. The Company will adopt this guidance effective January 1, 2020. Given the prospective adoption application, there is no impact on the Company's historical consolidated financial statements and disclosures.

In June 2016, the FASB issued ASU No. 2016-13, Financial Instruments - Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments ("ASU 2016-13"), as subsequently amended. ASU 2016-13 changes the methodology for measuring credit losses of financial instruments and the timing of when such losses are recorded. ASU 2016-13 is effective for fiscal years, and interim periods within those years, beginning after December 15, 2019. Early adoption is permitted for fiscal years, and interim periods within those years, beginning after December 15, 2019. The Company will adopt ASU 2016-13 beginning in the first quarter of 2020. The Company has substantially completed its evaluation of the impact that ASU 2016-13 will on its financial statements, disclosures, policies, processes, and system requirements. As part of its evaluation, the Company has concluded that the impact of ASU 2016-13 is limited to credit losses associated with trade receivables as the Company does not hold additional significant financial instruments. The Company currently estimates the adoption of ASU 2016-13 will result in less than a $0.1 million decrease in bad debt reserves as of January 1, 2020. The Company continues to evaluate the impact of ASU 2016-13 and any assessments made are subject to change.

Revenue Recognition

Nature of Revenue: The Company accounts for revenue contracts with customers by applying the requirements of ASC 606, which includes the following five 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.
- Recognition of the revenue when, or as, the Company satisfies a performance obligation.

The Company's primary sources of revenue are web-based software subscriptions, online services, professional services, and mobile applications.

Revenue is recognized upon transfer of control of promised goods or services to customers in an amount that reflects the consideration expected to be received in exchange for those goods or services. Revenue is recognized net of allowances for returns. Revenue is also recognized net of any taxes collected from customers, which are subsequently remitted to governmental authorities.

The majority of our revenue is recognized from non-cancellable web-based software subscriptions, online services, professional services, and mobile applications. Subscription revenue is generated from contracts with customers that provide access to hosted software over a contract term without the customer taking possession of the software. Subscription revenue is recognized ratably over the contract period as the performance obligation is satisfied. Subscription revenue is generated by all three reportable segments and range from short-term to multi-year contracts. Online services are typically sold in short-term service periods and include dedicated online conversational coaching services and access to online communities of language learners. Professional services include implementation services. Online services revenue and professional services revenue are recognized as the services are provided. Expired services are forfeited and revenue is recognized upon expiry.

See Note 17 - "Segment Information" for further information on the disaggregation of revenue, including revenue by reportable segment and geographic area.

ROSETTA STONE INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Performance Obligations: A performance obligation is a promise in a contract to transfer a distinct good or service to the customer, and is the unit of account in ASC 606. A contract's transaction price is allocated to each distinct performance obligation and recognized as revenue when, or as, the performance obligation is satisfied. The Company's performance obligations are satisfied at a point in time or over time as delivery occurs or as work progresses.

Significant Judgments: Some of the Company's contracts with customers include promises to transfer multiple products and services to a customer. Determining whether products and services are considered distinct performance obligations that should be accounted for separately, versus together, requires significant judgment. This includes determining whether distinct services are part of a series of distinct services that are substantially the same. When subscription services are sold with professional services, judgment is required to determine whether the professional services are distinct and can be accounted for separately. In the E&E Language segment, the Company has concluded that each promised service within the language-learning subscription is delivered concurrently with all other promised services over the contract term and, as such, concluded that these promises are a single performance obligation that includes a series of distinct services that have the same pattern of transfer to the customer. When there are multiple performance obligations, revenue is allocated to each performance obligation based on its relative standalone selling price ("SSP"). Judgment is required to determine the SSP for each distinct performance obligation where SSP is not directly observable, such as when the product or service is not sold separately, SSP is determined using internally published price lists which include suggested sales prices for each performance obligation based on the type of client and volume purchased. These price lists are derived from past experience and from the expectation of obtaining a reasonable margin based on the cost to fulfill each performance obligation.

Subscription revenue is recognized ratably over the contract period as the performance obligation is satisfied. Certain Consumer Language offerings have contracts with no fixed duration and are marketed as lifetime subscriptions. For these lifetime subscriptions, the Company estimates the expected contract period as the greater of the typical customer usage period or the longest fixed-period duration subscription that is currently marketed. The Company's current expected contract period for lifetime subscriptions is 24 months.

Certain Consumer Language offerings are sold with a right of return and the Company may provide other credits or incentives. These rights are accounted for as variable consideration when estimating the amount of revenue to recognize by utilizing the expected value method. Returns and credits are estimated at contract inception based on historical return rates, estimated channel inventory levels, the timing of new product introductions and other factors. Reserves for returns and credits are updated at the end of each reporting period as additional information becomes available.

The Company distributes its products and services both directly to the end customer and indirectly through resellers. Resellers earn commissions generally calculated as a fixed percentage of the gross sale amount to the end customer. The Company evaluates each of its reseller relationships to determine whether it is the principal (where revenue is recognized at the gross amount) or agent (where revenue is recognized net of the reseller commission). In making this determination the Company evaluates a variety of factors including the amount of control the Company is able to exercise over the transactions.

Contract Balances: The timing of revenue recognition, invoicing, and cash collection results in accounts receivable and deferred revenue in the consolidated balance sheets. Payment from customers is often received in advance of services being provided, resulting in deferred revenue. Accounts receivable is recorded when there is an executed customer contract and the right to the consideration becomes unconditional. Contract assets such as unbilled receivables are not material.

The allowance for doubtful accounts reflects the best estimate of probable losses inherent in the accounts receivable balance. The Company establishes an allowance for doubtful accounts based on specific risks identified, historical experience, and other currently available evidence.

Payment terms and conditions vary by contract type and customer. For the E&E Language and Literacy segments, payment terms generally range from 30 to 90 days. In the Consumer Language segment, resellers and mobile app stores are generally granted payment terms between 30 to 45 days. Within Consumer Language, sales to end customers via the Rosetta Stone ecommerce website are done by credit card, which generally are settled within 7-10 days and may be made in installments. In instances where the timing of revenue recognition differs from the timing of invoicing, the Company has determined that contracts generally do not include a significant financing component. The primary purpose of invoicing terms is to provide customers with simplified and predictable ways of purchasing products and services and not to provide customers with financing.

Deferred revenue is comprised mainly of unearned revenue related to subscription services which is recognized ratably over the subscription period. Deferred revenue also includes payments for professional services and online services to be performed in the future which are earned as revenue when the service is provided. Most of our business is SaaS-based; consequently, backlog is not significant. See Note 10 "Revenue and Deferred Revenue" for additional disclosures.

ROSETTA STONE INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Assets Recognized from Costs to Obtain a Contract with a Customer : The Company recognizes an asset for the incremental costs of obtaining a contract with a customer, which primarily represents sales commissions paid when a customer contract is either recorded as revenue or deferred revenue. Sales commission consists of variable commissions paid to salespeople as well as third party costs such as fees associated with sales made in App stores. Sales commissions paid to obtain non-cancellable subscription contracts are deferred and amortized in proportion to the period over which the revenue is recognized from the related contract. Deferred sales commissions are amortized to sales and marketing expense on the consolidated statements of operations. Deferred sales commissions are classified as non-current unless the associated amortization period is one year or less.

Cash and Cash Equivalents

Cash and cash equivalents consist of highly liquid investments with original maturities of three months or less and demand deposits with financial institutions.

Restricted Cash

Restricted cash is generally used to reimburse funds to employees under the Company's flexible benefit plan and deposits received on subleased properties.

Accounts Receivable and Allowance for Doubtful Accounts

Accounts receivable consist of amounts due to the Company from its normal business activities. The Company provides an allowance for doubtful accounts to reflect the expected non-collection of accounts receivable based on past collection history and specific risks identified.

Inventories

Inventories are stated at the lower of cost, determined on a first-in first-out basis, or market. The Company reviews inventory for excess quantities and obsolescence based on its best estimates of future demand, product lifecycle status and product development plans. The Company uses historical information along with these future estimates to establish a new cost basis for obsolete and potential obsolete inventory. See Note 3 "Inventory" for disclosures on the Company's inventory balances.

Concentrations of Credit Risk

Accounts receivable and cash and cash equivalents subject the Company to its highest potential concentrations of credit risk. The Company reserves for credit losses on its trade accounts receivable. In addition, the Company maintains cash and investment balances in accounts at various banks and brokerage firms. The Company has not experienced any losses on cash and cash equivalent accounts to date.

The Company sells its offerings to retailers, resellers, government agencies, and individual consumers and extends credit based on an evaluation of the customer's financial condition, and may require collateral, such as letters of credit, in certain circumstances. Exposure to losses on receivables is principally dependent on each customer's financial condition. The Company monitors its exposure for credit losses and maintains allowances for anticipated losses. No customer accounted for more than 10% of the Company's revenue during the years ended December 31, 2019, 2018 or 2017. The four largest distributor and reseller receivable balances collectively represented 27% and 19% of accounts receivable as of December 31, 2019 and 2018, respectively. One customer accounted for 13% of accounts receivable as of December 31, 2019. One customer accounted for 12% of accounts receivable as of December 31, 2018. The Company maintains trade credit insurance for certain customers to provide coverage, up to a certain limit, in the event of insolvency of some customers.

Fair Value of Financial Instruments

The Company values its assets and liabilities using the methods of fair value as described in ASC topic 820, *Fair Value Measurements and Disclosures,* ("ASC 820"). ASC 820 establishes a three-tier fair value hierarchy, which prioritizes the inputs used in measuring fair value. The three levels of the fair value hierarchy are described below:

Level 1: Quoted prices for identical instruments in active markets.

