
McGraw-Hill Education, Inc.

Annual Report

As of December 31, 2016

**INDEX TO THE CONSOLIDATED FINANCIAL STATEMENTS OF MCGRAW-HILL EDUCATION, INC.
AND SUBSIDIARIES**

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Special Note Regarding Forward-Looking Statements

This report includes statements that are, or may be deemed to be, “forward-looking statements.” These forward-looking statements can be identified by the use of forward-looking terminology, including the terms “believes,” “estimates,” “anticipates,” “expects,” “intends,” “plans,” “may,” “will” or “should” or, in each case, their negative or other variations or comparable terminology. These forward-looking statements include all matters that are not historical facts. They appear in a number of places throughout this report and include statements regarding our intentions, beliefs or current expectations concerning, among other things, our results of operations, financial condition, liquidity, prospects, growth, strategies and the industry in which we operate.

By their nature, forward-looking statements involve risks and uncertainties because they relate to events and depend on circumstances that may or may not occur in the future. We caution you that forward-looking statements are not guarantees of future performance and that our actual results of operations, financial condition and liquidity, and the developments in the industry in which we operate, may differ materially from those made in or suggested by the forward-looking statements contained in this report. In addition, even if our results of operations, financial condition and liquidity, and the developments in the industry in which we operate are consistent with the forward-looking statements contained in this report, those results of operations, financial condition and liquidity or developments may not be indicative of results or developments in subsequent periods.

Any forward-looking statements we make in this report speak only as of the date of such statement, and we undertake no obligation to update such statements. Comparisons of results for current and any prior periods are not intended to express any future trends or indications of future performance, unless expressed as such, and should only be viewed as historical data.

Presentation of Financial Information

This annual report contains financial statements of McGraw-Hill Education, Inc. (formerly known as Georgia Holdings, Inc.). On March 22, 2013, MHE Acquisition, LLC, acquired all of the outstanding equity interests of certain subsidiaries of The McGraw-Hill Companies, Inc. (“MHC”) pursuant to the Purchase and Sale Agreement, dated as of November 26, 2012 and as amended on March 4, 2013 (collectively, the “Acquired Business”). As a result of this transaction, investment funds affiliated with Apollo Global Management, LLC acquired 100% of MHE Acquisition, LLC. We refer to the purchase of the Acquired Business and the related financing transactions as the “Founding Acquisition.” MHC is now known as S&P Global Inc.

The Successor period ended December 31, 2013 refers to the period from March 23, 2013 to December 31, 2013, and the Predecessor period ended March 22, 2013 refers to the period from January 1, 2013 to March 22, 2013. The term “Successor” refers to McGraw-Hill Education, Inc. following the Founding Acquisition and the term “Predecessor” refers to McGraw-Hill Education, LLC prior to the Founding Acquisition.

We have restated our audited financial statements for the years ended December 31, 2016, 2015 and 2014 and our unaudited financial statements for the quarters ended March 31, 2015, June 30, 2015, September 30, 2015, December 31, 2015, March 31, 2016, June 30, 2016, September 30, 2016, December 31, 2016, and March 31, 2017. Refer to the restatement described in Note 2, “Restatement of Previously Issued Consolidated Financial Statements” to the audited consolidated financial statements.

Use of Non-GAAP Financial Information

We have provided Billings, EBITDA and Adjusted EBITDA in this annual report because we believe they provide investors with additional information to measure our performance and evaluate our ability to service our indebtedness.

Management reviews these measures on a regular basis and uses them to evaluate and manage the performance of our business, make resource allocation decisions and compensate key management personnel as these measures provide comparability from period-to-period as sales of digital solutions represent an increasing

percentage of our total sales during this time of transition. We believe that, for the reasons outlined herein, these non-GAAP financial measures provide useful information to investors and provide increased transparency and a better understanding of our business performance trends as a supplement to reported revenue, net income (loss) from continuing operations and operating cash flows. However, these measures should be evaluated only in conjunction with the comparable GAAP financial measures and should not be viewed as alternative or superior measures of GAAP results.

Billings is a non-GAAP sales performance measure that we believe provides useful information in evaluating our period-to-period performance because it reflects the total amount of revenue that would have been recognized in a period if we recognized all print and digital revenue at the time of sale. We use Billings as a sales performance measure given that we typically collect full payment for our digital and print solutions at the time of sale or shortly thereafter, but recognize revenue from digital solutions and multi-year deliverables ratably over the term of our customer contracts. As sales of our digital learning solutions have increased, so has the amount of revenue that is deferred in accordance with U.S. GAAP. Billings is a key metric we use to manage our business as it reflects the sales activity in a given period, provides comparability from period-to-period during this time of digital transition and is the basis for all sales incentive compensation. In the K-12 market where customers typically pay for five to eight year contracts upfront and the ongoing costs to service any contractual obligation are limited, the impact of the change in deferred revenue is most significant. Billings is U.S. GAAP revenue plus the net change in deferred revenue.

We believe that the presentation of Adjusted EBITDA which is defined in accordance with our debt agreements is appropriate to provide additional information to investors about certain material non-cash items and about unusual items that we do not expect to continue at the same level in the future as well as other items to assess our debt covenant compliance, ability to service our indebtedness and make capital allocation decisions in accordance with our debt agreements.

Billings, EBITDA and Adjusted EBITDA are not presentations made in accordance with U.S. GAAP, and our use of these terms varies from others in our industry. Billings, EBITDA and Adjusted EBITDA should not be considered as alternatives to revenue, net income from continuing operations, operating cash flows, or any other performance measures derived in accordance with U.S. GAAP as measures of operating performance, debt covenant compliance or cash flows as measures of liquidity. Billings, EBITDA and Adjusted EBITDA have important limitations as analytical tools, and you should not consider them in isolation or as substitutes for analysis of our results as reported under U.S. GAAP. Further, EBITDA:

- excludes certain tax payments that may represent a reduction in cash available to us;
- does not reflect any cash capital expenditure requirements for assets being depreciated and amortized that may have to be replaced in the future;
- does not reflect changes in, or cash requirements for, our working capital needs; and
- does not reflect the significant interest expense, or the cash requirements necessary to service interest or principal payments, on our indebtedness.

In addition, Adjusted EBITDA, as defined in accordance with our debt agreements:

- includes estimated cost savings and operating synergies, including some adjustments not permitted under Article 11 of Regulation S-X;
- does not include one-time expenditures, including costs required to realize the synergies referred to above;
- reflects the net effect of converting deferred revenues and deferred royalties to a cash basis assuming the collection of all receivable balances and payment of all amounts owed;
- does not include management fees paid to entities and investment funds affiliated with Apollo Global Management, LLC, which will discontinue upon completion of this offering; and

- does not reflect the impact of earnings or charges resulting from matters that we and the lenders under our senior secured credit facilities may consider not to be indicative of our ongoing operations.

Our definition of Adjusted EBITDA allows for the add back of certain non-cash and other charges or costs that are deducted in calculating net income from continuing operations. However, these are expenses that may recur, vary greatly and can be difficult to predict. They can represent the effect of long-term strategies as opposed to short-term results. In addition, certain of these expenses can represent the reduction of cash that could be used for other corporate purposes. Because of these limitations, we rely primarily on our U.S. GAAP results and use Billings, EBITDA and Adjusted EBITDA only supplementally.

Trademarks

This annual report contains references to our trademarks and service marks. Solely for convenience, trademarks and trade names referred to in this annual report may appear without the ® or ™ symbols, but such references are not intended to indicate, in any way, that we will not assert, to the fullest extent under applicable law, our rights or the rights of the applicable licensor to these trademarks and trade names. We do not intend our use or display of other companies' trade names, trademarks or service marks to imply a relationship with, or endorsement or sponsorship of us by, any other companies.

PART I

Item 1. BUSINESS

The Science of Learning

We help unlock the potential of each learner by accelerating learning through intuitive, engaging, efficient and effective experiences. We define the Science of Learning as the understanding of how individuals learn and apply that understanding, grounded in research, to our content, technology and user experience to produce learning solutions that directly and positively impact individual student outcomes. As a learning science company, our goal is to empower educators and learners with information and intuitive learning environments in which to engage more personally with each other and with critical concepts in order to promote more effective and efficient learning.

Company Overview

We are a leading provider of outcome-focused learning solutions, delivering both curated content and digital learning tools and platforms to the students in the classrooms of approximately 250,000 higher education instructors, 13,000 pre-kindergarten through 12th grade (“K-12”) school districts and a wide variety of academic institutions, professionals and companies in 140 countries. We have evolved our business from a print-centric producer of textbooks and instructional materials to a leader in the development of digital content and technology-enabled adaptive learning solutions that are delivered anywhere, anytime. We believe we have established a reputation as an industry leader in the delivery of innovative educational content and methodologies. For example, in the higher education market, we were the first in our industry to introduce digital custom publishing, which permits instructors to tailor content to their specific needs. We also created *LearnSmart*, one of the first digital adaptive learning solutions in the higher education market, which leverages our proprietary content and technology to provide a truly personalized learning experience for students. Today we have over 1,500 adaptive products in higher education. Since 2009, all of our major K-12 programs have also been created in an entirely digital format.

We believe our brand, content, relationships, and distribution network provide us with a distinct competitive advantage. Over our 125 year history, the “McGraw-Hill” name has grown into a globally recognized brand associated with trust, quality and innovation. We partner with more than 14,000 authors and educators in various fields of study who contribute to our large and growing collection of proprietary content. Our collection includes well-known titles and programs across each of our principal markets. For example, in the United States higher education market, *Economics: Principles, Problems, and Policies* (McConnell/Brue/Flynn) is a leading Economics program. According to the Association of American Publishers (“AAP”), our programs and learning solutions in the U.S. K-12 market achieved 25% market share overall, including 30% share in adoption states in 2016. The primary driver of our growth in share and performance was strong share in the California reading/literacy adoption in 2016. In addition, *Harrison’s Principles of Internal Medicine* is one of the most widely-sold global medical reference solutions to the professional market, with our complementary digital offering *AccessMedicine* available in almost every medical school in the United States. We sell our products and solutions across multiple platforms and distribution channels, including our large network of approximately 1,550 sales professionals.

As learners and educators have become increasingly outcome-focused in their search for more effective learning solutions, we have embraced adaptive learning tools as a central feature of our digital learning solutions. Adaptive learning is based on educational theory and cognitive science that emphasizes personalized delivery of concepts, continuous assessment of gained and retained knowledge and skills, and design of targeted and personalized study paths that help students improve in their areas of weakness while retaining competencies. We have developed a unique set of digital solutions by combining innovative adaptive learning methods with our proprietary content and digital delivery platforms. These solutions provide immediate feedback, and we believe they are more effective than traditional print textbooks in driving positive student outcomes. Students’ year-over-year performance can be impacted by many factors outside the instructional materials used in class. We believe that even taking into account these factors, our learning solutions can contribute to significant improvements in students’ classroom performance as well as improved student retention. For the instructor, time spent on active learning

experiences increases significantly as a result of a reduction in time spent on administrative tasks and the availability of critical data to help better focus in class instruction.

We have conducted numerous case studies for several of our learning solutions for colleges that used *Connect/LearnSmart*, *SmartBook* and *ALEKS*, and in each case where our solutions have been implemented, our case studies have yielded positive findings when compared to class performance in periods immediately prior to implementation, many of which have been considerable. For example, according to a 2013 study by the Department of Chemistry, University of California, Riverside, it was found that general chemistry students who completed a pre-course assignment on *ALEKS*, an adaptive-responsive homework system could expect their average final exam score to increase by over 13 points when compared to nonparticipating students. Students who completed a precourse assignment on a traditional responsive homework system saw an average increase in their final exam score by 8 points versus those who did not participate. Students who worked on the online homework for the entire quarter saw even greater gains in their final exam scores compared to non-participants.

In the United States higher education market, where the pace of digital adoption is the most rapid of all of our end markets, the success of our sales of adaptive offerings has led to more than a 200 basis point increase in higher education market share from 2012 to 2016 according to Management Practice, Inc. (“MPI”), an independent education research firm.

Our four operating segments are:

- (1) *Higher Education* (42% of total revenue in 2016): We are a top-three provider in the United States higher education market with a 21% market share for the year ended December 2016 according to MPI. We provide students, instructors and institutions with adaptive digital learning tools, digital platforms, custom publishing solutions and traditional printed textbook products. The primary users of our solutions are students enrolled in two- and four-year non-profit colleges and universities, and to a lesser extent, for-profit institutions. We sell our Higher Education solutions to well-known online retailers, distribution partners and college bookstores, who subsequently sell to students. We also increasingly sell via our proprietary e-commerce platform, primarily directly to students, which currently represents the largest distribution channel in this segment, with revenue having grown from \$140 million for the year ended December 31, 2015 to \$172 million for the year ended December 31, 2016. For the year ended December 31, 2016, 56% of Higher Education revenue was derived from digital learning solutions.
- (2) *K-12* (35% of total revenue in 2016): We are a top-three provider in the United States K-12 curriculum and learning solutions market with a 25% market share for the year ended December 2016, according to AAP. We sell our learning solutions directly to K-12 school districts across the United States. While we offer all of our major curriculum and learning solutions in digital format, given the varying degrees of availability and maturity of our customers’ technological infrastructure, a majority of our sales are derived from selling blended print and digital solutions. We believe that the quality of our blended offerings has been driving significant growth in both print and digital revenue. For the year ended December 31, 2016, 21% of K-12 revenue was derived from digital learning solutions.
- (3) *International* (16% of total revenue in 2016): We leverage our global scale, including approximately a 490 person sales force, brand recognition and extensive product portfolio to serve students in the higher education, K-12 and professional markets in 140 countries outside of the United States. Our products and solutions for the International segment are produced in more than 60 languages and primarily originate from our offerings produced for the United States market and that are later adapted to different international markets. Sales of digital products are growing significantly in this market, and we continue to increase our inventory of digital solutions. For the year ended December 31, 2016, 14% of International revenue was derived from digital learning solutions.
- (4) *Professional* (7% of total revenue in 2016): We are a leading provider of medical, technical, engineering and business content for the professional, education and test preparation communities. Our digital subscription products had a 93% annual retention rate in 2016 and are sold to over 2,600 customers,

including corporations, academic institutions, libraries and hospitals. For the year ended December 31, 2016, 51% of Professional revenue was derived from digital learning solutions, including digital subscription sales.

Our Industry

We compete in the market for educational services in the United States and abroad. It is one of the largest sectors in the United States economy and, according to GSV Advisors, spending on education in 2015 was \$1.6 trillion and is forecast to increase to \$2.0 trillion in 2020. Global educational expenditures in 2015 were \$4.9 trillion and are forecast to increase to \$6.3 trillion in 2020, according to GSV Advisors.

Higher Education

We are a leading provider in the market for new instructional solutions in the United States higher education segment, which was estimated to be approximately \$3.4 billion in 2016, according to MPI. This market includes digital learning solutions as well as traditional and custom print textbooks, but excludes used and rental print textbooks. Used and rental materials are commonly purchased by students as a substitute for new materials. Based on estimates for used and rental substitutes, the overall market for textbooks is significantly larger than the market for new instructional materials. Based on a report from Veronis Shuler Stevenson, used textbook purchases represent approximately 30% of the overall market, and textbooks represent approximately 8% of the overall market for instructional materials based on a report from Student Monitor. We believe the increased use of digital products will drive significant growth in our addressable market given digital products are not provided in a used or rental form.

The importance of higher education in the United States is clear. 65% of all jobs in the United States will require some form of postsecondary education or training by 2020, up from 28% in 1973 and 59% in 2010, according to Georgetown University Public Policy Institute. We expect another key long-term driver of growth in the higher education market to be increasing student enrollment, which has been steadily growing over the last several decades. Enrollment at degree-granting institutions in the United States was approximately 20 million in Fall 2014, representing a 2% CAGR since 2000 and a 2% CAGR since 1970, according to the National Center for Education Statistics ("NCES"). Although there was a decline in enrollment from 2012 to 2014, prior to that there have been only four years since 1970 during which enrollment declined by more than 1% over the prior year, and in three cases (1976, 1984, 1993), enrollment growth resumed within three years.

Public and political scrutiny of the disparity between funding and student outcomes has increased demand for greater transparency and accountability for spending on education. With educational institutions under pressure to increase their student retention and graduation rates, new and more effective methods of teaching and learning are in demand. Almost 80% of faculty in higher education in the United States believe the most important initiative at their institution is improving student learning outcomes, according to a BISG 2015 survey.

Despite the significant government expenditures in education, low college graduation rates and insufficient job placement in the United States have resulted in additional social and economic costs including rising aggregate and per capita student loan debt and increasing incidents of default. In addition, American students are not learning the skills and knowledge they need to succeed in an increasingly competitive global marketplace.

According to NCES, in 2016 approximately 60% of full-time students who graduated from 4-year institutions graduated within six years. For 2-year institutions, approximately 30% of full-time students who graduated completed their studies within three years.

In a recent study by the Foundation for Excellence in Education, two-thirds of college professors report that what is taught in high school does not prepare students for college and, according to ACT, 2016, approximately one in four high school students graduates ready for college in all four core subjects (English, reading, math and science), resulting in a third of students who enter college requiring remedial courses to meet basic levels of proficiency.

Public policy initiatives aimed at improving student outcomes and accountability within higher education in the United States extend to college and career readiness standards in the K-12 market. An important aspect of postsecondary student success is adequate preparation via primary and secondary education. According to NCES, in the 2011-2012 school year, 1.9 million students began college in remediation. In the United States, improved college readiness has been a focal point for lawmakers, which has led to an increased focus on the linkage between K-12 funding and higher student achievement of educational standards.

K-12

Our addressable K-12 market in the United States, which includes new instructional materials, courseware and formative assessment was approximately \$6.9 billion for the 2016-2017 school year, including adoption and open territory states, according to Simba Information. According to NCES, K-12 enrollment in the United States as of 2013-2014 was 55 million, and enrollment is projected to grow at a compound annual growth rate of 0.4% to nearly 58 million from 2013 to 2024. We define our K-12 market as divided among basal (core or alternative required grade-level taught subjects that are delivered in a specific order with increasing difficulty), supplemental (academic instruction provided outside the required programs) and intervention products (targeted instruction to students lacking proficiency in a subject matter, or those who have special learning or behavioral needs). Eighteen states, known as adoption states, approve and procure new basal programs, usually every five to eight years on a state-wide basis for each major area of study, before individual schools or school districts are permitted to schedule the purchase of materials. In all remaining states, known as open territories, each individual school or school district can procure materials at any time, though they usually do so on a five to eight year cycle.

Growth in the K-12 market is driven by demand for new materials to address college and career readiness standards, increasing state and local budgets for educational materials, and rising student enrollment. Property tax revenue, the primary source for state and local funds for purchases of instructional materials, has been increasing in the United States along with a rise in property values. A rebound in state and local tax revenues has allowed many locales to increase their K-12 spending to address years of pent-up demand created during the recession that started in 2008. In a recent study by the Foundation for Excellence in Education, two-thirds of college professors report that what is taught in high school does not prepare students for college and, according to ACT, 2016, approximately one in four high school students graduates ready for college in all four core subjects (English, reading, math and science), resulting in a third of students who enter college requiring remedial courses to meet basic levels of proficiency.

Professional

As the United States economy continues to recover, we expect the market for professional education resources to grow, particularly among industry sectors that are experiencing more rapid growth in jobs. The Professional and Business Services and Healthcare and Social Assistance industry sectors are expected to add nearly 6 million jobs between 2014 and 2024, more than all other United States industries combined, according to BLS. We derive a substantial portion of our Professional revenue from these two markets.

International

The global e-Learning market, including higher education, K-12 and professional training, is expected to grow from \$74 billion in 2015 to \$131 billion by 2019, with educational content accounting for approximately 80% of the total, according to Technavio. This large international education market is increasingly focused on digital content due to the growing penetration of the smartphone. Individuals in developing countries are nearly twice as likely to use connected devices (i.e. mobile phones or tablets) for educational purposes on a regular basis as those in developed markets, according to Juniper Networks. Today, through our significant investment in digital solutions and DPG, we plan to increasingly capitalize on these strong market trends.

The accelerating shift toward a knowledge-based economy is fueling demand for higher levels of education around the world. The importance of higher education in the United States is clear. 65% of all jobs in the United States will require some form of postsecondary education or training by 2020, up from 28% in 1973 and 59% in

2010, according to Georgetown University Public Policy Institute. As higher education becomes more important to the success of the global economy, governments have increased their emphasis on student preparation and postsecondary readiness through funding requirements of primary and secondary education programs.

The trend towards increased globalization has generated demand for higher levels of educational attainment in international markets as well. There are more than 50 countries in which English is either the official or the primary language and, in many developing countries, educational agendas emphasize the use of English as a universal language for commerce and other sectors of the economy. English is spoken at a useful level by approximately 1.75 billion people worldwide, and is projected to increase to 2.0 billion by 2020, according to the British Council. We believe this trend will increase the readily addressable market for our educational solutions, which are often initially created for English-speaking students before being adapted for international markets.

We expect the investment in education to continue to grow as student enrollment rises around the world. According to UNESCO, global higher education enrollment was approximately 207 million students in 2014, more than doubling since 2000. K-12 global enrollment was more than 1.4 billion students in 2014, representing an increase of 19% since 2000.

Our Competitive Strengths

We believe the following to be our most important competitive strengths:

Widely recognized brand with global reach and expansive scale.

We believe our brand recognition is driven by our long-standing history of over 125 years in the industry and our ownership of globally well-known titles such as *Harrison's Principles of Internal Medicine* and Samuelson's *Economics*, which have been cornerstones of education around the world for decades. We distribute our products in 140 countries across Asia-Pacific, Europe, India, Latin America and the Middle East, and approximately 27% of our more than 4,900 employees are based in 40 offices in 27 countries outside of the United States. We believe that our brand, global reach and scale provide us with a defensible market position and present significant barriers to entry. We expect to leverage our market position and internal infrastructure and operational resources to further grow revenues and gain market share by increasing distribution of learning solutions through our network.

In the United States, our products are sold in over 5,000 higher education institutions and 13,000 K-12 school districts across all 50 states. Our approximate 1,550 person sales force, which includes approximately 500 and 475 sales people in each of the United States higher education and K-12 markets, respectively, maintains close relationships with the individual instructors that represent the primary decision makers in the higher education market and the states, school districts, and individual schools that primarily make purchase decisions in the K-12 market. In addition, our growing suite of digital products allows us to develop direct relationships with an even larger group of customers, including over 3 million higher education students and instructors who were users of our *Connect* platform in 2016.

Proprietary and unique content, developed over many years, leveraged in digital adaptive learning.

Our portfolio of proprietary content developed over 125 years and built around market leading titles has been the foundation of our transformation into a large and growing digital learning solutions provider. From 2012 to 2015, we increased the market share of our top 10 Higher Education product categories by more than 225 bps from 20% to 22%, as reported by AAP. These top 10 product categories represented over 50% of industry net sales as reported by AAP in 2014. This market leadership has uniquely positioned us to extend our portfolio of traditional print products by offering digital alternatives and new digital solutions that incorporate our existing content and curriculum. The future potential of digital learning solutions is illustrated by a 2015 BISG survey which states that 77% of the instructors who use an integrated digital learning system, such as our *Connect* platform, require the purchase of that system for their courses and base approximately 26% of the students' grades on homework assigned through such platforms.

In addition to leveraging digital formats to extend the reach of existing print content, we create all new content in a digital format and optimize it for use in an adaptive environment. This has reduced our development costs and enhanced our ability to use new content for the future development of additional products. We believe that our repositories of over nine petabytes of digital content, which is over nine million gigabytes, provide us with an opportunity to more quickly and effectively bring future products to market. Our centralized DPG team ensures that all of our digital solutions are immediately available to customers running a wide range of different technology architectures.

Diversified portfolio of education businesses and unified approach to digital.

We have a unique presence across the learning continuum, including higher education, K-12 and professional, with additional operations in international markets. Our presence across the full continuum allows us to mitigate the cyclicity of the individual segments. The higher education segment of our business, which represented approximately 42% of our revenue in 2016, has historically proven to be countercyclical, balancing out cycles experienced by the K-12 business. During and immediately following recent economic downturns, postsecondary enrollment rates have tended to rise while postsecondary attrition rates have tended to decline. We believe this is driven by the lower opportunity cost for enrolling or staying in college during times of relative economic weakness and higher unemployment. In the current economic environment, characterized by a slow recovery, the K-12 market is benefiting from increased state and local government spending while higher education enrollment has begun to slow.

In addition to making our product development more innovative and faster to market, our DPG organization has allowed us to spread significant R&D spend across our entire revenue base and leverage investments in products developed for one segment across our entire product suite. This centralized approach provides superior capital efficiency to a siloed development model. The creation of DPG, along with the acquisitions of *ALEKS*, *LearnSmart* and *Engrade*, enables us to own and control all of the key technologies necessary to implement our digital strategy.

First mover in digital adaptive learning solutions and strong capabilities in digital technology.

We believe the significant investment we have made in our digital capabilities has made us a longstanding leader in digital adaptive learning. Today, our annualized spend in our DPG, including operating and capital expenditures, has grown from less than \$90 million in 2012 to over \$170 million in 2016. While we are committed to continue significant digital investment, growth rates of spending has declined as we have achieved scale. In addition to our organic investments, we have committed in excess of \$200 million for the acquisitions of *ALEKS*, *LearnSmart* and *Engrade*, which have significantly strengthened our platform and adaptive digital offerings. Our *LearnSmart* solution has been one of the most widely used adaptive platforms in higher education since its launch in 2009, and *ALEKS*, our digital adaptive learning solution originally developed for K-12 math, originated in 1992 with a National Science Foundation grant. Our long history of offering adaptive learning solutions has allowed us to develop a growing and robust database of student interactions relating to achievement of learning objectives, which we use to continuously improve the effectiveness of our platforms. For example, *LearnSmart* has generated over 6.9 billion interactions with students since inception in 2009, recently growing at an average of more than 100 million interactions per month. Since 2010, *ALEKS* has seen over 5.0 billion interactions. In addition to using this information to enhance the effectiveness of our adaptive tools, we share data on interactions with instructors to help them more effectively integrate our solutions into their lessons, focusing on content that students are having difficulty learning, reinforcing our relationships and making our solutions more difficult to displace.

Our interactions data are also leveraged on an ongoing basis to create new adaptive technology solutions. For Higher Education, our *SmartBook* adaptive offering, introduced in 2013, is among the first adaptive reading experiences for higher education that utilizes data analytics combined with a deep repository of proprietary content to improve learning outcomes. In the higher education market alone, we have increased our number of adaptive products to over 1,500 as of December 31, 2016.

Highly attractive business model positioning us for growth.

We enjoy a business model that is highly cash generative. Since 2013 through the end of 2016, we have generated cash flows from operating activities of approximately \$1.4 billion. As we derive an increasing amount of Billings from digital products, we have been able to operate our business with decreasing levels of pre-publication and capital expenditures and less working capital requirements. Depending upon adoption cycles, pre-publication costs and working capital requirements could vary in a given year. Our strong cash flow has enabled significant investment in our digital capabilities, several key strategic acquisitions, return of capital to our shareholders and continued deleveraging. Since the Founding Acquisition in 2013, our strong cash flow has funded four acquisitions, including *ALEKS*, *LearnSmart*, *Engrade* and *Redbird*, that included cash components totaling \$150 million. We also completed a minority interest buy-out of Ryerson Canada (our Canadian business) for \$27 million and made a minority investment in English Language Learning provider Busuu for €6 million. In addition, we have made significant investments in the staffing of DPG, which supports ongoing innovation, development and maintenance of our technology platforms, reducing our pre-publication and capital expenditure requirements and our dependence on third parties.

In addition to our ongoing shift towards a more digitally-enabled model, another important driver of increasing free cash flow generation has been our demonstrated success in implementing various cost saving measures. These opportunities improved our operating margins over time and allowed us to fund additional investment in our digital capabilities. Since our March 2013 sale to Apollo through December 31, 2016, we have identified and actioned approximately \$160 million of annualized cost savings.

Talented management team and employee base.

Since being acquired by Apollo in March 2013, we have enhanced our leadership team with the addition of proven leaders, including a new CEO, Presidents of each business segment, a CIO, a Head of Communications and a Head of Human Resources. Our leadership team consists of professionals averaging over 20 years of experience in a range of industries that include education, technology and media with various leadership positions at Bain, Gartner, Harvard Business School, Pearson, Reed Elsevier, Standard & Poor's, Sylvan Learning, Symbian, UBM, and Wolters Kluwer as well as start-ups such as Intelligent Solutions. We have more than 4,900 employees world-wide with 535 full-time employees in DPG, including more than 240 engineers, 90 user experience designers, more than 90 technical product managers, nearly 25 scientists and software solutions architects and over 85 customer-facing and other supporting staff.

Our Growth Strategies

The key elements of our growth strategies are described below.

Further our leadership in digital solutions and digital technology.

We intend to capitalize on the increasing market demand for digital learning solutions by expanding our portfolio of technology-enabled adaptive tools and learning solutions. By leveraging a common software architecture and platform, we will be able to quickly design, develop and test innovative products. Our next generation products, several of which have been recently deployed or are currently in development, will also benefit from the experience we have gained from our existing product suite. These products will have enhanced flexibility, provide greater ability for our users to create custom solutions, and better analyze learning data. We believe these next generation products will further our leadership in our key markets and allow us to grow our revenues at a faster rate than the overall market.

We also expect that increased adoption of our digital solutions in the higher education market will expand our revenue opportunity by limiting the availability of used and rental alternatives. As instructors mandate and integrate digital solutions into their classrooms, learning will become more personalized. We believe there is a significant growth opportunity for the use of personalized learning programs, which can further the disintermediation of the used and rental market.

In order to better leverage technology across all of our businesses, drive product innovations and create a more efficient product development process, we are consolidating technologies to eliminate duplicative capabilities. We expect this effort will reduce maintenance costs and unlock creative synergies across our engineering teams. We will also streamline our tools and platforms for efficient and effective delivery with open application program interfaces. This rationalization and simplification of our delivery platforms will reduce costs, freeing up capital for investment in new products.

Increase our penetration in our largest, most profitable disciplines and sub-markets.

In Higher Education, we intend to make additional investments in large customer segments with the greatest strategic value, such as freshman and sophomore general education and developmental courses. As a core competency, we will continue to identify high value segments through rigorous customer segmentation analysis and discipline-specific market insight. These key areas contain the least specialized curriculum, have the highest enrollment, are likely to be taught at a high percentage of institutions and will benefit the most from digital solutions that track students' progress. By focusing our investments on these areas, we believe we can increase market share and drive further revenue growth. Going forward, we will prioritize opportunities based on rigorous customer segmentation analysis and specific market insights and leverage digital with other go-to-market product formats and distribution alternatives that are intended to disintermediate the used and rental market.

To increase penetration and drive better student outcomes in K-12, we will target synergies across the entire learning environment, including technology platforms and services, and leverage our existing sales, marketing and product development capabilities to further penetrate the market. We will leverage our digital adaptive assets, *ALEKS* and *LearnSmart*, to accelerate our penetration of digital products while also emphasizing the research-basis of revitalized programs such as *Everyday Mathematics*, *Open Court Reading*, *Reading Wonders*, *Impact Social Studies* and *Inspire Science*. In addition, we will enhance our formative, in-classroom, testing offering with our adaptive capabilities to further penetrate the market. We will continue to compete in all major state new adoptions, especially the California English Language Arts ("ELA") adoption in 2016, as well as Texas, Florida and other adoption states in 2017 and later years.

Introduce new enterprise solutions aimed at education effectiveness and student retention.

We believe our learning science focus, highly talented DPG team and the large amount of data we collect via our adaptive learning solutions uniquely position us to offer enterprise services that help our institutional customers improve educational outcomes and accountability. We intend to sell a number of new products and services, including our *Connect Insight* product, that offer enterprise-wide course development and design services, analytical tools focused on optimizing student performance and retention, and college and career readiness programs and services.

Leverage our digital solutions in International and Professional markets.

We intend to leverage our large global sales presence, our DPG team, deep local knowledge and numerous strategic partnerships to adapt our leading portfolio of English language content and digital solutions to meet local market needs, such as culture, language and curricula. We believe that this will allow us to rapidly scale our presence in international markets, with particular focus on emerging markets in Latin America, the Middle East, Africa and Asia Pacific.

We also believe we can achieve significant growth by utilizing our adaptive learning competencies to enter and disrupt attractive education segments. These include the high stakes test preparation markets in selected geographies, vocational and skills-based training markets, and the corporate training market where personalized adaptive learning has significant value to the enterprise.

License our software and platforms to other education industry participants and the corporate training market.

We intend to license our leading portfolio of software, platforms and capabilities to other market participants in both the education and corporate markets. Education industry participants, such as universities and international content providers, can save significant development costs by using our technology to deliver their own content, in their own local languages and with features designed for their own unique markets. We have estimated this addressable market at approximately \$1 billion, which is based on our estimate of the potential for publishers who do not have their own digital solution or are sub-scale in education to outsource their technology development efforts to us.

We will also market to corporate partners who can benefit from our proven and effective adaptive technology, especially in high-stakes areas where it is important to demonstrate mastery. This will allow corporate partners to provide personalized corporate training and professional development programs that capitalize on our data reporting and analysis tools. In 2015, we launched our first successful pilot of this program, which we have already expanded, and our pipeline of potential education and corporate clients is building. According to IDC, the U.S. corporate e-learning market was estimated at \$16.8 billion in 2015 and grew at a 8.7% compound annual growth rate since 2006. While it is difficult to estimate our direct addressable market, the overall level of spending on U.S. corporate e-learning does present a significant growth opportunity.

Continue to evolve our digital-centric business model to generate significant free cash flow.

We will continue to drive towards a digital-centric business model which will allow us to continue to generate significant free cash flow over time as we derive an increasing proportion of our sales from digital learning solutions. We expect our digital-centric model to continue to result in higher margins and lower capital intensity as we drive efficiencies in our business from reduced operating expenditures, reduced print inventory and more efficient pre-publication investment relative to revenue. We expect to use our free cash flow to fund our growth, delever our balance sheet and, potentially, return capital to shareholders over time.

Selectively pursue acquisitions.

We will consider acquisitions that expand our product offerings, accelerate our digital product development and add important content. We believe our brand and scale allow us to derive significant benefit from emerging education technology companies, which would be challenged to attain a significant market position as standalone companies.

Our Products

Higher Education Products

Higher Education provides adaptive digital learning tools, digital platforms, custom publishing solutions and traditional printed textbook products with capabilities in adaptive learning, homework tools, lecture capture and LMS integration for post-secondary markets. We have invested significantly in a suite of digital and custom learning solutions, and our instructional materials include digital and printed texts, lab manuals, interactive study guides, testing materials, software and other multimedia products covering the full spectrum of subjects. Although we cover all major academic disciplines, our content portfolio is organized into three key disciplines: (i) Business, Economics and Career; (ii) Science, Engineering and Math; and (iii) Humanities, Social Science and Languages. Substantially all of Higher Education's revenue is generated from approximately 2,000 individual titles, including print and digital formats, with no single title accounting for more than 2% of revenue. We have longstanding and exclusive relationships with many authors and nearly all of our products are covered by copyright in major markets, providing us the exclusive right to produce and distribute such content in those markets during the applicable copyright term. Higher Education's products consist of the following:

I. Digital Learning Solutions

Higher Education's digital learning solutions include, among other features, adaptive digital learning tools, online assessment software, course management software, cloud-based classroom activity capture and replay, online access to eBooks and social network and community tools. These solutions form a seamless, fully-digital ecosystem that enhances the value and results of higher education over the entire learning lifecycle. We have increased the number of adaptive offerings to over 1,500 as of December 31, 2016. For the years ended December 31, 2016, 2015 and 2014, Higher Education digital revenue represented 56% (\$408 million), 45% (\$359 million) and 38% (\$319 million) of total Higher Education revenue, respectively.

For the years ended December 31, 2016, 2015 and 2014, Higher Education digital Billings (including the change in deferred revenue) represents 56% (\$410 million), 45% (\$374 million) and 39% (\$322 million) of total Higher Education Billings, respectively.

Our core digital learning platforms include:

- ***McGraw-Hill Connect***: an open learning environment that allows instructors to integrate digital content into their programs and create a customized learning environment, accessible by students anytime and anywhere through their devices. Students can learn interactively through homework and practice questions, embedded video, simulations, virtual laboratories, audio programs and online games. McGraw-Hill Connect contains a suite of tools, including integrated eBooks, course and assignment set-up tools, grading and feedback tools, learning aids, reporting tools and the ability to integrate with our *LearnSmart* and *Tegrity* products to create a more seamless course experience. McGraw-Hill Connect is offered for most core freshman and sophomore level courses in the United States with 3.3 million paid activations across campuses nationwide during the year ended December 31, 2016, an increase of 11% over the prior year.
- ***LearnSmart***: an adaptive learning program that personalizes learning and designs targeted study paths for students through specific courses. *LearnSmart* is an interactive product that determines which concepts the student does not know or understand and teaches those concepts using a personalized plan designed for each student's success. All *LearnSmart* questions are tied to clear learning objectives. When students answer questions, they also rank how confident they are in their answers. Based on each student's response and level of certainty, *LearnSmart* continuously adapts the content and probes presented to each student, so the material is always relevant and geared towards mastering the learning objectives. Once a concept is mastered, *LearnSmart* then identifies the concepts students are most likely to forget throughout the term and encourages periodic review to ensure that concepts are truly retained. *LearnSmart* has generated over 6.9 billion interactions with students since inception in 2009, recently growing at an average of more than 100 million per month. According to studies, *LearnSmart* has consistently improved student outcomes.
- ***SmartBook***: an adaptive reading product introduced in Higher Education in 2013 designed to help students understand and retain course material by guiding each student through a highly personal study experience. Each *SmartBook* helps make studying more efficient and effective by offering features not present in traditional print products, including adaptive content, search/index functionality, note taking capabilities, embedded video and interactive elements. The *SmartBook* product also makes use of our *LearnSmart* adaptive technology. When a student reads the chapters in *SmartBook*, they are prompted by *LearnSmart* questions to identify recommended areas of focus for the student. Our *SmartBook* are primarily sold in the higher education market across a variety of courses and are designed to be compatible with a broad range of devices, including the Kindle and Nook eReaders, the iPad and other tablets and standard desktop and laptop computers. We believe that *SmartBook* will continue to increase in popularity as the prevalence of these digital reading devices also increases.

Our *SmartBook* contain rights management features that are designed to prevent copying or resale. Students pay for them based on usage for one school term. The amount paid is designed to be comparable to the cost of a one-term rental of a print textbook. Therefore, our *SmartBook* are priced lower than print textbooks but cost us less to distribute and manufacture, leading to a comparable gross margin. Moreover, our bundling of

digital solutions with *SmartBook* augments the economics of a digital sale and further improves the economics relative to the traditional all-print model.

- **ALEKS:** an adaptive learning math product for the higher education market initially developed in 1992 with a National Foundation grant. *ALEKS* uses research-based artificial intelligence to rapidly and precisely determine each student's knowledge state, pinpointing exactly what a student knows. *ALEKS* then instructs the student on the topics he or she is most ready to learn, constantly updating each student's knowledge state and adapting to the student's individualized learning needs. Higher Education has marketed and sold *ALEKS* for math in the higher education space for more than 17 years. *ALEKS* had 1.3 million unique users in Higher Education during the year ended December 31, 2016, an increase of 19% over the prior year.
- **Connect Insight:** a visual analytics dashboard, available to both instructors and students, that provides actionable information about student performance to help improve class effectiveness. *Connect Insight* presents assignment, assessment, and topical performance results along with a time metric that is easily visible for aggregate or individual results. Using visual data displays that are each framed by an intuitive question, *Connect Insight* gives both instructors and students the ability to take a just-in-time approach to teaching and learning. By providing actionable recommendations, *Connect Insight* guides students towards behaviors that could increase performance and enables instructors to give targeted instruction precisely when and where it is needed.
- **McGraw-Hill Create:** a self-service website that enables instructors to discover, review, select and arrange content into personalized print or electronic course materials. Instructors can curate customized course materials from a content portfolio consisting of 7,900 textbooks, 17,300 articles, 46,500 cases, 8,900 readings and 2,100 digital offers. Instructors can further supplement the materials with their own custom content. *McGraw-Hill Create* allows the creation of customized textbooks across a number of disciplines and study areas, including accounting, business law, economics, finance, management, marketing, philosophy, political science, sociology, world languages, anatomy and physiology, chemistry, engineering, biology, psychology, English and mathematics.
- **Tegrity:** a fully-automated lecture capture solution used in traditional, hybrid and online courses to record lectures as well as supplementary course content. *Tegrity* is designed to enhance both on-campus and remote learning by allowing instructors to efficiently distribute lecture content and allowing students to learn anywhere and everywhere through digital devices. Unlike our other higher education products sold to instructors, *Tegrity* is sold primarily on an institutional basis.
- **McGraw-Hill Campus:** a service that makes digital learning resources accessible to faculty and students. All faculty, whether or not they use McGraw-Hill titles, can browse, search and access the entire library of McGraw-Hill instructional resources and services, including eBooks, test banks, PowerPoint slides, animations and learning objects. This service can be accessed from any LMS at no additional cost to the institution. Users also have single sign-on access to McGraw-Hill digital platforms, including *McGraw-Hill Connect*, *ALEKS*, *Create*, and *Tegrity* and can help teachers build an effective digital course. It also provides the ability to sync and monitor student scores from most McGraw-Hill Higher Education platforms directly to the LMS gradebook.
- **StudyWise:** MHE's latest adaptive offering, supports student in adaptive practice on smartphones. *StudyWise* extends the reach of *Connect* and *Connect2* by providing an intimate and efficient learning tool, meeting students in their natural environment.

II. Custom Publishing

Higher Education's custom publishing solutions provide educators the ability to weave together various elements including digital text, digital solutions, print, videos, charts and their own materials into a seamless, tailored learning solution, replacing traditional print textbooks and printed class materials. Custom materials, by their nature, have a higher sell-through rate and are more likely to have their content frequently updated by the

instructor, resulting in frequent new publications, forced obsolescence of old editions and more limited re-distribution potential into used or rental markets. Custom products create strong loyalty from educators, as they typically invest significant time and effort into creating unique learning solutions tailored to their teaching styles. Our custom publishing solutions are often bundled arrangements that require us to attribute value to the digital component separately. For the years ended December 31, 2016, 2015 and 2014, Higher Education custom publishing revenue, excluding the digital component, represented 12% (\$89 million), 18% (\$148 million) and 29% (\$240 million) of total Higher Education revenue, respectively.

III. Traditional Print

Higher Education continues to provide students with traditional print textbooks, including a library of titles covering the full spectrum of subjects, written by some of the top authors and experts in their respective fields. For the years ended December 31, 2016, 2015 and 2014, Higher Education traditional print represented 32% (\$237 million), 37% (\$298 million) and 33% (\$281 million) of total Higher Education revenue, respectively.

K-12 Products

Our K-12 product portfolio includes thousands of instructional resources across hundreds of programs, covering nearly all courses offered in K-12. We also provide the ability to tie instruction and assessment together into a robust platform for school district support and data-driven instruction. This includes strong curriculum resources plus adaptive and formative assessment engines. While the McGraw-Hill name has been a respected source for printed textbooks and teacher materials for generations, we are also recognized for our pure digital programs and our hybrid solutions that blend digital and print in customized packages. Our K-12 business is one of the few providers that offer the diversity of product to actively serve core K-12 markets and niche and specialized markets. In our core markets our offerings include *Reading Wonders* and *My Math* and in our niche and specialized markets we offer well known programs such as *SRA Open Court Reading* and *Number Worlds*. We focus on supporting each state's chosen standards through comprehensive and robust offerings. All our key programs meet the Common Core and college and career readiness standards, as well as the standards chosen by each state to support its learning goals.