Level 2: Quoted prices for similar instruments in active markets; quoted prices for identical or similar instruments in markets that are not active; and model-derived valuations whose inputs are observable or whose significant value drivers are observable.

Level 3: Significant inputs to the valuation model are unobservable.

ROSETTA STONE INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

The carrying amounts reported in the consolidated balance sheets for cash and cash equivalents, restricted cash, accounts receivable, accounts payable and other accrued expenses approximate fair value due to relatively short periods to maturity.

Property and Equipment

Property and equipment are stated at cost, less accumulated depreciation. Depreciation on property, building and leasehold improvements, furniture, equipment, and software is computed on a straight-line basis over the estimated useful lives of the assets, as follows:

Software	3 years
Computer equipment	3-5 years
Automobiles	5 years
Furniture and equipment	5-7 years
Building	39 years
Building improvements	15 years
Leasehold improvements	lesser of lease term or economic life
Assets under financing leases	lesser of lease term or economic life

Expenses for repairs and maintenance that do not extend the life of equipment are charged to expense as incurred. Expenses for major renewals and betterments, which significantly extend the useful lives of existing property and equipment, are capitalized and depreciated. Upon retirement or disposition of property and equipment, the cost and related accumulated depreciation are removed from the accounts and any resulting gain or loss is recognized. See Note 4 "Property and Equipment" for the Company's additional disclosures.

Valuation of Long-Lived Assets

In accordance with ASC topic 360, *Property, Plant and Equipment* ("ASC 360"), the Company evaluates the recoverability of its long-lived assets. ASC 360 requires recognition of impairment of long-lived assets in the event that the net book value of such assets exceeds the future undiscounted net cash flows attributable to such assets. Impairment, if any, is recognized in the period of identification to the extent the carrying amount of an asset exceeds the fair value of such asset.

Software Developed for Internal Use

The Company capitalizes software development costs related to certain of its software platforms developed exclusively to provide its web-based subscription services and other general and administrative use software in accordance with ASC subtopic 350-40: *Internal-Use Software*. Development costs for internal-use software are expensed as incurred until the project reaches the application development stage. Internal-use software is defined to have the following characteristics: (a) the software is internally developed, or modified solely to meet the Company's internal needs, and (b) during the software's development or modification, no substantive plan exists or is being developed to market the software externally. Internally developed software is amortized over a three -year useful life. See Note 4 "Property and Equipment" for a discussion of the software developed for internal use.

Intangible Assets

Intangible assets consist of acquired technology, including developed and core technology, customer related assets, trade name and trademark, and other intangible assets. Those intangible assets with finite lives are recorded at cost and amortized on a straight line basis over their expected lives in accordance with ASC topic 350, *Intangibles—Goodwill and Other* ("ASC 350").

Annually, as of December 31, and more frequently if a triggering event occurs, the Company reviews its indefinite-lived intangible asset for impairment in accordance with ASC 350. This guidance provides the option to first assess qualitative factors to determine whether it is more likely than not that an indefinite-lived intangible asset is impaired as a basis for determining whether it is necessary to perform the quantitative test. If necessary, the quantitative test is performed by comparing the fair value of indefinite lived intangible assets to the carrying value. In the event the carrying value exceeds the fair value of the assets, the assets are written down to their fair value. The Rosetta Stone trade name is the Company's only indefinite-lived intangible asset.

See Note 5 "Intangible Assets" for a discussion and results associated with the Company's recent intangible asset impairment tests.

Goodwill

Goodwill represents purchase consideration paid in a business combination that exceeds the values assigned to the net assets of acquired businesses. The Company tests goodwill for impairment annually on June 30 of each year or more frequently if impairment indicators arise. Goodwill is tested for impairment at the reporting unit level using a fair value approach, in accordance with the provisions of ASC 350. This guidance provides the option to first assess qualitative factors to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying value. If, based on a review of qualitative factors, it is more likely than not that the fair value of a reporting unit is less than its carrying value the Company performs a quantitative impairment test by comparing the fair value of a reporting unit with its carrying amount. If the carrying value exceeds the fair value, the Company measures the amount of impairment loss, if any.

See Note 6 "Goodwill" for a discussion and results associated with the Company's recent goodwill impairment tests. For income tax purposes, the goodwill balances with tax basis are amortized over a period of 15 years.

Leases

Under ASC 842, the Company determines if an arrangement is a lease at inception. Right-of-use assets represent the Company’s right to use an underlying asset for the lease term and lease liabilities represent the obligation to make lease payments arising from the lease. Some leases include options to extend or terminate the lease, which are included in the lease term when it is reasonably certain that the option will be exercised. Lease expense is recognized on a straight-line basis over the lease term. See Note 7 "Leases" for disclosures regarding operating and financing leases.

Operating Leases

The Company leases office space and parking spaces under operating lease arrangements. Under ASC 842, operating lease right-of-use assets and liabilities are recognized at lease commencement date based on the present value of lease payments over the lease term. Operating right-of-use assets are calculated as the sum of (1) initial measurement of lease liability, (2) initial direct costs, and (3) lease payments made to lessor at or before lease commencement date, less any lease incentives received. The operating right-of-use assets are classified as non-current assets.

As the Company’s operating leases do not provide an implicit rate, the Company’s incremental borrowing rate is used based on the information available at the later of the date of initial application or the lease commencement date in determining the present value of lease payments. The Company’s incremental borrowing rate was derived from the credit facility arrangement that is described in Note 8 “Borrowing Arrangements”.

The majority of the Company’s operating leases are triple net leases where the Company pays a single fixed payment for rent and reimburses the lessor for the Company’s share of property taxes, insurance, and common area maintenance (“CAM”) costs. Typical CAM costs include snow removal, landscaping, janitorial services, maintenance of common areas, etc. CAM charges can be based on actual costs incurred by the landlord or an allocated portion of total CAM performed for the property. There is generally very little variability in these payments.

Finance Leases (formerly referred to as capital leases)

As a result of a 2014 acquisition, the Company assumed a finance lease for a building in France. Additionally, the Company occasionally enters into finance leases for office equipment. With the exception of the updated presentation and disclosure requirements, adoption of ASC 842 did not impact the accounting for finance leases.

Lease amortization expense associated with the Company’s finance leases are recognized in general and administrative expense on the statement of operations.

Guarantees

Indemnifications are provided of varying scope and size to certain E&E Language and Literacy customers against claims of intellectual property infringement made by third parties arising from the use of its products. The Company has not incurred any costs or accrued any liabilities as a result of such obligations.

ROSETTA STONE INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Cost of Revenue

Cost of revenue primarily represents costs associated with supporting our web-based subscription services and online language-learning services, which includes online language conversation coaching, hosting costs and depreciation. We also include the cost of credit card processing and customer technical support in cost of revenue. Cost of revenue also includes third-party royalty fees, inventory costs and obsolescence and shrinkage.

Research and Development

Research and development expenses include employee compensation costs, consulting fees and overhead costs associated with the development of the Company's solutions. The Company develops a portion of its language-learning software products for perpetual sale to external customers. The Company considers technological feasibility to be established when all planning, designing, coding, and testing has been completed according to design specifications. The Company has determined that technological feasibility for such software products is reached shortly before the products are released to manufacturing. Costs incurred after technological feasibility is established have not been material, and accordingly, the Company has expensed all research and development costs when incurred.

Income Taxes

The Company accounts for income taxes in accordance with ASC topic 740, *Income Taxes* ("ASC 740"), which provides for an asset and liability approach to accounting for income taxes. Deferred tax assets and liabilities represent the future tax consequences of the differences between the financial statement carrying amounts of assets and liabilities versus the tax basis of assets and liabilities. Under this method, deferred tax assets are recognized for deductible temporary differences, and operating loss and tax credit carryforwards. Deferred liabilities are recognized for taxable temporary differences. Deferred tax assets are reduced by a valuation allowance when, in the opinion of management, it is more likely than not that some portion or all of the deferred tax assets will not be realized. The impact of tax rate changes on deferred tax assets and liabilities is recognized in the year that the change is enacted.

Significant judgment is required to determine whether a valuation allowance is necessary and the amount of such valuation allowance, if appropriate. The valuation allowance is reviewed at each reporting period and is maintained until sufficient positive evidence exists to support a reversal.

When assessing the realization of the Company's deferred tax assets, the Company considers all available evidence, including:

- the nature, frequency, and severity of cumulative financial reporting losses in recent years;
- the carryforward periods for the net operating loss, capital loss, and foreign tax credit carryforwards;
- predictability of future operating profitability of the character necessary to realize the asset;
- prudent and feasible tax planning strategies that would be implemented, if necessary, to protect against the loss of the deferred tax assets; and
- the effect of reversing taxable temporary differences.

The evaluation of the recoverability of the deferred tax assets requires that the Company 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. The more negative evidence that exists, the more positive evidence is necessary and the more difficult it is to support a conclusion that a valuation allowance is not needed.

The establishment of a valuation allowance has no effect on the ability to use the deferred tax assets in the future to reduce cash tax payments. The valuation allowance analysis considers a number of factors, including cumulative losses in recent years, expectations of future taxable income and the timeframe over which net operating losses expire. If future events change the outcome of the Company’s projected return to profitability, a valuation allowance may not be required to reduce the deferred tax assets. The Company will continue to assess the need for a valuation allowance and the likelihood that the deferred tax assets will be realizable at each reporting period. The valuation allowance will be adjusted accordingly, which could materially affect the Company's financial position and results of operations. See Note 15 "Income Taxes" for additional disclosures.