I. Core Programs

Core basal programs consist of digital and print products that serve mainstream educators with research-based, comprehensive learning solutions. Core basal programs are designed to provide the entire curriculum for a course, including student instruction, practice, assessment and remediation as well as teacher materials. These programs may have as few as five or six components (such as in some high school courses) or thousands of components (such as in K-5 reading and math programs). Core basal programs comprise approximately 79% of K-12's sales and cover all major instructional subjects including Reading, Math, Social Studies, Science, and Literature, while the balance includes specialized programs that include a wide range of products targeted at certain niche markets.

- **Alternative Basal Products:** comprehensive classroom programs for particular segments of the market that require distinct learning methodologies, such as reading teachers who want more directed, skills-oriented programs and math teachers who want more reform-based, hands-on mathematics programs. These unique programs demand specialized authors, editing and design skills, marketing strategy and a true consultative selling model. K-12 is among the largest education providers in its ability to deliver all of these critical elements.
- **Intervention Products:** programs with targeted instruction to students lacking proficiency in a subject matter, or those who have special learning or behavioral needs. Nearly all students require extra instructional support at one time or another and K-12 builds this support into all of its Core Basal Programs while also providing separate targeted programs for intervention and remediation. Programs include products that focus on reading and mathematics support, and remediation solutions in science, social studies, career and college readiness, workplace skills and other areas of need.

- **Supplemental Products:** additional learning resources when core program solutions do not meet all of the needs of certain educators, such as extra online practice in multiplication, kits that enhance phonics skills, practice books for basic workplace skills or biography readers for middle school students. K-12 competes in this segment due to its specialized product development capabilities and experienced sales staff who know how to market to these educators.

For the years ended December 31, 2016, 2015 and 2014, K-12 traditional print represented 79% (\$477 million), 78% (\$463 million) and 82% (\$445 million) of total K-12 revenue, respectively.

II. Digital Learning Solutions

Digital resources are an essential part of the instructional mix across both core basal and specialized programs. The recent and dramatic increase in hardware, online connectivity and educational focus on technology has brought many classrooms to a digital tipping point. With the significant investment in its digital portfolio over recent years, K-12 has an opportunity to capitalize on this ongoing digital transformation and has developed a number of fully online learning programs. For the years ended December 31, 2016, 2015 and 2014, K-12 digital revenue represented 21% (\$126 million), 22% (\$129 million) and 18% (\$99 million) of total K-12 revenue, respectively.

For the years ended December 31, 2016, 2015 and 2014, K-12 digital Billings (including the change in deferred revenue) represented 32% (\$239 million), 33% (\$261 million) and 26% (\$192 million) of total K-12 Billings, respectively.

- **Access Manager:** An IMS Global Standards certified integration platform for K-12 Ed Tech interoperability. *Access Manager* removes the cost and complexity of schools adopting educational technology. *Access Manager* is based on open standards and positions MHE to help districts drive down the costs of using technology, enhancing the opportunity for greater use of technology in teaching and learning.
- **Engrade Pro:** an open platform for K-12 education that unifies the data, assessment, curriculum and educational tools to drive student achievement and inform district educational strategy. Its K-12 stakeholders have access to content delivery and authoring tools, a communications suite, data reporting tools, and single sign-on interfaces. Based on its open architecture, *Engrade* can integrate third party content and partners along with K-12 instructional resources and *Acuity* assessments. *Engrade* will serve as a basis for the future MHE open digital learning platform, which is seamless, modular and open.
- **ConnectEd:** an open learning environment providing access and customization of our content for K-12 users. The platform offers a digital learning solution for teachers and students to access teaching and learning resources.
- **ALEKS:** an adaptive learning math product for the K-12 market. *ALEKS* uses research-based, artificial intelligence to rapidly and precisely determine each student's knowledge state, pinpointing exactly what a student knows. *ALEKS* then instructs students on the topics they are most ready to learn, constantly updating each student's knowledge state and adapting to the student's individualized learning needs. While *ALEKS* specializes in remedial and developmental math, we have also integrated *ALEKS* into all of our secondary math offerings. During the year ended December 31, 2016, *ALEKS* had 2.0 million unique users in K-12, an increase of 27% over the prior year.
- **Redbird:** A personalized and adaptive math solution based on research from Stanford University and targeted to students in the K-5 grade ranges. The combination of *Redbird* and *ALEKS* allow MHE to support learners of all ages (K-life) in developing their math abilities through personalized learning resulting in higher success rates and a more efficient use of learner time.
- **LearnSmart:** similar to our higher education offering, *LearnSmart* is an adaptive learning program being deployed with the majority of K-12's grade 6-12 resources. This allows for more robust data capture, the

ability to provide strong reporting, insight into student understanding, an adaptive feedback loop, and the opportunity for increased student achievement.

International Products

International sells higher education, K-12, professional and other products and services to educational, professional and English language teaching markets in more than 60 languages across Asia-Pacific, Europe, India, Latin America, the Middle East, and North America. While the business mix and strategic focus of International varies from region to region according to local market dynamics, International's business strategy leverages the content, tools, services and expertise from our domestic businesses. As a result of the widespread use of English as a universal language, a majority of International's revenue during the year ended December 31, 2016 was generated by selling our unmodified English language products internationally. Approximately 71% of International's revenue was generated from such unmodified products together with minor regionally-driven cosmetic changes or translations of English language products. Approximately 29% of International's revenue for the year ended December 31, 2016 was derived from content created in local markets or products originating from unrelated publishers for distribution in our international markets. Although approximately 86% of International's 2016 revenue was generated by traditional print products, digital offerings are driving significant international growth. In more developed markets, with a greater prevalence of digital devices, many of our U.S.-developed digital solutions, such as *McGraw-Hill Connect*, *ALEKS* and *LearnSmart* are gaining market share. For the years ended December 31, 2016, 2015 and 2014, International traditional print revenue represented 86% (\$246 million), 90% (\$273 million) and 91% (\$303 million) of total International revenue, respectively.

For the years ended December 31, 2016, 2015 and 2014, International digital revenue represented 14% (\$41 million), 10% (\$32 million) and 9% (\$30 million) of total International revenue, respectively.

For the years ended December 31, 2016, 2015 and 2014, International digital Billings (including the change in deferred revenue) represented 17% (\$49 million), 11% (\$35 million) and 9% (\$31 million) of total International Billings, respectively.

Our core digital learning platforms include:

- ***Connect2***: MHE's next generation offering of Connect with a greater focus on modularity and instructor driven customization. Connect2 meets today's instructor and student at their locus of need. It provides world-class curated courseware and adaptive technologies that instructors can modify and mashup to match their teaching styles and goals. Connect2 enhances both teaching and learning through a rich user experience, extensive use of learning data and machines learning for feedback loops and seamless integration through its commitment to IMS Global learning technology integration standards.
- ***ELLevate English***: *ELLevate English* is a personalized and community based curriculum that efficiently supports English language learning. *ELLevate English* combines engaging resources with real-time feedback to help teachers assess student progress more effectively for more responsive course customization.

Professional Products

Professional is a leading provider of medical, technical, engineering, and business content and training solutions for the professional, education and test preparation communities. Professional's products include digital product portfolios and textbooks easily accessible through whichever medium our student and professional customers prefer. Professional's digital product portfolio spans two main categories: (i) digital subscription services and (ii) eContent (including eBooks and related applications).

I. Digital Subscription Services

Digital subscription services are platforms that provide searchable and customizable digital content integrated with highly functional workflow tools. Professional offers 26 digital subscription services which are organized across three broad subject categories: (i) Medical, (ii) Engineering and Science, and (iii) Test Preparation. These products are sold on an annual subscription basis to over 2,600 corporate, academic, library and hospital customers as of December 31, 2016. Our digital subscription services customer base has a retention rate across major platforms of 93% in 2016.

The flagship *Access* line of products provide an integrated digital workspace that combines Professional's content, contextualized rich media and high-functionality workflow tools such as custom curriculum, which allows instructors to select specific reference content, videos, and animations, assign to students and monitor progress. For example, *AccessMedicine* is an innovative online resource that provides students, residents, clinicians, researchers, and other healthcare professionals with access to content from more than 90 medical titles, updated content, thousands of images and illustrations, interactive self-assessment, case files, time-saving diagnostic and point-of-care tools and a comprehensive search platform as well as the ability to view from and download content to a mobile device. Frequently updated and continuously expanded by world-renowned physicians, *AccessMedicine* provides fast, direct access to the information necessary to complete evaluations, diagnoses, and case management decisions, and pursue research, medical education, self-assessment and board review.

The value proposition of Professional's digital subscription platforms is compelling for our subscribers, and the economics are attractive and highly scalable for us. Digital subscription platforms provide a stable, recurring revenue stream with high annual re-order rates. New competitors in the digital subscription market must overcome large volumes of proprietary content developed over many years. Digital products are highly profitable due to the low variable cost nature of these products, with gross margins of approximately 90%. For the years ended December 31, 2016, 2015 and 2014, digital subscription revenue represented 39% (\$46 million), 33% (\$39 million) and 29% (\$34 million) of total Professional revenue, respectively.

II. eContent (eBooks) and traditional print

eBooks represent the majority of Professional's eContent offerings. Professional's more than 7,500 eBooks are sold on major eBook retail websites and through Professional's own websites. Our eBooks are designed to be compatible with a broad range of devices, including the Kindle and Nook eReaders, the iPad, more than 200 medical, test preparation and business mobile applications for the iPhone, other tablets and standard desktop and laptop computers. Professional provides timely and authoritative knowledge to customers around the world through the release of over 300 titles per year. Our roster of distinguished authors and prestigious brands represent some of the best-selling professional publications, such as *Harrison's Principles of Internal Medicine*, *Perry's Chemical Engineers' Handbook* and *Graham & Dodd's Security Analysis*, and are well-regarded globally in both academic and professional career markets. Our products are sold and distributed worldwide in both digital and print format through multiple channels, including research libraries and library consortia, third party agents, direct sales to professional society members, bookstores, online booksellers, direct sales to individuals and other customers. Our top customers include retail trade, academic and government institutions and corporations. For the years ended December 31, 2016, 2015 and 2014, Professional digital revenue represented 51% (\$60 million), 46% (\$55 million) and 44% (\$51 million) of total Professional revenue, respectively.

For the years ended December 31, 2016, 2015 and 2014, Professional digital Billings (including the change in deferred revenue) represented 52% (\$64 million), 47% (\$58 million) and 46% (\$58 million) of total Professional Billings, respectively.

Raw Materials, Printing and Binding

Paper is one of the principal raw materials used in our business. We have not experienced and do not anticipate experiencing difficulty in obtaining adequate supplies of paper for operations. We have contracts to purchase paper and printing services that have target volume commitments. However, there are no contractual terms that require us

to purchase a specified amount of goods or services and if significant volume shortfalls were to occur during a contract period, then revised terms may be renegotiated with the supplier.

Environmental

We generally contract with independent printers and binders for their services. However, it is possible that we could face liability, regardless of fault, if contamination were to be discovered on properties currently or formerly owned, operated or leased by us or our predecessors, or to which we or our predecessors have sent waste. We are not currently aware of any material environmental liabilities or other material environmental issues at our properties or arising from our current operations. However, we cannot assure you that such liabilities or issues will not materially adversely affect our business, financial position or results of operations in the future.

Seasonality

Our revenues, operating profit and operating cash flows are affected by the inherent seasonality of the academic calendar, particularly with respect to Higher Education, K-12 and International. In 2016, we realized approximately 15%, 25%, 37% and 23% of our revenues during the first, second, third and fourth quarters, respectively. This seasonality affects operating cash flow from quarter to quarter and hence there are certain months when we operate at a net cash deficit from our activities. Changes in our customers' ordering patterns may affect the comparison of our results in a quarter with the same quarter of the previous year, or in a fiscal year with the prior fiscal year, where our customers may shift the timing of material orders for any number of reasons, including, but not limited to, changes in academic semester start dates or changes to their inventory management practices.

Competition

We are one of the largest education companies in the world by revenue. Our product portfolio and customer base span the entire educational spectrum, and as a result we compete with a variety of companies in different product offerings. Our larger competitors are currently Pearson, Houghton Mifflin Harcourt, Wiley and Cengage. The focus on technology and digital products in education may result in the emergence of additional competitors over time. We believe that we are well positioned to compete in our markets. We primarily compete on the quality of our content and effectiveness of our digital solutions, product implementation support, brand and reputation, author reputation, customers' history using our products and, to a lesser extent, price.

Personnel

As of December 31, 2016, we had more than 4,900 employees worldwide directly supporting our operations with nearly 3,600 employed in the United States. None of our employees in the United States are represented by a union.

Intellectual Property

Our products contain intellectual property delivered through a variety of media, including digital and print. We rely on a combination of copyrights, trademarks, patents, non-disclosure agreements and other agreements to protect our intellectual property and proprietary rights. We also obtain significant content, materials and technology through license arrangements with third party licensors.

We have registered certain patents, trademarks and copyrights in connection with our publishing businesses. We also register domain names, when appropriate, for use in connection with our websites and internet addresses. We believe we either own or have obtained the rights to use all intellectual property rights necessary to provide our products and services. We believe we have taken, and continue to take, in the ordinary course of business, appropriate legal steps to protect our intellectual property in all relevant jurisdictions.

We rely on authors for the majority of the content for our products. In most cases, copyright ownership has either vested in us, as a “work made for hire”, been assigned to us by the original author(s), or the author has retained the copyright and granted us an exclusive license to utilize the work.

Piracy of intellectual property can negatively affect the value of and demand for our products and services. We attempt to mitigate the risk of piracy through (1) the implementation of restrictive use mechanisms and other limitations inherent to our products and (2) the use of online monitoring combined with legal and regulatory actions and initiatives.

Some of our products contain inherent usage controls and other built-in safeguards that reduce the risk and ease of piracy, including: (a) requirements that users login to their accounts with user names and passwords; (b) the fact that sharing account access for many of our products would result in an abnormal user experience and inaccurate grading; (c) use by our eBook providers of time-based lockouts that allow our eBooks to be automatically disabled based on subscription length; and (d) the inherent limitations in the usefulness and ease of copying the text of many of our products, due to the adaptive and interactive nature of our key content together with certain limitations on copying and pasting.

We also use a variety of legal actions, regulatory initiatives and online monitoring efforts to further mitigate piracy concerns, including:

- Online monitoring of piracy-related activities;
- Initiation of litigation against certain infringers, both individually and jointly with other domestic and foreign publishers;
- Requesting that third parties take down infringing content;
- Lobbying efforts;
- Monitoring of our digital applications for abnormal load/usage; and
- Anti-piracy educational programs.

Since 2007, we have engaged an outside firm that uses web-based technology to search for active titles that are illegally posted or distributed on the internet. We also perform other regular searches for illegal use or distribution of our content, investigate notices of illegal postings of our intellectual property and send take down notices to internet service providers and web sites where infringing material is identified. Over the past years, we have joined with other educational publishers to engage outside counsel to investigate and file numerous copyright and trademark suits in federal court against various online sellers and distributors of infringing copies of our copyrighted materials. We have partnered with various trade associations, such as the Association of American Publishers (AAP) and the Software Information Industry Association (SIIA), to pursue joint actions against sources of both print and electronic piracy, lobby legislative and other government officials in the U.S. and abroad to establish laws and regulations that might assist content owners in combating piracy. We place a “Report Piracy” button on various internal and external sites to enable employees, authors and third parties to report instances of illegal content distribution, which are investigated and actioned as appropriate.

The Founding Acquisition

On March 22, 2013, MHE Acquisition, LLC (“AcquisitionCo”) completed the Founding Acquisition, pursuant to which a wholly-owned subsidiary of the Company acquired all of the outstanding equity interests of certain subsidiaries of McGraw-Hill Companies, Inc. (“MHC”) pursuant to a Purchase and Sale Agreement, dated November 26, 2012 and as amended March 4, 2013 (the “Acquired Business”). The Acquired Business included all of MHC’s educational materials and learning solutions business, which is comprised of (i) the Higher Education, Professional, and International Group (the “HPI business”), which includes post-secondary education and

professional products both in the United States and internationally and (ii) the School Education Group business (the “SEG business”), which includes school and formative assessment products targeting students in the pre-kindergarten through secondary school market. We refer to the purchase of the Acquired Business and the related financing transactions as the “Founding Acquisition.” Following the Founding Acquisition, MHC is now known as S&P Global, Inc.

As of completion of the Founding Acquisition, Apollo Global Management LLC (the “Sponsors”), certain co-investors and certain members of management directly or indirectly owned all of the equity interests of AcquisitionCo. In connection with the Founding Acquisition, a restructuring was completed, the result of which was that the HPI business and the SEG business became held by separate wholly owned subsidiaries of MHE US Holdings LLC. The HPI business became held by McGraw-Hill Global Education Intermediate Holdings, LLC (“MHGE Holdings”) and its wholly owned subsidiary McGraw-Hill Global Education Holdings, LLC (“MHGE”), while the SEG business became held by McGraw-Hill School Education Intermediate Holdings, LLC (“MHSE Holdings”) and its wholly owned subsidiary McGraw-Hill School Education Holdings, LLC (“MHSE”). In addition, concurrent with the closing of the Founding Acquisition, subsidiaries of each of MHGE and MHSE entered into certain credit facilities. Neither MHGE nor its subsidiary companies guaranteed or provided collateral to the financing of MHSE, and MHSE did not guarantee or provide collateral to the financing of MHGE or its subsidiary companies.

The Refinancing

On May 4, 2016, MHGE and McGraw-Hill Global Education Finance, Inc. issued \$400.0 million aggregate principal amount of 7.875% Senior Notes due 2024 (the “MHGE Senior Notes”). Concurrently with the issuance of the MHGE Senior Notes, MHGE entered into \$1,925 million of senior secured credit facilities (the “Senior Facilities”), consisting of a six-year \$1,575 million senior secured term loan (the “Term Loan Facility”) and a five-year \$350 million senior secured revolving credit facility (the “Revolving Facility”).

The proceeds from the issuance of the MHGE Senior Notes and the Senior Facilities together with cash on hand were used to (i) repurchase and redeem all of the MHGE Senior Secured Notes (ii) repay in full all amounts outstanding under our then existing MHGE Term Loan and MHSE Term Loan and terminate all commitments thereunder, (iii) terminate all commitments under our then existing MHGE Revolving Facility and MHSE Revolving Facility, (v) fund a distribution to the Company’s shareholders and (vi) pay related fees and expenses. We refer to the issuance of the MHGE Senior Notes together with the Senior Facilities and the transactions described above collectively as the “Refinancing”.

In addition, concurrent with the Refinancing, the Company completed a reorganization such that MHSE Holdings became a direct subsidiary of MHGE.

Our Key Metrics

We measure our business using several key financial metrics, including Billings and Adjusted EBITDA by segment.

Billings is a non-GAAP sales performance measure that we believe provides useful information in evaluating our period-to-period performance because it reflects the total amount of revenue that would have been recognized in a period if we recognized all print and digital revenue at the time of sale. We use Billings as a sales performance measure given that we typically collect full payment for our digital and print solutions at the time of sale or shortly thereafter, but recognize revenue from digital solutions and multi-year deliverables ratably over the term of our customer contracts. As sales of our digital learning solutions have increased, so has the amount of revenue that is deferred in accordance with U.S. GAAP. Billings is a key metric we use to manage our business as it reflects the sales activity in a given period, provides comparability from period-to-period during this time of digital transition and is the basis for all sales incentive compensation. In the K-12 market where customers typically pay for five to eight-year contracts upfront and the ongoing costs to service any contractual obligation are limited, the impact of the change in deferred revenue is most significant. Billings is GAAP revenue plus the net change in deferred revenue.

For further information on non-GAAP financial measures and a description of how we calculate Billings and operating factors that impact Billings, see “Management’s Discussion and Analysis of Financial Condition and Results of Operations-Non-GAAP Measures” and “Use of Non-GAAP Financial Information.”

Adjusted EBITDA by segment, as determined in accordance with Accounting Standards Codification Topic 280, Segment Reporting, is a measure used by management to assess the performance of our segments. We exclude from Adjusted EBITDA by segment: interest expense (income), net, income tax (benefit) provision, depreciation, amortization and pre-publication amortization and certain transactions or adjustments that our management does not consider for the purposes of making decisions to allocate resources among segments or assessing segment performance. In addition, Adjusted EBITDA by segment is calculated in a manner consistent with the definition and meaning of our Adjusted EBITDA non-GAAP debt covenant compliance measure.

Our key metrics are presented under the headings “Selected Financial Data.”

Item 1A. RISK FACTORS

You should carefully consider the risk factors set forth below, as well as the other information contained in this annual report. Any of the following risks could materially and adversely affect our business, financial condition or results of operations. In addition, the risks described below are not the only risks that we face. Additional risks and uncertainties not currently known to us or those that we currently view to be immaterial could also materially and adversely affect our business, financial condition or results of operations.

Risks Related to Our Business

We face competition from both large, established industry participants and new market entrants, the risks of which are enhanced due to rapid changes in our industry and market.

Our competitors in the market for education products include a few large, established industry participants. Some established competitors have greater resources and less debt than us and, therefore, may be able to adapt more quickly to new or emerging technologies and changes in customer requirements or devote greater resources to the development, promotion and sale of their products than we can. In addition, the market shift toward digital education solutions has induced both established technology companies and new start-up companies to enter certain segments of our market. These new competitors have the possible advantage of not needing to transition from a print business to a digital business. The risks of competition are intensified due to the rapid changes in the products our competitors are offering, the products our customers are seeking and our sales and distribution channels, which create increased opportunities for significant shifts in market share. Competition may require us to reduce the price of our products or make additional capital investments or result in reductions in our market share and sales.

Our investments in new products and distribution channels may not be profitable.

In order to maintain a competitive position, we must continue to invest in new products and new ways to deliver them. This is particularly true in the current environment where investment in new technology is ongoing and there are rapid changes in the products our competitors are offering, the products our customers are seeking, and our sales and distribution channels. In some cases, our investments will take the form of internal development; in others, they may take the form of an acquisition. Our investments in new products or distribution channels, whether by internal development or acquisition, may be less profitable than what we have experienced historically, may consume substantial financial resources and/or may divert management’s attention from existing operations, all of which could materially and adversely affect our business, results of operations and financial condition.

Our failure to win new state adoptions could adversely affect our revenue.

A significant portion of our revenue is derived from sales of K-12 instructional materials pursuant to pre-determined adoption schedules. Due to the revolving and staggered nature of state adoption schedules, sales of K-12 instructional materials have traditionally been cyclical, with some years offering more sales opportunities than

others. For example, over the next few years, new adoptions are scheduled in one or more of the primary subjects of reading, language arts and literature, social studies and mathematics in, among others, the states of California, Texas and Florida, which are the three largest adoption states. In each adoption decision for each state, we face significant competition. Our failure to do well in new state adoptions could materially and adversely affect our revenue for the year of adoption and subsequent years.

Reductions in anticipated levels of federal, state and local education funding available for the purchase of instructional materials could adversely affect demand for our K-12 products.

Most public school districts, which are the primary customers for K-12 products and services, depend largely on state and local funding programs to purchase materials. In addition, many school districts also receive substantial funding through Federal education programs. State, local or federal funding available to school districts may be reduced as a result of reduced tax revenues, efforts to reduce government spending or increased allocation of tax revenues to other uses. In addition, changes in the laws or regulations that give school districts flexibility in their use of funds previously dedicated exclusively to the purchase of instructional materials may reduce the share of district funds allocated to the purchase of instructional materials. Reductions in the amount of funding provided to school districts or reductions in the portion of those funds allocated to instructional materials could reduce demand for our K-12 products.

Changes in the timing and order patterns of customer purchases may adversely affect predictability of results and comparability with prior results.

Traditionally, when the majority of products sold to customers in the higher education market consisted of print textbooks sold through the campus bookstore, the timing of purchases was predictable because of the long lead time to order and receive printed books before the start of the semester and because the sale was made to a distribution partner that needed the inventory ahead of the school year. As the higher education market has shifted to digital products, there has been a tendency for purchases to occur closer to the beginning of the semester since less lead time is required for the purchase of a digital product and because the sale is frequently made directly to the student. The shift to digital and increasing competition for the campus bookstore has diminished the visibility that the traditional distribution channel has into student demand. As a result, distribution channels are ordering from us closer to the start of the school year and with increased variability in ordering and return patterns. These factors have detrimentally impacted industry sales in 2015 and 2016. There is no assurance that the trend to more digital purchases will continue, but given the current mix of digital versus print purchasing and increased competition among distribution channels, it has become more difficult to predict the timing and order patterns of customer purchases of our higher education products.

There is also timing uncertainty in the K-12 business. Within a year, timing of orders can vary significantly, as the primary season for ordering occurs in the period between May and August, which spans our second and third quarters. As a result, states and school districts that have significant purchases scheduled for a given year could materially swing results between quarters based on when in the season the order is placed. Additionally, the timing of a decision for a state-wide adoption or by an individual school district to purchase in a given year can be significantly impacted or delayed by various circumstances including but not limited to funding issues, development of standards and specifications, competing priorities or school readiness to implement the new curriculum or technology. In addition, whereas in the past most school districts purchased educational materials in state adoptions up-front, many are now choosing to spend on educational materials over a multi-year period, and in some cases school districts are choosing to use available funds to purchase hardware, software and other instructional aids that are not produced by us.

Taken together, it has become increasingly difficult for us to forecast the timing of customer purchases, causing us to have to wait until later in the buying season in order to assess our financial performance. The change in ordering patterns may impact the comparison of results between a quarter and the same quarter of the previous year, between a quarter and the consecutive quarter or between a fiscal year and the prior fiscal year.

State changes to Common Core State Standards or delays in their implementation may adversely affect our K-12 business.

There is considerable political controversy in many states surrounding the adoption and implementation of Common Core State Standards. Legislation has been introduced in a number of states to drop Common Core State Standards, and some states are considering revisions to and/or rebranding of the standards. These developments could disrupt local adoptions of instructional materials and require modifications to our programs offered for sale in those states that adopt such changes, which may delay or impair sales of our products or cause us to incur additional product development costs.

A change from up-front payment by school districts for multi-year licenses could adversely affect our cash flow and results of operation.

In keeping with the past practice of payment for printed materials, school districts typically pay up-front when buying multi-year licenses for digital products. If school districts changed to spreading their payments to us over the term of the licenses, our cash flow and results of operation could be adversely affected.

Increased availability of free or relatively inexpensive products may reduce demand for or negatively impact the pricing of our products.

Free or relatively inexpensive educational products are becoming increasingly available, particularly in digital formats and through the internet. For example, some governmental and regulatory agencies have increased the amount of information they make publicly available for free. In addition, in recent years there have been initiatives by not-for-profit organizations such as the Gates Foundation and the Hewlett Foundation to develop educational content that can be “open sourced” and made available to educational institutions for free or nominal cost. There is also a possibility that federal or state governments will enact legislation or regulations that mandate or favor the use by educational institutions of open sourced content. The increased availability of free or relatively inexpensive educational products may reduce demand for our products or require us to reduce pricing, thereby impacting our sales revenue.

Increased customer expectations for lower prices or free bundled products could reduce sales revenues.

As the market has shifted to digital products, customer expectations for lower priced products has increased due to customer awareness of reductions in marginal production costs and the availability of free or low-cost digital content and products. As a result, there has been pressure to sell digital versions of products at prices below their print versions and an increase in the amount of products and materials given away as part of bundled packs. Increased customer demand for lower prices or free bundled products could reduce our sales revenue.

Malfunction or intentional hacking of our technological systems could adversely affect our operations or business and cause financial loss and reputational damage.

We depend on complex technological systems to provide our products to our customers and to operate our business. Malfunction or intentional hacking of these systems could adversely affect the performance or availability of our products, result in loss of customer data, adversely affect our ability to conduct business, or result in theft of our funds or proprietary information. The occurrence of such problems could result in liability, harm to our reputation, loss of revenue, or financial loss.

Failure to comply with privacy laws or adequately protect personal data could cause financial loss and reputational damage.

Across our businesses we hold large volumes of personal data, including that of employees, customers and students. We are subject to a wide array of different privacy laws, regulations and standards in the United States and in foreign jurisdictions where we conduct business with regards to access to, collection of, and use of personal data, including but not limited to (i) the Children’s Online Privacy Protection Act and state student data privacy laws in

connection with personally identifiable information of students, (ii) the Health Insurance Portability and Accountability Act in connection with our self-insured health plan, (iii) the Payment Card Industry Data Security Standards in connection with collection of credit card information from customers, and (iv) various EU data protection laws resulting from the EU Privacy Directive. Failure to comply with applicable privacy laws, regulations and standards or prevent the improper use or disclosure of the personal data we hold could lead to penalties, significant remediation costs, reputational damage, potential cancellation of existing contracts, and an impaired ability to compete for future business.

Defects in our digital products could cause financial loss and reputational damage.

In the fast-changing digital marketplace, demand for innovative technology has generally resulted in short lead times for producing products that meet customer specifications. Growing demand for innovation and additional functionality in digital products increases the risk that our products may contain flaws or corrupted data, and these defects may only become apparent after product launch, particularly for new products and new features to existing products that are developed and brought to market under tight time constraints. Problems with the performance of our digital products could result in liability, loss of revenue or harm to our reputation.

An increase in unauthorized copying and distribution of our products could adversely affect our sales, and an increase in efforts to combat such activities could increase our expenses .

Most of the value of our products consists of the intellectual property contained in them. As a result, the sale price of our products is high relative to the cost of copying them. This disparity makes our products tempting targets for unauthorized copying and distribution by both end users and illegal commercial enterprises. The risk of unauthorized copying and distribution of our products is greatest in the higher education and professional markets, where the purchasers of our products are usually students and other individual customers, who generally obtain our products through channels that are more susceptible to being used for the distribution of unauthorized copies. In recent years, technological and market changes have facilitated the unauthorized copying and distribution of our products to students and other individual customers. Of particular note is the development of on-line distribution services that allow illegal commercial enterprises to utilize reputable and efficient marketplaces and fulfillment services for the distribution and sale of counterfeit copies of products. Our management believes that increases in unauthorized copying and distribution of our products may have been a contributing factor in the decline in sales of our higher education print products in 2016. Further expansion of the unauthorized copying and distribution of our products could adversely affect our sales, and increased efforts to combat such activities could increase our expenses.

Factors that reduce enrollment at colleges and universities could adversely affect demand for our higher education products.

Enrollment in U.S. colleges and universities can be adversely affected by many factors, including changes in government and private student loan and grant programs, uncertainty about current and future economic conditions, general decreases in family income and net worth and a perception of uncertain job prospects for recent graduates. In addition, enrollment levels at colleges and universities outside the United States are influenced by the global and local economic climate, local political conditions and other factors that make predicting foreign enrollment levels difficult. While enrollment at degree granting institutions in the United States has overall been steadily growing over the last several decades, enrollment declined between 2012 and 2014. Further reductions in expected levels of enrollment at colleges and universities both within and outside the United States could adversely affect demand for our higher education products.

Growth of the used and rental book markets could adversely affect our sales of printed books.

Active markets exist for the sale of used copies of our printed books and the rental of copies of those books. The used and rental markets are particularly substantial with respect to our printed higher education and professional books, where most of the purchasers are students and other individual customers who may believe they only need to have the use of the book for a limited period of time. The sale of used books and rental of books provides a lower

priced option for customers who do not prefer to own a new copy of a book. Recent technological and market developments have resulted in an increase in the size of the used and rental markets. Since we do not currently participate in the used or rental markets and sales of used books and rental of books compete with our sales of new books, sales of used copies of our printed books and rental of copies of our printed books adversely affect our revenue. Further expansion of the used and rental markets could adversely affect our revenue.

We are dependent on third-party distributors, representatives and retailers for a substantial portion of our sales.

In addition to our own sales force and websites, we offer our products through a variety of third-party distributors, representatives and retailers. We do not ultimately control the performance of our third-party distributors, representatives and retailers to perform as required or to our expectations. Also, certain of our distributors, representatives or retailers may market other products that compete with our products. The loss of one or more of our distributors, representatives or retailers or their failure to effectively promote our products or otherwise perform in their functions in the expected manner could adversely affect our ability to bring our products to market and impact our revenues.

Consolidation and concentration in our distribution and retail channels could adversely affect our profitability and financial results.

Some of our distribution and retail channels have recently experienced significant consolidation and concentration. This concentration could potentially place us at a disadvantage with respect to negotiations regarding pricing and other terms, which could adversely affect our profitability and financial results.

An adverse change in orders, returns or payments by a material reseller could adversely affect our financial results.

A significant portion of our sales are to a small number of resellers. As of December 31, 2016, two customers comprised approximately 25% of the gross accounts receivable balance. The Company had no single customer that accounted for 10% or more of our gross revenue for the year ended December 31, 2016. For the year ended December 31, 2015, the Company had one customer, Follett Corporation, that accounted for 10% of our gross revenues. An adverse change in orders, returns or payments by a material reseller could adversely affect our financial results.

We may not be able to retain or attract the key authors and talented personnel that we need to remain competitive and grow.

Our success depends, in part, on our ability to continue to attract and retain key authors and talented management, creative, editorial, technology, sales and other personnel. We operate in a number of highly visible industry segments where there is intense competition for successful authors and other experienced, highly effective individuals. Our successful operations in these segments may increase the market visibility of our authors and personnel and result in their recruitment by other businesses. There can be no assurance that we can continue to attract and retain key authors and talented personnel and, if we fail to do so, it could adversely affect our business.

We may not be able to reduce our costs related to print products as fast as revenues from those products decline.

As the portion of our business that consists of print products declines, our need for certain facilities and arrangements, such as printing and warehousing, also declines. Some of the costs related to these facilities and arrangements are relatively fixed over the short term and, as a result, may not decline as quickly as the related revenues. If our print-related costs do not decline proportionately with our print-related revenues, our results of operations and financial condition would be adversely affected.

The shift to sales of multi-year licenses may affect the comparability of our GAAP revenue to prior periods and cause increases or decreases in our sales to be reflected in our results of operation on a delayed basis.

As our business transitions from printed products to digital products, an increasing percentage of our revenues are derived from the sale of multi-year licenses. Our customers typically pay for both printed products and multi-year licenses up-front; however, we recognize revenue from multi-year licenses over their respective terms, as required by GAAP, even if we are paid in full at the beginning of the license. As a result, an increase in the portion of our sales coming from multi-year licenses may cause our GAAP revenue, when compared to prior periods, to not provide a truly comparable perspective of our performance. Another effect of recognizing revenue from multi-year licenses over their respective terms is that any increases or decreases in sales during a particular period do not translate into proportional increases or decreases in revenue during that period. Consequently, deteriorating sales activity may be less immediately observable in our results of operations.

Unexpectedly large returns could adversely affect our financial results.

We generally permit our distributors to return products they purchase from us. When we record revenue, we record an allowance for sales returns, which is based on the historical rate of return and current market conditions. Should the estimate of the allowance for sales returns vary by one percentage point from the estimate we use in recording our allowance, the impact on operating income would be approximately \$1.2 million.

The high degree of seasonality of our business can create cash flow difficulties.

Our business is seasonal. Purchases of Higher Education products have traditionally been made in the third and fourth quarters for the semesters starting classes in September and January. Purchases of K-12 products are typically made in the second and third quarters of the calendar year for the beginning of the school year. This sales seasonality affects operating cash flow from quarter to quarter. There are months when we operate at a net cash deficit from our activities. In 2016, we realized approximately 25%, 37% and 23% of net sales during the second, third and fourth quarters, respectively, making third-quarter results particularly material to our full-year performance. We cannot make assurances that our third quarter net sales will continue to be sufficient to meet our obligations or that they will be higher than net sales for our other quarters. In the event that we do not derive sufficient net sales in the third quarter, we may not be able to meet our debt service requirements and other obligations.

Our substantial indebtedness restricts our ability to react to changes in the economy or our industry and exposes us to interest rate risk and risk of default.

We are a leveraged company that has substantial indebtedness. As of December 31, 2016, we had \$2,467.1 million face value of outstanding indebtedness (in addition to \$350.0 million of commitments under the Senior Facilities, none of which was drawn), and for the year ended December 31, 2016, we had total debt service of \$252.4 million (including approximately \$98.2 million of debt service relating to fixed rate obligations and a \$72.5 million voluntary prepayment of the MHGE Term Loan on April 1, 2016). Our substantial indebtedness could have important consequences. For example, it could:

- limit our ability to borrow money for our working capital, capital expenditures, debt service requirements, strategic initiatives or other purposes;
- make it more difficult for us to satisfy our obligations with respect to our indebtedness;
- require us to dedicate a substantial portion of our cash flow from operations to the repayment of our indebtedness, thereby reducing funds available to us for other purposes;
- require us to repatriate funds to the United States at substantial cost;
- limit our flexibility in planning for, or reacting to, changes in our operations or business;

- make us more vulnerable to downturns in our business or the economy;
- restrict us from making strategic acquisitions, engaging in development activities, introducing new technologies or exploiting business opportunities;
- cause us to make non-strategic divestitures; or
- expose us to the risk of increased interest rates, as certain of our borrowings, including borrowings under the Senior Facilities are at variable rates of interest.

In addition, the agreements governing our indebtedness contain restrictive covenants that will limit our ability to engage in activities that may be in our long-term best interest. Our failure to comply with those covenants could result in an event of default which, if not cured or waived, could result in the acceleration of substantially all of our indebtedness.

Despite our substantial indebtedness, we may still be able to incur significantly more debt, which could intensify the risks described above.

We and our subsidiaries may be able to incur additional indebtedness in the future. For example, as of December 31, 2016, we had \$350.0 million available for additional borrowing under the Revolving Facility portion of the Senior Facilities, all of which would be secured. In addition, although the terms of the agreements governing our indebtedness contain restrictions on our and our subsidiaries' ability to incur additional indebtedness, these restrictions are subject to a number of important qualifications and exceptions, and the indebtedness incurred in compliance with these restrictions could be substantial. Further, these restrictions will not prevent us from incurring obligations that do not constitute indebtedness. The more leveraged we become, the more we, and in turn our security holders, will be exposed to certain risks described above under "Our substantial indebtedness restricts our ability to react to changes in the economy or our industry and exposes us to interest rate risk and risk of default."

We may record future goodwill or indefinite-lived intangibles impairment charges related to our reporting units, which could materially adversely impact our results of operations.

We test our goodwill and indefinite-lived intangibles asset balances for impairment during the fourth quarter of each year or more frequently if indicators are present or changes in circumstances suggest that impairment may exist. We assess goodwill for impairment at the reporting unit level and, in evaluating the potential for impairment of goodwill, we make assumptions regarding estimated net sales projections, growth rates, cash flows and discount rates. Although we use consistent methodologies in developing the assumptions and estimates underlying the fair value calculations used in our impairment tests, these estimates are uncertain by nature and can vary from actual results. Declines in the future performance and cash flows of the reporting unit or small changes in other key assumptions may result in future goodwill impairment charges, which could materially adversely impact our results of operations.

Failure to develop or maintain an effective system of internal controls could lead to sanctions and reduce investor confidence in our financial reporting.

As a public company, we will be required to have an effective system of internal controls in the course of preparing our consolidated financial statements. Any failure to develop or maintain effective internal controls, or difficulties encountered in implementing or improving our internal controls, could make it impossible for us to issue reliable financial reports, prevent fraud or operate successfully as a public company. Failure to comply with Section 404 of the Sarbanes-Oxley Act could potentially subject us to sanctions or investigations by the SEC, the Financial Industry Regulatory Authority or other regulatory authorities. Sanctions by regulatory authorities or disclosure of inadequacies in our internal controls could cause investors to lose confidence in our reported financial information.

Our management determined that there was a material weakness in our accounting for deferred royalties and revenue recognition in our K-12 business.

During 2016 we identified material weaknesses in our internal control over financial reporting. A material weakness is a deficiency, or combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of the entity's financial statements will not be prevented, or detected and corrected on a timely basis. We identified a material weakness related to the accounting for royalty expense associated with digital subscription products in our K-12 segment. Historically, the Company expensed royalties related to digital subscription products at the time of sale instead of being recognized as a prepaid asset and expensed ratably over the term of the digital subscription period consistent with how digital subscription revenue is recognized.

We also identified a material weakness related to the accounting for revenue recognition in our K-12 segment. During the second and third quarters of 2016, the Company entered into certain customer contracts containing multiple element arrangements, including free with order digital subscription products. The Company concluded that it previously did not properly identify and account for the free with order digital subscription products as a separate deliverable resulting in an overstatement of revenue recognized. Furthermore, the Company concluded that it previously did not defer certain revenues related to print subscription products resulting in an overstatement of revenue recognized.

During 2017 we identified a material weakness related to the accounting for our deferred tax valuation allowance. The Company concluded that its historical calculation of the deferred tax asset valuation allowance netted certain deferred tax liabilities related to indefinite lived intangible assets resulting in an understatement of our valuation allowance and the domestic provision for income taxes.

We appropriately accounted for our K-12 deferred royalties and revenue recognition and our deferred tax valuation allowance in the audited consolidated financial statements and unaudited consolidated quarterly financial information included in this annual report.

Our management is in the process of remediating these material weaknesses. If we are unsuccessful in remediating these weaknesses or suffer additional deficiencies or material weaknesses in our internal controls in the future, we may be unable to report financial information in a timely and accurate manner and it could result in a material misstatement of our annual or interim financial statements that would not be prevented or detected on a timely basis, which could cause investors to lose confidence in our financial reporting and cause a default under the agreements governing our indebtedness.

Legal actions against us, including intellectual property infringement claims, could be costly to defend and could result in significant damages.

In the ordinary course of business, we are occasionally involved in legal actions and claims against us arising from our business operations and therefore expect that we will likely be subject to additional actions and claims against us in the future. Litigation alleging infringement of copyrights and other intellectual property rights, particularly in relation to proprietary photographs and images, has become extensive in the educational publishing industry. At present, there are various suits pending or threatened which claim that we exceeded the print run limitation or other restrictions in licenses granted to us to reproduce photographs in our instructional materials. A number of similar claims against us have already been settled. A number of our competitors are defendants in similar lawsuits. We have liability insurance in such amounts and with such coverage and deductibles as management believes is reasonable. However, there can be no assurance that our liability insurance will cover our damages and, if our liability insurance does cover our damages, that the limits of coverage will be sufficient to fully cover all potential liabilities and costs of litigation. While management does not expect any of the claims currently pending or threatened against us to have a material adverse effect on our results of operations, financial position or cash flows, due to the inherent uncertainty of the litigation process, the resolution of any particular legal proceeding or change in applicable legal standards could have a meaningful adverse effect on our financial position and results of operations.

We face risks of doing business abroad.

As we continue to invest in and expand portions of our overseas business, we face exposure to the risks of doing business abroad, including, but not limited to:

- lack of local knowledge or acceptance of our products and services;
- entrenched competitors;
- the need to adapt our products to meet local requirements;
- longer customer payment cycles in certain countries;
- limitations on the ability to repatriate funds to the United States;
- difficulties in protecting intellectual property, enforcing agreements and collecting receivables under certain foreign legal systems;
- compliance under the U.S. Foreign Corrupt Practices Act, the U.K. Bribery Act and other anti-corruption laws;
- the need to comply with local laws and regulations generally; and
- in some countries, a higher risk of political instability, economic volatility, terrorism, corruption, social and ethnic unrest.

Fluctuations between foreign currencies and the U.S. dollar could adversely affect our financial results.

We derived approximately 16% of our total revenue in the year ended December 31, 2016 from our international sales operations. The financial position and results of operations of our international operations are primarily measured using the foreign currency in the jurisdiction of operation of such business as the functional currency. As a result, we are exposed to currency fluctuations both in receiving cash from our international operations and in translating our financial results into U.S. dollars. For example, foreign exchange rates had an unfavorable impact on our revenue of \$8.6 million for the year ended December 31, 2016. We have operations in various foreign countries where the functional currency is primarily the local currency. For international operations that are determined to be extensions of the parent company, the U.S. dollar is the functional currency. Our principal currency exposures relate to the Australian Dollar, British Pound, Canadian Dollar, Euro, Mexican Peso and Singapore Dollar. Assets and liabilities of our international operations are translated at the exchange rate in effect at each balance sheet date. Our income statement accounts are translated at the average rate of exchange during the period. A strengthening of the U.S. dollar against the relevant foreign currency reduces the amount of income we recognize from our international operations. In addition, certain of our international operations generate revenues in the applicable local currency or in currencies other than the U.S. dollar, but purchase inventory and incur costs primarily in U.S. dollars. While, from time to time, we may enter into hedging arrangements with respect to foreign currency exposures, variations in exchange rates may adversely impact our results of operations and profitability. The risks we face in foreign currency transactions and translation may continue to increase as we further develop and expand our international operations.

We are dependent on third-parties for the performance of many critical operational functions.

We rely on third-parties for many critical operational functions, including general financial shared services, accounts payable, accounts receivable, royalty processing, printing, warehousing, distribution, technology support, online product hosting and certain customer support functions. Since those functions are provided by third parties, our ability to supervise and support the performance of those functions is limited. The loss of one or more of these third-party partners, a material disruption in their business or their failure to otherwise perform their functions in the

expected manner could cause disruptions in our business that would adversely affect our results of operations and financial condition.

A significant increase in operating costs and expenses could have a material adverse effect on our profitability.

Our major operating expenses include employee compensation, paper, technology and third-party provider fees and royalties. Any material increase in these or other operating costs and expenses that we are not able to pass on in the cost of our products and services could adversely affect our results of operations and financial condition.

Item 1B. UNRESOLVED STAFF COMMENTS

Not applicable.

Item 2. PROPERTIES

Our corporate headquarters are located in leased premises at Two Penn Plaza, New York, NY 10121. We lease offices, warehouses and other facilities at 59 locations, of which 20 are in the United States. In addition, we occupy real property that we own at 6 locations, of which 4 are in the United States. Our properties consist primarily of office space used by our operating segments, and we also utilize warehouse space and book distribution centers. We believe that all of our facilities are well maintained and are suitable and adequate for our current needs.

The properties listed in the table below are our principal owned and leased properties:

Location	Lease Expiration	Approximate Area	Principle Use of Space
Owned Premises:			
Blacklick, Ohio	Owned	548,144	Warehouse & Office
Monterey, California	Owned	209,204	Office
Columbus, Ohio	Owned	170,615	Office
Dubuque, Iowa	Owned	139,062	Office
Leased Premises:			
Groveport, Ohio	2018	667,672	Warehouse & Office
Ashland, Ohio	2020	602,378	Warehouse & Office
New York, New York	2020	168,903	Office
Burr Ridge, Illinois	2018	108,102	Office
Noida, Uttar Pradesh, India	2020	90,500	Warehouse & Office
Irvine, California	2019	53,220	Office
Coslada, Madrid, Spain	2017	52,797	Warehouse
Whitby, Canada	2018	46,634	Office
Boston, Massachusetts	2021	37,622	Office
Seattle, Washington	2021	24,646	Office
East Windsor, New Jersey	2024	23,183	Office

In addition, we own and lease other offices that are not material to our operations.

Item 3. LEGAL PROCEEDINGS

In the normal course of business both in the United States and abroad, we are a defendant in various lawsuits and legal proceedings which may result in adverse judgments, damages, fines or penalties and is subject to inquiries and investigations by various governmental and regulatory agencies concerning compliance with applicable laws and regulations. In view of the inherent difficulty of predicting the outcome of legal matters, we cannot state with confidence what the timing, eventual outcome, or eventual judgment, damages, fines, penalties or other impact of these pending matters will be. We believe, based on our current knowledge, that the outcome of the legal actions, proceedings and investigations currently pending should not have a material adverse effect on the Company's combined financial condition.

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

Not applicable.

Item 6. SELECTED FINANCIAL DATA

The consolidated statement of operations for the years ended December 31, 2016, 2015, 2014 and the consolidated balance sheet data as of December 31, 2016 and 2015 have been derived from the audited consolidated financial statements of the Company included elsewhere in this annual report. The combined consolidated statement of operations for the periods from March 23, 2013 to December 31, 2013 and January 1, 2013 to March 22, 2013 and the consolidated balance sheet data as of December 31, 2014 and 2013 have been derived from the audited combined consolidated financial statements of the Company, which are not included elsewhere in this annual report. The combined statement of operations for the year ended December 31, 2012 and the combined balance sheet data as of December 31, 2012 have been derived from our audited combined financial statements of our Predecessor which are not included in this annual report.

The selected historical combined consolidated financial data and operating results presented below should be read in conjunction with our audited consolidated financial statements and accompanying notes and “Management’s Discussion and Analysis of Financial Condition and Results of Operations” included elsewhere in this annual report. Our historical combined consolidated financial information may not be indicative of our future performance and does not necessarily reflect what our financial position and results of operations would have been had we operated as a separate, stand-alone entity during the periods presented, including changes that occurred in our operations and capitalization as a result of the Founding Acquisition.

(Dollars in thousands)	Successor				Predecessor	
	As Restated	As Restated	As Restated	As Restated	January 1, 2013 to March 22, 2013	Year Ended December 31, 2012
	Year Ended December 31, 2016	Year Ended December 31, 2015	Year Ended December 31, 2014	March 23, 2013 to December 31, 2013		
Statement of Operations						
Revenue	\$ 1,740,027	\$ 1,828,592	\$ 1,832,833	\$ 1,588,879	\$ 229,441	\$ 1,917,599
Cost of sales	427,409	479,469	523,183	778,062	64,006	541,306
Gross profit	1,312,618	1,349,123	1,309,650	810,817	165,435	1,376,293
Operating expenses						
Operating and administration expenses	1,078,604	1,127,455	1,194,253	841,803	208,816	1,224,126
Depreciation	37,045	30,636	25,999	19,625	5,817	28,083
Amortization of intangibles	90,886	94,156	100,001	73,337	6,326	25,130
Impairment charge	—	—	23,800	—	—	412,886
Transaction costs	—	—	3,932	56,820	—	—
Total operating expenses	1,206,535	1,252,247	1,347,985	991,585	220,959	1,690,225
Operating income	106,083	96,876	(38,335)	(180,768)	(55,524)	(313,932)
Interest expense (income), net	199,506	192,918	182,199	135,399	488	(1,688)
Loss on extinguishment of debt	26,562	—	—	—	—	—
Other (income) expense	—	(4,779)	(8,420)	—	—	(16,868)
(Loss) income from operations before taxes on income	(119,985)	(91,263)	(212,114)	(316,167)	(56,012)	(295,376)
Income tax provision	15,117	11,530	124,439	(130,127)	(20,410)	(19,704)
Net (loss) income from continuing operations	(135,102)	(102,793)	(336,553)	(186,040)	(35,602)	(275,672)
Net (loss) income from discontinued operations, net of taxes	(1,905)	(76,338)	(18,157)	18,617	4,058	23,897
Net (loss) income	(137,007)	(179,131)	(354,710)	(167,423)	(31,544)	(251,775)
Less: Net loss attributable to noncontrolling interests	—	—	299	(2,251)	631	(4,559)
Net (loss) income attributable to McGraw-Hill Education, Inc.	\$ (137,007)	\$ (179,131)	\$ (354,411)	\$ (169,674)	\$ (30,913)	\$ (256,334)
Net earnings (loss) income per share from continuing operations-basic and diluted	\$ (12.82)	\$ (9.82)	\$ (32.43)	\$ (18.73)	\$ (3.50)	\$ (28.02)
Weighted average shares outstanding-basic and diluted	10,542	10,467	10,368	10,051	10,000	10,000
Other Financial data						
Billings (1)	\$ 1,912,902	\$ 2,057,951	\$ 2,039,441	\$ 1,758,299	\$ 212,137	\$ 1,978,112
Adjusted EBITDA by Segment (1)						
Higher Education	233,507	294,540	296,105	280,950	(6,045)	279,534
K-12	138,368	126,902	118,168	126,095	(51,255)	56,575
International	19,011	33,229	37,603	50,958	(8,630)	47,477
Professional	33,739	32,193	37,882	29,249	2,932	29,621
Other	(1,737)	(1,274)	(11,846)	10,874	28	(69)
Capital expenditures	(38,223)	(41,181)	(40,500)	(7,379)	(2,461)	(20,983)
Total Net Debt (2)	1,926,503	1,581,601	1,617,675	1,241,667	—	—
Working Capital (3)	178,433	176,619	202,703	359,980	232,956	339,321

(Dollars in thousands)	Successor				Predecessor	
	As Restated	As Restated	As Restated	As Restated		
	Year Ended December 31, 2016	Year Ended December 31, 2015	Year Ended December 31, 2014	March 23, 2013 to December 31, 2013	January 1, 2013 to March 22, 2013	Year Ended December 31, 2012
Statement of Cash Flow data						
Cash flows (used for) provided by:						
Operating activities	\$ 197,964	\$ 308,422	\$ 354,941	\$ 560,797	\$ (15,741)	\$ 406,427
Investing activities	(139,418)	(151,763)	(176,464)	(2,345,978)	(61,879)	(197,983)
Financing activities	(190,912)	(12,850)	(192,553)	2,192,054	6,109	(223,320)

(Dollars in thousands)	Successor				Predecessor	
	As Restated	As Restated	As Restated	As Restated		
	As of December 31, 2016	As of December 31, 2015	As of December 31, 2014	As of December 31, 2013	As of December 31, 2012	
Balance Sheet data						
Cash and cash equivalents	\$ 418,753	\$ 553,194	\$ 413,963	\$ 430,691	\$ 98,188	
Total assets	2,578,075	2,723,683	2,687,835	2,959,230	1,916,275	
Total debt (2)	2,345,256	2,134,795	2,031,638	1,672,358	—	
Stockholders' equity (deficit)	(1,150,088)	(689,102)	(398,877)	407,035	1,120,930	

- (1) Billings, a measure used by management to assess sales performance, is defined as the total amount of revenue that would have been recognized in a period if all revenue were recognized immediately at the time of sale.

Billings is calculated as follows:

(Dollars in thousands)	Successor				Predecessor	
	As Restated	As Restated	As Restated	As Restated		
	Year Ended December 31, 2016	Year Ended December 31, 2015	Year Ended December 31, 2014	March 23, 2013 to December 31, 2013	January 1, 2013 to March 22, 2013	Year Ended December 31, 2012
Revenue	\$ 1,740,027	\$ 1,828,592	\$ 1,832,833	\$ 1,588,879	\$ 229,441	\$ 1,917,599
Change in deferred revenue (a)	172,875	229,359	206,608	169,420	(17,304)	60,513
Billings	\$ 1,912,902	\$ 2,057,951	\$ 2,039,441	\$ 1,758,299	\$ 212,137	\$ 1,978,112

- (a) We receive cash up-front for most product sales but recognize revenue (primarily related to digital sales) over time recording a liability for deferred revenue at the time of sale. This adjustment represents the net effect of converting deferred revenues to a cash basis assuming the collection of all receivable balances.

Adjusted EBITDA by segment is a measure used by management to assess the performance of our segments and is calculated in a manner consistent with the definition and meaning of our Adjusted EBITDA non-GAAP debt covenant compliance measure. See "Management's Discussion and Analysis of Financial Condition and Results of Operations - Debt Covenant Compliance".

Billings is not a presentation made in accordance with U.S. GAAP and does not purport to be an alternative to revenue as a measure of operating performance or to cash flows from operations as a measure of liquidity. Such measure has limitations as our analytical tool, and you should not consider such a measure in isolation or as a substitute for our results as reported under U.S. GAAP. Management compensates for the limitations of using non-GAAP financial measures by using them to supplement U.S. GAAP results to provide a more complete understanding of the factors and trends affecting the business than U.S. GAAP results alone. Because not all companies use identical calculations, this measure may not be comparable to other similarly titled measures of other companies. See "Use of Non-GAAP Financial Information."

Management believes that Billings is helpful in highlighting the actual sales activity in a given period and provides comparability from period to period during our ongoing transition from the sale of printed materials to digital solutions which are required to be deferred and recognized as revenue over time in accordance with U.S. GAAP.

- (2) Total debt is presented as long-term debt plus current portion of long-term debt. Total net debt is total debt less cash and cash equivalents.
(3) Working capital is calculated as current assets less current liabilities.

Item 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion provides a narrative of our results of operations and financial condition for the years ended December 31, 2016, 2015 and 2014. You should read the following discussion of our results of operations and financial condition in conjunction with the accompanying audited financial statements and notes thereto, appearing elsewhere in this document.

Company Overview

We are a leading provider of outcome-focused learning solutions, delivering both curated content and digital learning tools and platforms to the students in the classrooms of approximately 250,000 higher education instructors, 13,000 pre-kindergarten through 12th grade (“K-12”) school districts and a wide variety of academic institutions, professionals and companies in 140 countries. We have evolved our business from a printcentric producer of textbooks and instructional materials to a leader in the development of digital content and technology-enabled adaptive learning solutions that are delivered anywhere, anytime. We believe we have established a reputation as an industry leader in the delivery of innovative educational content and methodologies.

As learners and educators have become increasingly outcome-focused in their search for more effective learning solutions, we have embraced adaptive learning tools as a central feature of our digital learning solutions. Adaptive learning is based on educational theory and cognitive science that emphasizes personalized delivery of concepts, continuous assessment of gained and retained knowledge and skills, and design of targeted and personalized study paths that help students improve in their areas of weakness while retaining competencies. We have developed a unique set of digital solutions by combining innovative adaptive learning methods with our proprietary content and digital delivery platforms. These solutions provide immediate feedback, and we believe they are more effective than traditional print textbooks in driving positive student outcomes. Students’ year-over-year performance can be impacted by many factors outside the instructional materials used in class. We believe that even taking into account these factors, our learning solutions can contribute to significant improvements in students’ classroom performance as well as improved student retention. For the instructor, time spent on active learning experiences increases significantly as a result of a reduction in time spent on administrative tasks and the availability of critical data to help better focus in class instruction.

Business Segments

We have four operating business segments: Higher Education, K-12, International and Professional. Higher Education is our largest segment, representing 42%, 44% and 46% of total revenue for the years ended December 31, 2016, 2015 and 2014, respectively. Our K-12 segment generated 35%, 32% and 30% of total revenue for the years ended December 31, 2016, 2015 and 2014, respectively. Our International segment generated 16%, 17% and 18% of total revenue for the years ended December 31, 2016, 2015 and 2014, respectively. Our Professional segment represents 7%, 7% and 6% of total revenue for the years ended December 31, 2016, 2015 and 2014, respectively. The remaining total revenue relates to adjustments made for in-transit product sales.

Higher Education

In the higher education market in the United States, we provide students, instructors and institutions with adaptive digital learning tools, digital platforms, custom publishing solutions and traditional printed textbook products with capabilities in adaptive learning, homework tools, lecture capture and Learning Management System (“LMS”) integration for post-secondary markets. Although we cover all major academic disciplines, our content portfolio is organized into three key disciplines: (i) Business, Economics & Career; (ii) Science, Engineering & Math; and (iii) Humanities, Social Science & Languages. Our top selling products include *Economics: Principles, Problems, and Policies* (McConnell/Brue/Flynn), *ALEKS*, *Managerial Accounting* (Garrison) and *The Art of Public Speaking* (Lucas). The primary users of our solutions are students enrolled in two- and four-year non-profit colleges and universities, and to a much lesser extent, for-profit institutions. Based on NCES and NSCRC data and our estimates, we believe that recent declines in 2-year and 4-year enrollments have been predominately driven by

declines in for-profit institutions. While overall enrollments declined by approximately 0.8 million between 2011 and 2014, we believe that for-profit enrollment declined from approximately 2.0 million to 1.6 million during this period while other enrollments declined from approximately 19.0 million to 18.6 million during the same period. In 2016, for-profit colleges accounted for approximately 9% of Higher Education revenue and approximately 4% of McGraw-Hill Education revenue.

We sell our Higher Education solutions to well-known online retailers, distribution partners and college bookstores, who subsequently sell to students. Our own direct-to-student sales channel is increasing via our proprietary e-commerce platform, which currently represents the largest distribution channel in this segment. Although we sell our products to the students as end users, it is the instructor that makes the ultimate decision regarding new materials for the course. We have longstanding and exclusive relationships with many authors and nearly all of our products are covered by copyright in major markets, providing us the exclusive right to produce and distribute such content in those markets during the applicable copyright terms.

K-12

In the K-12 market in the United States, we primarily sell curriculum and learning solutions, which include core basal programs, intervention and supplemental products, formative assessment tools, teaching resources and professional development programs. We sell our learning solutions directly to school districts across the United States. The process through which products are selected and procured for classroom use varies throughout the United States. Eighteen states, known as adoption states, approve and procure new basal programs, usually every five to eight years on a state-wide basis for each major area of study, before individual schools or school districts are permitted to schedule the purchase of materials. In all remaining states, known as open territories, each individual school or school district can procure materials at any time, though they usually do so on a five to eight year cycle. The student population in adoption states represents nearly 50% of the U.S. elementary and secondary school-age population. Many adoption states provide “categorical funding” for instructional materials, which means that state funds cannot be used for any other purpose. While we offer all of our curriculum and learning solutions in digital format, given the varying degrees of availability and maturity of our customers’ technological infrastructure, a majority of our sales are derived from blended print and digital solutions. Our top selling programs are *Reading Wonders*, *McGraw-Hill My Math*, *Everyday Mathematics*, *Glencoe Math*, and the *Networks Social Studies Series*.

International

Our International segment, defined as sales outside the United States, serves students in the higher education, K-12 and professional markets in 140 countries. Our products and solutions for the International segment are produced in more than 60 languages and primarily originate from our offerings for the United States market, which are later adapted to meet the needs of individual geographies. Sales of our digital offerings are growing significantly in the international market, and we are continuously increasing our inventory of digital programs. The growth in the use of the English language is also a driver of demand for digital learning solutions and printed educational instructional materials.

Professional

In the professional market in the United States, we provide medical, technical, engineering and business content for the professional, education and test preparation communities. Our digital subscription products are sold to over 2,600 customers including corporations, academic institutions, libraries and hospitals. Our digital subscription products had a 93% annual retention rate in 2016.

Other

Other represents certain transactions or adjustments that are unusual or non-operational. In addition, adjustments made for in-transit product sales, timing related corporate cost allocations and other costs not attributed to a single operating segment are recorded within Other.

Factors Affecting Our Performance

Impact of Our Digital Transformation

The acceptance and adoption of digital learning solutions is driving a substantial transformation in the education market. We believe we are well positioned to take advantage of this transformation given our ability to offer embedded assessments, adaptive learning, real-time interaction and feedback and student specific personalization based on our core curated educational content in a platform- and device-agnostic manner.

The demand for our digital solutions has increased substantially over the last five years though the rate of transformation differs by business segment. In the higher education market, our customers' technology infrastructures are sufficiently advanced to support full adoption of digital learning solutions. During the year ended December 31, 2016, approximately 56% of our Higher Education Billings was derived from digital learning solutions. In the K-12 market, varying degrees of broadband internet connectivity, adequacy of technical support staff, and teacher training across our customer base have limited the rate of broad-based adoption of digital solutions. Product mix in K-12 will impact digital revenue. For example, reading and literacy are less digital than math and social studies. Recent public policy and funding initiatives have increased emphasis on removing these limitations. Professional markets have the greatest digital readiness, and a majority of our Professional revenues are derived from digital product sales. Internationally, the receptivity to digital solutions is also strong, particularly in developing economies. According to Juniper Networks, people in developing countries are nearly twice as likely to use connected devices for educational purposes on a regular basis as those in developed markets.

Our revenue models across each of our business segments are transforming along with our customers' increasing adoption of digital learning solutions. In general, our digital solutions are sold on a subscription basis with high renewal rates, which provides a more stable and predictable long term revenue model. We believe that the digital transformation will provide new opportunities for revenue growth. For example, our digital learning solutions provide an opportunity for us to increase the size of our addressable market as our digital products are not available in a format that can be utilized for sale in the used and rental market. In addition, the reserve that we maintain for product returns has declined over time due to the shift from traditional print products to digital learning solutions, which experience a much lower return rate.

We closely monitor our digital sales given the significant investment being made across our business and the increasing adoption of digital in the marketplace. Our digital offerings are sold on a standalone basis and as part of bundled or blended offerings. In instances where we sell digital with a print component, it is our policy to bifurcate the sale between the digital and print components and attribute value to each of the components in accordance with U.S. GAAP. When we discuss or present digital revenues, such information is based upon the attribution of value in accordance with U.S. GAAP and does not include print revenues.

The transition from traditional print to digital solutions also improves our cost structure as we tag and leverage content across the entire business instead of duplicating development efforts in each segment. We also expect to reduce raw material, warehouse and delivery costs as a result of the shift to digital solutions, as well as reducing sampling costs that are incurred to provide traditional print products to purchasing decision makers at no cost to them.

The development cycle for traditional print products involves periodic revisions, which give rise to significant pre-publication costs that are capitalized and recognized through amortization expense over time. Our pre-publication costs have been declining as we sell more digital solutions with total spend influenced most by the timing of new adoption opportunities in our K-12 business during any given period. With our digital solutions, we employ a continuous revision cycle that permits smaller and more frequent investment over the lifecycle of a product to maintain the product's relevancy by quickly incorporating feedback and enhancement opportunities. The cost of the smaller and more frequent investment is expensed and not capitalized, a shift from the historical accounting for pre-publication costs.

Our digital learning solutions are supported by our in-house Digital Platform Group (“DPG”), which was formed in 2013 to drive innovation and to develop, maintain and leverage our digital learning solutions and technology tools and platforms across our entire business. To maintain and grow our leading digital position, we have increased our annual digital learning solutions spending, including operating and capital expenditures, from less than \$90 million in 2012 to over \$170 million in 2016. While we are committed to continue significant digital investment, growth rates of spending has declined as we have achieved scale. While our investment has increased significantly since 2012, we believe that our annual expenditures will stabilize in the near future as our major initiatives and the build-out of certain foundational capabilities near completion.

Revenue

Higher Education

We derive revenue primarily from the sale of digital learning solutions and content, traditional and custom print content and instructional materials. Our digital and print revenues are a function of sales volume and, to a lesser extent, changes in unit pricing. Our revenues are comprised of product and services sales less an allowance for product returns and revenue that is required to be deferred in accordance with U.S. GAAP.

Sales volumes are primarily influenced by the use of used or rental alternatives to our learning solutions and student enrollment figures. Our business is driven by our ability to maintain and win instructor adoptions and purchasing decisions made by students. Higher education enrollment, which was approximately 20 million in the Fall of 2014, has grown at a 2% CAGR since 1970, according to NCES, although it has declined since 2012. Growth in enrollment impacts the number of students requiring our digital and print solutions in any given year. Because instructors are the ultimate decision makers for content and instructional materials to be used in their courses, we compete for instructor adoptions of our products. After an instructor has adopted our products for use in his or her course, students have the option to purchase new content and instructional materials, purchase used versions of printed materials, rent printed materials from a number of outlets, or forego the acquisition of course content and materials altogether. Our sales depend heavily on the volume of new content and instructional materials sold and we do not benefit from sales in the used and rental markets. As digital solutions are adopted by more instructors, and increasingly become part of the instructors’ graded curriculum, more students are purchasing our digital solutions. This trend has increased sales of our digital solutions and is resulting in more predictable and recurring revenues as sales volumes begin to more closely align with trends in student enrollment.

Our product pricing is typically set at the beginning of each new academic year, and unit pricing has increased annually at a low-single digits percentage, on average, over the last several years. Digital products are typically priced at a discount to print products. However, based on an analysis of nine print products with a digital component, we believe we tend to generate more revenue per edition from a print product with a digital component than we would from a comparable stand-alone print product. This is because the integration of our digital solutions into course instruction by the instructor, drives higher sell through into the classroom. There are no used or rental alternatives for the digital offerings.

For our print products, we recognize revenue at the time of shipment to our distribution partners, who typically order products several weeks before the beginning of an academic semester to ensure sufficient physical product inventory. Digital products are generally sold as subscriptions, which are paid for at the time of sale or shortly thereafter, and we recognize revenues derived from these products over the life of the subscription. In most cases, students purchase digital products at the beginning of the academic semester, or shortly thereafter, which has tended to shift the timing of revenues to later in the academic year as we sell more digital products and fewer print products. In addition, the difference in our revenue recognition policies between print and digital products has caused comparisons of current and historical revenues to less accurately reflect the actual sales performance of our business during this time of transition. As a result, we use the non-GAAP measure Billings to provide a consistent comparison of sales performance from period to period. See “-Non-GAAP Measures” for a description of Billings.

Revenues are also impacted by our reserve for product returns. Our distribution partners are permitted to return products at any time, though they primarily do so following the heavy student purchasing period at the

beginning of each academic semester. To more accurately reflect the economic impact of returns on our operating performance, we reserve a percentage of our gross sales in anticipation of these returns when calculating our net revenues. This reserve has declined in recent years as we shift from sales of traditional print products to digital learning solutions, which experience a much lower return rate.

K-12

We derive revenue primarily from the sale of digital learning solutions, traditional print offerings and other instructional materials. Our revenues are driven primarily by sales volume and, to a lesser extent, changes in unit pricing. Our revenues are comprised of product and services sales less an allowance for product returns and revenue that is required to be deferred in accordance with U.S. GAAP. The required revenue deferral for digital solutions in K-12 is significantly greater than in Higher Education due to the longer, multi-year contractual terms of our customer arrangements in K-12 (typically five to eight years).

Sales volumes are driven primarily by the availability of funding for instructional materials. Most public school districts are largely dependent on state and local funding for the purchase of instructional materials, which correlate with state and local receipts from income, sales and property taxes. Nationally, total state funding for public schools has been trending upward as state income and sales tax revenues recover from the lows of the 2008-2009 economic recession. The improving economy has driven a recovery in housing, which has led to higher property tax revenues for local governments and increased budgets for public schools.

The purchasing cycles of adoption states also have a significant impact on our sales volumes. We monitor the purchasing cycles for specific disciplines in adoption states in order to manage our product development and to plan sales campaigns. Our sales may be materially impacted by the purchasing schedules of major adoption states such as Florida, California and Texas. For example, Florida implemented a language arts new adoption in 2014 and is scheduled to adopt new social studies materials in 2016 that will be purchased beginning in 2017. Texas school districts purchased new mathematics and science materials in 2014, and adopted new social studies and high school math materials in 2014 for purchase in 2015. California adopted new math materials in 2013, with purchases spread over 2014 and 2015, and adopted new English language arts materials in 2015 for purchase beginning in 2016. Florida, Texas and other adoption states provide dedicated state funding for instructional materials and classroom technology, with funding typically appropriated by the legislature in the first half of the year in which materials are to be purchased. Texas, which has a two-year budget cycle, has appropriated funds for purchases in 2015 and 2016. In the 2015 legislative session, California funded instructional materials in part with a dedicated portion of state lottery proceeds and in part out of general formula funds, with the minimum overall level of school funding determined according to the Proposition 98 funding guarantee.

Sales volume in the United States K-12 market is also affected by changes in state curriculum standards and by student enrollment. Changes in state curriculum standards require that instructional materials be revised or replaced to align to the new standards, which historically has driven demand for basal programs. School enrollment is highly predictable, as they correlate with the overall growth in birth rates in the United States, and are expected to continue trending upward over the long term. According to NCES, K-12 enrollment in the United States as of 2013-2014 was 55 million and enrollment is projected to grow at a compound annual growth rate of 0.4% to nearly 58 million from 2013 through 2024.

Our product pricing is generally determined at the time our products are adopted by a state or district. Price has historically been of lesser importance than curriculum quality and service levels in state and district purchasing decisions. The vast majority of our program offerings is hybrid, incorporating both print and digital elements.

Revenue from traditional print products is typically recognized at the time of shipment, which closely aligns with when a school district takes possession of the required number of products at the outset of a multi-year adoption. Traditional print products are typically re-used by students over the term of the adoption, and school districts will occasionally purchase replacement products due to wear or increasing enrollment over the life of the adoption. Sales of these replacement products are known as residual sales, from which we derive a significant portion of our revenue. Our online and digital solutions are sold as a subscription, which states and districts pay for

at the beginning of a multi-year adoption. We typically defer revenue related to online and digital solutions for the entirety of the contract upfront and recognize it ratably over the term of the contract. Because they are consumable products, revenue for workbooks is deferred when we enter into a multi-year contract and is recognized when delivery takes place, often at the beginning of each academic year over the contract term. As our customers purchase more of our digital and hybrid learning solutions, the percentage of our revenue that is deferred continues to increase. The total amount of the sale and the cash received upfront for a fully-digital or hybrid program is comparable to a fully print program; however, the time period over which the revenue is recognized increases with the shift to digital. The difference in our revenue recognition policies between print and digital solutions has caused comparisons of current and historical revenues to less accurately reflect the actual sales performance of our business during this time of transition. As a result, we use the non-GAAP measure Billings to provide a consistent comparison of sales performance from period to period. See “-Non-GAAP Measures” for a description of how we define Billings.

Unlike our Higher Education segment, product returns in our K-12 segment have an immaterial impact on net revenues because we sell directly to school districts, which rarely return products.

International

We derive revenue primarily from the sale of digital learning solutions and content, traditional print content and instructional materials to the higher education, K-12 and professional markets in 140 countries worldwide. Our revenues are a function of the market conditions in the countries in which we operate and our ability to expand our sales to customers in these countries and to new countries. A majority of our international revenue is generated by selling our unmodified English language products, which were originally created for the United States market, internationally. Our revenues are comprised of product and services sales less an allowance for product returns and revenue that is required to be deferred in accordance with U.S. GAAP.

Our International business covers five major regions. Each of these regions and the underlying country performance can be impacted by the economy, government policy and competitive situations. These regions and the general revenue drivers for each are as follows:

EMEA: the majority of our business is driven by Higher Education, followed by K-12 (including English Language Learning) and Professional. The majority of our Higher Education revenues come from the sale of original United States product translations and adaptations of those products. Our K-12 business in Spain is primarily driven by the development and sale of local original publications and is subject to the cyclical nature of government driven curriculum renewals. Our K-12 business in the Middle East is primarily driven by orders for United States product as well as translations and adaptations.

Asia Pacific: our business is driven primarily by Higher Education, followed by K-12 (including English Language Learning) and Professional. The majority of the business is derived from Southeast Asia, where we operate in over 15 countries, some of which are subject to volatile political and economic conditions. Our Australian business is primarily driven by the sale of original United States Higher Education product as well as translations and adaptations.

India: Higher Education is a major driver of our business, followed by Professional and K-12. Our product portfolio in India primarily consists of local publishing programs, followed by adaptations of United States product.

Latin America: this region is primarily driven by K-12 (including English Language Learning), followed by Higher Education and Professional. From a regional perspective, our largest market is Mexico, followed by Colombia, Chile and Venezuela. Latin America’s business is exposed to volatile political and economic conditions. The majority of our Higher Education revenues are derived from the sale of original United States products that have been translated and / or adapted. Our K-12 business is primarily driven by the development and sale of local/original publications and is subject to the cyclical nature of government driven curriculum renewals.

Canada: Higher Education is the largest driver of our Canadian business, followed by K-12 and Professional. Higher Education sales consist primarily of original United States Higher Education product as well as translations and adaptations. Our Canadian K-12 business is primarily driven by the development and sale of local/original publications and is subject to the cyclical nature of government driven curriculum renewals.

Product pricing varies by region and country with pricing comparable to equivalent products sold in the United States in some instances. Within developing economies, price points tend to be lower than in the United States, dictated by the economic conditions prevalent in that country.

Foreign exchange rates also impact our international revenues as the functional currency is often the foreign currency of the countries in which we operate. As a result, we are exposed to currency fluctuations in translating our financial results into U.S. dollars. In 2016, approximately 63% of our international sales were denominated in currencies other than the U.S. dollar. Recent strengthening of the dollar has resulted in unfavorable foreign exchange impacts. We monitor the impact of foreign currency movements and the correlation between local currencies and the U.S. dollar. We also periodically review our hedging strategy and may enter into other arrangements as appropriate.

Revenue recognition for international products is similar to products sold in the United States. Revenue for traditional print products is typically recognized upon shipment, while digital revenues are recognized over the contractual term of the product. The difference in our revenue recognition policies between print and digital solutions has caused comparisons of current and historical revenues to less accurately reflect the actual sales performance of our business during this time of transition. As a result, we use the non-GAAP measure Billings to provide a consistent comparison of sales performance from period to period. See “-Non-GAAP Measures” for a description of how we define Billings.

Professional

We derive revenue primarily from the sale of digital subscription services and content, both digital and print. Our digital and print revenues are a function of sales volume and, to a lesser extent, changes in unit pricing. Our revenues are comprised of product and services sales less an allowance for product returns and revenue that is required to be deferred in accordance with U.S. GAAP.

Sales volume is driven by demand for subscription based, professional content and by growth in knowledge-based industries, especially in the medical, technical and engineering fields. As the United States economy continues to recover, we expect the market for professional education resources to grow, particularly among professions that are experiencing more rapid job growth. The Professional and Business Services and Healthcare and Social Assistance industry sectors are expected to add nearly 6 million jobs between 2014 and 2024, more than all other United States industries combined, according to the Bureau of Labor Statistics (“BLS”). We derive a substantial portion of our Professional revenue from these two industries.

Sales of our digital subscription services provide a stable and highly recurring revenue stream, with a retention rate across major platforms of 93% in 2016. Our digital subscription services are sold as annual contracts, and prices for new subscriptions typically increase by low single-digits each year. Our other digital and traditional print products are also priced competitively and increase in the low single digits each year.

Revenue for traditional print products is typically recognized upon shipment, while digital revenues are recognized over the contractual term. The continued shift from print to digital will increase the percentage of our sales that are deferred and recognized over the contractual term. The difference in our revenue recognition policies between print and digital solutions has caused comparisons of current and historical revenues to less accurately reflect the actual sales performance of our business during this time of transition. As a result, we use the non-GAAP measure Billings to provide a consistent comparison of sales performance from period to period. See “-Non-GAAP Measures” for a description of Billings.

Cost of Sales

Cost of sales include variable costs such as paper, printing and binding, certain transportation and freight costs related to our print products, as well as content related royalty expenses and gratis costs (products provided at no charge as part of the sales transaction) for both print and digital products. Gratis costs are predominately incurred in our K-12 business and tend to be higher for adoption state sales as compared to open territory sales. As such, these costs will vary based upon the level of adoption state sales during a given period.

Due to the inherent subjectivity in the classification of costs between cost of sales and operating and administrative expense across the Company's industry, the Company does not focus on gross profit or gross margin as a key metric for the Company's business. Additionally, the classification of costs between cost of sales and operating and administrative expense does not impact the Company's key metrics, including Billings and Adjusted EBITDA by segment.

Operating and Administration Expenses

Our operating and administration expenses include the expenses of our employees and outside vendors engaged in our marketing, selling, editorial and administrative activities as well as pre-publication cost amortization. A significant component of our total operating and administration expense relates to our ongoing investment in DPG. These costs are both fixed and variable in nature and our investment is expected to increase given our increasingly digital revenues; however, we expect the rate of increase to moderate over time as our major initiatives and the build-out of certain foundational capabilities near completion.

Costs associated with design and content creation for both digital and print products are capitalized as a component of pre-publication expenditures. Capitalized pre-publication expenditures are subsequently amortized as a component of operating and administration expenses.

Outside of costs directly associated with DPG, we incur additional digital related costs, including content tagging and digital solutions hosting, which have increased as the digital transformation continues. The Company relies primarily on internal resources to develop the Company's digital platform, host the Company's digital solutions and tag the Company's digital content, and these costs have no clear attribution to specific products or services and do not directly correlate to sales of products or delivery of services. As a result, the Company has classified these costs within operating and administrative expenses.

We incur expense for products provided to decision makers in the educational materials purchasing process as part of our sampling program, primarily in our K-12 business. Annual samples expense can vary significantly depending upon the adoption calendar and the mix of programs being considered for adoption. As our revenues continue to shift from traditional print offerings to digital solutions, we expect the expense incurred for sampling to decline.

In the United States, our products are sold in over 5,000 higher education institutions and 13,000 K-12 school districts across all 50 states. Our sales force of approximately 1,550 persons, which includes approximately 500 and 475 sales people in each of the United States higher education and K-12 markets, respectively, maintains close relationships with the individual instructors who are the primary decision makers in the higher education market, as well as the states, school districts, and individual schools. We incur significant selling and market expense to maintain and support our extensive sales force. Subsequent to the Founding Acquisition, we invested in sales and marketing to drive future revenue opportunities and enhance our product branding. As revenues grow in the future, we expect to see modest increases in selling and marketing expense that will vary with the K-12 adoption cycle.

Since the Founding Acquisition, we have incurred significant non-recurring restructuring and separation costs to establish the standalone operations of our business and facilitate cost saving opportunities. The physical separation costs incurred to establish our standalone operations ceased in 2014 upon the completion of the separation from our former parent. Excluding the impact of restructuring and separation costs, we expect our

operating and administration expense to increase nominally as we continue to invest in the business and drive our digital transformation.

Transaction and Acquisition Costs

In connection with the Founding Acquisition, we incurred significant transaction costs including external legal and consulting expenses that are separately identified in the statement of operations. Subsequent to the Founding Acquisition, we incurred additional acquisition costs in connection with our acquisitions of *ALEKS*, *LearnSmart* and *Engrade*, which are included in operating and administration expenses. To the extent we acquire and divest of businesses in the future, we may incur transaction costs that will vary based upon the size and complexity of the transaction.

Interest Expense

Our interest expense primarily includes interest related to our indebtedness, including the amortization of deferred financing fees and debt discounts, and outstanding capital lease and other financing obligations.

Interest expense varies based on the amount of indebtedness outstanding and the rates at which we were able to secure the indebtedness. The interest rate on certain tranches of indebtedness is based on London InterBank Offered Rate (LIBOR) or the prime lending rate (Prime), plus an applicable margin. As a result, changes in the LIBOR or Prime rate can impact interest expense. Interest expense for the year ending December 31, 2016 was \$199.5 million.

Intangible Amortization

Our intangible asset amortization expense primarily includes the amortization of acquired intangible assets consisting of customer relationships, content rights, trade names, non-compete rights and technology. The largest component of our intangibles asset balance is related to content acquired as part of the Founding Acquisition and is being amortized over a period of 8 to 14 years. The remaining balances will be amortized over varying periods of time from 4 to 14 years from the date of acquisition. Intangible asset amortization expense for the year ending December 31, 2016 was \$90.9 million.

Pre-publication Expenditures and Amortization

Pre-publication expenditures are capitalized costs incurred and principally consist of design and content creation. Costs incurred prior to the publication date of a title or release date of a product represent activities associated with product development. These may be performed internally or outsourced to subject matter specialists and include, but are not limited to, editorial review and fact verification, graphic art design and layout and the process of conversion from print to digital media or within various formats of digital media. These costs are capitalized when the costs can be directly attributable to a project or title and the title is expected to generate probable future economic benefits. Capitalized costs are amortized upon publication of the title over its estimated useful life of up to six years, with a higher proportion of the amortization typically taken in the earlier years.

Over the last several years, we have optimized our pre-publication expenditures to emphasize investment in content that can be leveraged across our full range of products, which maximizes our long-term returns on this investment. This has been accomplished, in part, by the creation of DPG, which supports ongoing innovation, development and maintenance of our technology platforms. We have also experienced a decline in pre-publication expenditures as our business shifts from a periodic revision cycle for print products, which gives rise to significant pre-publication expenditures, to a continuous revision cycle for digital learning solutions.

Pre-publication expenditure demands differ by business segment for a variety of reasons, including the speed with which the digital transformation has occurred. In Higher Education, pre-publication expenditures are highest for the first edition of a new title, and lower for subsequent revisions. Our pre-publication investment to create content used in our adaptive tools, such as the assessment questions in the *LearnSmart*, product is increasing. This

foundational investment is expected to reduce the variability of pre-publication expenditures in the future as we are able to leverage the content across the business.

Higher Education

Pre-publication expenditures in the Higher Education segment relate to the development of product across all disciplines, since the content is created by authors on a royalty basis. We develop “first editions,” which are new titles or programs that can be revised over time based on market acceptance. As we continue our digital transformation, our pre-publication expenditure is increasingly related to content used in our adaptive tools, such as the assessment questions in the *LearnSmart* product. Development of the technology underlying our digital products is either supported by DPG with costs recorded in operating expenses, or capitalized if a new capability is developed (i.e., new product). Pre-publication expenditures are typically incurred in the year before the copyright is acquired on a printed textbook. The cash spend for the years ended December 31, 2016, 2015 and 2014 was \$29.8 million, \$30.2 million and \$30.2 million, respectively.

K-12

Pre-publication expenditures in the K-12 segment relate to content development and are the highest in the company, representing approximately 38% of total spend in 2016. Unlike the Higher Education segment, most content is developed by our K-12 product development teams. Pre-publication expenditures are incurred for external content development (work for hire), permissions, artwork and the physical design and layout of the printed books. Created content is used in our digital offerings as well. New basal programs such as reading, math, social studies or science are published around the adoption cycles for large adoption states such as California, Texas and Florida. Pre-publication expenditures are typically spent up to three years prior to an adoption sales year. The cash spend for the years ended December 31, 2016, 2015 and 2014 was \$34.5 million, \$52.7 million and \$38.0 million, respectively.

International

Pre-publication expenditures in the international segment relate to locally developed products or adaptations and translations of existing Higher Education, K-12 and Professional products in both digital and print format. Similar to our Higher Education and Professional segments, pre-publication is typically spent in the year before the copyright is established. The cash spend for the years ended December 31, 2016, 2015 and 2014 was \$17.5 million, \$6.5 million and \$10.0 million, respectively.

Professional

Pre-publication expenditures in the Professional segment relate to new titles and revisions, similar to the Higher Education segment, and include activities related to the creation of the actual product, since the content is created by authors on a royalty basis. Pre-publication expenditures are typically incurred in the year before the copyright is established. For our *Access* platforms, any additional content needed to supplement the print product will be funded through pre-publication expenditures. The cash spend for the years ended December 31, 2016, 2015 and 2014 was \$7.9 million, \$9.4 million and \$10.1 million, respectively.

Capital Expenditures

Capital expenditures relate to expenditures for fixed assets, leasehold improvements and software development. The expense related to these purchases is recorded as depreciation in our statement of operations over the useful life of the asset. Our capital expenditures as a percentage of revenue have historically averaged less than 2.0% per annum. Our capital expenditures vary based upon the level of digital investment being made, which was significant in 2014 and 2015, as well as the timing of asset purchases. For the years ended December 31, 2016, 2015 and 2014 our capital expenditures were \$38.2 million, \$41.2 million and \$40.5 million, respectively.