Stock-Based Compensation

The Company accounts for its stock-based compensation in accordance with ASC topic 718, *Compensation—Stock Compensation* ("ASC 718"). Under ASC 718, all stock-based awards, including employee stock option grants, are recorded at fair value as of the grant date. For options granted with service and/or performance conditions, the fair value of each grant is estimated on the date of grant using the Black-Scholes option pricing model. For options granted with market-based conditions, the fair value of each grant is estimated on the date of grant using the Monte-Carlo simulation model. These methods require the use of estimates, including future stock price volatility, expected term and forfeitures.

The Company estimates the expected term of options using historical grant and exercise information. The Company uses its own historical stock price data to estimate its forfeiture rate and expected volatility over the most recent period commensurate with the estimated expected term of the awards. For the risk-free interest rate, the Company uses a U.S. Treasury Bond rate consistent with the estimated expected term of the option award.

The Company's restricted stock and restricted stock unit grants are accounted for as equity awards. Stock compensation expense associated with service-based equity awards is recognized in the statement of operations on a straight-line basis over the requisite service period, which is the vesting period. For equity awards granted with performance-based conditions, stock compensation expense is recognized in the statement of operations ratably for each vesting tranche based on the probability that operating performance conditions will be met and to what extent. Changes in the probability estimates associated with performance-based awards will be accounted for in the period of change using a cumulative catch-up adjustment to retroactively apply the new probability estimates. In any period in which the Company determines that achievement of the performance metrics is not probable, the Company ceases recording compensation expense and all previously recognized compensation expense for the performance-based award is reversed. For equity awards granted with market-based conditions, stock compensation expense is recognized in the statement of operations ratably for each vesting tranche regardless of meeting or not meeting the market conditions. See Note 12 "Stock-Based Compensation" for additional disclosures.

Basic and Diluted Net Loss Per Share

Net loss per share is computed under the provisions of ASC topic 260, *Earnings Per Share*. Basic loss per share is computed by dividing net loss by the weighted average number of common shares outstanding during the period. Diluted loss per share is computed by dividing net loss by the weighted average number of common shares and potential common shares outstanding during the period. Potential common shares are included in the diluted computation when dilutive. Potentially dilutive shares are computed using the treasury stock method and primarily consist of shares issuable upon the exercise of stock options, restricted stock awards, restricted stock units and conversion of shares of preferred stock. Common stock equivalent shares are excluded from the diluted computation if their effect is anti-dilutive. When there is a net loss, there is a presumption that there are no dilutive shares as these would be anti-dilutive. See Note 14 "Basic and Diluted Net Loss Per Share" for additional disclosures.

Comprehensive Loss

Comprehensive loss consists of net loss and other comprehensive (loss) income. Other comprehensive (loss) income refers to revenues, expenses, gains, and losses that are not included in net loss, but rather are recorded directly in stockholders' (deficit) equity. For the years ended December 31, 2019, 2018, and 2017, the Company's comprehensive loss consisted of net loss and foreign currency translation (losses) gains. The other comprehensive (loss) income presented in the consolidated financial statements and the notes are presented net of tax. There has been no tax expense or benefit associated with the components other comprehensive (loss) income due to the presence of a full valuation allowance for each of the years ended December 31, 2019, 2018, and 2017.

Components of accumulated other comprehensive loss as of December 31, 2019 are as follows (in thousands):

	Foreign Currency	Total
Balance at beginning of period	$ (3,338)	$ (3,338)
Other comprehensive loss before reclassifications	281	281
Amounts reclassified from accumulated other comprehensive loss	—	—
Net current period other comprehensive loss	281	281
Accumulated other comprehensive loss	$ (3,057)	$ (3,057)

Upon divestiture of an investment in a foreign entity, the amount attributable to the accumulated translation adjustment component of that foreign entity is removed as a component of other comprehensive (loss) income and reported as part of the gain or loss on sale or liquidation of the investment.

Foreign Currency Translation and Transactions

The functional currency of the Company's foreign subsidiaries is their local currency. Accordingly, assets and liabilities of the foreign subsidiaries are translated into U.S. dollars at exchange rates in effect on the balance sheet date. Income and expense items are translated at average rates for the period. Translation adjustments are recorded as a component of other comprehensive (loss) income in stockholders' (deficit) equity.

Cash flows of consolidated foreign subsidiaries, whose functional currency is the local currency, are translated to U.S. dollars using average exchange rates for the period. The Company reports the effect of exchange rate changes on cash balances held in foreign currencies as a separate item in the reconciliation of the changes in cash and cash equivalents during the period.

Advertising Costs

Costs for advertising are expensed as incurred. Advertising expense consisted of the following (in thousands):

	Years Ended December 31,		
	2019	2018	2017
Advertising costs	$ 22,996	$ 23,354	$ 24,901

Going Concern Assessment

As part of its internal control framework, the Company routinely performs a quarterly going concern assessment in accordance with ASC sub-topic 205-40, Presentation of Financial Statements - Going Concern ("ASC 205-40"). Under ASC 205-40, management is required to assess the Company's ability to continue as a going concern. As further described below, management has concluded based on projections that the cash balance, funds available from the line of credit, and the cash flows from operations are sufficient to meet the liquidity needs through the one year period following the financial statement issuance date.

The consolidated financial statements have been prepared on a going concern basis, which contemplates the realization of assets and the satisfaction of liabilities in the normal course of business. Management has evaluated whether relevant conditions or events, considered in the aggregate, indicate that there is substantial doubt about the Company's ability to continue as a going concern. Substantial doubt exists when conditions and events, considered in the aggregate, indicate it is probable that the Company will be unable to meet its obligations as they become due within one year after the financial statement issuance date. The assessment is based on the relevant conditions that are known or reasonably knowable as of March 11, 2020.

The assessment of the Company's ability to meet its future obligations is inherently judgmental, subjective and susceptible to change. The inputs that are considered important in the Company's going concern analysis, include, but are not limited to, the Company's 2020 cash flow forecast, 2020 operating budget, and long-term plan that extends beyond 2020. These inputs consider information including, but not limited to, the Company’s financial condition, liquidity sources, obligations due within one year after the financial statement issuance date, funds necessary to maintain operations, and financial conditions, including negative financial trends or other indicators of possible financial difficulty.

The Company has considered both quantitative and qualitative factors as part of the assessment that are known or reasonably knowable as of March 11, 2020, and concluded that conditions and events considered in the aggregate, do not indicate that it is probable that the Company will be unable to meet obligations as they become due through the one year period following the financial statement issuance date.

3. INVENTORY

Inventory consisted of the following (in thousands):

	As of December 31,	
	2019	2018
Raw materials	$ 834	$ 797
Finished goods	711	136
Total inventory	$ 1,545	$ 933

ROSETTA STONE INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

4. PROPERTY AND EQUIPMENT

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

	As of December 31,	
	2019	2018
Land	$ 905	$ 916
Buildings and improvements	9,724	9,760
Leasehold improvements	742	644
Computer equipment	15,202	16,178
Software	83,342	70,010
Furniture and equipment	2,210	2,184
	112,125	99,692
Less: accumulated depreciation	(72,874)	(63,287)
Property and equipment, net	$ 39,251	$ 36,405

The Company leases certain computer equipment, software, buildings, and machinery under finance lease agreements. As of December 31, 2019 and 2018, assets under finance lease included in property and equipment above were $5.6 million and $5.7 million, respectively. As of December 31, 2019 and 2018, accumulated depreciation and amortization relating to property and equipment under finance lease arrangements totaled $3.7 million and $3.3 million, respectively.

The Company capitalizes certain internal use software costs into property and equipment. Capitalized internal use software costs consisted of the following (in thousands):

	Years Ended December 31,		
	2019	2018	2017
Capitalized internal use software	$ 15,754	$ 15,935	$ 12,705

There were no impairment charges during the years ended December 31, 2019, 2018, and 2017.

Depreciation and amortization expense related to property and equipment includes depreciation related to its physical assets and amortization expense related to amounts capitalized in the development of internal-use software. Depreciation and amortization expense associated with property and equipment consisted of the following (in thousands):

	Years Ended December 31,		
	2019	2018	2017
Cost of revenue	$ 10,701	$ 8,380	$ 4,980
Sales and marketing	658	764	546
Research and development	110	7	9
General and administrative	2,180	2,153	2,635
Total	$ 13,649	$ 11,304	$ 8,170

5. INTANGIBLE ASSETS

Intangible assets consisted of the following items as of the dates indicated (in thousands):

	Trade name / trademark *	Core technology	Customer relationships	Patents and Other	Total
Gross Carrying Amount	$ 12,322	$ 13,432	$ 25,689	$ 312	$ 51,755
Accumulated Amortization/Impairment	(1,715)	(12,505)	(21,380)	(305)	(35,905)
Balance as of December 31, 2018	$ 10,607	$ 927	$ 4,309	$ 7	$ 15,850
Gross Carrying Amount	$ 12,311	$ 13,356	$ 25,608	$ 312	$ 51,587
Accumulated Amortization/Impairment	(1,704)	(13,014)	(22,240)	(312)	(37,270)
Balance as of December 31, 2019	$ 10,607	$ 342	$ 3,368	$ —	$ 14,317

* Included within the Trade name/ trademark intangible asset category is the Rosetta Stone trade name with a carrying amount of $10.6 million. This intangible asset is considered to have an indefinite useful life and is therefore not amortized, but rather tested for impairment on at least an annual basis.