Consolidated Operating Results

The following tables set forth certain historical consolidated financial information for the years ended December 31, 2016, 2015 and 2014. The following tables and discussion should be read in conjunction with the information contained in our historical consolidated financial statements and the notes thereto included elsewhere in this document.

Consolidated Operating Results for the Years Ended December 31, 2016 and 2015

(Dollars in thousands)	As Restated	As Restated	\$ Change	% Change
	Year Ended December 31, 2016	Year Ended December 31, 2015		
Revenue	\$ 1,740,027	\$ 1,828,592	\$ (88,565)	(4.8)%
Cost of sales	427,409	479,469	(52,060)	(10.9)%
Gross profit	1,312,618	1,349,123	(36,505)	(2.7)%
Operating expenses				
Operating and administration expenses	1,078,604	1,127,455	(48,851)	(4.3)%
Depreciation	37,045	30,636	6,409	20.9 %
Amortization of intangibles	90,886	94,156	(3,270)	(3.5)%
Total operating expenses	1,206,535	1,252,247	(45,712)	(3.7)%
Operating income	106,083	96,876	9,207	9.5 %
Interest expense (income), net	199,506	192,918	6,588	3.4 %
Loss on extinguishment of debt	26,562	—	26,562	n/m
Other (income) expense	—	(4,779)	4,779	(100.0)%
(Loss) income from operations before taxes on income	(119,985)	(91,263)	(28,722)	31.5 %
Income tax provision	15,117	11,530	3,587	31.1 %
Net (loss) income from continuing operations	(135,102)	(102,793)	(32,309)	31.4 %
Net (loss) income from discontinuing operations, net of taxes	(1,905)	(76,338)	74,433	(97.5)%
Net (loss) income	\$ (137,007)	\$ (179,131)	\$ 42,124	(23.5)%

Revenue

(Dollars in thousands)	As Restated	As Restated	\$ Change	% Change
	Year Ended December 31, 2016	Year Ended December 31, 2015		
Reported Revenue by segment:				
Higher Education	\$ 733,782	\$ 805,360	\$ (71,578)	(8.9)%
K-12	602,900	591,937	10,963	1.9 %
International	286,927	305,021	(18,094)	(5.9)%
Professional	116,630	119,752	(3,122)	(2.6)%
Other	(212)	6,522	(6,734)	(103.3)%
Total Reported Revenue	\$ 1,740,027	\$ 1,828,592	\$ (88,565)	(4.8)%

Revenue for the years ended December 31, 2016 and 2015 was \$1,740.0 million and \$1,828.6 million, respectively, a decrease of \$88.6 million or 4.8%. Excluding the impact of purchase accounting (which negatively impacted revenue as a result of the adjustment recorded to reduce the carrying value of deferred revenue on the opening balance sheet), revenue for the years ended December 31, 2016 and 2015 was \$1,761.2 million and

\$1,853.8 million, respectively, a decrease of \$92.6 million or 5.0%. The decrease was driven by the segment factors described below.

Higher Education

Higher Education revenue for the years ended December 31, 2016 and 2015 was \$733.8 million and \$805.4 million, respectively, a decrease of \$71.6 million or 8.9%. Excluding the impact of purchase accounting, revenue for the years ended December 31, 2016 and 2015 was \$733.8 million and \$806.0 million, respectively, a decrease of \$72.2 million or 9.0%. The decrease was primarily due to:

- lower print revenues due to continued distribution partner inventory destocking and reduced reordering by distributors who are managing physical inventory more tightly in light of the ongoing digital transition in the marketplace. This includes print textbooks we previously sold to distributors, but also physical digital activation cards held in inventory; and
- a smaller front list for 2016 and 2017 copyrights (released in the year before copyright). The smaller front lists was driven primarily by extended revision cycles for certain titles, which in turn has led to increased used and rental alternatives for new print materials; partially offset by
- digital revenue growth, primarily attributable to our core digital learning solutions which are increasingly sold direct-to-student via our e-commerce channel (paid activations of *Connect/LearnSmart* grew by 11% and unique users of *ALEKS* grew by 19%);
- continued decline in actual product returns and a favorable product returns reserve rate; and
- increased market share in a year with a cyclically smaller total market opportunity.

K-12

K-12 revenue for the years ended December 31, 2016 and 2015 was \$602.9 million and \$591.9 million respectively, an increase of \$11.0 million or 1.9%. Excluding the impact of purchase accounting, revenue for the years ended December 31, 2016 and 2015 was \$624.1 million and \$616.7 million, respectively, an increase of \$7.4 million or 1.2%. The increase was primarily due to:

- lower revenue deferrals related to our digital solutions as the mix of digital in our blended math and social studies programs sold in 2015 was higher than the mix of digital in our blended reading program which accounts for the majority of year-over-year revenue growth; and
- adoption related revenue driven by strong performance in this year's K-8 ELA adoption in California; partially offset by
- a decline in open territory sales due to lower than expected performance in select key markets; and
- a smaller new adoption market in 2016 as compared to 2015.

International

International revenue for the years ended December 31, 2016 and 2015 was \$286.9 million and \$305.0 million, respectively, a decrease of \$18.1 million or 5.9%. The decrease was primarily due to:

- a \$8.6 million unfavorable foreign exchange rate impact (estimated by re-calculating current period results of foreign operations using the average exchange rate from the prior period); and
- a decline in print revenue; partially offset by

- the multi-year digital subscription revenue arrangement entered into with the United Arab Emirates; and
- growth in localized digital offerings, primarily in higher education.

Geographic performance was driven primarily by a decline in K-12 sales in all regions primarily due to lower adoption opportunities and a decline in Higher Education sales in Canada. This was partially offset by a new contract with the United Arab Emirates and Higher Education sales in Asia Pacific, most notably Australia.

Professional

Professional revenue for the years ended December 31, 2016 and 2015 was \$116.6 million and \$119.8 million, respectively, a decrease of \$3.1 million or 2.6%. Excluding the impact of purchase accounting, revenue for the years ended December 31, 2016 and 2015 was \$116.6 million and \$119.8 million, respectively, a decrease of \$3.2 million or 2.7%. The decrease was primarily due to:

- a decrease in print and eBook revenue; partially offset by
- an increase in digital subscription sales for our *Access* platform offerings.

Cost of Sales

Cost of sales for the years ended December 31, 2016 and 2015 was \$427.4 million and \$479.5 million, respectively, a decrease of \$52.1 million or 10.9%. The decrease was driven primarily by lower manufacturing costs attributable to lower revenue and higher digital product sales as well as lower royalty rates and expense driven by product mix.

Operating and Administration Expenses

Operating and administration expenses for the years ended December 31, 2016 and 2015 were \$1,078.6 million and \$1,127.5 million, respectively, a decrease of \$48.9 million or 4.3%. Included within operating and administration expense is the amortization of pre-publication expenditures which decreased by \$14.6 million or 16.4%. The remaining variance was driven by:

- a \$18.3 million decrease in professional fees; and
- a \$7.7 million decrease in restructuring and cost savings implementation charges.

Depreciation & Amortization of Intangibles

Depreciation and amortization expenses for the years ended December 31, 2016 and 2015 were \$127.9 million and \$124.8 million, respectively, an increase of \$3.1 million or 2.5%. This increase was driven by:

- the acceleration of depreciation expense related to the early exit of an international leased facility as part of ongoing cost saving initiatives to optimize our facilities spend subsequent to the Founding Acquisition; and
- an increase in depreciation expense associated with deferred technology projects that were previously in the development phase in 2015.

Interest expense, net

Interest expense, net, for the years ended December 31, 2016 and 2015 was \$199.5 million and \$192.9 million, respectively, an increase of \$6.6 million or 3.4%. The increase was related to the \$17.8 million expense of

certain creditor and third-party fees partially offset by lower interest expense both in association with the Company's debt refinancing on May 4, 2016. Refer to Note 10, "Debt," of our consolidated financial statements included elsewhere in this Annual Report for further discussion of our debt.

Loss on extinguishment of debt

The Company recorded a loss on extinguishment of debt of \$26.6 million, consisting primarily of a redemption premium associated with the repurchase of MHGE Senior Secured Notes and the write-off of unamortized deferred financing fees and original debt discount associated with the debt refinancing on May 4, 2016. Refer to Note 10, "Debt," of our consolidated financial statements included elsewhere in this Annual Report for further discussion of our debt.

Other (income) expense

During the year ended December 31, 2015, the Company recorded a gain of \$4.8 million related to the sale of an investment in an equity security.

Provision for Taxes on Income

Taxes on income from continuing operations for the years ended December 31, 2016 and 2015 were provisions of \$15.1 million and \$11.5 million, respectively. For the years ended December 31, 2016 and 2015, the effective tax rate on continuing operations was (12.6)% and (12.6)%, respectively. As of December 31, 2014, a full valuation allowance was recorded for federal and state deferred tax assets due to negative evidence associated with our estimation of the realization of cumulative book losses. For the years ended December 31, 2016 and 2015, no deferred income tax benefit was recognized for the domestic loss on operations as a result of the valuation allowance against these tax benefits.

Adjusted EBITDA by Segment for the Years Ended December 31, 2016 and 2015

Adjusted EBITDA by segment, as determined in accordance with Accounting Standards Codification Topic 280, Segment Reporting, is a measure used by management to assess the performance of our segments. We exclude from Adjusted EBITDA by segment: interest expense (income), net, income tax (benefit) provision, depreciation, amortization and pre-publication amortization and certain transactions or adjustments that our management does not consider for the purposes of making decisions to allocate resources among segments or assessing segment performance. In addition, Adjusted EBITDA by segment is calculated in a manner consistent with the definition and meaning of our Adjusted EBITDA non-GAAP debt covenant compliance measure, see "Non-GAAP Measures" - "Debt Covenant Compliance".

(Dollars in thousands)	As Restated		\$ Change	% Change
	Year Ended December 31, 2016	Year Ended December 31, 2015		
Adjusted EBITDA by segment:				
Higher Education	\$ 233,507	\$ 294,540	\$ (61,033)	(20.7)%
K-12	138,368	126,902	11,466	9.0 %
International	19,011	33,229	(14,218)	(42.8)%
Professional	33,739	32,193	1,546	4.8 %
Other	(1,737)	(1,274)	(463)	36.3 %

Higher Education

Adjusted EBITDA for the years ended December 31, 2016 and 2015 was \$233.5 million and \$294.5 million, respectively, a decrease of \$61.0 million or 20.7%. The decrease was primarily due to:

- the gross profit impact of the \$89.3 million unfavorable Billings variance discussed under “Non-GAAP Measures-Billings for the Years Ended December 31, 2016 and 2015- Higher Education”; partially offset by
- lower manufacturing costs attributable to lower revenue and a shift to digital solution sales as well as lower royalties expense driven by product mix.

K-12

Adjusted EBITDA for the years ended December 31, 2016 and 2015 was \$138.4 million and \$126.9 million, respectively, an increase of \$11.5 million or 9.0%. The increase was due primarily to:

- reduced pre-publication investment cash costs driven by the timing of investment in prior years related to new adoption opportunities including the significant investment made in advance of the 2015 California ELA adoption; and
- a decrease in professional fees; partially offset by
- the gross profit impact of the \$39.0 million unfavorable Billings variance discussed under “Non-GAAP Measures-Billings for the Years Ended December 31, 2016 and 2015- K-12”;
- increased royalties associated with a product that we redistributed as a part of our offerings in the California ELA adoption; and
- increased samples expense primarily related to the California ELA adoption.

International

Adjusted EBITDA for the years ended December 31, 2016 and 2015 was \$19.0 million and \$33.2 million, respectively, a decrease of \$14.2 million or 42.8%. The decrease was primarily due to:

- the gross profit impact of the \$12.9 million unfavorable Billings variance discussed under "Non-GAAP Measures- Billings for the Years Ended December 31, 2016 and 2015- International";
- increased pre-publication investment cash costs associated with the development of localized digital solution offerings primarily related to the new United Arab Emirates contract; partially offset by
- a \$0.8 million favorable foreign exchange rate impact (estimated by re-calculating current period results of foreign operations using the average exchange rate from the prior period.)

Professional

Adjusted EBITDA for the years ended December 31, 2016 and 2015 was \$33.7 million and \$32.2 million, respectively, an increase of \$1.5 million or 4.8%. The increase was due primarily to:

- lower manufacturing costs as a result of the ongoing shift to digital solution sales as well as lower royalty expense driven by product mix; partially offset by

- the gross profit impact of the \$0.9 million unfavorable Billings variance discussed under “Non-GAAP Measures-Billings for the Years Ended December 31, 2016 and 2015- Professional”.

Other

Adjusted EBITDA for the years ended December 31, 2016 and 2015 was \$(1.7) million and \$(1.3) million, respectively, a decrease of \$0.5 million. The decrease was due to:

- impact of adjustments made for in-transit product sales; and
- timing related corporate expense adjustments.

Consolidated Operating Results for the Years Ended December 31, 2015 and 2014

(Dollars in thousands)	As Restated	As Restated	\$ Change	% Change
	Year Ended December 31, 2015	Year Ended December 31, 2014		
Revenue	\$ 1,828,592	\$ 1,832,833	\$ (4,241)	(0.2)%
Cost of sales	479,469	523,183	(43,714)	(8.4)%
Gross profit	1,349,123	1,309,650	39,473	3.0 %
Operating expenses				
Operating and administration expenses	1,127,455	1,194,253	(66,798)	(5.6)%
Depreciation	30,636	25,999	4,637	17.8 %
Amortization of intangibles	94,156	100,001	(5,845)	(5.8)%
Impairment charge	—	23,800	(23,800)	n/m
Transaction charge	—	3,932	(3,932)	n/m
Total operating expenses	1,252,247	1,347,985	(95,738)	(7.1)%
Operating income	96,876	(38,335)	135,211	(352.7)%
Interest expense (income), net	192,918	182,199	10,719	5.9 %
Other (income) expense	(4,779)	(8,420)	3,641	(43.2)%
(Loss) income from operations before taxes on income	(91,263)	(212,114)	120,851	(57.0)%
Income tax provision	11,530	124,439	(112,909)	(90.7)%
Net (loss) income from continuing operations	(102,793)	(336,553)	233,760	(69.5)%
Net (loss) income from discontinuing operations, net of taxes	(76,338)	(18,157)	(58,181)	320.4 %
Net (loss) income	\$ (179,131)	\$ (354,710)	\$ 175,579	(49.5)%
Less: Net loss attributable to noncontrolling interests	—	299	(299)	n/m
Net (loss) income attributable to McGraw-Hill Education, Inc.	\$ (179,131)	\$ (354,411)	\$ 175,280	(49.5)%

Revenue

(Dollars in thousands)	As Restated	As Restated	\$ Change	% Change
	Year Ended December 31, 2015	Year Ended December 31, 2014		
Reported Revenue by segment:				
Higher Education	\$ 805,360	\$ 837,364	\$ (32,004)	(3.8)%
K-12	591,937	543,897	48,040	8.8 %
International	305,021	333,764	(28,743)	(8.6)%
Professional	119,752	116,911	2,841	2.4 %
Other	6,522	897	5,625	627.1 %
Total Reported Revenue	\$ 1,828,592	\$ 1,832,833	\$ (4,241)	(0.2)%

Revenue for the years ended December 31, 2015 and 2014 was \$1,828.6 million and \$1,832.8 million, respectively, a decrease of \$4.2 million or 0.2%. Excluding the impact of purchase accounting (which negatively impacted revenue as a result of the adjustment recorded to reduce the carrying value of deferred revenue on the opening balance sheet), revenue for the years ended December 31, 2015 and 2014 was \$1,853.8 million and \$1,858.3 million, respectively, a decrease of \$4.5 million or 0.2%. This decrease was driven by the segment factors described below.

Higher Education

Higher Education revenue for the years ended December 31, 2015 and 2014 was \$805.4 million and \$837.4 million, respectively, a decrease of \$32.0 million or 3.8%. Excluding the impact of purchase accounting, revenue for the years ended December 31, 2015 and 2014 was \$806.0 million and \$828.8 million, respectively, a decrease of \$22.8 million or 2.8%. The decrease was primarily due to:

- decreased print revenues, resulting in part from our focused transition from print to digital which has led to extended revision cycles for certain titles and a declining print front-list, which in turn has led to more used and rental alternatives for new print materials. In addition, the digital transition has led to unfavorable timing impacts resulting from distribution partners having less market visibility leading to later ordering of print and more unpredictable purchasing and returns patterns in the near term. In the long-term, we would expect higher sell-through to the classroom of digital alternatives and print returns to decline as the business mix transitions to digital offerings; and
- unfavorable timing in sales as the digital transition is changing our selling patterns for digital and print offerings. As we drive our digital first strategy, students are increasingly purchasing digital solutions directly from our proprietary e-commerce channel at the start of the semester. As these sales transition from the traditional distribution channel to our proprietary e-commerce channel, this has the effect of shifting our sales from the end of 2015 to the beginning of 2016; partially offset by
- digital revenue growth, primarily driven by growth in paid activations and unique users of our core digital learning solutions *Connect/LearnSmart* and *ALEKS*, respectively (paid activations of *Connect/LearnSmart* grew by 16%, and unique users of *ALEKS* grew by 18%); and
- a favorable product returns reserve rate consistent with the ongoing market shift to digital learning solutions which experience a lower return rate.

K-12

K-12 revenue for the years ended December 31, 2015 and 2014 was \$591.9 million and \$543.9 million, respectively, an increase of \$48.0 million or 8.8%. Excluding the impact of purchase accounting, revenue for the

years ended December 31, 2015 and 2014 was \$616.7 million and \$573.4 million, respectively, an increase of \$43.4 million or 7.6%. The increase was primarily due to:

- strong performance in California new math adoptions as well as Texas new math and social studies adoptions; partially offset by
- net deferred revenue growth of \$42.1 million driven by increased sales of our digital learning solutions (which are required to be deferred and recognized to income over time (typically five to eight years) in accordance with U.S. GAAP); and
- a decline in open territory revenue due to a smaller market in 2015 and lower elementary reading and math sales as compared to 2014.

International

International revenue for the years ended December 31, 2015 and 2014 was \$305.0 million and \$333.8 million, respectively, a decrease of \$28.7 million or 8.6%. Excluding the impact of purchase accounting, revenue for the years ended December 31, 2015 and 2014 was \$305.0 million and \$334.4 million, respectively, a decrease of \$29.4 million or 8.8%. The decrease was primarily due to:

- a \$27.5 million unfavorable foreign exchange rate impact (estimated by re-calculating current period results of foreign operations using the average exchange rate from the prior period); and
- a decline in print revenue; partially offset by
- digital revenue growth primarily in higher education sales.

Geographic performance was driven by higher education sales in Australia and the Middle East, offset by a decline in Latin America driven by lower K-12 and professional sales.

Professional

Professional revenue for the years ended December 31, 2015 and 2014 was \$119.8 million and \$116.9 million, respectively, an increase of \$2.8 million or 2.4%. Excluding the impact of purchase accounting, revenue for the years ended December 31, 2015 and 2014 was \$119.8 million and \$120.6 million, respectively, a decrease of \$0.8 million or 0.6%. The decrease was primarily due to:

- decline in print and eBook revenue due, in part, to a formal portfolio review and rationalization in late 2014; partially offset by
- new digital subscription revenue growth and strong renewals across *Access* platform offerings.

Cost of Sales

(Dollars in thousands)	Year Ended December 31, 2015	Year Ended December 31, 2014	\$ Change	% Change
Cost of sales, as reported	479,469	523,183	(43,714)	(8.4)%
Impact of purchase accounting	—	35,221	(35,221)	(100.0)%
Cost of sales, excluding the impact of purchase accounting	479,469	487,962	(8,493)	(1.7)%
Excluding purchase accounting - % of revenue	26.2%	26.6%		

Cost of sales for the years ended December 31, 2015 and 2014 was \$479.5 million and \$523.2 million, respectively. Excluding the impact of purchase accounting (which negatively impacted cost of sales as a result of the step-up in the carrying value of inventory on the opening balance sheet), cost of sales for the years ended December 31, 2015 and 2014 was \$479.5 million and \$488.0 million, respectively, a decrease of \$8.5 million or 1.7%. This net decrease was driven by:

- lower manufacturing costs due to the migration from print to digital learning solutions; and
- lower royalty expense due to product mix; partially offset by
- slightly higher freight charges.

Operating and Administration Expenses

Operating and administration expenses for the years ended December 31, 2015 and 2014 were \$1,127.5 million and \$1,194.3 million, respectively, a decrease of \$66.8 million or 5.6%. Included within operating and administration expense is the amortization of pre-publication expenditures which increased by \$5.8 million or 7.0% primarily due to planned K-12 adoptions. The remaining decrease was driven by:

- a \$46.7 million cost reduction due to the completion of physical separation from MHC, our former parent company, in 2014;
- a \$6.0 million decrease in selling and marketing expense driven by our decline in revenue;
- a \$1.7 million decrease in print samples expense due to a focus on digital sampling;
- a \$16.0 million decrease in restructuring and cost savings implementation charges;
- the realization of cost savings associated with actions taken subsequent to the Founding Acquisition including headcount reduction, facilities rationalization, technology optimization and outsourcing as part of our comprehensive cost savings program;
- a \$3.9 million decrease in transaction costs; and
- a \$4.4 million decrease in acquisition costs; partially offset by
- a \$24.8 million increase in DPG expense as a result of our continued investment in digital.

Depreciation & Amortization of Intangibles

Depreciation and amortization expenses for the years ended December 31, 2015 and 2014 were \$124.8 million and \$126.0 million, respectively, a decrease of \$1.2 million or 1.0%. This decrease was the result of having finalized the valuation of intangible assets acquired at the time of the Founding Acquisition.

Interest expense, net

Interest expense, net, for the years ended December 31, 2015 and 2014 was \$192.9 million and \$182.2 million, respectively, an increase of \$10.7 million or 5.9%. The increase was the result of the following:

- the original issuance of the \$400.0 million in MHGE PIK Toggle Notes on July 17, 2014 and subsequent issuance of an additional \$100.0 million of MHGE PIK Toggle Notes in April 2015; partially offset by

- the refinancing of the MHGE Term Loan on March 24, 2014, which reduced the applicable LIBOR margin from 7.75% to 4.75%, and voluntary principal payment of \$35.0 million; and
- the refinancing of the MHGE Term Loan on May 4, 2015, which further reduced the applicable LIBOR margin of 4.75% to 3.75%, and voluntary principal payment of \$0.3 million.

Other (income) expense

Other (income) expense for the years ended December 31, 2015 and 2014 was \$(4.8) million and \$(8.4) million, respectively related to the following:

- a gain of \$4.8 million relating to the sale of an investment in an equity security in 2015; and
- a \$7.3 million gain recognized on the original 20% equity interest in *LearnSmart* held at the time the remaining 80% was acquired on February 6, 2014 and the sale of two parcels of land in November 2014 for a gain of \$1.1 million.

Provision for Taxes on Income

Taxes on income from continuing operations for the years ended December 31, 2015 and 2014 were provisions of \$11.5 million and \$124.4 million, respectively. As of December 31, 2014, a full valuation allowance was recorded against federal and state deferred tax assets due to negative evidence of cumulative book losses incurred in the Successor period. The valuation allowance established in the year ended December 31, 2014, reversed domestic tax benefits claimed in the year ended December 31, 2013. In assessing the need for a valuation allowance, we considered both positive and negative evidence related to the likelihood of realization of the deferred tax assets. The weight given to the positive and negative evidence is commensurate with the extent to which the evidence can be objectively verified. A cumulative loss in recent years is a significant piece of negative evidence that is difficult to overcome in determining that a valuation allowance is not needed against deferred tax assets. As such, it is generally difficult for positive evidence regarding projected future taxable income exclusive of reversing taxable temporary differences to outweigh objective negative evidence of recent financial reporting losses.

Discontinued Operations

The Company sold substantially all of the assets and certain liabilities of the Company's wholly owned CTB business to Data Recognition Corporation ("DRC") in June 2015. The net loss from discontinued operations was \$76.3 million for the year ended December 31, 2015 as compared to \$18.2 million for the year ended December 31, 2014. The variance of \$58.2 million is primarily due to a \$42.8 million loss on sale recognized in 2015 in addition to material contracts that were not renewed and the timing of state adoptions of Common Core assessment tests which negatively impacted the market and the number of new business opportunities.

Adjusted EBITDA by Segment for the Years Ended December 31, 2015 and 2014

(Dollars in thousands)	As Restated	As Restated	\$ Change	% Change
	Year Ended December 31, 2015	Year Ended December 31, 2014		
Adjusted EBITDA by segment:				
Higher Education	\$ 294,540	\$ 296,105	\$ (1,565)	(0.5)%
K-12	126,902	118,168	8,734	7.4 %
International	33,229	37,603	(4,374)	(11.6)%
Professional	32,193	37,882	(5,689)	(15.0)%
Other	(1,274)	(11,846)	10,572	(89.2)%

Higher Education

Adjusted EBITDA for the years ended December 31, 2015 and 2014 was \$294.5 million and \$296.1 million, respectively, a decrease of \$1.6 million or 0.5%. The decrease was due to:

- the gross profit impact of the \$13.4 million unfavorable Billings variance discussed under “-Non-GAAP Measures-Billings for the Years Ended December 31, 2015 and 2014 - Higher Education”; and
- continued investment in digital capabilities, primarily through DPG; partially offset by
- the realization of cost savings associated with actions taken subsequent to the Founding Acquisition including headcount reduction, facilities rationalization, technology optimization and outsourcing as part of our comprehensive cost savings program.

K-12

Adjusted EBITDA for the years ended December 31, 2015 and 2014 was \$126.9 million and \$118.2 million, respectively, an increase of \$8.7 million or 7.4%. The increase was due to:

- the gross profit impact of the \$63.1 million favorable Billings variance discussed under “-Non-GAAP Measures-Billings for the Years Ended December 31, 2015 and 2014 - K-12”; and
- reduced print samples expense due to a focus on digital sampling; partially offset by
- continued investment in digital capabilities, primarily through DPG; and
- increased pre-publication investment cash costs in advance of future sales opportunities.

International

Adjusted EBITDA for the years ended December 31, 2015 and 2014 was \$33.2 million and \$37.6 million, respectively, a decrease of \$4.4 million or 11.6%. The decrease was due to:

- the gross profit impact of the \$27.9 million unfavorable Billings variance discussed under “-Non-GAAP Measures-Billings for the Years Ended December 31, 2015 and 2014 - International”; and
- a \$6.7 million unfavorable foreign exchange rate impact (estimated by re-calculating current period results of foreign operations using the average exchange rate from the prior period); partially offset by
- the realization of cost savings associated with actions taken subsequent to the Founding Acquisition including headcount reduction, facilities rationalization, technology optimization and outsourcing as part of our comprehensive cost savings program; and
- more efficient capital deployment and timing related to pre-publication investment cash costs.

Professional

Adjusted EBITDA for the years ended December 31, 2015 and 2014 was \$32.2 million and \$37.9 million, respectively, a decrease of \$5.7 million or 15.0%. The decrease was due to:

- the gross profit impact of the \$4.3 million unfavorable Billings variance discussed under “-Non-GAAP Measures-Billings for the Years Ended December 31, 2015 and 2014 - Professional”; and
- continued investment in digital capabilities, primarily through DPG; partially offset by

- the net cost benefit related to a print and eBook portfolio and operating model rationalization project undertaken in 2014.

Other

Adjusted EBITDA for the years ended December 31, 2015 and 2014 was \$(1.3) million and \$(11.8) million, respectively, an increase of \$10.6 million or 89.2%. The increase was due to:

- impact of adjustments made for in-transit product sales;
- timing related corporate adjustments.

Non-GAAP Measures

Billings, EBITDA and Adjusted EBITDA

The SEC has adopted rules to regulate the use in filings with the SEC and in public disclosures of “non-GAAP financial measures,” such as Billings, EBITDA and Adjusted EBITDA. These measures are derived on the basis of methodologies other than in accordance with U.S. GAAP.

Billings is a non-GAAP performance measure that provides useful information in evaluating our period-to-period performance because it reflects the total amount of revenue that would have been recognized in a period if we recognized all print and digital revenue at the time of sale. We use Billings as a performance measure given that we typically collect full payment for our digital and print solutions at the time of sale or shortly thereafter, but recognize revenue from digital solutions and multi-year deliverables ratably over the term of our customer contracts. As sales of our digital learning solutions have increased, so has the amount of revenue that is deferred in accordance with U.S. GAAP. Billings is a key metric we use to manage our business as it reflects the sales activity in a given period, provides comparability from period-to-period during this time of digital transition and is the basis for all sales incentive compensation. In the K-12 market where customers typically pay for five to eight year contracts upfront and the ongoing costs to service any contractual obligation are limited, the impact of the change in deferred revenue is most significant. Billings is U.S. GAAP revenue plus the net change in deferred revenue.

EBITDA, a measure used by management to assess operating performance, is defined as net income from continuing operations plus net interest, income taxes, depreciation and amortization (including amortization of pre-publication investment cash costs). Adjusted EBITDA is a non-GAAP debt covenant compliance measure that is defined in accordance with our debt agreements. Adjusted EBITDA is a material term in our debt agreements and provides an understanding of our debt covenant compliance, ability to service our indebtedness and make capital allocation decisions in accordance with our debt agreements.

Each of the above described measures is not a recognized term under U.S. GAAP and does not purport to be an alternative to revenue, income from continuing operations, or any other measure derived in accordance with U.S. GAAP as a measure of operating performance, debt covenant compliance or to cash flows from operations as a measure of liquidity. Additionally, each such measure is not intended to be a measure of free cash flows available for management’s discretionary use, as it does not consider certain cash requirements such as interest payments, tax payments and debt service requirements. Such measures have limitations as analytical tools, and you should not consider any of such measures in isolation or as substitutes for our results as reported under U.S. GAAP. Management compensates for the limitations of using non-GAAP financial measures by using them to supplement U.S. GAAP results to provide a more complete understanding of the factors and trends affecting the business than U.S. GAAP results alone. Because not all companies use identical calculations, our measures may not be comparable to other similarly titled measures of other companies.

Management believes Adjusted EBITDA is helpful in highlighting trends because Adjusted EBITDA excludes the results of certain transactions or adjustments that are non-recurring or non-operational and can differ

significantly from company to company depending on long-term strategic decisions regarding capital structure, the tax rules in the jurisdictions in which companies operate, and capital investments. In addition, Billings and Adjusted EBITDA provide more comparability between the historical operating results and operating results that reflect purchase accounting and the new capital structure post the Founding Acquisition as well as the digital transformation that we are undertaking which requires different accounting treatment for digital and print solutions in accordance with U.S. GAAP.

Management believes that the presentation of Adjusted EBITDA, which is defined in accordance with our debt agreements, is appropriate to provide additional information to investors about certain material non-cash items and about unusual items that we do not expect to continue at the same level in the future as well as other items to assess our debt covenant compliance, ability to service our indebtedness and make capital allocation decisions in accordance with our debt agreements.

Billings for the Years Ended December 31, 2016 and 2015

(Dollars in thousands)	As Restated		\$ Change	% Change
	Year Ended December 31, 2016	Year Ended December 31, 2015		
Reported Revenue by segment:				
Higher Education	\$ 733,782	\$ 805,360	\$ (71,578)	(8.9)%
K-12	602,900	591,937	10,963	1.9 %
International	286,927	305,021	(18,094)	(5.9)%
Professional	116,630	119,752	(3,122)	(2.6)%
Other	(212)	6,522	(6,734)	(103.3)%
Total Reported Revenue	\$ 1,740,027	\$ 1,828,592	\$ (88,565)	(4.8)%
Change in deferred revenue	172,875	229,359	(56,484)	(24.6)%
Billings	\$ 1,912,902	\$ 2,057,951	\$ (145,049)	(7.0)%
Billings by Segment:				
Higher Education	\$ 735,623	\$ 824,951	\$ (89,328)	(10.8)%
K-12	758,473	797,510	(39,037)	(4.9)%
International	295,000	307,932	(12,932)	(4.2)%
Professional	122,100	123,037	(937)	(0.8)%
Other	1,706	4,521	(2,815)	(62.3)%
Total Billings	\$ 1,912,902	\$ 2,057,951	\$ (145,049)	(7.0)%

Billings for the years ended December 31, 2016 and 2015 was \$1,912.9 million and \$2,058.0 million, respectively, a decrease of \$145.0 million or 7.0%.

These variances were driven by the segment factors described below.

Higher Education

Billings for the years ended December 31, 2016 and 2015 was \$735.6 million and \$825.0 million, respectively, a decrease of \$89.3 million or 10.8%. The decrease was due to:

- lower print revenues due to continued distribution partner inventory destocking and reduced reordering by distributors who are managing physical inventory more tightly in light of the ongoing digital

transition in the marketplace. This includes print textbooks we previously sold to distributors, but also physical digital activation cards held in inventory; and

- a smaller front list for 2016 and 2017 copyrights (released in the year before copyright). The smaller front lists was driven primarily by extended revision cycles for certain titles, which in turn has led to increased used and rental alternatives for new print materials; partially offset by
- digital revenue growth, primarily attributable to our core digital learning solutions which are increasingly sold direct-to-student via our e-commerce channel (paid activations of *Connect/LearnSmart* grew by 11% and unique users of *ALEKS* grew by 19%);
- continued decline in actual product returns and a favorable product returns reserve rate; and
- increased market share in a year with a cyclically smaller total market opportunity.

K-12

Billings for the years ended December 31, 2016 and 2015 was \$758.5 million and \$797.5 million, respectively, a decrease of \$39.0 million or 4.9%. The decrease was due to:

- a decline in open territory sales due to lower than expected performance in select key markets; and
- smaller new adoption market in 2016 as compared to 2015; partially offset by
- adoption sales growth driven by strong performance in this year's K-8 ELA adoption in California.

International

Billings for the years ended December 31, 2016 and 2015 was \$295.0 million and \$307.9 million, respectively, a decrease of \$12.9 million or 4.2%. The decrease was due to:

- a \$8.1 million unfavorable foreign exchange rate impact (estimated by re-calculating current period results of foreign operations using the average exchange rate from the prior period);
- a decline in print revenue; partially offset by
- the multi-year digital subscription revenue arrangement entered into with the United Arab Emirates; and
- growth in localized digital offerings, primarily in higher education.

Geographic performance was driven primarily by a decline in K-12 sales in all regions primarily due to lower adoption opportunities and a decline in Higher Education sales in Canada. This was partially offset by a new contract with the United Arab Emirates and Higher Education sales in Asia Pacific, most notably Australia.

Professional

Billings for the years ended December 31, 2016 and 2015 was \$122.1 million and \$123.0 million, respectively, a decrease of \$0.9 million or 0.8%. The decrease was due to:

- a decrease in print and eBook revenue; partially offset by
- an increase in digital subscription Billings for our *Access* platform offerings.

Billings for the Years Ended December 31, 2015 and 2014

(Dollars in thousands)	As Restated	As Restated	\$ Change	% Change
	Year Ended December 31, 2015	Year Ended December 31, 2014		
Reported Revenue by segment:				
Higher Education	\$ 805,360	\$ 837,364	\$ (32,004)	(3.8)%
K-12	591,937	543,897	48,040	8.8 %
International	305,021	333,764	(28,743)	(8.6)%
Professional	119,752	116,911	2,841	2.4 %
Other	6,522	897	5,625	627.1 %
Total Reported Revenue	\$ 1,828,592	\$ 1,832,833	\$ (4,241)	(0.2)%
Change in deferred revenue	229,359	206,608	22,751	11.0 %
Billings	\$ 2,057,951	\$ 2,039,441	\$ 18,510	0.9 %
Billings by Segment:				
Higher Education	\$ 824,951	\$ 838,310	\$ (13,359)	(1.6)%
K-12	797,510	734,417	63,093	8.6 %
International	307,932	335,809	(27,877)	(8.3)%
Professional	123,037	127,299	(4,262)	(3.3)%
Other	4,521	3,606	915	25.4 %
Total Billings	\$ 2,057,951	\$ 2,039,441	\$ 18,510	0.9 %

Higher Education

Billings for the years ended December 31, 2015 and 2014 was \$825.0 million and \$838.3 million, respectively, a decrease of \$13.4 million or 1.6%. The decrease was due to:

- decreased print revenues, resulting in part from our focused transition from print to digital which has led to extended revision cycles for certain titles and a declining print front-list, which in turn has led to more used and rental alternatives for new print materials. In addition, the digital transition has led to unfavorable timing impacts resulting from distribution partners having less market visibility leading to later ordering of print and more unpredictable purchasing and returns patterns in the near term. In the long-term, we would expect higher sell-through to the classroom of digital alternatives and print returns to decline as the business mix transitions to digital offerings; and
- unfavorable timing in sales as the digital transition is changing our selling patterns for digital and print offerings. As we drive our digital first strategy, students are increasingly purchasing digital solutions directly from our proprietary e-commerce channel at the start of the semester. As these sales transition from the traditional distribution channel to our proprietary e-commerce channel, this has the effect of shifting our sales from the end of 2015 to the beginning of 2016; partially offset by
- digital revenue growth, primarily driven by growth in paid activations and unique users of our core digital learning solutions *Connect/LearnSmart* and *ALEKS*, respectively (paid activations of *Connect/LearnSmart* grew by 16% and unique users of *ALEKS* grew by 18%); and
- a favorable product returns reserve rate consistent with the ongoing market shift to digital learning solutions which experience a much lower return rate.

K-12

Billings for the years ended December 31, 2015 and 2014 was \$797.5 million and \$734.4 million, respectively, an increase of \$63.1 million or 8.6%. The increase was due to:

- an increase in adoption Billings of 23% or \$84.1 million due to:
 - K-5 new math adoptions in California;
 - 6-12 new social studies and 9-12 math adoptions in Texas; partially offset by
 - Lower new adoptions in 6-8 math and 6-12 science in Texas as compared to 2014; partially offset by
- a 2% or \$4.4 million decline in total open territory Billings.

International

Billings for the years ended December 31, 2015 and 2014 was \$307.9 million and \$335.8 million, respectively, a decrease of \$27.9 million or 8.3%. The decrease was due to:

- a \$28.4 million unfavorable foreign exchange rate impact (estimated by re-calculating current period results of foreign operations using the average exchange rate from the prior period); and
- a decline in print revenue; partially offset by
- digital revenue growth primarily in the higher education market.

Geographic performance was driven by higher education sales in Australia and the Middle East, offset by a sales decline in Latin America, primarily due to lower K-12 and professional sales.

Professional

Billings for the years ended December 31, 2015 and 2014 was \$123.0 million and \$127.3 million, respectively, a decrease of \$4.3 million or 3.3%. The decrease was due to:

- decline in print and eBook revenue due, in part, to a formal portfolio review and rationalization in late 2014;
- unfavorable timing associated with subscription renewals; partially offset by
- new digital subscription revenue growth and strong renewals across *Access* platform offerings.

Debt Covenant Compliance

Adjusted EBITDA is an important measure because, under our debt agreements, our ability to incur additional indebtedness or issue certain preferred shares, make certain types of acquisitions or investments, operate our business and make dividends, conduct asset sales or dispose of all or substantially all of our assets, all of which will impact our financial performance, is impacted by our Adjusted EBITDA, as our lenders measure our performance with a net first lien leverage ratio by comparing our senior secured bank indebtedness to our Adjusted EBITDA and a fixed charge coverage ratio, and several of our debt, investment and restricted payment baskets are measured using Adjusted EBITDA.

The Senior Facilities and the indentures governing the MHGE PIK Toggle Notes and the MHGE Senior Notes contain, among other provisions, certain customary covenants regarding indebtedness, payments and distributions, mergers and acquisitions, asset sales and affiliate transactions. Capacity for investments, debt,

distributions and certain prepayments is measured in many instances by a multiple of Adjusted EBITDA. Our revolving credit facility requires that MHGE Holdings, after an initial grace period and subject to a testing threshold, comply on a quarterly basis with a maximum net first lien senior secured leverage ratio (the ratio of consolidated net debt secured by first-priority liens on the collateral to Adjusted EBITDA, as defined in the credit agreement governing the Senior Facilities) of (a) with respect to the first, third and fourth fiscal quarters of any year, 4.80 to 1.00 and (b) with respect to the second quarter of any fiscal year, 5.25 to 1.00. Payment of borrowings under the debt agreements may be accelerated if there is an event of default. Events of default include the failure to pay principal and interest when due, a material breach of a representation or warranty, certain non-payments or defaults under other indebtedness, covenant defaults, events of bankruptcy and a change of control. Our historical debt agreements, including the MHGE Facilities, the MHSE Revolving Facility and the MHSE Term Loan, contained similar covenants predicated on the same Adjusted EBITDA measure. Failure to comply with these covenants, which are based, in part, upon Adjusted EBITDA could limit our long-term growth prospects by hindering our ability to incur future debt or make acquisitions.

“Adjusted EBITDA” as defined in our Senior Facilities debt agreements, is net income, adjusted for the items summarized in the table below. Adjusted EBITDA is intended to show our unleveraged, pre-tax operating results and therefore reflects our financial performance based on operational factors, excluding non-operational or non-recurring losses or gains. Adjusted EBITDA is not a presentation made in accordance with U.S. GAAP, and our use of the term Adjusted EBITDA varies from others in our industry. This measure should not be considered as an alternative to net income (loss) from continuing operations or any other performance measures derived in accordance with U.S. GAAP. Adjusted EBITDA has important limitations as an analytical tool, and you should not consider it in isolation, or as a substitute for analysis of our results as reported under U.S. GAAP. For example, Adjusted EBITDA does not reflect: (a) our cash capital expenditure requirements for the assets being depreciated and amortized that may have to be replaced in the future; (b) changes in, or cash requirements for, our working capital needs; (c) the significant interest expenses, or the cash requirements necessary to service interest or principal payments, on our debt; (d) tax payments that may represent a reduction in cash available to us; (e) management fees paid to entities and investment funds affiliated with Apollo Global Management, LLC; (f) one-time expenditures to realize the synergies referred to above; or (g) the impact of earnings or charges resulting from matters that we and the lenders under our debt agreements may not consider indicative of our ongoing operations. In particular, our definition of Adjusted EBITDA allows us to add back certain non-cash and other charges or costs that are deducted in calculating net income from continuing operations. However, these are expenses that may recur, vary greatly and are difficult to predict. They can represent the effect of long-term strategies as opposed to short-term results. In addition, certain of these expenses can represent the reduction of cash that could be used for other corporate purposes.

Further, although not included in the calculation of Adjusted EBITDA below, the measure may at times allow us to add estimated cost savings and operating synergies related to operational changes ranging from acquisitions or dispositions to restructurings, and/or exclude one-time transition expenditures that we anticipate we will need to incur to realize cost savings before such savings have occurred.

The calculation of Adjusted EBITDA in accordance with our debt agreements is presented in the table below. The results of such calculation could differ in the future based on the different types of adjustments that may be included in such respective calculations at the time.

	<u>As Restated</u> <u>Year Ended</u> <u>December 31, 2016</u>	<u>As Restated</u> <u>Year Ended</u> <u>December 31, 2015</u>	<u>As Restated</u> <u>Year Ended</u> <u>December 31, 2014</u>
Net income (loss) from continuing operations	\$ (135,102)	\$ (102,793)	\$ (336,553)
Interest (income) expense, net	199,506	192,918	182,199
Income tax provision	15,117	11,530	124,439
Depreciation, amortization and pre-publication investment amortization	202,081	213,523	208,905
EBITDA	\$ 281,602	\$ 315,178	\$ 178,990
Change in deferred revenue (a)	172,875	229,359	206,608
Change in deferred royalties (b)	(17,969)	(10,866)	(8,699)
Restructuring and cost savings implementation charges (c)	17,080	24,766	39,888
Sponsor fees (d)	3,500	3,500	3,500
Impairment charge (e)	—	—	23,800
Purchase accounting (f)	—	—	35,221
Transaction costs (g)	—	—	3,932
Acquisition costs (h)	—	—	4,376
Physical separation costs (i)	—	—	46,716
Loss on extinguishment of debt (j)	26,562	—	—
Other (k)	28,933	22,470	30,665
Pre-publication investment (l)	(89,695)	(98,817)	(87,085)
Adjusted EBITDA	\$ 422,888	\$ 485,590	\$ 477,912

- (a) We receive cash up-front for most sales but recognize revenue (primarily related to digital sales) over time recording a liability for deferred revenue at the time of sale. This adjustment represents the net effect of converting deferred revenues to a cash basis assuming the collection of all receivable balances.
- (b) Royalty obligations are generally payable in the period incurred with limited recourse. This adjustment represents the net effect of converting deferred royalties to a cash basis assuming the payment of all amounts owed in the period incurred. See Note 2, "Restatement of Previously Issued Consolidated Financial Statements."
- (c) Represents severance and other expenses associated with headcount reductions and other cost savings initiated as part of our formal restructuring initiatives to create a flatter and more agile organization.
- (d) Beginning in 2014, \$3.5 million of annual management fees was recorded and payable to Apollo.
- (e) An impairment charge was recorded in 2014 to reduce the recorded value of an owned office building to its estimated fair value based upon an independent appraisal.
- (f) Represents the effects of the application of purchase accounting associated with the Founding Acquisition, driven by the step-up of acquired inventory. The deferred revenue adjustment recorded as a result of purchase accounting has been considered in the deferred revenue adjustment.
- (g) The amount represents the transaction costs associated with the Founding Acquisition.
- (h) The amount represents costs incurred for acquisitions subsequent to the Founding Acquisition including *ALEKS*, *LearnSmart* and *Engrade*.
- (i) The amount represents costs incurred to physically separate our operations from MHC. These physical separation costs were incurred subsequent to the Founding Acquisition and concluded in 2014.
- (j) This amount represents the write-off of unamortized deferred financing fees, original debt discount and other fees and expenses associated with the Company's refinancing of its existing indebtedness on May 4, 2016.

- (k) For the year ended December 31, 2016 the amount represents (i) non-cash incentive compensation expense and (ii) other adjustments required or permitted in calculating covenant compliance under our debt agreements.

For the year ended December 31, 2015, the amount represents (i) non-cash incentive compensation expense; (ii) elimination of the gain of \$4.8 million on the sale of an investment in an equity security and (iii) other adjustments required or permitted in calculating covenant compliance under our debt agreements.

For the year ended December 31, 2014, the amount represents (i) cash distributions to noncontrolling interest holders of \$0.2 million; (ii) non-cash incentive compensation expense; (iii) elimination of non-cash gain of \$7.3 million in LearnSmart; and (iv) other adjustments required or permitted in calculating covenant compliance under our debt agreements.

- (l) Represents the cash cost for pre-publication investment during the period excluding discontinued operations.

In addition, the Senior Facilities credit agreement and the indentures governing the MHGE Senior Notes and MHGE PIK Toggle Notes, contain a financial covenant that requires the disclosure of a description of the quantitative differences from the parent, McGraw Hill Education Inc., (“MHE”) to MHGE and its subsidiaries (for the Senior Facilities and MHGE Senior Notes) and from MHE to MHGE Parent, LLC (“MHGE Parent”) and its subsidiaries (for the PIK Toggle Notes).

As of December 31, 2016, the material quantitative differences from MHE to MHGE and its subsidiaries relate to \$7.1 million of cash and cash equivalents, of which \$0.0 million was held by MHGE Parent and \$7.1 million was held by MHE. There were no other material assets or liabilities other than the \$500 million of MHGE PIK Toggle Notes due in 2019 and its related accrued interest of \$17.7 million.

As of December 31, 2016, the material quantitative differences from MHE to MHGE Parent and its subsidiaries relate to \$7.1 million of cash and cash equivalents held by MHE. There were no other material assets or liabilities.

Furthermore, MHE and MHGE Parent do not generate revenue or conduct, transact or engage in any material business or operations other than their direct or indirect ownership of the equity interests in MHGE.

Seasonality and Comparability

Our revenues, operating profit and operating cash flows are affected by the inherent seasonality of the academic calendar. In 2016 we realized approximately 15%, 25%, 37% and 23% of our revenues during the first, second, third and fourth quarters, respectively. This seasonality affects operating cash flow from quarter to quarter and there are certain months when we operate at a net cash deficit. Changes in our customers’ ordering patterns may affect the comparison of our current results to comparable periods in prior years where our customers may shift the timing of material orders for any number of reasons, including, but not limited to, changes in academic semester start dates or changes to their inventory management practices.

Quarterly Results of Operations

	As Restated							
	2015				2016			
	First Quarter 2015	Second Quarter 2015	Third Quarter 2015	Fourth Quarter 2015	First Quarter 2016	Second Quarter 2016	Third Quarter 2016	Fourth Quarter 2016
Statement of Operations¹:								
Revenue	\$ 247,717	\$ 418,396	\$ 744,687	\$ 417,792	\$ 260,830	\$ 437,168	\$ 642,063	\$ 399,966
Cost of sales	64,290	121,712	179,916	113,551	60,205	122,148	156,843	88,213
Gross profit	183,427	296,684	564,771	304,241	200,625	315,020	485,220	311,753
Operating expenses								
Operating and administration expenses	262,856	265,333	310,463	288,803	267,104	267,599	267,708	276,193
Depreciation	7,722	6,223	6,468	10,223	12,246	8,529	8,109	8,161
Amortization of intangibles	23,617	23,487	22,992	24,060	22,815	22,490	22,853	22,728
Total operating expenses	294,195	295,043	339,923	323,086	302,165	298,618	298,670	307,082
Operating income	(110,768)	1,641	224,848	(18,845)	(101,540)	16,402	186,550	4,671
Interest expense (income), net	49,859	48,481	47,633	46,945	47,525	63,755	43,439	44,787
Loss on extinguishment of debt	—	—	—	—	—	26,562	—	—
Other (income) expense	—	(4,779)	—	—	—	—	—	—
(Loss) income from operations before taxes on income	(160,627)	(42,061)	177,215	(65,790)	(149,065)	(73,915)	143,111	(40,116)
Income tax provision	(1,034)	1,809	5,738	5,017	1,557	2,826	4,341	6,393
Net (loss) income from continuing operations	(159,593)	(43,870)	171,477	(70,807)	(150,622)	(76,741)	138,770	(46,509)
Net (loss) income from discontinued operations, net of taxes	(7,570)	(54,593)	(7,206)	(6,969)	(836)	(624)	(209)	(236)
Net (loss) income	\$ (167,163)	\$ (98,463)	\$ 164,271	\$ (77,776)	\$ (151,458)	\$ (77,365)	\$ 138,561	\$ (46,745)

As Restated

	2015				2016			
	First Quarter 2015	Second Quarter 2015	Third Quarter 2015	Fourth Quarter 2015	First Quarter 2016	Second Quarter 2016	Third Quarter 2016	Fourth Quarter 2016
Reported revenue by segment¹:								
Higher Education	\$ 125,605	\$ 147,888	\$ 309,896	\$ 221,971	\$ 133,923	\$ 142,142	\$ 248,850	\$ 208,867
K-12	49,869	168,635	304,073	69,360	57,645	203,515	272,224	69,516
International	44,692	74,056	93,952	92,321	42,652	66,089	88,077	90,109
Professional	26,255	27,576	32,812	33,109	26,583	28,995	30,008	31,044
Other	1,296	241	3,954	1,031	27	(3,573)	2,904	430
Total Reported Revenue	\$ 247,717	\$ 418,396	\$ 744,687	\$ 417,792	\$ 260,830	\$ 437,168	\$ 642,063	\$ 399,966
Change in deferred revenue	(26,574)	70,853	207,561	(22,481)	(22,403)	43,506	190,239	(38,467)
Billings	\$ 221,143	\$ 489,249	\$ 952,248	\$ 395,311	\$ 238,427	\$ 480,674	\$ 832,302	\$ 361,499
Billings by segment¹:								
Higher Education	\$ 118,981	\$ 124,868	\$ 386,182	\$ 194,920	\$ 127,296	\$ 109,065	\$ 326,004	\$ 173,258
K-12	36,558	259,167	435,364	66,421	46,200	274,852	382,957	54,464
International	42,969	73,603	100,155	91,205	42,514	65,289	95,170	92,027
Professional	22,079	29,996	30,241	40,721	22,048	31,226	28,133	40,693
Other	556	1,615	306	2,044	369	242	38	1,057
Total Billings	\$ 221,143	\$ 489,249	\$ 952,248	\$ 395,311	\$ 238,427	\$ 480,674	\$ 832,302	\$ 361,499

As Restated

	2015				2016			
	First Quarter 2015	Second Quarter 2015	Third Quarter 2015	Fourth Quarter 2015	First Quarter 2016	Second Quarter 2016	Third Quarter 2016	Fourth Quarter 2016
Adjusted EBITDA by segment¹:								
Higher Education	\$ (2,540)	\$ 10,885	\$ 234,603	\$ 51,592	\$ 6,662	\$ (5,002)	\$ 192,451	\$ 39,396
K-12	(90,398)	78,618	225,590	(86,908)	(73,927)	99,504	184,906	(72,115)
International	(9,533)	5,597	24,206	12,959	(8,152)	(2,030)	17,331	11,862
Professional	761	8,080	7,267	16,085	(1,468)	8,682	8,716	17,809
Other	53	1,488	(1,664)	(1,151)	(4,126)	(4,168)	5,813	744

¹The unaudited consolidated quarterly financial information presented in the table above reflects the restatement described in Note 2 - Restatement of Previously Issued Consolidated Financial Statements to the audited consolidated financial statements.

Indebtedness and Liquidity

	As of		
	December 31, 2016	December 31, 2015	December 31, 2014
Cash and cash equivalents	\$ 418,753	\$ 553,194	\$ 413,963
Current portion of long-term debt	15,750	81,620	9,380
Long-term debt	2,329,506	2,053,175	2,022,258

Historically, we have generated operating cash flows sufficient to fund our seasonal working capital, capital requirements, expenditure and financing requirements. We use our cash generated from operating activities for a variety of needs, including among others: working capital requirements, pre-publication investment cash costs, capital expenditures and strategic acquisitions.

Our operating cash flows are affected by the inherent seasonality of the academic calendar. This seasonality also impacts cash flow patterns as investments are typically made in the first half of the year to support the significant selling period that occurs in the second half of the year. As a result, our cash flow is typically lower in the first half of the fiscal year and higher in the second half of the fiscal year.

Going forward, we may need cash to fund operating activities, working capital, pre-publication investment cash costs, capital expenditures and strategic investments. Our ability to fund our capital needs will depend on our ongoing ability to generate cash from operations and our access to the bank and capital markets. We believe that our future cash flow from operations, together with our access to funds on hand and capital markets, will provide adequate resources to fund our operating and financing needs for at least the next twelve months. We also expect our working capital requirements to be positively impacted by our migration from print products to digital learning solutions.

If our cash flows from operations are less than we require, we may need to incur debt or issue equity. From time to time we may need to access the long-term and short-term capital markets to obtain financing. Although we believe we can currently finance our operations on acceptable terms and conditions, our access to, and the availability of, financing on acceptable terms and conditions in the future will be affected by many factors, including: (i) our credit ratings, (ii) the liquidity of the overall capital markets and (iii) the current state of the economy. There can be no assurance that we will continue to have access to the capital markets on terms acceptable to us.

Cash and cash equivalents

As of December 31, 2016 and 2015, we had cash and cash equivalents of \$418.8 million and \$553.2 million, respectively. The cash held by foreign subsidiaries as of December 31, 2016 and 2015, was \$57.4 million and \$52.7 million. These cash balances held outside the United States will be used to fund international operations and to make investments outside of the United States. In the event funds from international operations were needed to fund operations in the United States, we would provide for taxes in the United States, if any, on the repatriated funds.

The Refinancing

On May 4, 2016, MHGE and McGraw-Hill Global Education Finance, Inc. (together with MHGE, the "Issuers") closed their offering of \$400.0 million aggregate principal amount of 7.875% Senior Notes due 2024 (the "Notes") in a private placement (the "MHGE Senior Notes"). Concurrently with the closing of the MHGE Senior Notes, MHGE Holdings entered into \$1,925.0 million of new senior secured credit facilities (the "Senior Facilities"), consisting of a five-year \$350.0 million senior secured revolving credit facility (the "Revolving Facility"), which was undrawn at closing, and a six-year \$1,575.0 million senior secured term loan credit facility (the "Term Loan Facility").

The proceeds from the issuance of the MHGE Senior Notes and the Senior Facilities together with cash on hand were used to (i) repurchase and redeem all of the MHGE Senior Secured Notes (ii) repay in full all amounts outstanding under our then existing MHGE Term Loan and MHSE Term Loan and terminate all commitments thereunder, (iii) terminate all commitments under our then existing MHGE Revolving Facility and MHSE Revolving Facility, (v) fund a distribution to the Company's shareholders and (vi) pay related fees and expenses. We refer to the issuance of the MHGE Senior Notes together with the Senior Facilities and the transactions described in this paragraph collectively as the "Refinancing".

In addition, concurrently with the Refinancing, the Company completed a reorganization such that MHSE Holdings became a direct subsidiary of MHGE.

The Refinancing was accounted for in accordance with ASC 470 -50, *Debt - "Modifications and Extinguishments"*. As a result, we incurred a loss on extinguishment of debt of \$26.6 million, consisting of a portion of the redemption premium paid of \$14.5 million associated with the MHGE Senior Secured Notes and the write-off of unamortized deferred financing fees of \$8.7 million and original debt discount of \$3.4 million related to the portion of the debt accounted for as an extinguishment. With respect to the portion of the debt accounted for as a modification, the Company continued to capitalize \$46.2 million of the unamortized deferred financing fees and \$18.3 million of the original debt discount. In addition, the Company capitalized \$45.5 million of the remaining redemption premium paid associated with the MHGE Senior Secured Notes which is included within unamortized debt discount.

Furthermore, we incurred \$45.7 million of creditor and third-party fees on the MHGE Senior Notes and Senior Facilities, of which, \$20.0 million were capitalized as deferred financing fees, \$7.9 million were capitalized as debt discount and \$17.8 million were expensed and included within interest expense, net in our consolidated statements of operations for the year ended December 31, 2016.

The following summarizes the terms of the agreements governing the Company's debt outstanding as of December 31, 2016.

MHGE Senior Notes

On May 4, 2016, the Issuers issued \$400.0 million in principal amount of the MHGE Senior Notes in a private placement. The MHGE Senior Notes mature on May 15, 2024 and bear interest at a rate of 7.875% per annum, payable semi-annually in arrears on May 15 and November 15 of each year, commencing on November 15, 2016.

As of December 31, 2016, the unamortized debt discount and deferred financing costs were \$48.7 million and \$22.2 million, respectively, which are amortized over the term of the MHGE Senior Notes using the effective interest method.

The Issuers may redeem the MHGE Senior Notes at their option, in whole or in part, at any time on or after May 15, 2019, at certain redemption prices. In addition, prior to May 15, 2019 the Issuers may redeem the MHGE Senior Notes at their option, in whole at any time or in part from time to time, at a redemption price equal to 100% of the principal amount of the MHGE Senior Notes redeemed, plus a "make-whole" premium and accrued and unpaid interest, if any. Notwithstanding the foregoing, from time to time on or prior to May 15, 2019 the Issuers may redeem in the aggregate up to 40% of the original aggregate principal amount of the Notes (calculated after giving effect to any issuance of additional notes) in an aggregate amount equal to the net cash proceeds of one or more equity offerings at a redemption price equal to 107.875%, plus accrued and unpaid interest, if any, so long as at least 50% of the original aggregate principal amount of the Notes (calculated after giving effect to any issuance of additional notes) must remain outstanding after each such redemption.

The MHGE Senior Notes are fully and unconditionally guaranteed by each of MHGE Holdings' domestic restricted subsidiaries that guarantee the Senior Facilities.

The MHGE Senior Notes contain certain customary negative covenants and events of default. The negative covenants limit MHGE Holdings and its restricted subsidiaries' ability to, among other things: incur additional indebtedness or issue certain preferred shares, create liens on certain assets, pay dividends or prepay junior debt, make certain loans, acquisitions or investments, materially change its business, engage in transactions with affiliates, conduct asset sales, restrict dividends from subsidiaries, restrict liens, or merge, consolidate, sell or otherwise dispose of all or substantially all of MHGE Holdings' assets.

The fair value of the MHGE Senior Notes was approximately \$403.0 million as of December 31, 2016. The Company estimates the fair value of its MHGE Senior Notes based on trades in the market. Since the MHGE Senior Notes do not trade on a daily basis in an active market, the fair value estimates are based on market observable inputs based on borrowing rates currently available for debt with similar terms and average maturities (Level 2). As of December 31, 2016, the remaining contractual life of the MHGE Senior Notes is approximately 7.25 years.

Senior Facilities

On May 4, 2016, MHGE Holdings entered into the Senior Facilities. The Senior Facilities provide for senior secured financing of up to \$1,925.0 million, consisting of:

- the Term Loan Facility in an aggregate principal amount of \$1,575.0 million with a maturity of 6 years; and
- the Revolving Facility in an aggregate principal amount of up to \$350.0 million with a maturity of 5 years, including both a letter of credit sub-facility and a swingline loan sub-facility.

Borrowings under the Senior Facilities bear interest at a rate equal to a LIBOR or Prime rate plus an applicable margin, subject to a 1.00% floor in the case of the Term Loan Facility. As of December 31, 2016, the interest rate for the Term Loan Facility was 5.0%. In addition, the Term Loan Facility was issued at a discount of 0.5%. As of December 31, 2016, the unamortized debt discount and deferred financing costs was \$18.3 million and \$24.4 million, respectively, which are amortized over the term of the facility using the effective interest method.

As of December 31, 2016, the amount available under the Revolving Facility was \$350.0 million. In addition, we are required to pay a commitment fee of 0.50% per annum to the lenders under the Revolving Facility in respect of the unutilized commitments thereunder.

The Senior Facilities require scheduled quarterly principal payments on the term loans in amounts equal to 0.25% of the original principal amount of the term loans commencing with the end of the first full fiscal quarter ending after the closing date, with the balance payable at maturity.

In addition, the Senior Facilities include customary mandatory prepayment requirements based on certain events such as asset sales, debt issuances and defined levels of excess cash flow.

All obligations under the Senior Facilities are unconditionally guaranteed by each of MHGE Holdings' existing and future direct and indirect material, wholly owned domestic subsidiaries. The obligations are secured by substantially all of MHGE Holdings' assets and those of each subsidiary guarantor, capital stock of the subsidiary guarantors and 65% of the voting capital stock of the first-tier foreign subsidiaries that are not subsidiary guarantors, in each case subject to exceptions. Such security interests consist of a first priority lien with respect to the collateral.

Our Revolving Facility a springing financial covenant that requires MHGE Holdings, subject to a testing threshold, comply on a quarterly basis with a maximum net first lien senior secured leverage ratio (the ratio of consolidated net debt secured by first-priority liens on the collateral to Adjusted EBITDA) of (a) with respect to the first, third and fourth fiscal quarters of any year, 4.80 to 1.00 and (b) with respect to the second quarter of any fiscal year, 5.25 to 1.00. The testing threshold are satisfied at any time at which the sum of outstanding revolving credit facility loans, swingline loans and certain letters of credit exceeds thirty percent (30%) of commitments under the revolving credit facility at such time.

Adjusted EBITDA reflects EBITDA as defined in the credit agreement governing the Senior Facilities. Solely for the purpose of calculating the springing financial covenant, pre-publication investments should be excluded from the calculation of Adjusted EBITDA.

The Senior Facilities contain certain customary affirmative covenants and events of default. The negative covenants in the Senior Facilities include, among other things, limitations on MHGE Holdings' and its subsidiaries' ability to incur additional debt or issue certain preferred shares; create liens on certain assets; make certain loans or investments (including acquisitions); pay dividends on or make distributions in respect of capital stock or make other restricted payments; consolidate, merge, sell or otherwise dispose of all or substantially all of their assets; sell assets; enter into certain transactions with affiliates; enter into sale-leaseback transactions; change their lines of business; restrict dividends from their subsidiaries or restrict liens; change their fiscal year; and modify the terms of certain debt or organizational agreements.

The fair value of the Term Loan Facility was approximately \$1,567.1 million as of December 31, 2016. The Company estimates the fair value of its Term Loan Facility based on trades in the market. Since the Term Loan Facility do not trade on a daily basis in an active market, the fair value estimates are based on market observable inputs based on borrowing rates currently available for debt with similar terms and average maturities (Level 2). As of December 31, 2016, the remaining contractual life of the Term Loan Facility is approximately 5.25 years.

MHGE PIK Toggle Notes

On July 17, 2014, MHGE Parent and MHGE Parent Finance, Inc. issued \$400.0 million aggregate principal amount of the MHGE PIK Toggle Notes in a private placement. The MHGE PIK Toggle Notes were issued at a discount of 1%. The net proceeds were used to make a return of capital to the equity holders of MHGE Parent and pay certain related transaction costs and expenses.

On April 6, 2015, additional aggregate principal amount of \$100.0 million was issued under the same indenture, and part of the same series, as the outstanding \$400.0 million of the MHGE PIK Toggle Notes previously issued by MHGE Parent and MHGE Parent Finance, Inc. The proceeds from this private offering were used to make a return of capital to the equity holders of MHGE Parent.

As of December 31, 2016, the unamortized debt discount and deferred financing costs was \$2.7 million and \$5.6 million, respectively, which are amortized over the term of the MHGE PIK Toggle Notes using the effective interest method.

The MHGE PIK Toggle Notes bear interest at 8.500% for interest paid in cash and 9.250% for in-kind interest, "PIK Interest," by increasing the principal amount of the MHGE PIK Toggle Notes by issuing new notes. Interest is payable semi-annually on February 1 and August 1 of each year. The first semi-annual interest payment was required to be paid in cash and was paid on February 2, 2015 in the amount of \$18.3 million. In addition, the Company paid \$21.3 million in cash on August 3, 2015 and February 1, 2016 relating to the second and third semi-annual interest payment, respectively. The determination as to whether interest is paid in cash or PIK Interest is determined based on restrictions in the credit agreement governing the Senior Facilities and in the indenture governing the MHGE Senior Notes for payments to MHGE Parent. PIK Interest may be paid either 0%, 50% or 100% of the amount of interest due, dependent on the amount of any restriction. The MHGE PIK Toggle Notes are structurally subordinate to all of the debt of MHGE Holdings and its subsidiaries, are not guaranteed by any of MHGE Holdings or its subsidiaries and are a contractual obligation of MHGE Parent.

On April 14, 2016, MHGE paid a dividend of \$21.3 million to MHGE Parent in advance of the interest payable on the MHGE PIK Toggle Notes due on August 1, 2016.

The MHGE PIK Toggle Notes are unsecured and are not subject to registration rights.

The MHGE PIK Toggle Notes contain certain customary affirmative covenants and events of default that are similar to those contained in the indenture governing the MHGE Secured Notes. In addition, the negative

covenants in the MHGE PIK Toggle Notes limit MHGE Parent and its restricted subsidiaries' ability to, among other things: incur additional indebtedness or issue certain preferred shares, create liens on certain assets, pay dividends or prepay junior debt, make certain loan, acquisitions or investments, materially change its business, engage into transactions with affiliates, conduct asset sales, restrict dividends from subsidiaries or restrict liens, or merge, consolidate, sell or otherwise dispose of all or substantially all of MHGE Parent's assets.

Scheduled Principal Payments

The scheduled principal payments required under the terms of the MHGE Senior Notes, Term Loan Facility, Revolving Facility and MHGE PIK Toggle Notes were as follows:

	As of
	December 31, 2016
2017	15,750
2018	15,750
2019	515,750
2020	15,750
2021	15,750
2022 and beyond	1,888,375
	<u>2,467,125</u>
Less: Current portion	15,750
	<u>\$ 2,451,375</u>

Cash Flows

Cash flows from operating, investing and financing activities are presented in the following table:

	As Restated	As Restated	As Restated
(Dollars in thousands)	Year Ended	Year Ended	Year Ended
	December 31, 2016	December 31, 2015	December 31, 2014
Cash flows from operating activities	\$ 197,964	\$ 308,422	\$ 354,941
Cash flows from investing activities	(139,418)	(151,763)	(176,464)
Cash flows from financing activities	(190,912)	(12,850)	(192,553)

Net cash flows from operating activities consist of profit after income tax, adjusted for changes in net working capital and non-cash items such as depreciation, amortization and write-offs, and provisions.

Operating Activities

- Cash flows (used for) provided by operating activities for the year ended December 31, 2016 and 2015 were \$198.0 million and \$308.4 million, respectively, a decrease of \$110.5 million. The decrease in cash used for operating activities was primarily driven by:
 - an increase in inventory primarily driven by higher inventory levels in our K-12 segment in advance of large new adoption market opportunities, most notably the California ELA adoption; and
 - a decrease in accounts payable and accrued expenses driven by the timing of payments; partially offset by

- a decrease in accounts receivable due to lower revenue, partially offset by delayed customer collections related to the California ELA adoption that were primarily collected in the early part of 2017; and
 - decreased technology related prepayments driven by the timing of initial multiyear prepayments.
- Cash flows provided by operating activities for the years ended December 31, 2015 and 2014 were \$308.4 million and \$354.9 million, respectively, a decrease of \$46.5 million. The decrease in cash provided by operating activities was primarily driven by unfavorable net changes in operating assets and liabilities of \$86.3 million and an unfavorable net change in non-cash items of \$135.8 million, offset by favorable change in the net loss of \$175.6 million. These unfavorable net changes in operating assets and liabilities were primarily due to one-time working capital reductions made in 2014 that negatively impacted year-over-year comparability in 2015.

Investing Activities

- Cash flows used for investing activities for the year ended December 31, 2016 and 2015 were \$139.4 million and \$151.8 million, respectively, a decrease of \$12.3 million. Cash flows used for investing activities decreased primarily as a result of a \$10.1 million and a \$3.0 million decrease in pre-publication costs and capital expenditures, respectively, driven by the timing of large K-12 adoption opportunities and capital lease arrangements for assets that were historically purchased outright. In addition, acquisition and divestiture related payments were \$11.5 million in 2016 compared to \$23.5 million in 2015. These variances were partially offset by \$12.5 million of investment proceeds during the year ended December 31, 2015.
- Cash flows used for investing activities for the years ended December 31, 2015 and 2014 was \$151.8 million and \$176.5 million, respectively. Cash flows used for investing activities decreased as a result of \$60.3 million spent on acquisitions for the year ended December 31, 2014 as compared to \$6.8 million during the year ended December 31, 2015. This was partially offset by an increase in investments in pre-publication costs and capital expenditures of \$10.0 million in the year ended December 31, 2015 as compared to the year ended December 31, 2014 as we continued to invest in advance of large new adoption opportunities in 2017 and 2018. We also made a \$16.6 million payment to DRC, related to the CTB business divestiture, in lieu of transferring working capital.

Financing Activities

- Cash flows used for financing activities for the year ended December 31, 2016 and 2015 were \$190.9 million and \$12.9 million, respectively, an increase of \$178.1 million. Cash flows used for financing activities increased primarily as a result of a \$300.0 million dividend to common stockholders on May 4, 2016 as compared to a \$100.0 million dividend to common stockholders on April 6, 2015. In addition, during 2016, the Company paid \$29.5 million in dividend equivalents and to repurchase equity. These cash outflows were partially offset by an increase in net borrowings of \$91.8 million associated with the Company's debt refinancing on May 4, 2016.
- Cash flows used for financing activities for the years ended December 31, 2015 and 2014 was \$12.9 million and \$192.6 million, respectively. The usage in the year ended December 31, 2015 was primarily related to a \$101.3 million dividend paid to common stockholders funded by additional borrowings of \$100.0 million. The usage in the year ended December 31, 2014 was primarily related to a \$489.0 million dividend paid to common stockholders funded by additional borrowings of \$396.0 million, a MHGE Term Loan payment and a MHSE Term Loan payment of \$41.9 million and \$2.5 million, respectively and a payment of deferred purchase price for ALEKS of \$53.5 million.

Capital Expenditures and Pre-publication Expenditures

Part of our plan for growth and stability includes disciplined capital expenditures and pre-publication expenditures.

An important component of our cash flow generation is our pre-publication efficiency. We have been focused on optimizing our pre-publication expenditures to generate content that can be leveraged across our full range of products, maximizing long-term return on investment. Pre-publication expenditures, principally external preparation costs, are amortized from the year of publication over their estimated useful lives, one to six years, using either an accelerated or straight-line method. The majority of the programs are amortized using an accelerated methodology. We periodically evaluate the amortization methods, rates, remaining lives and recoverability of such costs. In evaluating recoverability, we consider our current assessment of the market place, industry trends, and the projected success of programs. Our pre-publication expenditures were \$89.7 million, \$99.8 million and \$90.5 million for the years ended December 31, 2016, 2015 and 2014, respectively.

Capital expenditures include purchases of property, plant and equipment and capitalized technology costs that meet certain internal and external criteria. Capital expenditures were \$38.2 million, \$41.2 million and \$40.5 million for the years ended December 31, 2016, 2015 and 2014, respectively.

Our planned capital expenditures and pre-publication expenditures will require, individually and in the aggregate, significant capital commitments and, if completed, may result in significant additional revenues. Cash needed to finance investments and projects currently in progress, as well as additional investments being pursued, is expected to be made available from operating cash flows and our credit facilities. See “Indebtedness and Liquidity” for further information.

Off-Balance Sheet Arrangements

As of December 31, 2016 we did not have any relationships with unconsolidated entities, such as entities often referred to as specific purpose or variable interest entities where we are the primary beneficiary, which would have been established for the purpose of facilitating off-balance sheet arrangements or other contractually narrow or limited purposes. As such we are not exposed to any financial liquidity, market or credit risk that could arise if we had engaged in such relationships.

Contractual Obligations

We typically have various contractual obligations, which are recorded as liabilities in our consolidated balance sheets, while other items, such as certain purchase commitments and other executory contracts, are not recognized, but are disclosed herein. For example, we are contractually committed to acquire paper and other printing services and make certain minimum lease payments for the use of property under operating and capital lease agreements.

The following table summarizes our significant debt related contractual obligations over the next several years that relate to our continuing operations as of December 31, 2016:

	Payments due by Period				
	Total	2017	2018-2019	2020-2021	2022 and beyond
Long-term debt, including current portion (1)	\$ 2,467,125	\$ 15,750	\$ 531,500	\$ 31,500	\$ 1,888,375
Interest on long-term debt (2)	784,805	154,918	307,440	218,289	104,158
Operating lease obligations (3)	101,027	33,839	45,775	10,491	10,922
Capital lease obligations (4)	11,475	3,842	6,795	838	—
Paper and printing services (5)	436,177	195,200	240,977	—	—
Purchase obligations and other (6)	137,888	93,749	38,702	5,227	210

- (1) Amounts shown include principal on the MHGE Senior Notes, Term Loan Facility, Revolving Facility and MHGE PIK Toggle Notes.
- (2) Amounts shown include interest on the MHGE Senior Notes, Term Loan Facility, Revolving Facility and MHGE PIK Toggle Notes.
- (3) Amounts shown include taxes and escalation payments related to our operating lease obligations, net of sublease income.
- (4) Amounts shown include future minimum lease payments on our capital leases.
- (5) We have contracts to purchase paper and printing services that have target volume commitments. However, there are no contractual terms that require us to purchase a specified amount of goods or services and if significant volume shortfalls were to occur during a contract period, then revised terms may be renegotiated with the supplier. These obligations are not recorded in our consolidated financial statements until contract payment terms take effect.
- (6) “Other” consists primarily of commitments for global technology support and maintenance and enhancement activity related to the Oracle ERP system.

Critical Accounting Policies and Estimates

Critical accounting policies are those that require the Company to make significant judgments, estimates or assumptions that affect amounts reported in the financial statements and accompanying notes. On an on-going basis, we evaluate our estimates and assumptions, including, but not limited to, revenue recognition, allowance for doubtful accounts and sales returns, inventories, pre-publication costs, accounting for the impairment of long-lived assets (including other intangible assets), goodwill and indefinite-lived intangible assets, stock-based compensation, income taxes and contingencies. The Company bases its judgments, estimates and assumptions on current facts, historical experience and various other factors that the Company believes to be reasonable and prudent under the circumstances. Actual results may differ materially from these estimates. For a complete description of our significant accounting policies, see Note 1 of Notes to Consolidated Financial Statements included elsewhere in this prospectus.

Allowance for Doubtful Accounts and Sales Returns

The allowance for doubtful accounts and sales returns reserves methodology is based on historical analysis, a review of outstanding balances and current conditions. In determining these reserves, we consider, among other factors, the financial condition and risk profile of our customers, areas of specific or concentrated risk as well as applicable industry trends or market indicators. The allowance for sales returns is a significant estimate, which is based on historical rates of return and current market conditions. The provision for sales returns is reflected as a reduction to “revenues” in our consolidated statements of operations. Sales returns are charged against the reserve as products are returned to inventory. Accounts receivable losses for bad debt are charged against the allowance for doubtful accounts when the receivable is determined to be uncollectible.

Inventories

Inventories, consisting principally of books, are stated at the lower of cost (first-in, first-out) or market value. The majority of our inventories relate to finished goods. A significant estimate, the reserve for inventory obsolescence, is reflected in operating and administration expenses. In determining this reserve, we consider management’s current assessment of the marketplace, industry trends and projected product demand as compared to the number of units currently on hand.

Pre-publication Costs

Pre-publication costs include both the cost of developing educational content and the development of assessment solution products. Costs incurred prior to the publication date of a title or release date of a product represent activities associated with product development. These may be performed internally or outsourced to subject matter specialists and include, but are not limited to, editorial review and fact verification, graphic art design and layout and the process of conversion from print to digital media or within various formats of digital media.

Deferred Technology Costs

We capitalize certain software development and website implementation costs. Capitalized costs only include incremental, direct costs of materials and services incurred to develop the software after the preliminary project stage is completed, funding has been committed and it is probable that the project will be completed and used to perform the function intended. Incremental costs are expenditures that are out-of-pocket to us and are not part of an allocation or existing expense base. Software development and website implementation costs are expensed as incurred during the preliminary project stage. Capitalized costs are amortized from the period the software is ready for its intended use over its estimated useful life, three to seven years, using the straight-line method. Periodically, we evaluate the amortization methods, remaining lives and recoverability of such costs. Capitalized software development and website implementation costs are included in other non-current assets in the consolidated balance sheets and are presented net of accumulated amortization.

Accounting for the Impairment of Long-Lived Assets (Including Other Intangible Assets)

We evaluate long-lived assets for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Upon such an occurrence, recoverability of assets to be held and used is measured by comparing the carrying amount of an asset to current forecasts of undiscounted future net cash flows expected to be generated by the asset. If the carrying amount of the asset exceeds its estimated future cash flows, an impairment charge is recognized equal to the amount by which the carrying amount of the asset exceeds the fair value of the asset. Long-lived assets held for sale are written down to fair value, less cost to sell. Fair value is determined based on market evidence, discounted cash flows, appraised values or management's estimates, depending upon the nature of the assets.

Goodwill and Indefinite-Lived Intangible Assets

Goodwill represents the excess of purchase price and related costs over the fair value of identifiable assets acquired and liabilities assumed in a business combination. Indefinite-lived intangible assets consist of the Company's acquired brands. Goodwill and indefinite-lived intangible assets are not amortized, but instead are tested for impairment annually during the fourth quarter each year, or more frequently if events or changes in circumstances indicate that the asset might be impaired. We have four reporting units, Higher Education, K-12, International and Professional with goodwill and indefinite-lived intangible assets that are evaluated for impairment.

We initially perform a qualitative analysis evaluating whether there are events or circumstances that provide evidence that it is more likely than not that the fair value of any of our reporting units or indefinite-lived intangible assets are less than their carrying amount. If, based on our evaluation we do not believe that it is more likely than not that the fair value of any of our reporting units or indefinite-lived intangible assets are less than their carrying amount, no quantitative impairment test is performed. Conversely, if the results of our qualitative assessment determine that it is more likely than not that the fair value of any of our reporting units or indefinite-lived intangible assets are less than their respective carrying amounts we perform a two-step quantitative impairment test.

During the first step, the estimated fair value of the reporting units are compared to their carrying value including goodwill and the estimated fair value of the intangible assets is compared to their carrying value. Fair values of the reporting units are estimated using the income approach, which incorporates the use of a discounted free cash flow analysis, and are corroborated using the market approach, which incorporates the use of revenue and earnings multiples based on market data. The discounted free cash flow analyses are based on the current operating budgets and estimated long-term growth projections for each reporting unit. Future cash flows are discounted based on a market comparable weighted average cost of capital rate for each reporting unit, adjusted for market and other risks where appropriate. Fair values of indefinite-lived intangible assets are estimated using avoided royalty discounted free cash flow analyses. Significant judgments inherent in these analyses include the selection of appropriate royalty and discount rates and estimating the amount and timing of expected future cash flows. The discount rates used in the discounted free cash flow analyses reflect the risks inherent in the expected future cash flows generated by the respective intangible assets. The royalty rates used in the discounted free cash flow analyses

are based upon an estimate of the royalty rates that a market participant would pay to license the Company's trade names and trademarks.

If the fair value of the reporting units or indefinite-lived intangible assets are less than their carrying value, a second step is performed which compares the implied fair value of the reporting unit's goodwill or indefinite-lived intangible assets to the carrying value. The fair value of the goodwill or indefinite-lived intangible assets is determined based on the difference between the fair value of the reporting unit and the net fair value of the identifiable assets and liabilities of the reporting unit or carrying value of the indefinite-lived intangible asset. If the implied fair value of the goodwill or indefinite-lived intangible assets is less than the carrying value, the difference is recognized as an impairment charge. Significant judgments inherent in this analysis include estimating the amount and timing of future cash flows and the selection of appropriate discount rates, royalty rate and long-term growth rate assumptions. Changes in these estimates and assumptions could materially affect the determination of fair value for each reporting unit and indefinite-lived intangible asset and for some of the reporting units and indefinite-lived intangible assets could result in an impairment charge, which could be material to our financial position and results of operations.

The following table summarizes the changes in the carrying value of goodwill by reporting segment:

	Higher Education	K-12	International	Professional	Total
As of December 31, 2014	\$ 435,519	\$ 24,373	\$ 4,089	\$ 37,078	\$ 501,059
Adjustment to goodwill	(13,153)	1,050	—	—	(12,103)
As of December 31, 2015	\$ 422,366	\$ 25,423	\$ 4,089	\$ 37,078	\$ 488,956
Adjustment to goodwill	(1,685)	4,844	—	—	3,159
As of December 31, 2016	\$ 420,681	\$ 30,267	\$ 4,089	\$ 37,078	\$ 492,115

Goodwill in the table above includes a \$1.7 million and \$10.0 million impact from foreign exchange as of December 31, 2016 and 2015, respectively.

Stock-Based Compensation

The Company issues stock options and other stock-based compensation to eligible employees, directors and consultants and accounts for these transactions under the provisions of Accounting Standards Codification ("ASC") 718, *Compensation-Stock Compensation*. For equity awards, total compensation cost is based on the grant date fair value. For liability awards, total compensation cost is based on the fair value of the award on the date the award is granted and is remeasured at each reporting date until settlement. For performance-based options issued, the value of the instrument is measured at the grant date as the fair value of the common stock and expensed over the vesting term when the performance targets are considered probable of being achieved. The Company recognizes stock-based compensation expense for all awards, on a straight-line basis, over the service period required to earn the award, which is typically the vesting period.

Revenue Recognition

Revenue is recognized as it is earned when goods are shipped to customers or services are rendered. We consider amounts to be earned once evidence of an arrangement has been obtained, services are performed, fees are fixed or determinable and collectability is reasonably assured.

Arrangements with multiple deliverables

Revenue relating to products that provide for more than one deliverable is recognized based upon the relative fair value to the customer of each deliverable as each deliverable is provided. Revenue relating to agreements that provide for more than one service is recognized based upon the relative fair value to the customer of each service component as each component is earned. If the fair value to the customer for each service is not determinable based

on stand-alone selling price, we make our best estimate of the services' stand-alone selling price and recognize revenue as earned as the services are delivered. Because we determine the basis for allocating consideration to each deliverable primarily on prices experienced from completed sales, the portion of consideration allocated to each deliverable in a multiple deliverable arrangement may increase or decrease depending on the most recent selling price of a comparable product or service sold on a stand-alone basis. For example, as the demand for, and prevalence of, digital products increases, as new sales occur we may be required to increase the amount of consideration allocable to digital products included in multiple deliverable arrangements because the fair value of such products or services may increase relative to other products or services bundled in the arrangement. Conversely, in the event that demand for our print products decreases, thereby causing us to experience reduced prices on our print products, we may be required to allocate less consideration to our print products in our arrangements that include multiple deliverables.

Subscription-based products

Subscription income is recognized over the related subscription period that the subscription is available and is used by the customer. Subscription revenue received or receivable in advance of the delivery of services or publications is included in deferred revenue. Incremental costs that are directly related to the subscription revenue are deferred and amortized over the subscription period. Included among the underlying assumptions related to our estimates that impact the recognition of subscription income is the extent of our responsibility to provide access to our subscription-based products, and the extent of complementary support services customers demand to access our products.

Service arrangements

Revenue relating to arrangements that provide for more than one service is recognized based upon the relative fair value to the customer of each service component as each component is earned. Such arrangements may include digital products bundled with traditional print products, obligations to provide products and services in the future at no additional cost, and periodic training pertinent to products and services previously provided. If the fair value to the customer for each service is not objectively determinable, we make our best estimate of the services' stand-alone selling price and recognize revenue as earned as the services are delivered.

Income Taxes

We determine the provision for income taxes using the asset and liability approach. Under this approach, deferred income taxes represent the expected future tax consequences of temporary differences between the carrying amounts and tax bases of assets and liabilities.

Valuation allowances are established when management determines that it is more likely than not that some portion or all of the deferred tax asset will not be realized. Management evaluates the weight of both positive and negative evidence in determining whether a deferred tax asset will be realized. Management will look to a history of losses, future reversal of existing taxable temporary differences, taxable income in carryback years, feasibility of tax planning strategies, and estimated future taxable income. The valuation allowance can also be affected by changes in tax laws and changes to statutory tax rates.

We prepare and file tax returns based on management's interpretation of tax laws and regulations. As with all businesses, our tax returns are subject to examination by various taxing authorities. Such examinations may result in future tax assessments based on differences in interpretation of the tax law and regulations. We adjust our estimated uncertain tax positions reserves based on audits by and settlements with various taxing authorities as well as changes in tax laws, regulations, and interpretations. We recognize interest and penalties on uncertain tax positions as part of interest expense and operating expenses, respectively.