The Company computes amortization of intangible assets on a straight-line basis over the estimated useful life. Below are the weighted average remaining useful lives of the Company's amortizing intangible assets:

	Weighted Average Life
Trade name / trademark	indefinite
Core technology	0.58
Customer relationships	3.58
Patents	—

Intangible asset amortization expense consisted of the following (in thousands):

	Years Ended December 31,		
	2019	2018	2017
Cost of revenue	585	586	586
Sales and marketing	940	1,810	1,860
Research and development	7	915	1,393
General and administrative	—	—	—
Total	$ 1,532	$ 3,311	$ 3,839

The following table summarizes the estimated future amortization expense related to intangible assets as of December 31, 2019 (in thousands):

	As of December 31, 2019
2020	$ 1,282
2021	940
2022	940
2023	548
2024	—
Thereafter	—
Total	$ 3,710

The Company evaluates its indefinite-lived intangible assets annually as of December 31 for indicators of impairment. The Company also routinely reviews indefinite-lived intangible assets and long-lived intangible assets for potential impairment as part of the Company's internal control framework.

2019 Activity

The Company performed its annual indefinite-lived intangible asset impairment test on the Rosetta Stone tradename as of December 31, 2019 to determine if indicators of impairment exist. The Company elected to first assess qualitative factors to determine whether it is more likely than not that the Rosetta Stone trade name was impaired. Additionally, all other long-lived intangible assets were evaluated at December 31, 2019 to determine if indicators of impairment exist. As a result of these assessments, there were no indicators of impairment for the year ended December 31, 2019.

6. GOODWILL

The value of gross goodwill is primarily derived from the acquisition of Rosetta Stone Ltd. (formerly known as Fairfield & Sons, Ltd.) in January 2006, the acquisition of certain assets of SGLC International Co. Ltd ("SGLC") in November 2009, the acquisitions of Livemocha, Inc. ("Livemocha") in April 2013, the acquisition of Lexia Learning Systems, Inc. ("Lexia") in August 2013, and the acquisition of Tell Me More S.A. ("Tell Me More") in January 2014.

The Company tests goodwill for impairment annually on June 30 of each year at the reporting unit level using a fair value approach, in accordance with the provisions of ASC 350, or more frequently, if impairment indicators arise. The Company also routinely reviews goodwill at the reporting unit level for potential impairment.

The following table shows the balance and changes in goodwill for the Company's operating segments and reporting units for the years ended December 31, 2019 and 2018 (in thousands):

	Literacy	E&E Language	Consumer Language	Total
Balance as of January 1, 2018				
Gross Goodwill	$ 9,962	$ 39,895	$ 27,514	$ 77,371
Accumulated Impairment	—	—	(27,514)	(27,514)
Goodwill as of January 1, 2018	$ 9,962	$ 39,895	$ —	$ 49,857
Effect of change in foreign currency rate	—	(618)	—	(618)
Balance as of December 31, 2018				
Gross Goodwill	$ 9,962	$ 39,277	$ 27,514	$ 76,753
Accumulated Impairment	—	—	(27,514)	(27,514)
Goodwill as of December 31, 2018	$ 9,962	$ 39,277	$ —	$ 49,239
Effect of change in foreign currency rate	—	(281)	—	(281)
Balance as of December 31, 2019				
Gross Goodwill	$ 9,962	$ 38,996	$ 27,514	$ 76,472
Accumulated Impairment	—	—	(27,514)	(27,514)
Goodwill as of December 31, 2019	$ 9,962	$ 38,996	$ —	$ 48,958

2019 Activity

In connection with the annual goodwill impairment test performed as of June 30, 2019, the Company performed a qualitative goodwill impairment test for its reporting units with remaining goodwill. As of June 30, 2019, the Company concluded that there were no indicators of impairment that would cause us to believe that it is more likely than not that the fair value of our reporting units with goodwill is less than the carrying value. Accordingly, a quantitative impairment test has not been performed and no goodwill impairment charges were recorded in connection with the annual test.

7. LEASES

The following table summarizes supplemental statement of operations information related to operating and financing lease costs as indicated (in thousands):

Statement of operations information:	Twelve Months Ended December 31, 2019
Operating lease cost	$ 2,157
Amortization of right-to-use assets	$ 454
Interest on lease liabilities	65
Financing lease cost	$ 519

ROSETTA STONE INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

The following table summarizes undiscounted future operating and finance lease payments as of December 31, 2019 and for the five years thereafter (in thousands):

As of December 31, 2019	Operating Leases	Financing Leases
2020	1,706	528
2021	1,653	525
2022	1,623	399
2023	1,019	20
2024	102	13
Thereafter	76	—
Total undiscounted lease payments	6,179	1,485
Less: imputed interest	557	97
Total	$ 5,622	$ 1,388

The following table summarizes supplemental information related to operating and financing leases as indicated below:

	As of December 31, 2019	
	Operating Leases	Financing Leases
Range of remaining lease term (in months)	2 to 68	17 to 55
Weighted-average remaining lease term (in months)	43	37
Weighted-average discount rate	5.5%	4.8%

The following table summarizes balance sheet information related to financing leases as indicated (in thousands):

Financing Lease Right-of-Use Assets and Liabilities:	As of December 31, 2019
Property and equipment, at cost	$ 5,627
Accumulated depreciation	(3,697)
Property and equipment, net	$ 1,930
Other current liabilities	$ 474
Other long-term liabilities	914
Total financing lease liabilities	$ 1,388

Prior to January 1, 2019, the Company accounted for its operating and capital leases under the provisions of ASC topic 840, Accounting for Leases ("ASC 840"). The following table summarizes future minimum operating lease and finance lease payments as of December 31, 2018 (prior to the adoption of ASC 842) and for the five years thereafter (in thousands):

As of December 31, 2018	Operating Leases	Finance Leases
2019	$ 2,334	$ 525
2020	1,155	520
2021	948	517
2022	977	388
2023	743	1
Thereafter	—	—
Total minimum lease payments	$ 6,157	$ 1,951
Less amount representing interest		164
Present value of net minimum lease payments		$ 1,787

8. BORROWING ARRANGEMENTS

Credit Facility

On October 28, 2014, Rosetta Stone Ltd (“RSL”), a wholly owned subsidiary of parent company Rosetta Stone Inc., executed a Loan and Security Agreement with Silicon Valley Bank (“Bank”) to obtain a credit facility (the “credit facility”). Since the original date of execution, the Company and the Bank have executed several amendments to the credit facility to reflect updates to the Company's financial outlook, expand the availability, and extend the credit facility.

On March 10, 2020, the Company executed the eighth amendment to the credit facility. Under the amended agreement, the Company may borrow up to $25.0 million, including a sub-facility, which reduces available borrowings, for letters of credit in the aggregate availability amount of $4.0 million. Borrowings by RSL under the credit facility are guaranteed by the Company as the ultimate parent. The credit facility has a term that expires on April 1, 2023, during which time RSL may borrow and re-pay loan amounts and re-borrow the loan amounts subject to customary borrowing conditions. However, the Company must have less than $5.0 million in outstanding borrowings for 30 consecutive days during each twelve month period beginning as of the date of execution. Interest on borrowing accrues at the greater of Prime Rate or 1.5% and must be paid quarterly.

Proceeds of loans made under the credit facility may be used as working capital or to fund general business requirements. All obligations under the credit facility, including letters of credit, are secured by a security interest on substantially all of the Company’s assets including intellectual property rights and by a stock pledge by the Company of 100% of its ownership interests in U.S. subsidiaries and 66% of its ownership interests in certain foreign subsidiaries.

The credit facility contains customary affirmative and negative covenants, including covenants that limit or restrict the ability to, among other things, incur additional indebtedness, dispose of assets, execute a material change in business, acquire or dispose of an entity, grant liens, make share repurchases, and make distributions, including payment of dividends. The Company is required to maintain compliance with a minimum liquidity coverage ratio of 1.75 and minimum financial performance requirements, as defined in the credit facility. As of December 31, 2019, the Company was in compliance with all covenants.

The credit facility contains customary events of default, including among others, non-payment defaults, covenant defaults, bankruptcy and insolvency defaults, and a change of control default, in each case, subject to customary exceptions. The occurrence of a default event could result in the Bank’s acceleration of repayment obligations of any loan amounts then outstanding.

As of December 31, 2019, there were no borrowings outstanding. A quarterly commitment fee accrues on any unused portion of the credit facility at a nominal annual rate.

9. OTHER CURRENT LIABILITIES

The following table summarizes other current liabilities (in thousands):

	As of December 31,	
	2019	2018
Accrued marketing expenses	$ 5,394	$ 4,382
Accrued professional and consulting fees	1,443	1,273
Sales return reserve	448	579
Sales, withholding, and property taxes payable	3,331	3,391
Other	2,474	4,300
Total Other current liabilities	$ 13,090	$ 13,925

10. REVENUE AND DEFERRED REVENUE

The opening and closing balances of the Company's accounts receivable and deferred revenue are as follows:

	Accounts Receivable	Deferred Revenue (current)	Deferred Revenue (non-current)
Opening balance as of January 1, 2019	$ 21,950	$ 113,378	$ 49,507
Increase/(decrease), net	969	6,473	8,259
Ending balance as of December 31, 2019	$ 22,919	$ 119,851	$ 57,766

The amount of revenue recognized in the years indicated that was included in the January 1 opening balance was as follows:

	Years Ended December 31,	
	2019	2018
Revenue recognized in period in opening deferred revenue balance	$ 111,258	$ 116,476

The vast majority of this revenue consists of deferred subscription revenue. The amount of revenue recognized from performance obligations satisfied in prior periods was not material.

The following table sets forth deferred revenue by reportable segment which represents the Company's unfulfilled performance obligations as of December 31, 2019 and the estimated revenue expected to be recognized in the future related to these performance obligations:

	As of December 31, 2019				
	Total	Less than 1 Year	1-3 Years	3-5 Years	More than 5 Years
Literacy	$ 53,259	$ 43,937	$ 8,859	$ 459	$ 4
E&E Language	63,066	40,205	10,160	2,752	9,949
Consumer Language	61,292	35,709	12,552	1,822	11,209
Total	$ 177,617	$ 119,851	$ 31,571	$ 5,033	$ 21,162

In 2017, the Company entered into a series of agreements with SOURCENEXT Corporation, ("SOURCENEXT"), comprising a single performance obligation associated with the perpetual license of certain intellectual property, software, and product code for exclusive development and sale of language and education-related products in Japan. The Company estimated a 20 year period to recognize the performance obligation. As of December 31, 2019, deferred revenue associated with SOURCENEXT totaled $15.8 million, which will be recognized ratably through April 2037 and comprised the majority of the Consumer Language non-current deferred revenue. As this customer relationship progresses, the Company will prospectively reassess the recognition period as needed.

See Note 17 - "Segment Information" for further information on the disaggregation of revenue, including revenue by reportable segment and geographic area.

	Years Ended December 31,	
	2019	2018
Amortization expense of deferred commissions	$ 24,771	$ 23,003

11. COMMITMENTS AND CONTINGENCIES

Royalty Agreements

The Company has entered into agreements to license software from vendors for incorporation in the Company's offerings. Pursuant to some of these agreements, the Company is required to pay minimum royalties or license fees over the term of the agreement regardless of actual license sales. In addition, such agreements typically specify that, in the event the software is incorporated into specified Company products, royalties will be due at a contractual rate based on actual sales volumes. These agreements are subject to various royalty rates typically calculated based on the level of sales for those products. The Company expenses these amounts to cost of sales or research and development expense, as appropriate. Royalty expense was $0.8 million, $0.9 million, and $1.0 million for the years ended December 31, 2019, 2018, and 2017, respectively.

Employment Agreements

The Company has agreements with certain of its executives and key employees which provide guaranteed severance payments upon termination of their employment without cause.

Litigation

From time to time, the Company has been subject to various claims and legal actions in the ordinary course of its business. The Company is not currently involved in any legal proceeding the ultimate outcome of which, in its judgment based on information currently available, would have a material impact on its business, financial condition or results of operations.

12. STOCK-BASED COMPENSATION

2006 Stock Incentive Plan

On January 4, 2006, the Company established the Rosetta Stone Inc. 2006 Stock Incentive Plan (the "2006 Plan") under which the Company's Board of Directors, at its discretion, could grant stock options to employees and certain directors of the Company and affiliated entities. The 2006 Plan initially authorized the grant of stock options for up to 1,942,200 shares of common stock. On May 28, 2008, the Board of Directors authorized the grant of additional stock options for up to 195,000 shares of common stock under the plan, resulting in total stock options available for grant under the 2006 Plan of 2,137,200 as of December 31, 2008. The stock options granted under the 2006 Plan generally expire at the earlier of a specified period after termination of service or the date specified by the Board or its designated committee at the date of grant, but not more than ten years from such grant date. Stock issued as a result of exercises of stock options will be issued from the Company's authorized available stock. All unissued stock associated with the 2006 Stock Incentive Plan expired in 2016 at the end of the ten year contractual term.

2009 Omnibus Incentive Plan

On February 27, 2009, the Company's Board of Directors approved the 2009 Omnibus Incentive Plan (the "2009 Plan") that provides for the ability of the Company to grant up to 2,437,744 of new stock incentive awards or options including Incentive and Nonqualified Stock Options, Stock Appreciation Rights, Restricted Stock, Restricted Stock Units, Performance Units, Performance Shares, Performance based Restricted Stock, Share Awards, Phantom Stock and Cash Incentive Awards. Restricted stock awards are considered outstanding at the time of grant as the stockholder is entitled to voting rights and to receive any dividends declared subject to the loss of the right to receive accumulated dividends if the award is forfeited prior to vesting. Unvested restricted stock awards are not considered outstanding in the computation of basic earnings per share. The stock incentive awards and options granted under the 2009 Plan generally expire at the earlier of a specified period after termination of service or the date specified by the Board or its designated committee at the date of grant, but not more than ten years from such grant date. Concurrent with the approval of the 2009 Plan, the 2006 Plan was terminated for purposes of future grants. On February 27, 2019, the 2009 plan expired and no additional grants will be made under this plan. Since the establishment of the 2009 Plan, the Board of Directors authorized and the Company's shareholders' approved the allocation of additional shares of common stock to the 2009 Plan as follows:

Authorization Dates of 2009 Plan Additions	Number of Common Stock Shares Authorized to 2009 Plan
February 27, 2009	2,437,744
May 26, 2011	1,000,000
May 23, 2012	1,122,930
May 23, 2013	2,317,000
May 20, 2014	500,000
June 12, 2015	1,200,000
May 27, 2017	1,900,000

2019 Omnibus Incentive Plan

On May 16, 2019, the Company's stockholders and Board of Directors approved the 2019 Omnibus Incentive Plan (the "2019 Plan") that provided the Company the ability to grant up to 2,350,000 of new stock incentive awards or options including Incentive and Nonqualified Stock Options, Stock Appreciation Rights, Restricted Stock, Restricted Stock Units, Performance Units, Performance Shares, Performance based Restricted Stock, Share Awards, Phantom Stock and Cash Incentive Awards. Service, performance and market-based restricted stock awards are considered outstanding at the time of grant as the stockholder is entitled to voting rights and to receive any dividends declared subject to the loss of the right to receive accumulated dividends if the award is forfeited prior to vesting. Performance units and restricted stock units do not have voting rights. The stock incentive awards and options granted under the 2019 Plan generally expire at the earlier of a specified period after termination of service or the date specified by the Board or its designated committee at the date of grant, but not more than ten years from such grant date.

Valuation Assumptions

The determination of fair value of stock-based awards is affected by assumptions regarding subjective and complex variables. Generally, assumptions are based on historical information and judgment is required to determine if historical trends may be indicators of future outcomes. In accordance with ASC 718, the fair value of stock-based awards to employees is calculated as of the date of grant. Compensation expense is then recognized over the requisite service period of the award. Stock-based compensation expense recognized is based on the estimated portion of the awards that are expected to vest. Estimated forfeiture rates are applied in the expense calculation. The Company determines the fair values of stock-based awards as follows:

- Service-Based Restricted Stock Awards, Restricted Stock Units, Performance-Based Restricted Stock Awards, and Performance-Based Share Units: Fair value is determined based on the quoted market price of common stock on the date of grant.
- Service-Based Stock Options and Performance-Based Stock Options: Fair value is determined using the Black-Scholes pricing model, which requires the use of estimates, including the risk-free interest rate, expected volatility, expected dividends, and expected term.
- Market-Based Restricted Stock Awards and Market-Based Stock Options: The fair value is determined using a Monte-Carlo simulation model. The Monte Carlo valuation also estimates the quantity that would be awarded which is reflected in the fair value on the grant date.

For the years ended December 31, 2019, 2018, and 2017 the fair value of service-based stock options and performance-based stock options granted was calculated using the following assumptions in the Black-Scholes model:

	Years Ended December 31,		
	2019	2018	2017
Expected stock price volatility	40%-42%	39%-40%	42%-45%
Expected term of options	5.1 years	6 years	6 years
Expected dividend yield	—	—	—
Risk-free interest rate	1.42%-2.16%	2.73%-2.85%	1.92%-2.05%

Stock-Based Compensation Expense

Stock compensation expense associated with service-based equity awards is recognized in the statement of operations on a straight-line basis over the requisite service period, which is the vesting period. For equity awards granted with performance-based conditions, stock compensation expense is recognized in the statement of operations ratably for each vesting tranche based on the probability that operating performance conditions will be met and to what extent. Changes in the probability estimates associated with performance-based awards will be accounted for in the period of change using a cumulative catch-up adjustment to retroactively apply the new probability estimates. In any period in which the Company determines that achievement of the performance metrics is not probable, the Company ceases recording compensation expense and all previously recognized compensation expense for the performance-based award is reversed. For equity awards granted with market-based conditions, stock compensation is recognized in the statement of operations ratably for each vesting tranche regardless of meeting or not meeting the market conditions.

The following table presents stock-based compensation expense included in the related financial statement line items (in thousands):

	Years Ended December 31,		
	2019	2018	2017
Cost of revenue	$ 12	$ (8)	$ 69
Sales and marketing	723	759	561
Research & development	247	439	255
General and administrative	3,377	3,285	3,256
Total stock based compensation expense	$ 4,359	$ 4,475	$ 4,141

The following table presents the future stock-based compensation expense, net of forfeitures, for each equity award category as of December 31, 2019 and the weighted average period over which the expense will be recognized:

	Service-based Restricted Stock Awards	Service-based Stock Options	Restricted Stock Units	Performance Stock Units
Unrecognized compensation expense, net of forfeitures (in thousands)	$ 2,510	$ 171	$ 276	$ 1,019
Weighted average period over which the above expense will be recognized (in years)	2.12	0.20	0.65	0.92

Service-Based Restricted Stock Awards

Shares of service-based restricted stock are generally recognized as expense on a straight-line basis over the requisite service period of the awards, which is also the vesting period. Service-based restricted stock awards are granted at the discretion of the Board of Directors or the Compensation Committee (or its authorized member(s)) and generally vest over a four -year period based upon required service conditions and do not have performance or market conditions. The Company's service-based restricted stock awards are accounted for as equity awards. The grant date fair value is based on the market price of the Company's common stock at the date of grant. The Company did not grant any restricted stock prior to April 2009.