Earnings (Loss) per Share

The Company computes net income (loss) per share in accordance with ASC 260, *Earnings per Share*, which requires presentation of both basic and diluted earnings per share (“EPS”) on the face of the income statement. Basic EPS is computed by dividing net income (loss) available to common shareholders (numerator) by the weighted average number of shares outstanding (denominator) during the period. Diluted EPS gives effect to all dilutive potential common shares outstanding during the period using the treasury stock method and convertible preferred stock using the if-converted method. Diluted EPS excludes all dilutive potential shares if their effect is anti-dilutive.

Recent Accounting Standards

In August 2016, the Financial Accounting Standards Board (“FASB”) issued Accounting Standards Update (“ASU”) No. 2016-15, “*Statement of Cashflows (Topic 230) Classification of Certain Cash Receipts and Cash Payments.*” which clarifies the classification of certain cash receipts and cash payments in the statement of cash flows, including debt prepayment or extinguishment costs, settlement of contingent consideration arising from a business combination, insurance settlement proceeds, and distributions from certain equity method investees. The standard is effective for interim and annual reporting periods beginning after December 15, 2017, with early adoption permitted. The Company is currently evaluating the impact of this guidance on its consolidated financial statements.

In March 2016, the FASB issued ASU No. 2016-09, “*Compensation—Stock Compensation (Topic 718).*” This standard makes several modifications to Topic 718 related to the accounting for forfeitures, employer tax withholding on share-based compensation and the financial statement presentation of excess tax benefits or deficiencies. This standard also clarifies the statement of cash flows presentation for certain components of share-based awards. The standard is effective for interim and annual reporting periods beginning after December 15, 2016, with early adoption permitted. The adoption of this guidance will not have a material impact on the Company’s consolidated financial statements.

In February 2016, the FASB issued ASU No. 2016-02, “*Leases.*” This ASU requires that a lessee record an operating lease in the balance sheet with a liability to make lease payments and a right-of-use asset representing its right to use the underlying asset for the lease term. This standard is effective for annual and interim periods beginning after December 15, 2018, with early adoption permitted. Adoption of this standard will be on a modified retrospective approach, which includes a number of optional practical expedients that the Company may elect to apply. The Company is currently evaluating the impact of this guidance on its consolidated financial statements.

In July 2015, the FASB issued ASU No. 2015-11, “*Inventory (Topic 330) Related to Simplifying the Measurement of Inventory,*” that applies to all inventory except that which is measured using last-in, first-out (LIFO) or the retail inventory method. Inventory measured using first-in, first-out (FIFO) or average cost is within the scope of the new guidance and should be measured at the lower of cost and net realizable value. Net realizable value is the estimated selling price in the ordinary course of business, less reasonably predictable cost of completion, disposal, and transportation. Subsequent measurement is unchanged for inventory measured using LIFO of the retail inventory method. The amendments are effective for public business entities for fiscal years beginning after December 15, 2016, including interim periods within those fiscal years. The new guidance should be applied prospectively, and earlier application is permitted as of the beginning of an interim or annual reporting period. The adoption of this guidance will not have a material impact on the Company’s consolidated financial statements.

In August 2014, the FASB issued ASU No. 2014-15, “*Disclosure of Uncertainties about an Entity’s Ability to Continue as a Going Concern,*” to provide guidance on management’s responsibility in evaluating whether there is substantial doubt about a company’s ability to continue as a going concern and to provide related footnote disclosures. This guidance is effective for the annual period ending after December 15, 2016, and for annual periods and interim periods thereafter. Early application is permitted. The adoption of this guidance did not have a material impact on the Company’s consolidated financial statements.

In May 2014, the FASB issued ASU No. 2014-09, “*Revenue from Contracts with Customers,*” which

supersedes most of the current revenue recognition requirements. The core principle of the new guidance is that an entity should recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. New disclosures about the nature, amount, timing and uncertainty of revenue and cash flows arising from contracts with customers are also required. Entities must adopt the new guidance using one of two retrospective application methods. In 2016, the FASB issued several amendments to the standard, including principal versus agent considerations when another party is involved in providing goods or services to a customer, the application of identifying performance obligations and licenses of intellectual property. This guidance is effective for annual periods beginning after December 15, 2017 and interim periods within annual periods beginning after December 15, 2018. Early adoption is permitted.

In early 2016, the Company established a cross-functional implementation team consisting of representatives from all of our business segments. The implementation efforts consist of analyzing the impact of the standard on our revenue streams by reviewing our current accounting policies and practices to identify potential differences that would result from applying the requirements of the new standard to our revenue contracts. The Company will transition either using a full retrospective approach or a modified retrospective approach. While the Company is currently evaluating the method of adoption and the impact of the new revenue standard, as amended, on its consolidated financial statements and related disclosures, the Company believes the adoption of the new standard will primarily impact its accounting for direct incremental costs of obtaining its customer contracts. The new standard requires deferral of certain direct incremental costs with amortization consistent with the pattern of transfer of each performance obligation.

Recently issued FASB accounting standard codification updates, except for the above standards, will not have a material to the Company's consolidated financial statements for the year ended December 31, 2016.

**Management's Discussion and Analysis
of Financial Condition and Results of Operations
(Dollars in thousands, unless otherwise indicated)**

ITEM 7A: QUANTITATIVE AND QUALITATIVE DISCLOSURE ABOUT MARKET RISK

Foreign Exchange Risk

Our exposure to market risk includes changes in foreign exchange rates. We have operations in various foreign countries where the functional currency is primarily the local currency. For international operations that are determined to be extensions of the parent company, the United States dollar is the functional currency. Our principal currency exposures relate to the Australian Dollar, British Pound, Canadian Dollar, Euro, Mexican Peso and Singapore Dollar. From time to time, we may enter into hedging arrangements with respect to foreign currency exposures.

Interest Rate Risk

Term Loan Facility

Borrowings under our Term Loan Facility will accrue interest at variable rates with a LIBOR floor of 1%, and a 100 basis point increase in the LIBOR on our debt balances outstanding as of December 31, 2016 would increase our annual interest expense by \$15.8 million.

From time to time we may enter into hedging arrangements with respect to floating interest rate borrowings. While we may enter into agreements limiting our exposure to higher interest rates, any such agreements may not offer complete protection from this risk.

We do not purchase or hold any derivative financial instruments for trading purposes.

ITEM 8: FINANCIAL STATEMENTS AND SUPPLEMENTAL DATA

Report of Independent Registered Public Accounting Firm

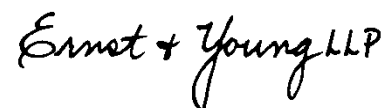
The Board of Directors and Shareholders of McGraw-Hill Education, Inc. and its subsidiaries

We have audited the accompanying consolidated balance sheets of McGraw-Hill Education, Inc. and subsidiaries (the “Company”) as of December 31, 2016 and 2015, and the related consolidated statements of operations, comprehensive income (loss), changes in equity (deficit), and cash flows for the years ended December 31, 2016, 2015 and 2014. Our audits also included the financial statement schedules listed on pages 130 to 134. These financial statements and schedules are the responsibility of the Company’s management. Our responsibility is to express an opinion on these financial statements and schedules based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States) and in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. We were not engaged to perform an audit of the Company’s internal control over financial reporting. Our audits included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company’s internal control over financial reporting. Accordingly, we express no such opinion. An audit also includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the consolidated financial position of McGraw-Hill Education, Inc. and subsidiaries at December 31, 2016 and 2015, and the consolidated results of their operations and their cash flows for the years ended December 31, 2016, 2015, and 2014, in conformity with U.S. generally accepted accounting principles. Also, in our opinion, the related financial statement schedules, when considered in relation to the basic financial statements taken as a whole, present fairly in all material respects the information set forth therein.

As discussed in Note 2 to the consolidated financial statements, the 2016, 2015 and 2014 financial statements have been restated to correct errors principally related to revenue recognition and income taxes.

The signature of Ernst & Young LLP is written in a cursive, handwritten style in black ink.

New York, New York
March 21, 2017,
except for Note 2, as to which the date is
October 6, 2017

McGraw-Hill Education, Inc. and subsidiaries
Consolidated Statements of Operations
(Dollars in thousands, except per share data)

	As Restated	As Restated	As Restated
	Year Ended December 31, 2016	Year Ended December 31, 2015	Year Ended December 31, 2014
Revenue	\$ 1,740,027	\$ 1,828,592	\$ 1,832,833
Cost of sales	427,409	479,469	523,183
Gross profit	1,312,618	1,349,123	1,309,650
Operating expenses			
Operating and administration expenses	1,078,604	1,127,455	1,194,253
Depreciation	37,045	30,636	25,999
Amortization of intangibles	90,886	94,156	100,001
Impairment charge	—	—	23,800
Transaction costs	—	—	3,932
Total operating expenses	1,206,535	1,252,247	1,347,985
Operating income	106,083	96,876	(38,335)
Interest expense (income), net	199,506	192,918	182,199
Loss on extinguishment of debt	26,562	—	—
Other (income) expense	—	(4,779)	(8,420)
(Loss) income from operations before taxes on income	(119,985)	(91,263)	(212,114)
Income tax provision	15,117	11,530	124,439
Net (loss) income from continuing operations	(135,102)	(102,793)	(336,553)
Net (loss) income from discontinued operations, net of taxes	(1,905)	(76,338)	(18,157)
Net (loss) income	\$ (137,007)	\$ (179,131)	\$ (354,710)
Less: Net loss attributable to noncontrolling interests	—	—	299
Net (loss) income attributable to McGraw-Hill Education, Inc.	\$ (137,007)	\$ (179,131)	\$ (354,411)
Net (loss) earnings per share from continuing operations, basic and diluted	\$ (12.82)	\$ (9.82)	\$ (32.43)
Net (loss) earnings per share	\$ (13.00)	\$ (17.11)	\$ (34.18)
Weighted average shares outstanding, basic and diluted	10,542	10,467	10,368

See accompanying notes to the consolidated financial statements.

McGraw-Hill Education, Inc. and subsidiaries
Consolidated Statements of Comprehensive Income (Loss)
(Dollars in thousands)

	<u>As Restated</u>	<u>As Restated</u>	<u>As Restated</u>
	<u>Year Ended</u> <u>December 31, 2016</u>	<u>Year Ended</u> <u>December 31, 2015</u>	<u>Year Ended</u> <u>December 31, 2014</u>
Net (loss) income	\$ (137,007)	\$ (179,131)	\$ (354,710)
Other comprehensive (loss) income:			
Foreign currency translation adjustment	(6,115)	(20,447)	(15,519)
Comprehensive (loss) income	\$ (143,122)	\$ (199,578)	\$ (370,229)
Less: Comprehensive loss attributable to noncontrolling interest	—	—	299
Comprehensive (loss) income attributable to McGraw-Hill Education, Inc.	\$ (143,122)	\$ (199,578)	\$ (369,930)

See accompanying notes to the consolidated financial statements.

McGraw-Hill Education, Inc. and subsidiaries
Consolidated Balance Sheets
(Dollars in thousands)

	<u>As Restated</u> <u>December 31, 2016</u>	<u>As Restated</u> <u>December 31, 2015</u>
Current assets		
Cash and cash equivalents	\$ 418,753	\$ 553,194
Accounts receivable, net of allowance for doubtful accounts of \$14,086 and \$18,212 and sales returns of \$121,951 and \$150,511 as of December 31, 2016 and December 31, 2015, respectively	265,764	269,095
Inventories, net	174,659	169,425
Prepaid and other current assets	101,729	83,398
Total current assets	960,905	1,075,112
Pre-publication costs, net	161,385	145,577
Property, plant and equipment, net	96,704	95,316
Goodwill	492,115	488,956
Other intangible assets, net	741,828	817,928
Investments	5,363	6,368
Deferred income taxes	11,261	10,642
Other non-current assets	108,514	83,784
Total assets	\$ 2,578,075	\$ 2,723,683
Liabilities and equity (deficit)		
Current liabilities		
Accounts payable	\$ 129,491	\$ 173,011
Accrued royalties	117,268	125,997
Accrued compensation	61,145	73,844
Deferred revenue	339,049	304,035
Current portion of long-term debt	15,750	81,620
Other current liabilities	119,769	139,986
Total current liabilities	782,472	898,493
Long-term debt	2,329,506	2,053,175
Deferred income taxes	38,902	33,731
Long-term deferred revenue	550,280	412,792
Other non-current liabilities	27,003	14,594
Total liabilities	3,728,163	3,412,785
Commitments and contingencies (Note 18)		
Stockholders' equity (deficit)		
Preferred stock, par value \$0.01 per share; 1,000,000 shares authorized, 100,000 issued and 37,500 and 62,500 outstanding as of December 31, 2016 and December 31, 2015, respectively	—	—
Common stock, par value \$0.01 per share; 100,000,000 shares authorized, 10,606,117 and 10,502,888 shares issued as of December 31, 2016 and December 31, 2015, respectively; and 10,567,864 and 10,491,327 shares outstanding as of December 31, 2016 and December 31, 2015, respectively	104	104
Additional paid in capital	—	67,797
Treasury stock, 38,253 and 11,561 shares as of December 31, 2016 and December 31, 2015, respectively	(6,727)	(2,164)
Accumulated deficit	(1,085,727)	(703,216)
Accumulated other comprehensive loss	(57,738)	(51,623)
Total stockholders' equity (deficit)	(1,150,088)	(689,102)
Total liabilities and equity (deficit)	\$ 2,578,075	\$ 2,723,683

See accompanying notes to the consolidated financial statements.

McGraw-Hill Education, Inc. and subsidiaries
Consolidated Statements of Cash Flows
(Dollars in thousands)

	As Restated	As Restated	As Restated
	Year Ended December 31, 2016	Year Ended December 31, 2015	Year Ended December 31, 2014
Operating activities			
Net (loss) income from continuing operations	\$ (135,102)	\$ (102,793)	\$ (336,553)
Net (loss) income from discontinued operations, net of taxes	(1,905)	(76,338)	(18,157)
Adjustments to reconcile net loss to net cash provided by operating activities			
Depreciation (including amortization of technology projects)	37,045	31,574	28,637
Amortization of intangibles	90,886	94,156	99,578
Amortization of pre-publication costs	74,150	90,932	84,580
Gain on sale of PP&E	—	—	(1,091)
Loss on extinguishment of debt	26,562	—	—
Loss on discontinued operations	—	42,823	—
Provision for losses on accounts receivable	722	5,223	8,071
Inventory obsolescence	19,579	25,278	28,312
Deferred income taxes	4,553	(474)	109,879
Stock-based compensation	11,177	14,111	14,702
Amortization of debt discount	7,522	5,288	5,089
Amortization of deferred financing costs	30,690	13,924	12,949
Restructuring charges	17,615	20,139	30,707
Impairment charges	—	—	56,320
Other	4,038	(1,988)	(997)
Changes in operating assets and liabilities, net of the effect of acquisitions			
Accounts receivable	(3,777)	11,881	17,935
Inventories	(26,817)	(14,178)	17,128
Prepaid and other current assets	(19,887)	(53,048)	8,695
Accounts payable and accrued expenses	(62,469)	(21,527)	18,121
Deferred revenue	173,062	237,701	174,736
Other current liabilities	(27,187)	(2,904)	(4,503)
Net change in prepaid and accrued income taxes	3,805	379	(3,711)
Net change in operating assets and liabilities	(26,298)	(11,737)	4,514
Cash (used for) provided by operating activities	<u>197,964</u>	<u>308,422</u>	<u>354,941</u>
Investing activities			
Investment in pre-publication costs	(89,695)	(99,754)	(90,466)
Capital expenditures	(38,223)	(41,181)	(40,500)
Acquisitions	(11,500)	(6,827)	(60,277)
Proceeds from sale of investments	—	12,500	3,304
Proceeds from dispositions	—	70	11,475
Payment to acquirer	—	(16,571)	—
Cash provided by (used for) investing activities	<u>(139,418)</u>	<u>(151,763)</u>	<u>(176,464)</u>
Financing activities			
Borrowings on MHGE Senior Notes	400,000	—	—
Borrowings on Term Loan Facility	1,567,125	—	—
Borrowings on MHGE PIK Toggle Notes	—	99,981	396,000
Payment of Term Loan Facility	(7,875)	—	—
Payment of MHGE Senior Secured Notes	(860,003)	—	—
Payment of MHGE Term Loan and MHSE Term Loan	(918,907)	(9,637)	(44,380)

McGraw-Hill Education, Inc. and subsidiaries
Consolidated Statements of Cash Flows
(Dollars in thousands)

Payment of deferred financing costs	(37,784)	—	—
Payment of capital lease obligations	(3,828)	—	—
Issuance of common stock	—	1,639	455
Repurchase of common stock	(4,563)	(1,654)	(510)
Proceeds from exercise of stock options	482	—	—
Repurchase of vested stock options and restricted stock units	(5,154)	(1,766)	(1,272)
Dividends to common stockholders	(300,629)	(101,268)	(488,978)
Dividend equivalents on vested stock options	(11,106)	—	—
Dividend equivalents on vested restricted stock units	(8,670)	(145)	(199)
Dividends to noncontrolling interests	—	—	(169)
Payment of deferred purchase price	—	—	(53,500)
Cash provided by (used for) financing activities	<u>(190,912)</u>	<u>(12,850)</u>	<u>(192,553)</u>
Effect of exchange rate changes on cash	(2,075)	(4,578)	(2,652)
Net change in cash and cash equivalents	<u>(134,441)</u>	<u>139,231</u>	<u>(16,728)</u>
Cash and cash equivalents at the beginning of the period	553,194	413,963	430,691
Cash and cash equivalents, ending balance	<u>\$ 418,753</u>	<u>\$ 553,194</u>	<u>\$ 413,963</u>
Supplemental disclosures			
Cash paid for interest expense	\$ 169,710	\$ 170,251	\$ 143,347
Cash paid for income taxes	7,543	8,029	15,841

See accompanying notes to the consolidated financial statements.

McGraw-Hill Education, Inc. and subsidiaries
Consolidated Statement of Changes in Equity (Deficit)
(Dollars in thousands, except share data)

	Common Stock		Additional Paid in Capital	Treasury Stock	Accumulated Deficit	Accumulated Other Comprehensive Loss	Noncontrolling Interests	Total Stockholders' Equity (Deficit)
	Shares	Amount						
Balance at December 31, 2013 (As Restated)	10,077,264	\$ 101	\$ 568,775	\$ —	\$ (169,674)	\$ (15,657)	\$ 23,490	\$ 407,035
Issuance of common stock	329,831	3	70,578	—	—	—	—	70,581
Conversion of restricted stock units	34,128	—	—	—	—	—	—	—
Net loss	—	—	—	—	(354,411)	—	(686)	(355,097)
Other comprehensive loss, net of taxes	—	—	—	—	—	(15,519)	—	(15,519)
Acquisition of noncontrolling interest	—	—	(4,815)	—	—	—	(22,635)	(27,450)
Stock-based compensation	—	—	14,702	—	—	—	—	14,702
Dividends to common stockholders	—	—	(488,978)	—	—	—	—	(488,978)
Dividend equivalents on restricted stock units	—	—	(2,200)	—	—	—	—	(2,200)
Dividends to noncontrolling interests	—	—	—	—	—	—	(169)	(169)
Repurchase of common stock	(7,389)	—	—	(510)	—	—	—	(510)
Repurchase of vested stock options and restricted stock units	—	—	(1,272)	—	—	—	—	(1,272)
Balance at December 31, 2014 (As Restated)	10,433,834	\$ 104	\$ 156,790	\$ (510)	\$ (524,085)	\$ (31,176)	\$ —	\$ (398,877)
Issuance of common stock	34,651	—	2,598	—	—	—	—	2,598
Conversion of restricted stock units	27,014	—	—	—	—	—	—	—
Net loss	—	—	—	—	(179,131)	—	—	(179,131)
Other comprehensive loss, net of taxes	—	—	—	—	—	(20,447)	—	(20,447)
Stock-based compensation	—	—	14,111	—	—	—	—	14,111
Dividends to common stockholders	—	—	(101,898)	—	—	—	—	(101,898)
Dividend equivalents on restricted stock units	—	—	(2,038)	—	—	—	—	(2,038)
Dividends to noncontrolling interests	—	—	—	—	—	—	—	—
Repurchase of common stock	(4,172)	—	—	(1,654)	—	—	—	(1,654)
Repurchase of vested stock options and restricted stock units	—	—	(1,766)	—	—	—	—	(1,766)
Balance at December 31, 2015 (As Restated)	10,491,327	\$ 104	\$ 67,797	\$ (2,164)	\$ (703,216)	\$ (51,623)	\$ —	\$ (689,102)
Issuance of common stock	25,000	—	350	—	—	—	—	350
Conversion of restricted stock units	61,146	—	—	—	—	—	—	—
Net loss	—	—	—	—	(137,007)	—	—	(137,007)
Other comprehensive loss, net of taxes	—	—	—	—	—	(6,115)	—	(6,115)
Stock-based compensation	—	—	8,973	—	2,204	—	—	11,177
Dividends to common stockholders	—	—	(65,166)	—	(235,463)	—	—	(300,629)
Dividend equivalents on vested stock options	—	—	(1,586)	—	(9,450)	—	—	(11,036)
Dividend equivalents on restricted stock units	—	—	(1,577)	—	(1,371)	—	—	(2,948)
Exercise of stock options	17,083	—	482	—	—	—	—	482
Repurchase of common stock	(26,692)	—	—	(4,563)	—	—	—	(4,563)
Repurchase of vested stock options and restricted stock units	—	—	(9,273)	—	(1,424)	—	—	(10,697)
Balance at December 31, 2016 (As Restated)	10,567,864	\$ 104	\$ —	\$ (6,727)	\$ (1,085,727)	\$ (57,738)	\$ —	\$ (1,150,088)

McGraw-Hill Education, Inc. and subsidiaries
Notes to the Consolidated Financial Statements
(Dollars in thousands, unless otherwise indicated)

1. Basis of Presentation and Accounting Policies

On March 22, 2013, MHE Acquisition, LLC (“AcquisitionCo”), a wholly-owned subsidiary of McGraw-Hill Education, Inc., (formerly known as Georgia Holdings, Inc.) (the “Company”, the “Successor” or the “Parent”), acquired all of the outstanding equity interests of certain subsidiaries of The McGraw-Hill Companies, Inc. (“MHC”) pursuant to a Purchase and Sale Agreement, dated November 26, 2012 and as amended March 4, 2013, for \$2,184,071 in cash (the “Acquired Business”). The Acquired Business included all of MHC’s educational materials and learning solutions business, which is comprised of (i) the Higher Education, Professional, and International Group (the “HPI business”), which includes post-secondary education and professional products both in the United States and internationally and (ii) the School Education Group business (the “SEG business”), which includes school and assessment products targeting students in the pre-kindergarten through secondary school market. We refer to the purchase of the Acquired Business and the related financing transactions as the “Founding Acquisition”. Following the Founding Acquisition, MHC is now known as S&P Global, Inc.

As of completion of the Founding Acquisition, Apollo Global Management LLC (the “Sponsors”), certain co-investors and certain members of management directly or indirectly owned all of the equity interests of AcquisitionCo. In connection with the Founding Acquisition, a restructuring was completed, the result of which was that the HPI business and the SEG business became held by separate wholly owned subsidiaries of MHE US Holdings LLC. The HPI business became held by McGraw-Hill Global Education Intermediate Holdings, LLC (“MHGE Holdings”) and its wholly owned subsidiary McGraw-Hill Global Education Holdings, LLC (“MHGE”), while the SEG business became held by McGraw-Hill School Education Intermediate Holdings, LLC (“MHSE Holdings”) and its wholly owned subsidiary McGraw-Hill School Education Holdings, LLC (“MHSE”). In addition, concurrently with the closing of the Founding Acquisition, MHGE and MHSE entered into certain credit facilities which are described in Note 3 - The Founding Acquisition. Neither MHGE nor its parent companies guaranteed or provided collateral to the financing of MHSE, and MHSE did not guarantee or provide collateral to the financing of MHGE or its parent companies. The terms “we,” “our,” and “us” used herein refer to the Company.

On May 4, 2016, the Company completed a refinancing of its then existing indebtedness, including a reorganization such that MHSE Holdings became a direct subsidiary of MHGE. These transactions are further described in Note 10 - Debt.

Principles of Consolidation

The accompanying consolidated financial statements have been prepared in accordance with U.S. Generally Accepted Accounting Principles (“U.S. GAAP”) and all significant intercompany transactions and balances have been eliminated. In the opinion of management, the accompanying consolidated financial statements include all adjustments (consisting of normal recurring accruals) considered necessary for a fair presentation.

We record noncontrolling interests in our consolidated financial statements to recognize the minority ownership interest in certain subsidiaries. Noncontrolling interests in the earnings and losses of these subsidiaries represent the share of net income or loss allocated to our consolidated entities.

Seasonality and Comparability

Our revenues, operating profit and operating cash flows are affected by the inherent seasonality of the academic calendar, which varies by country. Changes in our customers’ ordering patterns may impact the comparison of our results in a quarter with the same quarter of the previous year, or in a fiscal year with the prior fiscal year, where our customers may shift the timing of material orders for any number of reasons, including, but not limited to, changes in academic semester start dates or changes to their inventory management practices.

Use of Estimates

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the amounts reported in the financial statements and accompanying notes. Actual results could differ from those estimates.

On an ongoing basis, we evaluate our estimates and assumptions, including those related to revenue recognition, allowance for doubtful accounts and sales returns, inventories, pre-publication costs, accounting for the impairment of long-lived assets (including other intangible assets), goodwill and indefinite-lived intangible assets, restructuring, stock-based compensation, income taxes and contingencies. Management further considers the accounting policy with regard to the purchase price allocation to assets and liabilities to be critical. This accounting policy, as more fully described in Note 3 - The Founding Acquisition, encompasses significant judgments and estimates used in the preparation of these financial statements.

Cash and Cash Equivalents

Cash and cash equivalents include bank deposits and highly liquid investments with original maturities of three months or less that consist primarily of interest bearing demand deposits with daily liquidity, money market and time deposits. The balance also includes cash that is held by the Company outside the United States to fund international operations or to be reinvested outside of the United States. The investments and bank deposits are stated at cost, which approximates market value and were \$418,753 and \$553,194 as of December 31, 2016 and December 31, 2015, respectively. These investments are not subject to significant market risk.

Accounts Receivable

Credit is extended to customers based upon an evaluation of the customer's financial condition. Accounts receivable are recorded at net realizable value.

Allowance for Doubtful Accounts and Sales Returns

The allowance for doubtful accounts and sales returns reserves methodology is based on historical analysis, a review of outstanding balances and current conditions. In determining these reserves, we consider, among other factors, the financial condition and risk profile of our customers, areas of specific or concentrated risk as well as applicable industry trends or market indicators. The allowance for sales returns is a significant estimate, which is based on historical rates of return and current market conditions. The provision for sales returns is reflected as a reduction to "Revenues" in our consolidated statements of operations. Sales returns are charged against the reserve as products are returned to inventory. Accounts receivable losses for bad debt are charged against the allowance for doubtful accounts when the receivable is determined to be uncollectible. The change in the allowance for doubtful accounts is reflected as part of operating and administrative expenses in our consolidated statement of operations.

Concentration of Credit Risk

As of December 31, 2016 and December 31, 2015, two customers comprised 25% and 29% of the gross accounts receivable balance, respectively, which is reflective of concentration and seasonality in our industry. In addition, the Company mitigates concentration of credit risk with respect to accounts receivable by performing ongoing credit evaluations of its customers and by periodically entering into arrangements with third parties who have agreed to purchase our accounts receivables of certain customers in the event of the customer's financial inability to pay, subject to certain limitations.

The Company had no single customer that accounted for 10% of our gross revenue for the years ended December 31, 2016 and 2014. The Company had one customer that accounted for 10% of gross revenue for the year ended December 31, 2015, which are included within the Higher Education and International segment revenues. The loss of, or any reduction in sales from, a significant customer or deterioration in their ability to pay could harm our business and financial results.

Inventories

Inventories, consisting principally of books, are stated at the lower of cost (first-in, first-out) or market value. The majority of our inventories relate to finished goods. A significant estimate, the reserve for inventory obsolescence, is reflected in operating and administration expenses. In determining this reserve, we consider management's current assessment of the marketplace, industry trends and projected product demand as compared to the number of units currently on hand.

Pre-publication Costs

Pre-publication costs include both the cost of developing educational content and the development of assessment solution products. Costs incurred prior to the publication date of a title or release date of a product represent activities associated with product development. These may be performed internally or outsourced to subject matter specialists and include, but are not limited to, editorial review and fact verification, graphic art design and layout and the process of conversion from print to digital media or within various formats of digital media. These costs are capitalized when the costs can be directly attributable to a project or title and the title is expected to generate probable future economic benefits. Capitalized costs are amortized upon publication of the title over its estimated useful life of up to six years, with a higher proportion of the amortization typically taken in the earlier years. Amortization expenses for prepublication costs are charged as a component of operating and administration expenses. In evaluating recoverability, we consider management's current assessment of the marketplace, industry trends and the projected success of programs.

Property, Plant and Equipment

Property, plant and equipment are stated at cost less accumulated depreciation as of December 31, 2016 and December 31, 2015. Depreciation and amortization are recorded on a straight-line basis, over the assets' estimated useful lives. Buildings have an estimated useful life, for purposes of depreciation, from ten to forty years. Furniture, fixtures and equipment are depreciated over periods not exceeding twelve years. Leasehold improvements are amortized over the life of the lease or the life of the assets, whichever is shorter. The Company evaluates the depreciation periods of property, plant and equipment to determine whether events or circumstances warrant revised estimates of useful lives.

Royalty Advances

Royalty advances are initially capitalized and subsequently expensed as related revenues are earned or when the Company determines future recovery is not probable. The Company has a long history of providing authors with royalty advances, and it tracks each advance earned with respect to the sale of the related publication. Historically, the longer the unearned portion of the advance remains outstanding, the less likely it is that the Company will recover the advance through the sale of the publication, as the related royalties earned are applied first against the remaining unearned portion of the advance. The Company applies this historical experience to its existing outstanding royalty advances to estimate the likelihood of recovery. Additionally, the Company's editorial staff reviews its portfolio of royalty advances at a minimum quarterly to determine if individual royalty advances are not recoverable for discrete reasons, such as the death of an author prior to completion of a title or titles, a Company decision to not publish a title, poor market demand or other relevant factors that could impact recoverability. Based on this information, the portion of any advance that we believe is not recoverable is expensed. The net amount of royalty advances was \$3,430 and \$6,637 as of December 31, 2016 and 2015, respectively and are included within other non-current assets in the consolidated balance sheets.

Deferred Technology Costs

We capitalize certain software development and website implementation costs. Capitalized costs only include incremental, direct costs of materials and services incurred to develop the software after the preliminary project stage is completed, funding has been committed and it is probable that the project will be completed and used to perform the function intended. Incremental costs are expenditures that are out-of-pocket to us and are not

McGraw-Hill Education, Inc. and subsidiaries
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part of an allocation or existing expense base. Software development and website implementation costs are expensed as incurred during the preliminary project stage. Capitalized costs are amortized from the period the software is ready for its intended use over its estimated useful life, three to seven years, using the straight-line method and are included within depreciation in the consolidated statements of operations. Periodically, we evaluate the amortization methods, remaining lives and recoverability of such costs. Capitalized software development and website implementation costs are included in other non-current assets in the consolidated balance sheets and are presented net of accumulated amortization. Gross deferred technology costs were \$93,234 and \$69,152 as of December 31, 2016 and December 31, 2015, respectively. Accumulated amortization of deferred technology costs were \$42,427 and \$26,917 as of December 31, 2016 and December 31, 2015, respectively.

Accounting for the Impairment of Long-Lived Assets (Including Other Intangible Assets)

We evaluate long-lived assets for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Upon such an occurrence, recoverability of assets to be held and used is measured by comparing the carrying amount of an asset to current forecasts of undiscounted future net cash flows expected to be generated by the asset. If the carrying amount of the asset exceeds its estimated future cash flows, an impairment charge is recognized equal to the amount by which the carrying amount of the asset exceeds the fair value of the asset. Long-lived assets held for sale are written down to fair value, less cost to sell. Fair value is determined based on market evidence, discounted cash flows, appraised values or management's estimates, depending upon the nature of the assets. There were no impairments of long-lived assets for the years ended December 31, 2016, 2015 and 2014.

Goodwill and Indefinite-Lived Intangible Assets

Goodwill represents the excess of purchase price and related costs over the fair value of identifiable assets acquired and liabilities assumed in a business combination. Indefinite-lived intangible assets consist of the Company's acquired brands. Goodwill and indefinite-lived intangible assets are not amortized, but instead are tested for impairment annually during the fourth quarter each year, or more frequently if events or changes in circumstances indicate that the asset might be impaired. We have four reporting units, Higher Education, K-12, International, and Professional with goodwill and indefinite-lived intangible assets that are evaluated for impairment.

We initially perform a qualitative analysis evaluating whether there are events or circumstances that provide evidence that it is more likely than not that the fair value of any of our reporting units or indefinite-lived intangible assets are less than their carrying amount. If, based on our evaluation we do not believe that it is more likely than not that the fair value of any of our reporting units or indefinite-lived intangible assets are less than their carrying amount, no quantitative impairment test is performed. Conversely, if the results of our qualitative assessment determine that it is more likely than not that the fair value of any of our reporting units or indefinite-lived intangible assets are less than their respective carrying amounts we perform a two-step quantitative impairment test.

During the first step, the estimated fair value of the reporting units are compared to their carrying value including goodwill and the estimated fair value of the intangible assets is compared to their carrying value. Fair values of the reporting units are estimated using the income approach, which incorporates the use of a discounted free cash flow analysis, and are corroborated using the market approach, which incorporates the use of revenue and earnings multiples based on market data. The discounted free cash flow analyses are based on the current operating budgets and estimated long-term growth projections for each reporting unit. Future cash flows are discounted based on a market comparable weighted average cost of capital rate for each reporting unit, adjusted for market and other risks where appropriate. Fair values of indefinite-lived intangible assets are estimated using avoided royalty discounted free cash flow analyses. Significant judgments inherent in these analyses include the selection of appropriate royalty and discount rates and estimating the amount and timing of expected future cash flows. The discount rates used in the discounted free cash flow analyses reflect the risks inherent in the expected future cash flows generated by the respective intangible assets. The royalty rates used in the discounted free cash flow analyses

McGraw-Hill Education, Inc. and subsidiaries
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are based upon an estimate of the royalty rates that a market participant would pay to license the Company's trade names and trademarks.

If the fair value of the reporting units or indefinite-lived intangible assets are less than their carrying value, a second step is performed which compares the implied fair value of the reporting unit's goodwill or indefinite-lived intangible assets to the carrying value. The fair value of the goodwill or indefinite-lived intangible assets is determined based on the difference between the fair value of the reporting unit and the net fair value of the identifiable assets and liabilities of the reporting unit or carrying value of the indefinite-lived intangible asset. If the implied fair value of the goodwill or indefinite-lived intangible assets is less than the carrying value, the difference is recognized as an impairment charge. Significant judgments inherent in this analysis include estimating the amount and timing of future cash flows and the selection of appropriate discount rates, royalty rate and long-term growth rate assumptions. Changes in these estimates and assumptions could materially affect the determination of fair value for each reporting unit and indefinite-lived intangible asset and for some of the reporting units and indefinite-lived intangible assets could result in an impairment charge, which could be material to our financial position and results of operations.

Fair Value Measurements

In accordance with authoritative guidance for fair value measurements, certain assets and liabilities are required to be recorded at fair value on a recurring basis. Fair value is defined as the amount that would be received to sell an asset or transfer a liability in an orderly transaction between market participants. A fair value hierarchy has been established which requires us to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value.

The three levels of inputs used to measure fair value are as follows:

- Level 1 - Unadjusted quoted prices in active markets for identical assets or liabilities.
- Level 2 - Observable inputs other than Level 1 prices, such as quoted prices for similar assets or liabilities; quoted prices in markets that are not active; or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the asset or liabilities.
- Level 3 - Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

In addition, certain assets and liabilities are measured at fair value on a nonrecurring basis. These include assets, such as property, plant and equipment (see Note 8), which have been written down to fair value, during the year ended December 31, 2014, as the result of an impairment.

Foreign Currency Translation

We have operations in many foreign countries. For most international operations, the local currency is the functional currency. For international operations that are determined to be extensions of the U.S. operations or where a majority of revenue and/or expenses is USD denominated, the United States dollar is the functional currency. For local currency operations, assets and liabilities are translated into United States dollars using end-of-period exchange rates, and revenue and expenses are translated into United States dollars using weighted-average exchange rates. Foreign currency translation adjustments are accumulated in a separate component of equity.

Stock-Based Compensation

The Company issues stock options and other stock-based compensation to eligible employees, directors and consultants and accounts for these transactions under the provisions of Accounting Standards Codification ("ASC") 718, *Compensation - Stock Compensation*. For equity awards, total compensation cost is based on the grant date fair value. For liability awards, total compensation cost is based on the fair value of the award on the date the award is granted and is remeasured at each reporting date until settlement. For performance-based options issued, the value of

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the instrument is measured at the grant date as the fair value of the common stock and expensed over the vesting term when the performance targets are considered probable of being achieved. The Company recognizes stock-based compensation expense for all awards, on a straight-line basis, over the service period required to earn the award, which is typically the vesting period.

Revenue Recognition

Revenue is recognized as it is earned when goods are shipped to customers or services are rendered. We consider amounts to be earned once evidence of an arrangement has been obtained, services are performed, fees are fixed or determinable and collectability is reasonably assured.

Arrangements with multiple deliverables

Revenue relating to products that provide for more than one deliverable is recognized based upon the relative fair value to the customer of each deliverable as each deliverable is provided. Revenue relating to agreements that provide for more than one service is recognized based upon the relative fair value to the customer of each service component as each component is earned. If the fair value to the customer for each service is not determinable based on stand-alone selling price, we make our best estimate of the services' stand-alone selling price and recognize revenue as earned as the services are delivered. Because we determine the basis for allocating consideration to each deliverable primarily on prices experienced from completed sales, the portion of consideration allocated to each deliverable in a multiple deliverable arrangement may increase or decrease depending on the most recent selling price of a comparable product or service sold on a stand-alone basis. For example, as the demand for, and prevalence of, digital products increases, as new sales occur we may be required to increase the amount of consideration allocable to digital products included in multiple deliverable arrangements because the fair value of such products or services may increase relative to other products or services bundled in the arrangement. Conversely, in the event that demand for our print products decreases, thereby causing us to experience reduced prices on our print products, we may be required to allocate less consideration to our print products in our arrangements that include multiple deliverables.

Subscription-based products

Subscription income is recognized over the related subscription period that the subscription is available and is used by the customer. Subscription revenue received or receivable in advance of the delivery of services or publications is included in deferred revenue. Incremental costs that are directly related to the subscription revenue are deferred and amortized over the subscription period. Included among the underlying assumptions related to our estimates that impact the recognition of subscription income is the extent of our responsibility to provide access to our subscription-based products, and the extent of complementary support services customers demand to access our products.

Service arrangements

Revenue relating to arrangements that provide for more than one service is recognized based upon the relative fair value to the customer of each service component as each component is earned. Such arrangements may include digital products bundled with traditional print products, obligations to provide products and services in the future at no additional cost, and periodic training pertinent to products and services previously provided. If the fair value to the customer for each service is not objectively determinable, we make our best estimate of the services' stand-alone selling price and recognize revenue as earned as the services are delivered.

Shipping and Handling Costs

All amounts billed to customers in a sales transaction for shipping and handling are classified as revenue. Shipping and handling costs are also a component of cost of sales. We recognized \$22,714, \$26,032 and \$30,010 in shipping and handling costs for the years ended December 31, 2016, 2015 and 2014, respectively.

Income Taxes

The Company's operations are subject to United States federal, state and local income taxes, and foreign income taxes.

We determine the provision for income taxes using the asset and liability approach. Under this approach, deferred income taxes represent the expected future tax consequences of temporary differences between the carrying amounts and tax bases of assets and liabilities.

Valuation allowances are established when management determines that it is more-likely-than not that some portion or all of the deferred tax asset will not be realized. Management evaluates the weight of both positive and negative evidence in determining whether a deferred tax asset will be realized. Management will look to a history of losses, future reversal of existing taxable temporary differences, taxable income in carryback years, feasibility of tax planning strategies, and estimated future taxable income. The valuation allowance can also be affected by changes in tax laws and changes to statutory tax rates.

We prepare and file tax returns based on management's interpretation of tax laws and regulations. As with all businesses, our tax returns are subject to examination by various taxing authorities. Such examinations may result in future tax assessments based on differences in interpretation of the tax law and regulations. We adjust our estimated uncertain tax positions reserves based on audits by and settlements with various taxing authorities as well as changes in tax laws, regulations, and interpretations. We recognize interest and penalties on uncertain tax positions as part of interest expense and operating expenses, respectively.

Contingencies

We accrue for loss contingencies when both (a) information available prior to issuance of the financial statements indicates that it is probable that a liability had been incurred at the date of the financial statements and (b) the amount of loss can reasonably be estimated. When we accrue for loss contingencies and the reasonable estimate of the loss is within a range, we record its best estimate within the range. We disclose an estimated possible loss or a range of loss when it is at least reasonably possible that a loss may have been incurred. Neither an accrual nor disclosure is required for losses that are deemed remote.

Earnings (Loss) per Share

The Company computes net income (loss) per share in accordance with ASC 260, *Earnings per Share*, which requires presentation of both basic and diluted earnings per share ("EPS") on the face of the income statement. Basic EPS is computed by dividing net income (loss) available to common shareholders (numerator) by the weighted average number of shares outstanding (denominator) during the period. Diluted EPS gives effect to all dilutive potential common shares outstanding during the period using the treasury stock method and convertible preferred stock using the if-converted method. Diluted EPS excludes all dilutive potential shares if their effect is anti-dilutive.

Recent Accounting Standards

In August 2016, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2016-15, "*Statement of Cashflows (Topic 230) Classification of Certain Cash Receipts and Cash Payments*," which clarifies the classification of certain cash receipts and cash payments in the statement of cash flows, including debt prepayment or extinguishment costs, settlement of contingent consideration arising from a business combination, insurance settlement proceeds, and distributions from certain equity method investees. The standard is effective for interim and annual reporting periods beginning after December 15, 2017, with early adoption permitted. The Company is currently evaluating the impact of this guidance on its consolidated financial statements.

In March 2016, the FASB issued ASU No. 2016-09, "*Compensation—Stock Compensation (Topic 718)*." This standard makes several modifications to Topic 718 related to the accounting for forfeitures, employer tax

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withholding on share-based compensation and the financial statement presentation of excess tax benefits or deficiencies. This standard also clarifies the statement of cash flows presentation for certain components of share-based awards. The standard is effective for interim and annual reporting periods beginning after December 15, 2016, with early adoption permitted. The adoption of this guidance will not have a material impact on the Company's consolidated financial statements.

In February 2016, the FASB issued ASU No. 2016-02, "*Leases*." This ASU requires that a lessee record an operating lease in the balance sheet with a liability to make lease payments and a right-of-use asset representing its right to use the underlying asset for the lease term. This standard is effective for annual and interim periods beginning after December 15, 2018, with early adoption permitted. Adoption of this standard will be on a modified retrospective approach, which includes a number of optional practical expedients that the Company may elect to apply. The Company is currently evaluating the impact of this guidance on its consolidated financial statements.

In July 2015, the FASB issued ASU No. 2015-11, "*Inventory (Topic 330) Related to Simplifying the Measurement of Inventory*," that applies to all inventory except that which is measured using last-in, first-out (LIFO) or the retail inventory method. Inventory measured using first-in, first-out (FIFO) or average cost is within the scope of the new guidance and should be measured at the lower of cost and net realizable value. Net realizable value is the estimated selling price in the ordinary course of business, less reasonably predictable cost of completion, disposal, and transportation. Subsequent measurement is unchanged for inventory measured using LIFO of the retail inventory method. The amendments are effective for public business entities for fiscal years beginning after December 15, 2016, including interim periods within those fiscal years. The new guidance should be applied prospectively, and earlier application is permitted as of the beginning of an interim or annual reporting period. The adoption of this guidance will not have a material impact on the Company's consolidated financial statements.

In August 2014, the FASB issued ASU No. 2014-15, "*Disclosure of Uncertainties about an Entity's Ability to Continue as a Going Concern*," to provide guidance on management's responsibility in evaluating whether there is substantial doubt about a company's ability to continue as a going concern and to provide related footnote disclosures. This guidance is effective for the annual period ending after December 15, 2016, and for annual periods and interim periods thereafter. Early application is permitted. The adoption of this guidance did not have a material impact on the Company's consolidated financial statements.

In May 2014, the FASB issued ASU No. 2014-09, "*Revenue from Contracts with Customers*," which supersedes most of the current revenue recognition requirements. The core principle of the new guidance is that an entity should recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. New disclosures about the nature, amount, timing and uncertainty of revenue and cash flows arising from contracts with customers are also required. Entities must adopt the new guidance using one of two retrospective application methods. In 2016, the FASB issued several amendments to the standard, including principal versus agent considerations when another party is involved in providing goods or services to a customer, the application of identifying performance obligations and licenses of intellectual property. This guidance is effective for annual periods beginning after December 15, 2017 and interim periods within annual periods beginning after December 15, 2018. Early adoption is permitted.

In early 2016, the Company established a cross-functional implementation team consisting of representatives from all of our business segments. The implementation efforts consist of analyzing the impact of the standard on our revenue streams by reviewing our current accounting policies and practices to identify potential differences that would result from applying the requirements of the new standard to our revenue contracts. The Company will transition either using a full retrospective approach or a modified retrospective approach. While the Company is currently evaluating the method of adoption and the impact of the new revenue standard, as amended, on its consolidated financial statements and related disclosures, the Company believes the adoption of the new standard will primarily impact its accounting for direct incremental costs of obtaining its customer contracts. The new standard requires deferral of certain direct incremental costs with amortization consistent with the pattern of transfer of each performance obligation.

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Recently issued FASB accounting standard codification updates, except for the above standards, will not have a material impact to the Company's consolidated financial statements for the period ended December 31, 2016.

2. Restatement of Previously Issued Consolidated Financial Statements

We have restated our consolidated balance sheet as of December 31, 2016 and 2015 and our consolidated statement of operations and comprehensive income (loss), consolidated statement of changes in equity (deficit) and consolidated statement of cash flows for the periods December 31, 2016, 2015 and 2014 and the related notes to the consolidated financial statements (herein referred to as the "Restatement") primarily related to the accounting for the deferred tax asset valuation allowance and revenue recognition. Subsequent to the issuance of the 2016 financial statements, we determined that the Company's historical calculation of the deferred tax asset valuation allowance netted certain deferred tax liabilities related to indefinite lived intangible assets resulting in an understatement of our valuation allowance and the domestic provision for income taxes for all periods presented. We also identified that the Company previously did not defer certain revenues related to print subscription products resulting in an overstatement of revenue for all periods presented. In addition, the Company also subsequently identified and corrected other individually immaterial errors as part of this Restatement. The Company evaluated the impact of the errors described above on prior periods, assessing materiality quantitatively and qualitatively, and concluded that the errors were material to previously issued quarterly and annual financial statements. Accordingly, the Company has restated its consolidated financial statements for the years ended December 31, 2016, 2015 and 2014. The correction of errors resulted in an increase in net loss of \$20,985, \$7,869, and \$31,936 for the years ended December 31, 2016, 2015 and 2014, respectively.

Errors related to periods prior to January 1, 2014, are reflected as an adjustment of \$3,010 reducing previously reported beginning accumulated deficit for the year ended December 31, 2014.

In addition to the deferred tax valuation allowance error, the Company also recorded tax adjustments to reflect the impacts of the Restatement. See Note 12- Taxes on Income.

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The tables below summarize the effects of the Restatement in our consolidated statement of operations for the years ended December 31, 2016, 2015 and 2014 as follows:

	Year Ended December 31, 2016		
	As Reported¹	Adjustments	As Restated
Revenue	\$ 1,757,331	\$ (17,304)	\$ 1,740,027
Cost of sales	429,766	(2,357)	427,409
Gross profit	1,327,565	(14,947)	1,312,618
Operating expenses			
Operating and administration expenses	1,079,165	(561)	1,078,604
Depreciation	37,045	—	37,045
Amortization of intangibles	90,886	—	90,886
Total operating expenses	1,207,096	(561)	1,206,535
Operating income	120,469	(14,386)	106,083
Interest expense (income), net	199,506	—	199,506
Loss on extinguishment of debt	26,562	—	26,562
Other (income) expense	—	—	—
(Loss) income from operations before taxes on income	(105,599)	(14,386)	(119,985)
Income tax provision	8,518	6,599	15,117
Net (loss) income from continuing operations	(114,117)	(20,985)	(135,102)
Net (loss) income from discontinued operations, net of taxes	(1,905)	—	(1,905)
Net (loss) income	\$ (116,022)	\$ (20,985)	\$ (137,007)
Comprehensive (loss) income	\$ (122,137)	\$ (20,985)	\$ (143,122)

¹ "As Reported" reflects the financial information as presented within the Annual Report as of December 31, 2016, issued on March 21, 2017.

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	Year Ended December 31, 2015		
	As Reported¹	Adjustments	As Restated
Revenue	\$ 1,829,991	\$ (1,399)	\$ 1,828,592
Cost of sales	479,604	(135)	479,469
Gross profit	1,350,387	(1,264)	1,349,123
Operating expenses			
Operating and administration expenses	1,127,455	—	1,127,455
Depreciation	30,636	—	30,636
Amortization of intangibles	94,156	—	94,156
Total operating expenses	1,252,247	—	1,252,247
Operating income	98,140	(1,264)	96,876
Interest expense (income), net	192,918	—	192,918
Other (income) expense	(4,779)	—	(4,779)
(Loss) income from operations before taxes on income	(89,999)	(1,264)	(91,263)
Income tax provision	4,925	6,605	11,530
Net (loss) income from continuing operations	(94,924)	(7,869)	(102,793)
Net (loss) income from discontinued operations, net of taxes	(76,338)	—	(76,338)
Net (loss) income	\$ (171,262)	\$ (7,869)	\$ (179,131)
Comprehensive (loss) income	\$ (191,709)	\$ (7,869)	\$ (199,578)

¹ "As Reported" reflects the financial information as presented within the Annual Report as of December 31, 2016, issued on March 21, 2017, which was revised to correct the accounting related to the K-12 royalty expense associated with digital subscription products and other individually immaterial adjustments, which decreased net loss by \$3,937.

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	Year Ended December 31, 2014		
	As Reported¹	Adjustments	As Restated
Revenue	\$ 1,851,590	\$ (18,757)	\$ 1,832,833
Cost of sales	523,765	(582)	523,183
Gross profit	1,327,825	(18,175)	1,309,650
Operating expenses			
Operating and administration expenses	1,194,253	—	1,194,253
Depreciation	25,999	—	25,999
Amortization of intangibles	100,001	—	100,001
Impairment charge	23,800	—	23,800
Transaction costs	3,932	—	3,932
Total operating expenses	1,347,985	—	1,347,985
Operating income	(20,160)	(18,175)	(38,335)
Interest expense (income), net	182,199	—	182,199
Other (income) expense	(8,420)	—	(8,420)
(Loss) income from operations before taxes on income	(193,939)	(18,175)	(212,114)
Income tax provision	110,678	13,761	124,439
Net (loss) income from continuing operations	(304,617)	(31,936)	(336,553)
Net (loss) income from discontinued operations, net of taxes	(18,157)	—	(18,157)
Net (loss) income	\$ (322,774)	\$ (31,936)	\$ (354,710)
Less: Net loss attributable to noncontrolling interests	299	—	299
Net (loss) income attributable to McGraw-Hill Education, Inc.	\$ (322,475)	\$ (31,936)	\$ (354,411)
Comprehensive (loss) income attributable to McGraw-Hill Education, Inc.	\$ (343,541)	\$ (26,389)	\$ (369,930)

¹ "As Reported" reflects the financial information as presented within the Annual Report as of December 31, 2016, issued on March 21, 2017, which was revised to correct the accounting related to the K-12 royalty expense associated with digital subscription products and other individually immaterial adjustments, which decreased net loss by \$8,189.

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The table below summarizes the effects of the Restatement in our consolidated balance sheet as of December 31, 2016 and 2015 as follows:

	As of December 31, 2016		
	As Reported ¹	Adjustments	As Restated
Current assets			
Cash and equivalents	\$ 418,753	\$ —	\$ 418,753
Accounts receivable, net of allowance for doubtful accounts of \$14,086 and sales returns of \$121,951 at December 31, 2016	265,764	—	265,764
Inventories, net	174,659	—	174,659
Prepaid and other current assets	101,065	664	101,729
Total current assets	960,241	664	960,905
Prepublication costs, net	161,385	—	161,385
Property, plant and equipment, net	96,704	—	96,704
Goodwill	492,115	—	492,115
Other intangible assets, net	741,828	—	741,828
Investments	5,363	—	5,363
Deferred income taxes non-current	11,261	—	11,261
Other non-current assets	107,129	1,385	108,514
Total assets	\$ 2,576,026	\$ 2,049	\$ 2,578,075
Liabilities and equity (deficit)			
Current liabilities			
Accounts payable	\$ 129,491	\$ —	\$ 129,491
Accrued royalties	117,268	—	117,268
Accrued compensation and contributions to retirement plans	61,706	(561)	61,145
Deferred revenue	333,534	5,515	339,049
Current portion of long-term debt	15,750	—	15,750
Other current liabilities	121,469	(1,700)	119,769
Total current liabilities	779,218	3,254	782,472
Long-term debt	2,329,506	—	2,329,506
Deferred income taxes	13,899	25,003	38,902
Deferred revenue	512,787	37,493	550,280
Other non-current liabilities	27,003	—	27,003
Total liabilities	3,662,413	65,750	3,728,163
Commitments and contingencies (Note 18)			
Stockholder's equity (deficit)			
Preferred stock, par value \$0.01 per share; 1,000,000 shares authorized, 100,000 issued and 37,500 outstanding as of December 31, 2016	—	—	—
Common stock, par value \$0.01 per share; 100,000,000 shares authorized, 10,606,117 shares issued and 10,567,864 outstanding as of December 31, 2016, respectively	104	—	104
Additional paid in capital	—	—	—
Treasury stock, 38,253 shares as of December 31, 2016	(6,727)	—	(6,727)
Accumulated deficit	(1,021,927)	(63,800)	(1,085,727)
Accumulated other comprehensive loss	(57,837)	99	(57,738)
Total equity	(1,086,387)	(63,701)	(1,150,088)
Total liabilities and equity (deficit)	\$ 2,576,026	\$ 2,049	\$ 2,578,075

¹ "As Reported" reflects the financial information as presented within the Annual Report as of December 31, 2016, issued on March 21, 2017.

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	As of December 31, 2015		
	As Reported ¹	Adjustments	As Restated
Current assets			
Cash and equivalents	\$ 553,194	\$ —	\$ 553,194
Accounts receivable, net of allowance for doubtful accounts of \$18,212 and sales returns of \$150,511 at December 31, 2015	269,095	—	269,095
Inventories, net	169,425	—	169,425
Prepaid and other current assets	82,872	526	83,398
Total current assets	1,074,586	526	1,075,112
Prepublication costs, net	145,577	—	145,577
Property, plant and equipment, net	95,316	—	95,316
Goodwill	488,956	—	488,956
Other intangible assets, net	817,928	—	817,928
Investments	6,368	—	6,368
Deferred income taxes non-current	10,642	—	10,642
Other non-current assets	82,918	866	83,784
Total assets	\$ 2,722,291	\$ 1,392	\$ 2,723,683
Liabilities and equity (deficit)			
Current liabilities			
Accounts payable	\$ 173,011	\$ —	\$ 173,011
Accrued royalties	125,997	—	125,997
Accrued compensation and contributions to retirement plans	73,844	—	73,844
Deferred revenue	296,453	7,582	304,035
Current portion of long-term debt	81,620	—	81,620
Other current liabilities	139,986	—	139,986
Total current liabilities	890,911	7,582	898,493
Long-term debt	2,053,175	—	2,053,175
Deferred income taxes	15,327	18,404	33,731
Deferred revenue	394,670	18,122	412,792
Other non-current liabilities	14,594	—	14,594
Total liabilities	3,368,677	44,108	3,412,785
Commitments and contingencies (Note 18)			
Stockholder's equity (deficit)			
Preferred stock, par value \$0.01 per share; 1,000,000 shares authorized, 100,000 issued and 62,500 outstanding as of December 31, 2015	—	—	—
Common stock, par value \$0.01 per share; 100,000,000 shares authorized, 10,502,888 shares issued and 10,491,327 outstanding as of December 31, 2015, respectively	104	—	104
Additional paid in capital	67,797	—	67,797
Treasury stock, 11,561 shares as of December 31, 2015	(2,164)	—	(2,164)
Accumulated deficit	(660,401)	(42,815)	(703,216)
Accumulated other comprehensive loss	(51,722)	99	(51,623)
Total equity	(646,386)	(42,716)	(689,102)
Total liabilities and equity (deficit)	\$ 2,722,291	\$ 1,392	\$ 2,723,683

¹ "As Reported" reflects the financial information as presented within the Annual Report as of December 31, 2016, issued on March 21, 2017, which was revised to correct the accounting related to the K-12 royalty expense associated with digital subscription products and other individually immaterial adjustments.

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The table below summarizes the effects of the Restatement in our consolidated statement of cash flows for the years ended December 31, 2016, 2015 and 2014 as follows:

	Year Ended December 31, 2016		
	As Reported¹	Adjustments	As Restated
Net (loss) income from continuing operations	\$ (114,117)	\$ (20,985)	\$ (135,102)
Net (loss) income from discontinued operations, net of taxes	(1,905)	—	(1,905)
Adjustments to reconcile net loss to net cash provided by operating activities	317,940	6,599	324,539
Changes in operating assets and liabilities, net of the effect of acquisitions	(3,954)	14,386	10,432
Cash provided by (used for) operating activities	197,964	—	197,964
Cash (used for) provided by investing activities	(139,418)	—	(139,418)
Cash (used for) provided by financing activities	(190,912)	—	(190,912)
Effect of exchange rate changes on cash	(2,075)	—	(2,075)
Net change in cash and cash equivalents	(134,441)	—	(134,441)
Cash and cash equivalents at the beginning of the period	553,194	—	553,194
Cash and cash equivalents, ending balance	\$ 418,753	\$ —	\$ 418,753

¹ "As Reported" reflects the financial information as presented within the Annual Report as of December 31, 2016, issued on March 21, 2017.

	Year Ended December 31, 2015		
	As Reported¹	Adjustments	As Restated
Net (loss) income from continuing operations	\$ (94,924)	\$ (7,869)	\$ (102,793)
Net (loss) income from discontinued operations, net of taxes	(76,338)	—	(76,338)
Adjustments to reconcile net loss to net cash provided by operating activities	334,381	6,605	340,986
Changes in operating assets and liabilities, net of the effect of acquisitions	145,303	1,264	146,567
Cash provided by (used for) operating activities	308,422	—	308,422
Cash (used for) provided by investing activities	(151,763)	—	(151,763)
Cash (used for) provided by financing activities	(12,850)	—	(12,850)
Effect of exchange rate changes on cash	(4,578)	—	(4,578)
Net change in cash and cash equivalents	139,231	—	139,231
Cash and cash equivalents at the beginning of the period	413,963	—	413,963
Cash and cash equivalents, ending balance	\$ 553,194	\$ —	\$ 553,194

¹ "As Reported" reflects the financial information as presented within the Annual Report as of December 31, 2016, issued on March 21, 2017, which was revised to correct the accounting related to the K-12 royalty expense associated with digital subscription products and other individually immaterial adjustments, which decreased net loss by \$3,937.

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	Year Ended December 31, 2014		
	As Reported ¹	Adjustments	As Restated
Net (loss) income from continuing operations	\$ (304,617)	\$ (31,936)	\$ (336,553)
Net (loss) income from discontinued operations, net of taxes	(18,157)	—	(18,157)
Adjustments to reconcile net loss to net cash provided by operating activities	462,975	13,761	476,736
Changes in operating assets and liabilities, net of the effect of acquisitions	214,740	18,175	232,915
Cash provided by (used for) operating activities	354,941	—	354,941
Cash (used for) provided by investing activities	(176,464)	—	(176,464)
Cash (used for) provided by financing activities	(192,553)	—	(192,553)
Effect of exchange rate changes on cash	(2,652)	—	(2,652)
Net change in cash and cash equivalents	(16,728)	—	(16,728)
Cash and cash equivalents at the beginning of the period	430,691	—	430,691
Cash and cash equivalents, ending balance	\$ 413,963	\$ —	\$ 413,963

¹ "As Reported" reflects the financial information as presented within the Annual Report as of December 31, 2016, issued on March 21, 2017, which was revised to correct the accounting related to the K-12 royalty expense associated with digital subscription products and other individually immaterial adjustments, which decreased net loss by \$8,189.

The Restatement adjustments had no impact on cash and cash equivalents and an immaterial impact to segment Billings and Adjusted EBITDA as of December 31, 2016, 2015 and 2014. The Restatement had no impact to cash provided by (used for) operating, investing or financing activities on the consolidated statement of cash flows for the years ended December 31, 2016, 2015 and 2014. Material non cash adjustments within net operating activities relate to the deferred tax valuation allowance and K-12 deferred revenues associated with print subscription products. In addition, the Restatement resulted in the net(loss) earnings per share from continuing operations, basic and diluted, to change from \$(10.82) to \$(12.82), \$(9.07) to \$(9.82) and from \$(29.35) to \$(32.43) for the years ended December 31, 2016, 2015 and 2014, respectively.

3. The Founding Acquisition

The Founding Acquisition was accounted for as a business combination in accordance with ASC 805, *Business Combinations*. The Founding Acquisition and determination of the fair value of the assets acquired and liabilities assumed was recorded as of March 23, 2013 based on the purchase price of \$2,184,071. As a result of the Founding Acquisition, goodwill of \$387,478 was recorded on the balance sheet. The Company has finalized the allocation of goodwill to each of its reporting units.

As discussed in Note 1 - Basis of Presentation and Accounting Policies, the Founding Acquisition was completed on March 22, 2013 and financed by:

- Borrowings under MHGE senior secured credit facilities (the "MHGE Facilities"), consisting of a \$810,000, 6-year senior secured term loan credit facility (the "MHGE Term Loan"), all of which was drawn at closing and a \$240,000, 5-year senior secured revolving credit facility (the "MHGE Revolving Facility"), \$35,000 of which was drawn at closing;
- Issuance by MHGE and McGraw-Hill Global Education Finance, Inc., a wholly owned subsidiary of MHGE, (together with MHGE, the "Issuers") of \$800,000, 9.75% first-priority senior secured notes due 2021 (the "MHGE Senior Secured Notes");

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- MHSE \$150,000, 5 year asset-based revolving credit facility ("MHSE Revolving Facility"), which was undrawn at closing; and
- Equity contribution of \$1,000,000 funded by the Sponsor and co-investors.

The Founding Acquisition occurred simultaneously with the closing of the financing transactions and equity investments described above.

The sources and uses of funds in connection with the Founding Acquisition are summarized below:

Sources	
Proceeds from MHGE Term Loan	\$ 785,700
Proceeds from MHGE Revolving Facility	35,000
Proceeds from MHGE Senior Secured Notes	789,096
Proceeds from equity contributions	1,000,000
Total sources	\$ 2,609,796
Uses	
Equity purchase price	\$ 2,184,071
Transaction fees and expenses	138,604
Cash	287,121
Total uses	\$ 2,609,796

Purchase Price

The Founding Acquisition was accounted for using the acquisition method of accounting which requires assets acquired and liabilities assumed to be recognized at their fair values as of the acquisition date, with any excess of the purchase price attributed to goodwill. The fair values have been determined based upon assumptions related to the future cash flows, discount rates and asset lives utilizing currently available information. On October 16, 2013, the working capital adjustment was finalized and the Company's share of the proceeds of the working capital adjustment was \$31,276. The Company has finalized the determination of the fair values of the assets acquired and liabilities assumed upon acquisition.

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The table below summarizes the estimated fair values of the assets acquired and liabilities assumed at the date of acquisition:

Cash and cash equivalents	\$	25,227
Accounts receivable and other current assets		237,585
Inventory		629,083
Prepublication costs		110,664
Property, plant and equipment		160,397
Identifiable intangible assets		998,007
Other noncurrent assets		63,076
Accounts payable and accrued expenses		(221,031)
Deferred revenue		(67,799)
Other current liabilities		(64,061)
Deferred income tax liability		(15,846)
Other long-term liabilities		(36,484)
Noncontrolling interests		(22,225)
Goodwill		387,478
Purchase price	\$	2,184,071

Residual goodwill consists primarily of an assembled workforce and other intangible assets that do not qualify for separate recognition.

The fair values of the finite acquired intangible assets is amortized over their useful lives, which is consistent with the estimated useful life considerations used in determining their fair values. Customer and Technology intangibles are amortized on a straight-line basis while Content intangibles are amortized using the sum of the years digits method.

	Fair Value	Useful Lives
Brands	\$ 283,000	Indefinite
Customers	140,000	11 - 14 years
Content	566,007	8 - 14 years
Technology	9,000	5 years

Amortization expense of \$74,604, \$80,752 and \$87,242 was recorded in the years ended December 31, 2016, 2015 and 2014, respectively.

The Founding Acquisition was a taxable acquisition of the assets of domestic subsidiaries and a non-taxable acquisition of the stock of international subsidiaries for U.S. income tax purposes. Therefore, a deferred income tax liability of \$15,846 was provided for the difference in fair value of international assets and liabilities over the carryover tax basis.

4. Acquisitions

ALEKS Corporation

On August 1, 2013, the Company acquired all of the outstanding shares of ALEKS Corporation, a developer of adaptive learning technology for the higher education and K-12 education markets. Prior to the

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acquisition, the Company had a long-term royalty-based partnership with ALEKS Corporation where ALEKS Corporation technology solutions were incorporated into the Company's Higher Education's products.

ALEKS Corporation was acquired for a purchase price of \$103,500; of which \$50,000 was paid in cash at closing. The remaining \$53,500 was paid one year after closing on August 1, 2014 of which \$15,000 was held in escrow for six months. The \$50,000 paid at closing and subsequent payments were financed by a combination of cash on hand and borrowing under the revolving credit facility. On October 31, 2013, the working capital adjustment was finalized and the Company's share of the proceeds of the working capital adjustment was \$1,422. The Company has finalized the determination of the fair values of the assets acquired and liabilities assumed upon acquisition.

The table below summarizes the estimated fair values of the assets acquired and liabilities assumed at the date of acquisition:

Tangible assets	\$	9,365
Identifiable intangible assets		40,700
Deferred revenue		(2,754)
Other liabilities		(23,083)
Goodwill		79,272
Purchase price	\$	103,500

Residual goodwill consists primarily of an assembled workforce and other intangible assets that do not qualify for separate recognition as well as synergies that are expected to arise as a result of the acquisition. Due to the form of the acquisition, none of the purchase price was allocated to goodwill for tax purposes. The goodwill of \$79,272 has been assigned to the Higher Education segment of the Company.

The fair values of the acquired intangible assets is amortized on a straight-line basis over their useful lives which is consistent with the estimated useful life considerations used in determining their fair values.

	<u>Fair Value</u>	<u>Useful Lives</u>
Trade Name	\$ 5,300	10 years
Customers	7,100	7 years
Technology	28,300	7 years

Amortization expense of \$5,587 was recorded in the years ended December 31, 2016, 2015 and 2014, respectively.

Engrade

On February 5, 2014, the Company acquired all of the outstanding shares of Engrade, Inc., an educational technology company operating in the elementary and high school markets. Consideration for the acquisition was 121,103 shares of the Company's common stock and \$5,000 cash. The transaction was valued at \$25,588. Of the 121,103 common shares, 20,184 shares that were held in escrow were released on May 6, 2015 to the sellers 15 months after the closing date and 9,129 shares are reserved and are issuable upon a future liquidation event. The Company has finalized the determination of the fair values of the assets acquired and liabilities assumed upon acquisition. On June 5, 2014, the working capital adjustment was finalized and the Company's share of the proceeds of the working capital adjustment was \$142.

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The table below summarizes the estimated fair values of the assets acquired and liabilities assumed at the date of acquisition:

Tangible assets	\$	1,800
Identifiable intangible assets		5,800
Deferred revenue		(300)
Other liabilities		(1,319)
Goodwill		19,465
Purchase price	\$	25,446

Residual goodwill consists primarily of an assembled workforce and other intangible assets that do not qualify for separate recognition as well as synergies that are expected to arise as a result of the acquisition. Due to the form of the acquisition, none of the purchase price was allocated to goodwill for tax purposes. The goodwill of \$19,465 has been assigned to the K-12 segment of the Company.

The fair values of the acquired intangible assets is amortized on a straight-line basis over their useful lives which is consistent with the estimated useful life considerations used in determining their fair values.

	<u>Fair Value</u>	<u>Useful Lives</u>
Trademarks	\$ 1,150	5 years
Customers	600	8 years
Technology	4,050	7 years

Amortization expense of \$884, \$884 and \$810 was recorded in the years ended December 31, 2016, 2015 and 2014, respectively.

LearnSmart

On February 6, 2014, the Company acquired the remaining 80% that it did not already own of *LearnSmart*, a Danish Company and developer of adaptive learning tools for the higher education market for total consideration of \$78,049. Prior to the acquisition, the Company had a long-term royalty-based relationship with *LearnSmart*. The Company had purchased the other 20% stake in *LearnSmart* in January 2013. Consideration for the acquisition of the remaining 80% was \$29,003 in cash at closing, with the remainder in shares of the Company's common stock and preferred shares held in escrow, of which 50% are subject to conversion into the Company's common stock ratably upon each anniversary date beginning December 31, 2014 through December 29, 2017. The remaining 50% are subject to an earn-out based on several financial measures which we expect to be met and therefore all earn out preferred shares have been valued in additional paid in capital.

Pursuant to the purchase agreement, consulting payments are due to the founders of *LearnSmart* of \$9,800 for a designated project and deliverable, of which \$2,700 is contingent upon a successful completion of a project deliverable and \$5,000 expense reimbursement over a four year period. These costs are expensed as incurred.

There was a gain of \$7,329 recorded in other income for the year ended December 31, 2014, reflecting a fair value adjustment based on the purchase price of the additional 80% interest on the original 20% stake of which the fair value is \$15,866, making the total transaction value equal to \$93,915. The Company determined the acquisition date fair value of the previously held equity interest in *LearnSmart* using the income approach, including consideration of a control premium, which requires the Company to make estimates and assumptions regarding future cash flows. On July 18, 2014, the working capital adjustment was finalized and the Company's payment for the working capital adjustment was \$959. The Company has finalized the determination of the fair values of the assets acquired and liabilities assumed upon acquisition.

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The table below summarizes the estimated fair values of the assets acquired and liabilities assumed at the date of acquisition:

Tangible assets	\$	1,969
Identifiable intangible assets		44,800
Other liabilities		(7,609)
Goodwill		54,755
Purchase price	\$	93,915

Residual goodwill consists primarily of an assembled workforce and other intangible assets that do not qualify for separate recognition as well as synergies that are expected to arise as a result of the acquisition. Due to the form of the acquisition, none of the purchase price was allocated to goodwill for tax purposes. The goodwill of \$54,755 has been assigned to the Higher Education segment of the Company.

The fair values of the acquired intangible assets is amortized on a straight-line basis over their useful lives which is consistent with the estimated useful life considerations used in determining their fair values.

	Fair Value	Useful Lives
Technology	\$ 42,200	7 years
Non-Compete	2,600	4 years

Amortization expense of \$5,378, \$5,237 and \$6,099 was recorded in the years ended December 31, 2016, 2015 and 2014 respectively.

Ryerson

On June 17, 2014, the Company acquired the remaining 30% interest in McGraw-Hill Ryerson Limited, its Canadian subsidiary, and now owns all of the outstanding shares of the operation. The aggregate purchase price was approximately \$27,450. The excess of the purchase price over the value of the noncontrolling interest of \$4,815 was recognize as an adjustment to additional paid in capital. The Company determined the fair value of the previously held equity interest in Ryerson using an active market price on the date of acquisition.

Redbird

On September 30, 2016, the Company completed the acquisition of Redbird Advanced Learning, LLC ("Redbird"), a digital personalized learning company that offers courses in K-12 math, language arts and writing and virtual professional development programs for educators. The aggregate purchase price was \$12,000, of which \$11,500 was paid in cash on closing subject to a working capital adjustment. The Company has preliminary allocated the purchase price of Redbird to acquired net assets, goodwill and intangibles pending the completion of the valuation of assets and liabilities assumed. The final assets and liabilities fair values are not expected to be material to the Company's consolidated financial statements.

5. Other Income

During the year ended December 31, 2015, the Company recorded a gain of \$4,779 within other income in the consolidated statement of operations related to the sale of an investment in an equity security.

During the year ended December 31, 2014, the Company recorded a gain of \$8,420 within other income in the consolidated statement of operations. This related to the gain of \$1,091 from the sale of two parcels of land in Columbus, Ohio in November 2014 and the gain of \$7,329 recognized on the acquisition of the remaining 80% equity interest in *LearnSmart* as further described in Note 4 - Acquisitions.

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6. Discontinued Operations

On June 30, 2015, the Company entered into a definitive agreement and consummated the sale of substantially all of the assets and certain liabilities of the Company's wholly-owned CTB business to Data Recognition Corporation ("DRC"). The Company provided funding in lieu of delivering working capital to the Seller of approximately \$6,571 at closing and a subsequent payment of \$10,000 in the fourth quarter of 2015. In addition, the Company is entitled to receive an earn-out in the event that the performance of the CTB business exceeds certain thresholds over a five year period as defined in the agreement. During the year ended December 31, 2015, adjustments to amounts previously reported in discontinued operations were recognized. These primarily included post-closing adjustments to the loss on sale, employee obligations directly related to the divestiture and penalty contingencies that directly related to the operations of the CTB business prior to its divestiture. We have historically considered CTB a separate operating and reportable segment, consistent with the manner in which the Chief Operating Decision Maker ("CODM") views the business. As the divestiture of the CTB business represents a strategic shift that will have a major effect on the Company's operations and financial results, operating results, pre-publication investment and amortization, depreciation, and stock-based compensation for the CTB business are presented as discontinued operations separate from the Company's continuing operations for all periods presented.

The following tables include major line items constituting net (loss) income from discontinued operations, net of taxes:

	Year Ended December 31, 2016	Year Ended December 31, 2015	Year Ended December 31, 2014
Revenue	\$ —	\$ 65,871	\$ 180,092
Cost of sales	—	(45,505)	(95,346)
Operating expenses	(1,905)	(96,674)	(101,903)
(Loss) income from discontinued operations	(1,905)	(76,308)	(17,157)
Income tax benefit (provision)	—	(30)	(1,000)
Net (loss) income from discontinued operations, net of taxes	<u>\$ (1,905)</u>	<u>\$ (76,338)</u>	<u>\$ (18,157)</u>

The following table includes pre-publication investment costs and significant operating and investing non-cash items included as part of discontinued operations:

	Year Ended December 31, 2016	Year Ended December 31, 2015	Year Ended December 31, 2014
Pre-publication investment	\$ —	\$ 937	\$ 3,381
Pre-publication amortization	—	2,201	1,675
Depreciation	—	938	2,638
Stock-based compensation	—	475	681
Impairment charge	—	—	32,520

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7. Inventories

Inventories consist of the following:

	As of	
	December 31, 2016	December 31, 2015
Raw materials	\$ 1,999	\$ 1,873
Work-in-progress	1,805	1,898
Finished goods	235,007	246,447
	238,811	250,218
Reserves	(64,152)	(80,793)
Inventories, net	\$ 174,659	\$ 169,425

8. Property, Plant and Equipment

	Useful Life	As of	
		December 31, 2016	December 31, 2015
Furniture and equipment	2 - 12 years	\$ 75,715	\$ 60,651
Buildings and leasehold improvements	2 - 40 years	64,867	70,156
Land and land improvements		8,314	8,324
		148,896	139,131
Less: accumulated depreciation and amortization		(52,192)	(43,815)
Total Property, plant and equipment, net		\$ 96,704	\$ 95,316

Depreciation expense related to property, plant and equipment was \$21,942, \$18,316 and \$19,588 for the years ended December 31, 2016, 2015 and 2014, respectively.

As of December 31, 2014, the Company estimated that the carrying amount of a directly owned building may not be recoverable. In order to reduce the carrying amount of the office building to its estimated fair market value, the Company recorded an impairment charge of \$23,800 as of December 31, 2014. The estimated fair value was determined based on an appraisal from an independent valuation specialist and is considered to be Level 3 in the fair value hierarchy.

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9. Goodwill and Other Intangible Assets

Goodwill

Goodwill represents the excess of purchase price and related costs over the value assigned to the net tangible and identifiable assets and liabilities assumed of businesses acquired. The Company performs an annual impairment test of goodwill and intangible assets with indefinite lives during the fourth quarter and also between annual tests if an event occurs or its circumstances change that would more likely than not reduce the fair value of a reporting unit or an indefinite-lived intangible asset below its carrying value.

The following table summarizes the changes in the carrying value of goodwill by reporting segment:

	Higher Education	K-12	International	Professional	Total
As of December 31, 2014	\$ 435,519	\$ 24,373	\$ 4,089	\$ 37,078	\$ 501,059
Adjustment to goodwill	(13,153)	1,050	—	—	(12,103)
As of December 31, 2015	\$ 422,366	\$ 25,423	\$ 4,089	\$ 37,078	\$ 488,956
Adjustment to goodwill	(1,685)	4,844	—	—	3,159
As of December 31, 2016	\$ 420,681	\$ 30,267	\$ 4,089	\$ 37,078	\$ 492,115

Goodwill adjustments in the table relate to acquisitions discussed in Note 3 - The Founding Acquisition and Note 4 - Acquisitions and includes a \$1,685 and \$9,991 impact from foreign exchange as of December 31, 2016 and 2015, respectively.

Based on the results of the impairment analysis performed by the Company, there were no impairment charges recognized relating to the goodwill recorded within the Higher Education, K-12, International or Professional reporting units for the years ended December 31, 2016, 2015 and 2014.

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Other Intangible Assets

The following information details the carrying amounts and accumulated amortization of the Company's intangible assets:

	Useful Lives	December 31, 2016				December 31, 2015			
		Gross amount	Accumulated amortization	Foreign exchange	Net amount	Gross amount	Accumulated amortization	Foreign exchange	Net amount
Content	8 - 14 years	\$ 571,457	\$ (269,103)	\$ —	\$ 302,354	\$ 566,007	\$ (205,938)	\$ —	\$ 360,069
Brands	Indefinite	284,000	—	—	284,000	283,000	—	—	283,000
Customers	11 -14 years	147,700	(41,940)	—	105,760	147,700	(30,717)	—	116,983
Technology	5 years	91,550	(37,419)	(7,882)	46,249	83,550	(25,987)	(5,210)	52,353
Other intangibles	4 to 10 years	9,050	(4,616)	(969)	3,465	9,050	(3,206)	(321)	5,523
Total		\$ 1,103,757	\$ (353,078)	\$ (8,851)	\$ 741,828	\$ 1,089,307	\$ (265,848)	\$ (5,531)	\$ 817,928

The fair values of the definite-lived acquired intangible assets are amortized over their useful lives, which is consistent with the estimated useful life of considerations used in determining their fair values. Customer and Technology intangibles are amortized on a straight-line basis while Content intangibles are amortized using the sum of years digits method. The weighted average amortization period is 12.8 years. Amortization expense was \$87,230 \$92,460, and \$100,001 for the years ended December 31, 2016, 2015 and 2014, respectively. The Company's expected aggregate annual amortization expense for existing intangible assets subject to amortization for each of the years, 2017 through 2022 and thereafter, assuming no further acquisitions or dispositions, is summarized on the following schedule:

	Expected Amortization Expense
2017	83,729
2018	75,530
2019	68,653
2020	60,319
2021	45,155
2022 and thereafter	130,620

There were no impairments of indefinite-lived intangible assets for the years ended December 31, 2016, 2015 and 2014.

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10. Debt

Long-term debt consisted of the following:

	As of	
	December 31, 2016	December 31, 2015
MHGE Senior Notes	\$ 400,000	\$ —
Term Loan Facility	1,567,125	—
MHGE PIK Toggle Notes	500,000	500,000
MHGE Senior Secured Notes	—	800,000
MHGE Term Loan	—	673,908
MHSE Term Loan	—	245,000
Total long-term debt outstanding	2,467,125	2,218,908
Less: unamortized debt discount	(69,726)	(27,133)
Less: unamortized deferred financing costs	(52,143)	(56,980)
Less: current portion of long-term debt	(15,750)	(81,620)
Long-Term Debt	\$ 2,329,506	\$ 2,053,175

On May 4, 2016, the Company completed a series of transactions to refinance our then existing indebtedness. These transactions included the issuance of \$400,000 aggregate principal amount of 7.875% Senior Notes due 2024 in a private placement (the "MHGE Senior Notes") and the execution of a credit agreement for \$1,925,000 of new senior secured credit facilities (the "Senior Facilities"), consisting of a five-year \$350,000 senior secured revolving credit facility (the "Revolving Facility"), which was undrawn at closing, and a six-year \$1,575,000 senior secured term loan credit facility (the "Term Loan Facility").

The proceeds from the issuance of the MHGE Senior Notes and the Senior Facilities together with cash on hand were used to (i) repurchase and redeem all of the MHGE Senior Secured Notes (ii) repay in full all amounts outstanding under our then existing MHGE Term Loan and MHSE Term Loan and terminate all commitments thereunder, (iii) terminate all commitments under our then existing MHGE Revolving Facility and MHSE Revolving Facility, (v) fund a distribution to the Company's shareholders and (vi) pay related fees and expenses. We refer to the issuance of the MHGE Senior Notes together with the Senior Facilities and the transactions described in this paragraph collectively as the "Refinancing".

In addition, concurrently with the Refinancing, the Company completed a reorganization such that MHSE Holdings became a direct subsidiary of MHGE.

The Refinancing was accounted for in accordance with ASC 470 -50, *Debt - "Modifications and Extinguishments"*. As a result, we incurred a loss on extinguishment of debt of \$26,562, consisting of a portion of the redemption premium paid of \$14,456 associated with the MHGE Senior Secured Notes and the write-off of unamortized deferred financing fees of \$8,686 and original debt discount of \$3,420 related to the portion of the debt accounted for as an extinguishment. With respect to the portion of the debt accounted for as a modification, the Company continued to capitalize \$46,211 of the unamortized deferred financing fees and \$18,323 of the original debt discount. In addition, the Company capitalized \$45,547 of the remaining redemption premium paid associated with the MHGE Senior Secured Notes which is included within unamortized debt discount.

Furthermore, we incurred \$45,659 of creditor and third-party fees on the MHGE Senior Notes and Senior Facilities, of which, \$19,956 were capitalized as deferred financing fees, \$7,875 were capitalized as debt discount and \$17,828 were expensed and included within interest expense, net in our consolidated statements of operations for the year ended December 31, 2016.

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MHGE Senior Notes

On May 4, 2016, MHGE and McGraw-Hill Global Education Finance, Inc. (together with MHGE, the "Issuers") issued \$400,000 in principal amount of the MHGE Senior Notes in a private placement. The MHGE Senior Notes mature on May 15, 2024 and bear interest at a rate of 7.875% per annum, payable semi-annually in arrears on May 15 and November 15 of each year, commencing on November 15, 2016.

As of December 31, 2016, the unamortized debt discount and deferred financing costs was \$48,670 and \$22,169, respectively, which are amortized over the term of the MHGE Senior Notes using the effective interest method.

The Issuers may redeem the MHGE Senior Notes at their option, in whole or in part, at any time on or after May 15, 2019, at certain redemption prices. In addition, prior to May 15, 2019 the Issuers may redeem the MHGE Senior Notes at their option, in whole at any time or in part from time to time, at a redemption price equal to 100% of the principal amount of the MHGE Senior Notes redeemed, plus a "make-whole" premium and accrued and unpaid interest, if any. Notwithstanding the foregoing, from time to time on or prior to May 15, 2019 the Issuers may redeem in the aggregate up to 40% of the original aggregate principal amount of the Notes (calculated after giving effect to any issuance of additional notes) in an aggregate amount equal to the net cash proceeds of one or more equity offerings at a redemption price equal to 107.875%, plus accrued and unpaid interest, if any, so long as at least 50% of the original aggregate principal amount of the Notes (calculated after giving effect to any issuance of additional notes) must remain outstanding after each such redemption.

The MHGE Senior Notes are fully and unconditionally guaranteed by each of MHGE Holdings' domestic restricted subsidiaries that guarantee the Senior Facilities.

The MHGE Senior Notes contain certain customary negative covenants and events of default. The negative covenants limit MHGE Holdings and its restricted subsidiaries' ability to, among other things: incur additional indebtedness or issue certain preferred shares, create liens on certain assets, pay dividends or prepay junior debt, make certain loans, acquisitions or investments, materially change its business, engage in transactions with affiliates, conduct asset sales, restrict dividends from subsidiaries, restrict liens, or merge, consolidate, sell or otherwise dispose of all or substantially all of MHGE Holdings' assets.

The fair value of the MHGE Senior Notes was approximately \$403,000 as of December 31, 2016. The Company estimates the fair value of its MHGE Senior Notes based on trades in the market. Since the MHGE Senior Notes do not trade on a daily basis in an active market, the fair value estimates are based on market observable inputs based on borrowing rates currently available for debt with similar terms and average maturities (Level 2). As of December 31, 2016, the remaining contractual life of the MHGE Senior Notes is approximately 7.25 years.

Senior Facilities

On May 4, 2016, MHGE Holdings entered into the Senior Facilities. The Senior Facilities provide for senior secured financing of up to \$1,925,000, consisting of:

- the Term Loan Facility in an aggregate principal amount of \$1,575,000 with a maturity of 6 years; and
- the Revolving Facility in an aggregate principal amount of up to \$350,000 with a maturity of 5 years, including both a letter of credit sub-facility and a swingline loan sub-facility.

Borrowings under the Senior Facilities bear interest at a rate equal to a LIBOR or Prime rate plus an applicable margin, subject to a 1.00% floor in the case of the Term Loan Facility. As of December 31, 2016, the interest rate for the Term Loan Facility was 5%. In addition, the Term Loan Facility was issued at a discount of 0.5%. As of December 31, 2016, the unamortized debt discount and deferred financing costs was \$18,308 and \$24,423, respectively, which are amortized over the term of the facility using the effective interest method.

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As of December 31, 2016, the amount available under the Revolving Facility was \$350,000. In addition, we are required to pay a commitment fee of 0.50% per annum to the lenders under the Revolving Facility in respect of the unutilized commitments thereunder.

The Senior Facilities require scheduled quarterly principal payments on the term loans in amounts equal to 0.25% of the original principal amount of the term loans commencing with the end of the first full fiscal quarter ending after the closing date, with the balance payable at maturity.