The following table summarizes the Company's service-based restricted stock activity from January 1, 2019 to December 31, 2019:

	Service-based Restricted Stock Awards	Weighted Average Grant Date Fair Value	Aggregate Intrinsic Value
Non-vested service-based awards, January 1, 2019	400,952	$ 10.72	$ 4,299,689
Service-based awards granted	166,588	15.56	
Service-based awards vested	(155,788)	11.15	
Service-based awards cancelled	(68,742)	11.28	
Non-vested Service-based awards, December 31, 2019	343,010	12.77	4,379,414

ROSETTA STONE INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

The following table summarizes the Company's weighted average grant date fair value and vested fair value for the years ended December 31, 2019, 2018, and 2017:

	Years Ended December 31,		
	2019	2018	2017
Weighted-average grant-date fair value of service-based restricted stock awards granted	$ 15.56	$ 13.87	$ 7.92
Fair value of service-based restricted stock awards vested (in thousands)	$ 4,535	$ 3,881	$ 1,545

Service-Based Stock Options

Service-based stock options are granted at the discretion of the Board of Directors or the Compensation Committee (or its authorized member(s)) and expire 10 years from the date of the grant. Service-based stock options generally vest over a four -year period based upon required service conditions and do not have performance or market conditions.

The aggregate intrinsic value disclosed below represents the total intrinsic value (the difference between the fair market value of the Company's common stock as of December 31, 2019, and the exercise price, multiplied by the number of in-the-money service-based stock options) that would have been received by the option holders had all option holders exercised their options on December 31, 2019. This amount is subject to change based on changes to the fair market value of the Company's common stock.

The following table summarizes the Company's service-based stock option activity from January 1, 2019 to December 31, 2019:

	Service-based Options	Weighted Average Exercise Price	Weighted Average Contractual Life (years)	Aggregate Intrinsic Value
Service-based options outstanding, January 1, 2019	1,401,948	$ 9.69	6.17	$ 9,492,949
Service-based options granted	44,606	21.91		
Service-based options exercised	(348,970)	10.19		
Service-based options cancelled	(15,992)	8.19		
Service-based options outstanding, December 31, 2019	1,081,592	10.06	5.57	$ 9,022,107
Vested and expected to vest at December 31, 2019	1,080,664	10.06	5.57	$ 9,018,165
Exercisable at December 31, 2019	1,002,179	9.92	5.44	$ 8,407,822

The following table summarizes the Company's weighted average grant date fair value and intrinsic value of options exercised for the years ended December 31, 2019, 2018, and 2017:

	Years Ended December 31,		
	2019	2018	2017
Weighted average grant date fair value of service-based stock options granted	$ 9.55	$ 6.76	$ 5.02
Intrinsic value of options exercised (in thousands)	$ 7,854	$ 3,324	$ 878

Restricted Stock Units

Restricted stock units are granted to members of the Board of Directors as part of their compensation package. Restricted stock units convert to common stock following the separation of service with the Company. All restricted stock unit awards vest quarterly over a one year period from the date of grant, with expense recognized straight-line over the vesting period. The Company's restricted stock units are accounted for as equity awards. The grant date fair value is based on the market price of the Company's common stock at the date of grant. The Company did not grant any restricted stock units prior to April 2009.

The following table summarizes the Company's restricted stock unit activity from January 1, 2019 to December 31, 2019:

	Units Outstanding	Weighted Average Grant Date Fair Value	Aggregate Intrinsic Value
Units outstanding, January 1, 2019	235,905	$ 11.17	$ 3,868,842
Units granted	30,769	23.33	
Units released	—	—	
Units cancelled	(761)	15.11	
Units outstanding, December 31, 2019	265,913	12.56	$ 4,823,662
Vested and expected to vest at December 31, 2019	265,114	12.55	$ 4,809,172
Vested and deferred at December 31, 2019	248,400	$ 11.87	$ 4,505,976

The following table summarizes the Company's weighted average grant date fair value and fair value of units converted for the years ended December 31, 2019, 2018, and 2017:

	Years Ended December 31,		
	2019	2018	2017
Weighted average grant date fair value of restricted stock units granted	$ 23.33	$ 16.03	$ 11.23
Fair value of restricted stock units converted (in thousands)	$ —	$ 495	$ —

Performance-Based Restricted Stock Units

Beginning in the first quarter of 2017, the Company began granting annual performance-based restricted stock units ("PSUs") to certain employees which will become earned or eligible to vest based on the Company's achievement of certain pre-defined key operating performance goals during a one to three-year period. The number of PSUs earned or eligible to vest following the performance period is subject to approval by the Compensation Committee of the Board of Directors. Once earned, certain PSUs are then subject to additional service and vesting requirements, while certain PSUs vest shortly after being earned. The PSUs were granted at "target" (at 100% of target). Based upon actual attainment of the operating performance results relative to target and the recipient's terms, actual issuance of PSUs can be eligible for vest anywhere between a maximum of 200% and 0% of the target number of PSUs originally granted.

The following table summarizes the Company's PSU activity from January 1, 2019 to December 31, 2019:

	PSUs	Weighted Average Grant Date Fair Value	Aggregate Intrinsic Value
Non-vested PSUs, January 1, 2019	659,660	$ 11.59	$ 10,818,424
PSUs granted	289,440	15.79	
PSUs vested	(149,882)	10.50	
PSUs cancelled	(183,604)	11.55	
Non-vested PSUs, December 31, 2019	615,614	$ 13.84	$ 11,167,238

The following table summarizes the Company's weighted average grant date fair value and fair value of PSUs vested for the years ended December 31, 2019, 2018, and 2017:

	Years Ended December 31,		
	2019	2018	2017
Weighted average grant date fair value of PSUs granted	$ 15.79	$ 13.85	$ 9.43
Fair value of PSUs vested (in thousands)	$ 3,255	$ 724	$ —

CEO 2016 Performance and Market Conditioned Restricted Stock Awards and Stock Options Grants

On April 4, 2016, the Company named Mr. John Hass as President, CEO and Chairman of the Board. In conjunction with his appointment, the Compensation Committee approved a stock-based compensation package for Mr. Hass aimed to provide significant reward potential for achieving outstanding Company operating performance results and building stockholder value. The package was comprised of 70,423 performance-based restricted stock awards (PRSAs), 314,465 performance-based stock options (PSOs), 70,423 market-based restricted stock awards (MRSAs), and 314,465 market-based stock options (MSOs). The April 4, 2016 grant date fair values associated with these grants were $7.10, $3.24, $6.17 and $0.94, respectively.

On February 20, 2017, the Compensation Committee approved 64,719 PRSAs and 144,497 PSOs as eligible for further service vesting requirements. The non-eligible 5,704 and 169,968 PRSAs and PSOs, respectively, were cancelled as of February 20, 2017. PRSAs and PSOs vest 50%, 25% and 25% on April 4, 2017, 2018 and 2019, respectively. As of December 31, 2019, all 64,719 PRSAs were vested and 144,497 PSOs were vested and all compensation cost associated with the PRSAs and PSOs was fully recognized. As of December 31, 2019, no PSOs have been exercised. On February 22, 2018, the Compensation Committee approved the maximum quantity of 140,846 MRSAs and 314,465 MSOs as eligible for further service vesting requirements. MRSAs and MSOs vest annually on a pro-rata basis over three years beginning April 4, 2018. As of December 31, 2019, 93,898 MRSAs were vested and 209,644 MSOs were vested. As of December 31, 2019, no MSOs have been exercised. As of December 31, 2019, future compensation cost related to the non-vested portion of the MRSAs and MSOs not yet recognized in the consolidated statement of operations was less than $0.1 million and is expected to be recognized over a weighted average period of 0.26 years.

13. STOCKHOLDERS' (DEFICIT) EQUITY

At December 31, 2019, the Company's Board of Directors had the authority to issue 200,000,000 shares of stock, of which 190,000,000 were designated as Common Stock, with a par value of $0.00005 per share, and 10,000,000 were designated as Preferred Stock, with a par value of $0.001 per share. At December 31, 2019 and 2018, the Company had shares of Common Stock issued of 25,059,722 and 24,426,248, respectively, and shares of Common Stock outstanding of 24,059,722 and 23,426,248, respectively.

Holders of the Company's common stock are entitled to receive dividends when and if declared by the Board of Directors out of assets or funds legally available for that purpose. Future dividends are dependent on the Company's financial condition and results of operations, the capital requirements of its business, covenants associated with financing arrangements, other contractual restrictions, legal requirements, regulatory constraints, industry practice and other factors deemed relevant by its Board of Directors. The Company has not paid any cash dividends on its common stock and does not intend to do so in the foreseeable future.

14. BASIC AND DILUTED NET LOSS PER SHARE

The following table sets forth the computation of basic and diluted net loss per common share:

	Years Ended December 31,		
	2019	2018	2017
	(amounts in thousands, except per share amounts)		
Numerator:			
Net loss	$ (12,956)	$ (21,473)	$ (1,546)
Denominator:			
Basic weighted average shares	23,444	22,705	22,244
Diluted weighted average shares	23,444	22,705	22,244
Loss per share:			
Basic	$ (0.55)	$ (0.95)	$ (0.07)
Diluted	$ (0.55)	$ (0.95)	$ (0.07)

The Company calculates dilutive common stock equivalent shares using the treasury stock method. In periods where the Company has a net loss, no dilutive common stock equivalent shares are included in the calculation for diluted shares as they are considered anti-dilutive. The following table sets forth the dilutive common stock equivalent shares calculated using the treasury stock method (in thousands).

	Years Ended December 31,		
	2019	2018	2017
	(in thousands)		
Stock options	712	663	231
Restricted stock units	248	230	209
Restricted stocks	551	681	296
Total common stock equivalent shares	1,511	1,574	736

Share-based awards to purchase less than 0.1 million, 0.2 million, and 0.7 million shares of common stock that had an exercise price in excess of the average market price of the common stock during the years ended December 31, 2019, 2018, and 2017, respectively, were not included in the calculation of diluted loss per share because they were anti-dilutive.

15. INCOME TAXES

The Tax Act legislation was enacted on December 22, 2017. ASC 740, *Accounting for Income Taxes*, requires companies to recognize the effect of tax law changes in the period of enactment even though the effective date for most provisions is for tax years beginning after December 31, 2017, or in the case of certain other provisions, January 1, 2018.

During the year of enactment, the Company recorded reasonable estimates of the effects of the Tax Act, which principally related to a) the reduction in the U.S. corporate income tax rate from 35% to 21%, and b) the change in the carryforward period of net operating losses. In the fourth quarter of 2017, the Company recorded an income tax benefit of $2.4 million to remeasure deferred tax liabilities associated with indefinite-lived intangible assets that will reverse at the new 21% rate. Absent this deferred tax liability, the Company was in a net deferred tax asset position that was offset by a full valuation allowance. Though the impact of the rate change had a net tax effect of zero, the accounting to determine the gross change in the deferred tax position and the offsetting valuation resulted in a $26.3 million reduction in both. Additionally, the Company recorded an income tax benefit of $3.1 million in the fourth quarter of 2017 related to the release of the valuation allowance associated with the post-2017 reversing deferred tax assets to offset 80% of the deferred tax liability associated with our indefinite-lived intangible asset. In the third quarter of 2018, the Company recorded a $0.2 million tax expense in addition to the estimates made in the year of enactment to finalize the accounting for the Tax Act. In the first quarter of 2019, the state of Virginia adopted an indefinite carry-forward of net operating losses consistent with the Tax Act, resulting in a release of the state valuation allowance and recognition of $0.6 million in state tax benefit.

The following table summarizes the significant components of the Company's deferred tax assets and liabilities as of December 31, 2019 and 2018 (in thousands):

	As of December 31,	
	2019	2018
Deferred tax assets:		
Inventory	$ 116	$ 351
Net operating and capital loss carryforwards	57,855	51,806
Deferred revenue	17,043	14,401
Accrued liabilities	3,182	2,853
Stock-based compensation	3,718	3,854
Amortization and depreciation	1,061	1,157
Bad debt reserve	114	86
Foreign and other tax credits	2,047	2,175
Gross deferred tax assets	85,136	76,683
Valuation allowance	(72,290)	(66,431)
Net deferred tax assets	12,846	10,252
Deferred tax liabilities:		
Goodwill and indefinite lived intangibles	(7,320)	(6,106)
Deferred sales commissions	(6,269)	(5,392)
Prepaid expenses	(710)	(475)
Foreign currency translation	(931)	(1,039)
Gross deferred tax liabilities	(15,230)	(13,012)
Net deferred tax liabilities	$ (2,384)	$ (2,760)

For the year ended December 31, 2019, the Company recorded an income tax expense of $0.3 million. The tax expense primarily related to current year profits of operations in the U.K., Germany, Canada, France, Brazil and China offset by tax benefit associated with release of valuation allowance related to Virginia adoption of indefinite carry forward of net operating losses and the release of valuation allowance associated with our France operating subsidiary. Additionally, the tax expense included the tax impact of the amortization of U.S. indefinite-lived intangible assets.

For the year ended December 31, 2018, the Company recorded an income tax expense of $1.8 million. The tax expense primarily related to current year profits of operations in the U.K., Germany, Canada, and China. Additionally, the tax expense relates to the tax impact of the amortization of U.S. indefinite-lived intangible assets.

As of December 31, 2019, a full valuation allowance exists for the U.S., Hong Kong, Mexico, Spain, Brazil, and the France holding company where the Company previously determined the deferred tax assets will not more likely than not be realized. In the third quarter of 2019, the Company released the valuation allowance related to the France operating subsidiary resulting in a tax benefit of $0.6 million.

All of the jurisdictions mentioned above have cumulative losses for the most recent year ended December 31, 2019. The establishment of a valuation allowance has no effect on the ability to use the deferred tax assets in the future to reduce cash tax payments. The Company will continue to assess the likelihood that the deferred tax assets will be realizable at each reporting period and the valuation allowance will be adjusted accordingly.

As of December 31, 2019, the Company had federal, state and foreign tax NOL carryforward amounts and expiration periods as follows (in thousands):

Year of Expiration	U.S. Federal	State	Brazil	France	Spain	Mexico	Total
2020-2024	$ —	$ 1,315	$ —	$ —	$ —	$ —	$ 1,315
2025-2029	—	8,699	—	—	—	424	9,123
2030-2034	16,313	26,032	—	—		—	42,345
2035-2039	114,059	118,872	—	—	—	—	232,931
2040-2044	—	8,333	—	—	—	—	8,333
Indefinite	39,039	30,023	3,231	3,551	974	—	76,818
Totals	$ 169,411	$ 193,274	$ 3,231	$ 3,551	$ 974	$ 424	$370,865

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As of December 31, 2019, the Company had federal and state capital loss carryforward amounts and expiration periods as follows (in thousands):

Year of Tax Capital Loss Expiration	U.S. Federal	State
2020-2024	$ 21,972	$ 17,341
2025-2029	—	—
2030-2034	—	526
2035-2039	—	—
2040-2044	—	—
Indefinite	—	—
Totals	$ 21,972	$ 17,867

As of December 31, 2019, the Company had federal tax credit carryforward amounts and expiration periods as follows (in thousands):

Year of Tax Credit Expiration	U.S. Federal
2020-2024	$ 967
2025-2029	836
2030-2034	—
2035-2039	218
2040-2044	—
Indefinite	26
Totals	$ 2,047

The components of loss before income taxes and the provision for taxes on income consist of the following (in thousands):

	Years Ended December 31,		
	2019	2018	2017
United States	$ (14,973)	$ (21,873)	$ (12,648)
Foreign	2,334	2,209	8,603
Loss before income taxes	$ (12,639)	$ (19,664)	$ (4,045)
The provision for taxes on income consists of the following (in thousands):			
Federal	$ —	$ —	$ —
State	16	12	(21)
Foreign	677	1,006	1,701
Total current	$ 693	$ 1,018	$ 1,680
Deferred:			
Federal	$ 151	$ 60	$ (4,541)
State	(317)	750	335
Foreign	(210)	(19)	27
Total deferred	(376)	791	(4,179)
Provision (benefit) for income taxes	$ 317	$ 1,809	$ (2,499)

Reconciliation of income tax (benefit) provision computed at the U.S. federal statutory rate to income tax expense (benefit) is as follows (in thousands):

	Years Ended December 31,		
	2019	2018	2017
Income tax benefit at statutory federal rate	$ (2,654)	$ (4,129)	$ (1,416)
Income tax on global intangible low-taxed income ("GILTI") inclusion	345	450	—
Remeasurement of deferred tax liability related to indefinite-lived intangible due to U.S. rate reduction, effective January 1, 2018	—	—	(2,586)
Release of valuation allowance due to change in U.S. net operating loss carry forward period	—	206	(3,103)
(Windfall) shortfall in tax benefit - stock compensation	(738)	(4)	233
State income tax expense, net of federal income tax effect	(301)	556	314
Tax capital loss in excess of book loss on sale of Japan subsidiary	—	—	(5,297)
Nondeductible goodwill impairment	(221)	—	—
Other nondeductible expenses	250	528	398
Tax rate differential on foreign operations	182	172	(816)
Increase in valuation allowance	3,325	3,902	9,446
Change in prior year estimates	8	—	150
Other tax credits	121	128	173
Other	—	—	5
Income tax expense (benefit)	$ 317	$ 1,809	$ (2,499)

The Company accounts for uncertainty in income taxes under ASC topic 740-10-25, *Income Taxes: Overall: Recognition,* ("ASC 740-10-25"). ASC 740-10-25 prescribes a recognition threshold and measurement attribute for the financial statement recognition and measurement of a tax position taken or expected to be taken in a tax return. ASC 740-10-25 also provides guidance on derecognition, classification, interest and penalties, accounting in interim periods, disclosure, and transition.

The Company recognizes interest and penalties related to unrecognized tax benefits as a component of income tax expense (benefit). As of December 31, 2019 and 2018, the Company had no unrecognized tax benefits or interest and penalties.

The Company is subject to taxation in the U.S. and various states and foreign jurisdictions. The Company's tax years 2011 and forward are subject to examination by the tax authorities.

The Company was in an aggregate net foreign deficit position for U.S. tax purposes so the Company was not liable for the transition tax enacted as part of the Tax Act on its 2017 U.S. income tax return. As such, all prior earnings of the foreign subsidiaries with unremitted earnings are deemed to be previously taxed income for U.S. tax purposes.

The Company made income tax payments of $0.4 million, $1.6 million, and $2.2 million, in 2019, 2018 and 2017, respectively.

16. EMPLOYEE BENEFIT PLAN

The Company maintains a defined contribution 401(k) Plan. The Company matches employee contributions to the 401(k) Plan up to 4% of their compensation. The Company recorded Company contribution matching expenses for the 401(k) Plan totaling $2.4 million, $2.3 million, and $2.1 million for the years ended December 31, 2019, 2018, and 2017, respectively.

17. SEGMENT INFORMATION

The Literacy segment derives the majority of its revenue from the sales of literacy solutions to educational institutions serving grades K through 12. The E&E Language segment derives revenue from sales of language-learning solutions to educational institutions, corporations, and government agencies worldwide. The Consumer Language segment derives the majority of its revenue from sales of language-learning solutions to individuals and retail partners. Revenue from transactions between the Company's operating segments is not material. The Company's current operating segments also represent the Company's reportable segments.

The Company and its Chief Operating Decision Maker ("CODM") assess profitability and performance of each of its current operating segments in terms of segment contribution. Segment contribution is calculated as segment revenue less expenses directly incurred by or allocated to the segment. Direct segment expenses include costs and expenses that are directly incurred by or allocated to the segment and include materials costs, service costs, customer care and coaching costs, sales and marketing expenses, and bad debt expense. In addition to the previously referenced expenses, the Literacy segment includes direct research and development expenses and Combined Language includes shared research and development expenses, cost of revenue, and sales and marketing expenses applicable to the Consumer Language and E&E Language segments. Segment contribution excludes depreciation, amortization, stock compensation, restructuring and other related expenses. The Company does not allocate expenses beneficial to all segments, which include certain general and administrative expenses such as legal fees, payroll processing fees, accounting related expenses, lease abandonment, impairment, and non-operating income and expense. These expenses are included below the segment contribution line in the unallocated expenses section of the tables presented below. The E&E Language segment and Consumer Language segment are characterized as "Language" since both of these segments primarily address the language-learning market and share many of the same costs. These shared language costs are included in the "Shared Services" column of the tables presented below. General and administrative expenses directly incurred by the Language segments consist only of bad debt expense, net of recoveries. Additionally, research and development expenses are included in as shared Language costs. The depreciation, amortization, stock compensation, restructuring and other related expenses which are included in cost of revenue, sales and marketing, research and development, and general and administrative are presented in total as unallocated costs. The Company will continue to evaluate its management reporting and will update its operating and reportable segments as appropriate. With the exception of goodwill, the Company does not identify or allocate its assets by operating segment. Consequently, the Company does not present assets or liabilities by operating segment.

Operating results by segment for the year ended December 31, 2019 was as follows (in thousands, except percentages):

		Language				
	Literacy Segment	E&E Language Segment	Consumer Language Segment	Shared Services	Combined Language	Total Company
Revenue	$ 62,625	$ 56,812	$ 63,265	$ —	$ 120,077	$ 182,702
Cost of revenue	10,431	6,662	8,875	(5)	15,532	25,963
Sales and marketing	30,590	27,069	39,330	120	66,519	97,109
Research and development	9,478	—	—	14,496	14,496	23,974
General and administrative	2,031	346	77	—	423	2,454
Segment contribution	$ 10,095	$ 22,735	$ 14,983	$ (14,611)	$ 23,107	$ 33,202
Segment contribution margin %	*16.1%*	*40.0%*	*23.7%*			
Unallocated depreciation and amortization, stock compensation, restructuring and other expenses (net) included in:						
Cost of revenue						11,298
Sales and marketing						2,463
Research and development						536
General and administrative						5,609
Subtotal						19,906
Corporate unallocated expenses, net:						
Unallocated general and administrative						26,234
Unallocated non-operating expense						(299)
Subtotal						25,935
Loss before income taxes						**$ (12,639)**

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Operating results by segment for the year ended December 31, 2018 was as follows (in thousands, except percentages):

		Language				
	Literacy Segment	E&E Language Segment	Consumer Language Segment	Shared Services	Combined Language	Total Company
Revenue	$ 52,766	$ 60,376	$ 60,492	$ —	$ 120,868	$ 173,634
Cost of revenue	8,665	6,780	11,436	69	18,285	26,950
Sales and marketing	27,100	30,699	36,178	1,228	68,105	95,205
Research and development	7,785	—	—	14,856	14,856	22,641
General and administrative	2,043	45	107	—	152	2,195
Segment contribution	$ 7,173	$ 22,852	$ 12,771	$ (16,153)	$ 19,470	$ 26,643
Segment contribution margin %	*13.6%*	*37.8%*	*21.1%*			
Unallocated depreciation and amortization, stock compensation, restructuring and other expenses (net) included in:						
Cost of revenue						8,972
Sales and marketing						3,706
Research and development						2,569
General and administrative						5,453
Subtotal						20,700
Corporate unallocated expenses, net:						
Unallocated general and administrative						25,562
Unallocated non-operating expense						45
Subtotal						25,607
Loss before income taxes						**$ (19,664)**

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Operating results by segment for the year ended December 31, 2017 was as follows (in thousands, except percentages):

		Language				
	Literacy Segment	E&E Language Segment	Consumer Language Segment	Shared Services	Combined Language	Total Company
Revenue (1)	$ 43,608	$ 65,267	$ 75,718	$ —	$ 140,985	$ 184,593
Cost of revenue	6,924	7,149	13,485	50	20,684	27,608
Sales and marketing	23,369	31,089	37,366	1,459	69,914	93,283
Research and development	6,479	—	—	15,860	15,860	22,339
General and administrative	1,872	132	18	—	150	2,022
Segment contribution	$ 4,964	$ 26,897	$ 24,849	$ (17,369)	$ 34,377	$ 39,341
Segment contribution margin %	*11.4%*	*41.2%*	*32.8%*			
Unallocated depreciation and amortization, stock compensation, restructuring and other expenses (net) included in:						
Cost of revenue						6,013
Sales and marketing						3,377
Research and development						2,408
General and administrative						6,348
Subtotal						18,146
Corporate unallocated expenses, net:						
Unallocated general and administrative						25,696
Unallocated non-operating income						(456)
Subtotal						25,240
Loss before income taxes						**$ (4,045)**

(1) Effective January 1, 2018 the Company adopted ASC 606 using the modified retrospective approach. Revenue in prior comparative periods reflects amounts previously reported and has not been restated.

Geographic Information

Revenue by major geographic region is based primarily upon the geographic location of the customers who purchase the Company's products. The geographic locations of distributors and resellers who purchase and resell the Company's products may be different from the geographic locations of end customers.

The information below summarizes revenue from customers by geographic area as of December 31, 2019, 2018, and 2017, respectively (in thousands):

	Years Ended December 31,		
	2019	2018	2017 (1)
United States	$ 164,080	$ 152,407	$ 158,825
International	18,622	21,227	25,768
Total revenue	$ 182,702	$ 173,634	$ 184,593

(1) Effective January 1, 2018 the Company adopted ASC 606 using the modified retrospective approach. Revenue in prior comparative periods reflects amounts previously reported and has not been restated.

ROSETTA STONE INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

The information below summarizes long-lived assets by geographic area classified as held and used for the years ended December 31, 2019 and 2018, respectively (in thousands):

	As of December 31,	
	2019	2018
United States	$ 37,378	$ 34,029
International	1,873	2,376
Total property and equipment, net	$ 39,251	$ 36,405

18. VALUATION AND QUALIFYING ACCOUNTS

The following table includes the Company's valuation and qualifying accounts for the respective periods (in thousands):

	Years Ended December 31,		
	2019	2018	2017
Allowance for doubtful accounts:			
Beginning balance	$ 372	$ 375	$ 1,072
Charged to costs and expenses	393	168	(51)
Deductions—accounts written off	(255)	(171)	(646)
Ending balance	$ 510	$ 372	$ 375
Promotional rebate and coop advertising reserves:			
Beginning balance	$ 2,030	$ 2,375	$ 5,968
Charged to costs and expenses	4,500	4,224	6,421
Deductions - reserves utilized	(3,517)	(4,569)	(10,014)
Ending balance	$ 3,013	$ 2,030	$ 2,375
Sales return reserve:			
Beginning balance	$ 579	$ 1,176	$ 1,338
Charged against revenue	3,739	2,212	4,943
Deductions—reserves utilized	(3,870)	(2,809)	(5,105)
Ending balance	$ 448	$ 579	$ 1,176
Deferred income tax asset valuation allowance:			
Beginning balance	$ 66,431	$ 60,302	$ 78,363
Charged to costs and expenses	5,859	6,129	(16,806)
Deductions	—	—	(1,255)
Ending balance	$ 72,290	$ 66,431	$ 60,302

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

19. SUPPLEMENTAL QUARTERLY FINANCIAL INFORMATION (Unaudited)

Summarized quarterly supplemental consolidated financial information for 2019 and 2018 are as follows (in thousands, except per share amounts):

	Three Months Ended			
	March 31,	June 30,	September 30,	December 31,
2019				
Revenue	$ 44,611	$ 45,942	$ 45,456	$ 46,693
Gross profit	$ 36,185	$ 37,081	$ 36,040	$ 36,135
Net loss	$ (544)	$ (2,807)	$ (2,917)	$ (6,688)
Basic loss per share	$ (0.02)	$ (0.12)	$ (0.12)	$ (0.28)
Shares used in basic per share computation	23,036	23,455	23,609	23,666
Diluted loss per share	$ (0.02)	$ (0.12)	$ (0.12)	$ (0.28)
Shares used in diluted per share computation	23,036	23,455	23,609	23,666
2018				
Revenue	$ 42,808	$ 43,502	$ 42,750	$ 44,574
Gross profit	$ 33,374	$ 35,572	$ 33,982	$ 34,784
Net loss	$ (6,402)	$ (4,158)	$ (6,489)	$ (4,424)
Basic loss per share	$ (0.29)	$ (0.18)	$ (0.28)	$ (0.19)
Shares used in basic per share computation	22,425	22,663	22,814	22,877
Diluted loss per share	$ (0.29)	$ (0.18)	$ (0.28)	$ (0.19)
Shares used in diluted per share computation	22,425	22,663	22,814	22,877

20. SUBSEQUENT EVENTS

On March 10, 2020, the Company entered into the eighth amendment to its credit facility as described in Note 8 “Borrowing Arrangements”.