In addition, the Senior Facilities include customary mandatory prepayment requirements based on certain events such as asset sales, debt issuances and defined levels of excess cash flow.

All obligations under the Senior Facilities are unconditionally guaranteed by each of MHGE Holdings' existing and future direct and indirect material, wholly owned domestic subsidiaries. The obligations are secured by substantially all of MHGE Holdings' assets and those of each subsidiary guarantor, capital stock of the subsidiary guarantors and 65% of the voting capital stock of the first-tier foreign subsidiaries that are not subsidiary guarantors, in each case subject to exceptions. Such security interests consist of a first priority lien with respect to the collateral.

Our Revolving Facility includes a springing covenant that requires MHGE Holdings, subject to a testing threshold, comply on a quarterly basis with a maximum net first lien senior secured leverage ratio (the ratio of consolidated net debt secured by first-priority liens on the collateral to Adjusted EBITDA) of (a) with respect to the first, third and fourth fiscal quarters of any year, 4.80 to 1.00 and (b) with respect to the second quarter of any fiscal year, 5.25 to 1.00. The testing threshold is satisfied at any time at which the sum of outstanding revolving credit facility loans, swingline loans and certain letters of credit exceeds thirty percent (30%) of commitments under the revolving credit facility at such time.

Adjusted EBITDA reflects EBITDA as defined in the credit agreement governing the Senior Facilities. Solely for the purpose of calculating the springing financial covenant, pre-publication investments should be excluded from the calculation of Adjusted EBITDA.

The Senior Facilities contain certain customary affirmative covenants and events of default. The negative covenants in the Senior Facilities include, among other things, limitations on MHGE Holdings' and its subsidiaries' ability to incur additional debt or issue certain preferred shares; create liens on certain assets; make certain loans or investments (including acquisitions); pay dividends on or make distributions in respect of capital stock or make other restricted payments; consolidate, merge, sell or otherwise dispose of all or substantially all of their assets; sell assets; enter into certain transactions with affiliates; enter into sale-leaseback transactions; change their lines of business; restrict dividends from their subsidiaries or restrict liens; change their fiscal year; and modify the terms of certain debt or organizational agreements.

The fair value of the Term Loan Facility was approximately \$1,567,125 as of December 31, 2016. The Company estimates the fair value of its Term Loan Facility based on trades in the market. Since the Term Loan Facility do not trade on a daily basis in an active market, the fair value estimates are based on market observable inputs based on borrowing rates currently available for debt with similar terms and average maturities (Level 2). As of December 31, 2016, the remaining contractual life of the Term Loan Facility is approximately 5.25 years.

MHGE PIK Toggle Notes

On July 17, 2014, MHGE Parent, LLC ("MHGE Parent") and MHGE Parent Finance, Inc. issued \$400,000 aggregate principal amount of the MHGE PIK Toggle Notes in a private placement. The MHGE PIK Toggle Notes were issued at a discount of 1%. The net proceeds were used to make a return of capital to the equity holders of MHGE Parent and pay certain related transaction costs and expenses.

On April 6, 2015, additional aggregate principal amount of \$100,000 was issued under the same indenture, and part of the same series, as the outstanding \$400,000 of the MHGE PIK Toggle Notes previously issued by

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MHGE Parent and MHGE Parent Finance, Inc. The proceeds from this private offering were used to make a return of capital to the equity holders of MHGE Parent.

As of December 31, 2016, the unamortized debt discount and deferred financing costs were \$2,748 and \$5,551, respectively, which are amortized over the term of the MHGE PIK Toggle Notes using the effective interest method.

The MHGE PIK Toggle Notes bear interest at 8.500% for interest paid in cash and 9.250% for in-kind interest, "PIK Interest," by increasing the principal amount of the MHGE PIK Toggle Notes by issuing new notes. Interest is payable semi-annually on February 1 and August 1 of each year. The first semi-annual interest payment was required to be paid in cash and was paid on February 2, 2015 in the amount of \$18,322. In addition, the Company also paid subsequent interest payments in cash in the amount of \$21,250 on August 3, 2015, February 1, 2016 and August 1, 2016, respectively. The determination as to whether interest is paid in cash or PIK Interest is determined based on restrictions in the credit agreement governing the Senior Facilities and in the indenture governing the MHGE Senior Notes for payments to MHGE Parent. PIK Interest may be paid either 0%, 50% or 100% of the amount of interest due, dependent on the amount of any restriction. The MHGE PIK Toggle Notes are structurally subordinate to all of the debt of MHGE Holdings and its subsidiaries, are not guaranteed by any of MHGE Holdings or its subsidiaries and are a contractual obligation of MHGE Parent.

The MHGE PIK Toggle Notes are unsecured and are not subject to registration rights.

The MHGE PIK Toggle Notes contain certain customary affirmative covenants and events of default that are similar to those contained in the indenture governing the MHGE Senior Notes. In addition, the negative covenants in the MHGE PIK Toggle Notes limit MHGE Parent and its restricted subsidiaries' ability to, among other things: incur additional indebtedness or issue certain preferred shares, create liens on certain assets, pay dividends or prepay junior debt, make certain loan, acquisitions or investments, materially change its business, engage into transactions with affiliates, conduct asset sales, restrict dividends from subsidiaries or restrict liens, or merge, consolidate, sell or otherwise dispose of all or substantially all of MHGE Parent's assets.

The fair value of the MHGE PIK Toggle Notes was approximately \$503,750 and \$495,000 as of December 31, 2016 and December 31, 2015, respectively. The Company estimates the fair value of its MHGE PIK Toggle Notes based on trades in the market. Since the MHGE PIK Toggle Notes do not trade on a daily basis in an active market, the fair value estimates are based on market observable inputs based on borrowing rates currently available for debt with similar terms and average maturities (Level 2). As of December 31, 2016, the remaining contractual life of the MHGE PIK Toggle Notes is approximately 2.50 years.

MHGE Senior Secured Notes (Refinanced on May 4, 2016)

The MHGE Senior Secured Notes were issued under an indenture in connection with the Founding Acquisition, on March 22, 2013, in a private placement. Interest on the MHGE Senior Secured Notes was 9.75% per annum and is payable semi-annually in arrears on April 1 and October 1 of each year, with the first payment made on October 1, 2013.

On April 18, 2016, MHGE announced a cash tender offer to purchase up to \$800,000 of its MHGE Senior Secured Notes. Holders who validly tendered their MHGE Senior Secured Notes before the early tender deadline on April 29, 2016 received total consideration equal to \$1,076 per \$1,000 principal amount of the MHGE Senior Secured Notes, plus any accrued and unpaid interest on the MHGE Senior Secured Notes up to, but not including, the payment date. On May 4, 2016, MHGE and McGraw-Hill Global Education Finance, Inc. repurchased approximately \$522,269 aggregate principal amount of the MHGE Senior Secured Notes pursuant to the cash tender offer and defeased and discharged the indenture governing the MHGE Senior Secured Notes. MHGE Holdings and McGraw-Hill Global Education Finance, Inc. repurchased or redeemed the remaining MHGE Senior Secured Notes on May 4, 2016. Concurrently with the defeasance and discharge of the indenture, all of the restrictive covenants in the indenture were removed and the collateral securing the MHGE Senior Secured Notes was released.

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MHGE Facilities (Refinanced on May 4, 2016)

MHGE, our wholly owned subsidiary, together with MHGE Holdings, entered into the MHGE Facilities, in connection with the Founding Acquisition, on March 22, 2013, that provided senior secured financing of up to \$1,050,000, consisting of:

- the MHGE Term Loan in an aggregate principal amount of \$810,000 with a maturity of six years; and
- the MHGE Revolving Facility in an aggregate principal amount of up to \$240,000 with a maturity of five years, including both a letter of credit sub-facility and a swingline loan sub-facility.

On May 4, 2015, MHGE Holdings refinanced the MHGE Term Loan in the aggregate principal of \$679,000. The revised terms reduced the applicable LIBOR margin from 4.75% to 3.75%, subject to a LIBOR floor of 1%. The interest rate was 4.75% as of December 31, 2015 for the MHGE Term Loan and there were no outstanding borrowings under the MHGE Revolving Facility.

On May 4, 2016, MHGE Facilities were repaid in full and all commitments thereunder terminated in connection with the Refinancing.

MHSE Revolving Facility (Refinanced on May 4, 2016)

MHSE entered into the MHSE Revolving Facility, in connection with the Founding Acquisition, on March 22, 2013, with Bank of Montreal, as Administrative Agent and the other agents and lenders, as parties thereto, that provided senior secured financing of up to \$150,000 based on seasonal levels of the collateral base, with a maturity of five years. The interest rate on the borrowings under the MHSE Revolving Facility was based on LIBOR, plus an applicable margin. There were no outstanding obligations under the MHSE Revolving Facility as of December 31, 2015.

On May 4, 2016, all commitments under the MHSE Revolving Facility were terminated in connection with the Refinancing.

MHSE Term Loan (Refinanced on May 4, 2016)

On December 18, 2013, MHSE Holdings, MHSE, the Lenders, as parties thereto, and Bank of Montreal as Administrative Agent entered into a First-Lien Credit Agreement providing for, amongst other things, the extension of \$250,000 of Term B Loan (the "MHSE Term Loan") to MHSE. The interest rate on the borrowings under the MHSE Term Loan was based on LIBOR or Prime, plus an applicable margin. The interest rate as of December 31, 2015 was 6.25% for the MHSE Term Loan, subject to a LIBOR floor of 1.25%.

On May 4, 2016, the MHSE Term Loan was repaid in full and all commitments thereunder terminated in connection with the Refinancing.

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Scheduled Principal Payments

The scheduled principal payments required under the terms of the MHGE Senior Notes, Senior Facilities and MHGE PIK Toggle Notes were as follows:

	As of
	December 31, 2016
2017	15,750
2018	15,750
2019	515,750
2020	15,750
2021	15,750
2022 and beyond	1,888,375
	2,467,125
Less: Current portion	15,750
	\$ 2,451,375

11. Segment Reporting

The Company manages and reports its businesses in the following segments:

- **Higher Education:** Provides instructional content, adaptive learning, assessment and institutional services to students, professors, provosts and presidents in the college, university and postgraduate markets in the United States and around the world.
- **K - 12:** Provides instructional and supplemental solutions and services to the PreK-12 market. K - 12 offers a comprehensive portfolio of educational resources to elementary and secondary schools both in digital and print, with a focus on supporting educators and aligning assessment and instruction to improve student achievement.
- **International:** Leverages our global scale, brand recognition and extensive product portfolio to serve educational and professional markets around the world. International pursues numerous product models to drive growth, ranging from reselling primarily Higher Education and Professional offerings to creating locally developed product suites customized for each region.
- **Professional:** Provides content and subscription-based information services for the professional business, medical, technical and education/test-preparation communities, including for professionals preparing for entry into graduate programs.
- **Other:** Includes certain transactions or adjustments that our CODM considers to be unusual and/or non-operational.

The Company's business segments are consistent with how management views the markets served by the Company. The CODM reviews their separate financial information to assess performance and to allocate resources. We measure and evaluate our reportable segments based on segment Billings and Adjusted EBITDA and believe they provide additional information to management and investors to measure our performance and evaluate our ability to service our indebtedness. We include the change in deferred revenue to GAAP revenue to arrive at Billings. Billings is a key metric that we use to manage our business as it reflects the sales activity in a given period and provides comparability during this time of digital transition, particularly in the K-12 market, in which our customers typically pay for five to eight-year contracts upfront. Furthermore, Billings incorporates the change in deferred revenue that is reflected in the calculation of Adjusted EBITDA. Therefore when the Company uses a

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margin calculation based on Adjusted EBITDA, the margin has to be based on Billings. We exclude from segment Adjusted EBITDA: interest expense (income), net, income tax (benefit) provision, depreciation, amortization and pre-publication amortization and certain transactions or adjustments that our CODM does not consider for the purposes of making decisions to allocate resources among segments or assessing segment performance. Although we exclude these amounts from segment Adjusted EBITDA, they are included in reported consolidated net income (loss) and are included in the reconciliation below.

Billings and Adjusted EBITDA are not presentations made in accordance with U.S. GAAP and the use of the terms, Billings and Adjusted EBITDA, varies from others in our industry. Billings and Adjusted EBITDA should be considered in addition to, not as a substitute for, revenue and net income (loss), or other measures of financial performance derived in accordance with U.S. GAAP as measures of operating performance or cash flows as measures of liquidity.

Segment asset disclosure is not used by the CODM as a measure of segment performance since the segment evaluation is driven by Billings and Adjusted EBITDA. As such, segment assets are not disclosed in the notes to the accompanying consolidated financial statements.

The following tables set forth information about the Company's operations by its segments:

	<u>As Restated</u> <u>Year Ended</u> <u>December 31, 2016</u>	<u>As Restated</u> <u>Year Ended</u> <u>December 31, 2015</u>	<u>As Restated</u> <u>Year Ended</u> <u>December 31, 2014</u>
Billings:			
Higher Education	\$ 735,623	\$ 824,951	\$ 838,310
K - 12	758,473	797,510	734,417
International	295,000	307,932	335,809
Professional	122,100	123,037	127,299
Other	1,706	4,521	3,606
Total Billings (1)	<u>1,912,902</u>	<u>2,057,951</u>	<u>2,039,441</u>
Change in deferred revenue	(172,875)	(229,359)	(206,608)
Total Consolidated Revenue	<u>\$ 1,740,027</u>	<u>\$ 1,828,592</u>	<u>\$ 1,832,833</u>

(1) The elimination of inter-segment revenues was not significant to the revenues of any one segment.

Adjusted EBITDA:			
Higher Education	\$ 233,507	\$ 294,540	\$ 296,105
K - 12	138,368	126,902	118,168
International	19,011	33,229	37,603
Professional	33,739	32,193	37,882
Other	(1,737)	(1,274)	(11,846)
Total Adjusted EBITDA	<u>\$ 422,888</u>	<u>\$ 485,590</u>	<u>\$ 477,912</u>

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Reconciliation of Adjusted EBITDA to the consolidated statements of operations is as follows:

	As Restated	As Restated	As Restated
	Year Ended	Year Ended	Year Ended
	December 31, 2016	December 31, 2015	December 31, 2014
Total Adjusted EBITDA	\$ 422,888	\$ 485,590	\$ 477,912
Interest (expense) income, net	(199,506)	(192,918)	(182,199)
Provision for taxes on income	(15,117)	(11,530)	(124,439)
Depreciation, amortization and pre-publication amortization	(202,081)	(213,523)	(208,905)
Change in deferred revenue	(172,875)	(229,359)	(206,608)
Change in deferred royalties	17,969	10,866	8,699
Restructuring and cost savings implementation charges	(17,080)	(24,766)	(39,888)
Sponsor fees	(3,500)	(3,500)	(3,500)
Impairment charge	—	—	(23,800)
Purchase accounting	—	—	(35,221)
Transaction costs	—	—	(3,932)
Acquisition costs	—	—	(4,376)
Physical separation costs	—	—	(46,716)
Loss on extinguishment of debt	(26,562)	—	—
Other	(28,933)	(22,470)	(30,665)
Pre-publication investment	89,695	98,817	87,085
Net (loss) income from continuing operations	(135,102)	(102,793)	(336,553)
Net (loss) income from discontinued operations, net of taxes	(1,905)	(76,338)	(18,157)
Net (loss) income	\$ (137,007)	\$ (179,131)	\$ (354,710)
Less: Net loss attributable to noncontrolling interests	—	—	299
Net (loss) income attributable to McGraw-Hill Education, Inc.	\$ (137,007)	\$ (179,131)	\$ (354,411)

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The following is a schedule of revenue and long-lived assets by geographic region:

	Revenue (1)		
	As Restated	As Restated	As Restated
	Year Ended December 31, 2016	Year Ended December 31, 2015	Year Ended December 31, 2014
United States	\$ 1,453,100	\$ 1,523,571	\$ 1,495,889
International	286,927	305,021	336,944
Total	\$ 1,740,027	\$ 1,828,592	\$ 1,832,833

	Long-lived Assets (2)	
	As of	
	December 31, 2016	December 31, 2015
United States	\$ 311,211	\$ 279,389
International	42,516	34,604
Total	\$ 353,727	\$ 313,993

- (1) Revenues are attributed to a geographic region based on the location of customer.
(2) Reflects total assets less current assets, goodwill, intangible assets, investments, deferred financing costs and non-current deferred tax assets.

12. Taxes on Income

Income before taxes on income that resulted from domestic and foreign operations is as follows:

	As Restated	As Restated	As Restated
	Year Ended December 31, 2016	Year Ended December 31, 2015	Year Ended December 31, 2014
Domestic operations	\$ (131,300)	\$ (97,887)	\$ (224,098)
Foreign operations	11,315	6,624	11,984
Total income (loss) before taxes	\$ (119,985)	\$ (91,263)	\$ (212,114)

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The provision for taxes on income consists of the following:

	<u>As Restated</u> <u>Year Ended</u> <u>December 31, 2016</u>	<u>As Restated</u> <u>Year Ended</u> <u>December 31, 2015</u>	<u>As Restated</u> <u>Year Ended</u> <u>December 31, 2014</u>
Federal:			
Current	\$ —	\$ —	\$ —
Deferred	6,153	5,003	99,633
Total federal	<u>6,153</u>	<u>5,003</u>	<u>99,633</u>
Foreign:			
Current	10,632	8,133	11,553
Deferred	(2,963)	(3,513)	(4,562)
Total foreign	<u>7,669</u>	<u>4,620</u>	<u>6,991</u>
State and local:			
Current	607	1,045	109
Deferred	688	862	17,706
Total state and local	<u>1,295</u>	<u>1,907</u>	<u>17,815</u>
Total provision (benefit) for taxes	<u>\$ 15,117</u>	<u>\$ 11,530</u>	<u>\$ 124,439</u>

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

	<u>As Restated</u> <u>Year Ended</u> <u>December 31, 2016</u>	<u>As Restated</u> <u>Year Ended</u> <u>December 31, 2015</u>	<u>As Restated</u> <u>Year Ended</u> <u>December 31, 2014</u>
U.S. federal statutory income tax rate	35.0 %	35.0 %	35.0 %
Effect of state and local income taxes	(0.2)	(0.7)	(4.9)
Foreign rate differential	0.6	1.4	0.9
Research and development credit	2.6	3.6	0.3
U.S. tax cost of foreign earnings	—	(0.1)	0.9
Inventory contribution	4.1	3.0	3.3
Early adoption of Sec 987 regulations	(3.8)	—	—
Valuation allowance on deferred tax assets	(51.1)	(44.4)	(107.3)
Previously taxed deferred revenue	1.0	(7.8)	7.3
<i>LearnSmart</i> gain	—	—	1.2
Nontaxable royalty income	1.4	1.9	0.7
Other - net	(2.2)	(4.5)	3.9
Effective income tax rate	<u>(12.6)%</u>	<u>(12.6)%</u>	<u>(58.7)%</u>

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The principal temporary differences between accounting for income and expenses for financial reporting and income tax purposes as of December 31, 2016 and 2015 are as follows:

	December 31, 2016	December 31, 2015
Deferred tax assets:		
Inventory and pre-publication costs	\$ 32,245	\$ 38,016
Doubtful accounts and sales returns reserves	—	7,705
Accrued expenses	2,613	13,863
Intangible and fixed assets	17,926	34,445
Employee compensation	22,750	15,004
Deferred revenue	152,518	70,032
Loss carryforwards	170,487	142,942
Other	4,204	6,557
Total deferred tax assets	402,743	328,564
Deferred tax liabilities:		
Doubtful accounts and sales returns reserves	(2,843)	—
Indefinite lived intangibles and goodwill	(34,544)	(27,704)
Other	—	—
Total deferred tax liabilities	(37,387)	(27,704)
Net deferred income tax asset (liability) before valuation allowance	365,356	300,860
Valuation allowance	(392,997)	(323,949)
Net deferred income tax asset (liability)	\$ (27,641)	\$ (23,089)
Reported as:		
Non-current deferred tax assets	11,261	10,642
Non-current deferred tax liabilities	(38,902)	(33,731)
Net deferred income tax asset (liability)	\$ (27,641)	\$ (23,089)

For the periods ended December 31, 2016 and December 31, 2015, we made net state, local and foreign income tax payments of \$7,543 and \$8,029, respectively.

As of December 31, 2016, the Company had U.S. federal and state net operating loss carryforwards of \$375,744 and \$274,411 which are subject to expiration in 2033-2036 and 2018-2036, respectively and charitable contribution carryforwards of \$50,753 which are subject to expiration in 2018-2021. The Company also has carryovers for federal research and development credit of \$7,478 which are subject to expiration in 2033-2036 and for foreign tax credit of \$10,619 which is subject to expiration in 2023-2026. International net operating loss carryforwards as of December 31, 2016 are \$7,100, predominately in UK, Singapore, and India which are subject to expiration in 2021-indefinite.

We record valuation allowances against deferred income tax assets when we determine that it is more likely than not based upon all the current evidence that such deferred income tax assets will not be realized. Management assesses the available positive and negative evidence to estimate if sufficient future income will be available to use the existing deferred tax assets. A significant piece of objective evidence evaluated was the cumulative book loss incurred which limits the ability to consider other subjective evidence such as future taxable income. On the basis of this evaluation, as of December 31, 2016, a valuation allowance of \$391,554 has been recorded for federal and state

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and \$1,443 for select international deferred tax assets including carryover of net operating losses, charitable contributions, research and development credits, and foreign tax credits. The Company will continue to assess the available positive and negative evidence to estimate if sufficient future book income will be available to use the existing tax assets. As a result, the amount of the deferred tax asset considered realizable could be adjusted if estimates of future taxable income during the carryforward period improve or objective negative evidence in the form of the level of cumulative book losses is reduced, and additional weight may be given to subjective evidence.

The Company has not recorded deferred income taxes applicable to undistributed earnings of foreign subsidiaries that are indefinitely reinvested in foreign operations (“Undistributed Earnings”). The Undistributed Earnings, totaling \$25,667 as of December 31, 2016, will be used to fund international operations and to make investments outside of the U.S. Quantification of the deferred tax liability, if any, associated with these Undistributed Earnings is not practicable.

A reconciliation of the beginning and ending amount of unrecognized tax benefits is as follows:

	Year Ended December 31, 2016	Year Ended December 31, 2015	Year Ended December 31, 2014
Balance at the beginning of the year	\$ 1,323	\$ 1,316	\$ 1,208
Additions based on tax positions related to the current year	3,713	768	384
Additions for tax positions of prior years	—	—	60
Reduction for tax positions of prior year	(1,162)	(761)	(336)
Balance at end of year	\$ 3,874	\$ 1,323	\$ 1,316

The total amounts of federal, state and local, and foreign unrecognized tax benefits as of December 31, 2016, 2015 and 2014 were \$3,874, \$1,323 and \$1,316, respectively, exclusive of interest and penalties, substantially all of which, if recognized, would impact the effective tax rate. We recognize accrued interest and penalties related to unrecognized tax benefits in interest expense and operating and administration expenses, respectively. In addition to the unrecognized tax benefits, as of December 31, 2016, 2015 and 2014, we had \$299, \$806 and \$1,158, respectively, of accrued interest and penalties associated with uncertain tax positions.

Prior to March 22, 2013, the education divisions and subsidiaries joined with MHC and filed separate income tax returns in the U.S. federal, state and local, and foreign jurisdictions which are routinely under audit by different tax authorities. Under the terms of the Founding Acquisition, MHC is contractually liable for income tax assessments for Predecessor periods through March 22, 2013. An indemnification receivable from MHC of \$453 and \$1,224 has been recorded in non-current assets as of December 31, 2016 and December 31, 2015, respectively, for the unrecognized tax benefit, interest, and penalties related to controlled foreign corporations as taxpayers of record.

McGraw-Hill Education, Inc. is under examination by the Internal Revenue Service as part of the Compliance Assurance Process for tax year 2016. The 2015 federal income tax audit was completed in 2016.

We believe that our accrual for tax liabilities is adequate for all open audit years based on an assessment of past experience and interpretations of tax law. This assessment relies on estimates and assumptions and may involve a series of complex judgments about future events. Until formal resolutions are reached with tax authorities, the determination of a possible audit settlement range with respect to the impact on unrecognized tax benefits is not practicable. On the basis of present information, it is our opinion that any assessments resulting from the current audits will not have a material adverse effect on our combined financial statements. The uncertain tax liabilities as of December 31, 2016 are \$4,175 of which \$461 is included in other non-current liabilities and \$3,714 is included in deferred income taxes non-current within the combined balance sheets. The uncertain tax liabilities as of December 31, 2015 were \$2,129 of which \$1,276 is included in other non-current liabilities and \$853 is included in deferred income taxes non-current within the consolidated balance sheets. Although the timing of income tax audit resolution and negotiations with taxing authorities is highly uncertain, we do not anticipate a significant change to the total amount of unrecognized income tax benefits as a result of audit developments within the next twelve months.

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13. Employee Benefits

A majority of the Company's employees are participants in voluntary 401(k) plans sponsored by the Company under which the Company matches employee contributions up to certain levels of compensation.

14. Stock-Based Compensation

The Company issues share based compensation under the Management Equity Plan (the "Plan") which was established during the quarter ended June 30, 2013. The Plan permits the grant of stock options, restricted stock, restricted stock units and other equity based awards to the Company's employees and directors. As of December 31, 2016, the Board of Directors of the Company authorized up to 1,033,939 shares under the plan. The number of shares available for grant under the Plan are 146,974.

Stock options granted generally vest over five years with 50% vesting on cumulative financial performance measures under the Plan and the remaining 50% vest in equal installments, over five years, in each case subject to continued service. Stock options terminate on the earliest of the tenth year from the date of the grant or other committee action, as defined under the Plan. Restricted stock and restricted stock units issued during the year ended December 31, 2014 vest on December 31, 2016 subject to the achievement of certain performance measures and continued service. In relation to restricted stock and restricted stock units issued during the year ended December 31, 2015, 50% vest subject to the achievement of certain performance measures over a three year period and the remaining 50% vest on December 31, 2017 and in each instance, are subject to continued service. Restricted stock and restricted stock units issued during the year ended December 31, 2016 vest either subject to the achievement of certain performance measures and continued service over a three year period, or vest in equal installments over a three period subject only to continued service.

During the year ended December 31, 2016, the Board of Directors authorized a modification to certain unvested stock options and restricted stock units, which converted their vesting requirements from performance based grants to service based grants. Due to the modification, the Company will recognize incremental compensation expense related to stock options of \$7,732, of which \$419 was recognized during the year ended December 31, 2016. The remaining \$7,313 of compensation expense will be recognized over generally the next three years. The modification of the restricted stock units will not have a material impact on the Company's statement of operations.

The Company measures compensation cost for share based awards according to the equity method. In accordance with the expense recognition provisions of those standards, the Company amortizes unearned compensation associated with share based awards on a straight-line basis over the vesting period of the option or award.

The following table sets forth the total recognized compensation expense related to stock option grants and restricted stock and restricted stock units issuances for all periods presented:

	Year Ended December 31, 2016	Year Ended December 31, 2015	Year Ended December 31, 2014
Stock option expense	\$ 8,095	\$ 9,250	\$ 10,128
Restricted stock and unit awards expense	3,082	4,386	3,893
Total stock-based compensation expense	\$ 11,177	\$ 13,636	\$ 14,021

An income tax benefit for stock options and restricted stock units was not recognized for the years ended December 31, 2016, 2015 and 2014 as a result of the Company recording a valuation allowance against these tax benefits.

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Stock Options

The following table presents a summary of option activity as of December 31, 2016:

	Number of Shares	Weighted- Average Exercise Price per Share (1)	Weighted- Average Remaining Contractual Term	Aggregate Intrinsic Value
Outstanding as of December 31, 2013	659,579	\$ 55.93	9.0	\$ 74,027
Granted	197,137	118.23		
Exercised	(18,878)	32.76		
Forfeited and expired	(142,849)	43.18		
Outstanding as of December 31, 2014	694,989	\$ 55.94	8.5	\$ 46,852
Granted	82,000	160.45		
Exercised	(5,549)	41.64		
Forfeited and expired	(17,376)	93.49		
Outstanding as of December 31, 2015	754,064	\$ 62.84	7.7	\$ 103,429
Granted	10,000	200.00		
Exercised	(59,722)	38.75		
Forfeited and expired	(51,198)	80.83		
Outstanding as of December 31, 2016	653,144	\$ 65.80	6.9	\$ 47,713
Vested and expected to vest as of December 31, 2016	653,144	65.80	6.9	47,713
Exercisable as of December 31, 2016	369,557	47.16	6.7	33,336

(1) As disclosed in Note 19 - Related Party Transactions, the Company has paid dividends to common stockholders. The Company's stock options are issued in accordance to the provisions of the Management Equity Plan, which contains mandatory anti-dilution provisions requiring modification of the options in the event of an equity restructuring, such as the dividends repaid. Accordingly, on payment of each dividend, the exercise price per share of each outstanding option is reduced in an amount equal to the value of the dividend, in compliance with applicable tax laws and regulatory guidance. The Company evaluated the fair value of the stock options following the reduction of the exercise price associated with the dividend issuance as compared to the fair value prior to the modification. As a result, since the fair value of the award after the modification was unchanged, the Company did not record any additional incremental compensation expense associated with the dividends.

The total intrinsic value of stock options exercised during the years ended December 31, 2016, 2015 and 2014 was \$8,692, \$674 and \$1,855, respectively.

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The Company uses the Black-Scholes closed-form option pricing model to estimate the fair value of options granted which incorporates the assumptions as presented in the following table, shown at their weighted-average values:

	Year Ended December 31, 2016	Year Ended December 31, 2015	Year Ended December 31, 2014
Expected dividend yield	—%	—%	—%
Expected stock price volatility (a)	35.0%	40.0%	40.0%
Risk-free interest rate (b)	2.0%	1.9%	2.3%
Expected option term (years) (c)	6.25	6.49	6.49

(a) *Expected volatility.* The Company bases its expected volatility on a group of companies believed to be a representative peer group, selected based on industry and market capitalization.

(b) *Risk free rate.* The risk-free rate for periods within the expected term of the award is based on the U.S. Government Bond yield with a term equal to the awards' expected term on the date of grant.

(c) *Expected term.* Expected term represents the period of time that awards granted are expected to be outstanding. The Company elected to use the "simplified" calculation method, as applicable companies that lack extensive historical data. The mid-point between the vesting date and the contractual expiration date is used as the expected term under this method.

The weighted-average grant date fair value of the options granted in 2016, 2015 and 2014 were \$77.30, \$66.41 and \$69.81, respectively.

As of December 31, 2016, there was \$18,542 of unrecognized compensation expense related to the Company's grant of nonvested stock options. Unrecognized compensation expense related to nonvested stock options granted to employees is expected to be recognized over a weighted-average period of 2.0 years.

Restricted stock and restricted stock units

The following table presents a summary of restricted stock unit activity as of December 31, 2016:

	Number of Restricted Stock Units	Weighted-Average Grant Date Fair Value
Non-vested as of December 31, 2013	56,650	\$ 100.00
Granted	133,641	140.21
Vested	(33,697)	(127.98)
Forfeited	(9,687)	(122.59)
Non-vested as of December 31, 2014	146,907	\$ 142.16
Granted	60,710	160.45
Vested	(77,006)	(117.09)
Forfeited	(11,839)	(142.63)
Non-vested as of December 31, 2015	118,772	\$ 157.76
Granted	44,147	171.55
Vested	(43,627)	(150.30)
Forfeited	(13,160)	152.38
Non-vested as of December 31, 2016	106,132	\$ 145.95

As of December 31, 2016, there was \$6,042 of unrecognized compensation expense related to the Company's grant of nonvested restricted shares and restricted stock units to employees. Unrecognized compensation expense related to nonvested restricted shares and restricted stock units granted to employees is expected to be recognized over a weighted-average period of 1.3 years.

McGraw-Hill Education, Inc. and subsidiaries
Notes to the Consolidated Financial Statements
(Dollars in thousands, unless otherwise indicated)

15. Earnings (Loss) per Share

Basic earnings (loss) per share is computed by dividing net income (loss) by the weighted-average number of common shares outstanding during the period. Diluted earnings per share is computed by dividing net income by the weighted-average number of common stock outstanding, including all potentially dilutive common stock.

The following table sets forth reconciliations of the numerators and denominators used to compute basic and diluted earnings per share of common stock for all periods presented:

(in thousands, except per share data)	<u>As Restated</u> <u>Year Ended</u> <u>December 31, 2016</u>	<u>As Restated</u> <u>Year Ended</u> <u>December 31, 2015</u>	<u>As Restated</u> <u>Year Ended</u> <u>December 31, 2014</u>
Numerator:			
(Loss) income from continuing operations	\$ (135,102)	\$ (102,793)	\$ (336,553)
Less: Net loss attributable to noncontrolling interests	—	—	299
Net (loss) income from continuing operations attributable to McGraw-Hill Education, Inc.	(135,102)	(102,793)	(336,254)
(Loss) income from discontinued operations, net of taxes	(1,905)	(76,338)	(18,157)
Net (loss) income attributable to McGraw-Hill Education, Inc.	<u>\$ (137,007)</u>	<u>\$ (179,131)</u>	<u>\$ (354,411)</u>
Denominator:			
Basic weighted - average number of shares outstanding	10,542	10,467	10,368
Effect of dilutive securities	—	—	—
Diluted weighted-average number of shares outstanding	<u>10,542</u>	<u>10,467</u>	<u>10,368</u>
Basic and Dilutive EPS:			
(Loss) income from continuing operations	\$ (12.82)	\$ (9.82)	\$ (32.43)
(Loss) income from discontinued operations, net of taxes	(0.18)	(7.29)	(1.75)
Net (loss) income attributable to McGraw-Hill Education, Inc.	(13.00)	(17.11)	(34.18)

The number of anti-dilutive shares that have been excluded in the computation of diluted earnings per share for the years ended December 31, 2016, 2015 and 2014 was 409, 290 and 232, respectively.

16. Restructuring

In order to contain costs and mitigate the impact of current and expected future economic conditions, as well as a continued focus on process improvements, we have initiated various restructuring plans over the last several years. The charges for each restructuring plan, except those included within Other, are classified as operating and administration expenses within the consolidated statements of operations. The restructuring charges included within Other are classified within net (loss) income from discontinued operations, net of taxes.

In certain circumstances, reserves are no longer needed because of efficiencies in carrying out the plans, or because employees previously identified for separation resigned from the Company and did not receive severance or

McGraw-Hill Education, Inc. and subsidiaries
Notes to the Consolidated Financial Statements
(Dollars in thousands, unless otherwise indicated)

were reassigned due to circumstances not foreseen when the original plans were initiated. In these cases, we reverse reserves through the consolidated statements of operations when it is determined they are no longer needed.

The following table summarizes restructuring information by reporting segment:

	Higher Education	K-12	International	Professional	Other	Total
As of December 31, 2013	\$ 3,179	\$ —	\$ 3,169	\$ —	\$ —	\$ 6,348
Charges:						
Employee severance and other personal benefits	14,448	—	5,945	1,781	—	22,174
Other associated costs	—	—	1,973	—	—	1,973
Payments:						
Employee severance and other personal costs	(7,289)	—	(4,895)	(291)	—	(12,475)
Other associated costs	—	—	(328)	—	—	(328)
As of December 31, 2014	\$ 10,338	\$ —	\$ 5,864	\$ 1,490	\$ —	\$ 17,692
Charges:						
Employee severance and other personal benefits	4,079	—	2,557	(40)	12,909	19,505
Other associated costs	—	—	1,515	—	—	1,515
Payments:						
Employee severance and other personal costs	(11,612)	—	(6,137)	(1,450)	(3,279)	(22,478)
Other associated costs	—	—	(1,515)	—	—	(1,515)
As of December 31, 2015	\$ 2,805	\$ —	\$ 2,284	\$ —	\$ 9,630	\$ 14,719
Charges:						
Employee severance and other personal benefits	11,929	821	4,447	418	—	17,615
Payments:						
Employee severance and other personal benefits	(5,273)	(333)	(1,809)	(313)	(6,812)	(14,540)
As of December 31, 2016	\$ 9,461	\$ 488	\$ 4,922	\$ 105	\$ 2,818	\$ 17,794

The Company expects to utilize the remaining reserves of \$15,441 and \$2,353 in 2017 and 2018, respectively.

17. Transactions with Sponsors

Founding Transactions Fee Agreement

In connection with the Founding Acquisition, Apollo Global Securities, LLC (the “Service Provider”) entered into a transaction fee agreement with MHE US Holdings, LLC and AcquisitionCo (the “Founding Transactions Fee Agreement”) relating to the provision of certain structuring, financial, investment banking and

McGraw-Hill Education, Inc. and subsidiaries
Notes to the Consolidated Financial Statements
(Dollars in thousands, unless otherwise indicated)

other similar advisory services by the Service Provider to AcquisitionCo, its direct and indirect divisions and subsidiaries, parent entities or controlled affiliates (collectively, the “Company Group”) in connection with the Founding Acquisition and future transactions. The Company paid the Service Provider a one-time transaction fee of \$25,000 in the aggregate in exchange for services rendered in connection with structuring the Founding Acquisition, arranging the financing and performing other services in connection with the Founding Acquisition. Subject to the terms and conditions of the Founding Transactions Fee Agreement, an additional transaction fee equal to 1% of the aggregate enterprise value is payable in connection with any merger, acquisition, disposition, recapitalization, divestiture, sale of assets, joint venture, issuance of securities (whether equity, equity-linked, debt or otherwise), financing or any similar transaction effected by a member of the Company Group.

Management Fee Agreement

In connection with the Founding Acquisition, Apollo Management VII, L.P. (the “Advisor”) entered into a management fee agreement with MHE US Holdings, LLC and AcquisitionCo (the “Management Fee Agreement”) relating to the provision of certain management consulting and advisory services to the members of the Company Group. In exchange for the provision of such services, the Advisor will receive a non-refundable annual management fee of \$3,500 in the aggregate. Subject to the terms and conditions of the Management Fee Agreement, upon a change of control or an initial public offering (“IPO”) of a member of the Company Group, the Advisor may elect to receive a lump sum payment in lieu of future management fees payable to them under the Management Fee Agreement. For the years ended December 31, 2016, 2015 and 2014, the Company recorded an expense of \$3,500 for management fees, respectively.

18. Commitments and Contingencies

Rental Expense and Lease Obligations

We are committed under lease arrangements covering property, computer systems and office equipment. Leasehold improvements are amortized on a straight-line basis over the shorter of their economic lives or their lease term. Certain lease arrangements containing escalation clauses covering increased costs for various defined real estate taxes and operating services and the associated fees are recognized on a straight-line basis over the minimum lease period.

Rental expense for property and equipment under all operating lease agreements was \$33,933, \$31,159 and \$32,508 for the years ended December 31, 2016, 2015 and 2014, respectively.

Cash amounts for future minimum rental commitments under existing non-cancelable leases with a remaining term of more than one year are shown in the following table:

	Lease Commitment	Sublease Income	Net Commitment
2017	\$ 35,265	\$ (1,426)	\$ 33,839
2018	28,616	(1,067)	27,549
2019	18,788	(562)	18,226
2020	8,918	(334)	8,584
2021	2,214	(307)	1,907
2022 and beyond	11,666	(744)	10,922
Total	\$ 105,467	\$ (4,440)	\$ 101,027

Capital Leases

The Company leases office equipment under capital leases that include a purchase option. The lease terms from 24 months to 60 months with the interest rates ranging from 3.2% to 10.1%. The following schedule of future minimum lease payments under capital leases together with the present value of the net minimum lease payments as

McGraw-Hill Education, Inc. and subsidiaries
Notes to the Consolidated Financial Statements
(Dollars in thousands, unless otherwise indicated)

of December 31, 2016.

	As of
	December 31, 2016
2017	\$ 3,842
2018	4,024
2019	2,771
2020	838
2021	—
2022 and beyond	—
Total minimum lease payments	11,475
Less: amounts related to interest	(1,477)
Present value of net minimum lease payments	\$ 9,998

The current and non-current amounts of the present value of net minimum lease payments are \$3,062 and \$6,936, respectively.

Legal Matters

In the normal course of business both in the United States and abroad, the Company is a defendant in various lawsuits and legal proceedings which may result in adverse judgments, damages, fines or penalties and is subject to inquiries and investigations by various governmental and regulatory agencies concerning compliance with applicable laws and regulations. In view of the inherent difficulty of predicting the outcome of legal matters, we cannot state with confidence what the timing, eventual outcome, or eventual judgment, damages, fines, penalties or other impact of these pending matters will be. We believe, based on our current knowledge, that the outcome of the legal actions, proceedings and investigations currently pending should not have a material adverse effect on the Company's financial condition.

19. Related Party Transactions

In the normal course of business, the Company has transactions with its wholly owned consolidated subsidiaries and affiliated entities.

Dividends to Common Stockholders

On May 4, 2016, MHE returned \$300,000 or \$28.45 per share to the shareholders of the Company from the proceeds received from the Refinancing and cash on hand.

On April 6, 2015, MHGE Parent returned \$100,000 or \$9.55 per share to the shareholders of the Company from the proceeds received from the issuance of the additional MHGE PIK Toggle Notes.

On December 16, 2014, MHSE Holdings returned \$100,000 or \$9.61 per share to the shareholders of the Company from cash on hand.

On July 17, 2014, MHGE Parent returned \$388,978 or \$37.42 per share to shareholders of the Company from the proceeds received from the issuance of the MHGE PIK Toggle Notes.

Leader's Quest Ltd

Leader's Quest Ltd ("Quest") is a UK-based non-profit enterprise at which Lindsay Levin is the founder and managing partner. Ms. Levin is the spouse of David Levin, who serves as our President and Chief Executive Officer. Beginning in 2014, the Company entered into an agreement with Quest pursuant to which Quest provided leadership workshops and other leadership training for twelve members of the Company's executive leadership team. During 2016 and 2015, the Company entered into agreements which Quest will provide additional leadership workshops and other leadership training for additional members of the Company's leadership team. The Company paid Quest total fees of \$180, \$293 and \$133 during 2016, 2015 and 2014, respectively, in connection with the agreements.

Presidio

The Company entered into a master lease agreement with Presidio Technology Capital, LLC ("Presidio Technology"), a portfolio company of the Sponsors, primarily for the lease of computer equipment and software. For the years ended December 31, 2016, 2015 and 2014 the Company paid Presidio Technology \$2,565, \$3,268 and \$2,746, respectively.

In addition, the Company purchases technology equipment from Presidio Networked Solutions ("Presidio Networked"), a portfolio company of the Sponsors. For the years ended December 31, 2016, 2015 and 2014 the Company paid Presidio Networked \$2,706, \$2,799 and \$753, respectively.

Knovation

Knovation is a privately owned education company that delivers personalized learning solutions to its customers. The Company's K-12 President is a non-controlling shareholder in Knovation. During 2016, the Company entered into a collaboration agreement with Knovation which provides Engrade users access to the Knovation Content Collection online learning resources. The Company paid Knovation \$250 during the year ended December 31, 2016 to cover usage of Knovation's online resources through June 30, 2017.

20. Subsequent Events

On February 10, 2017, the Board of Directors authorized (a) the Company to purchase and cause cancellation of a certain amount of the outstanding MHGE PIK Toggle Notes, (b) a dividend of up to \$100,000 by MHGE to MHGE Parent in order to provide MHGE Parent with funds for such purpose, (c) the use by MHGE Parent of up to \$100,000 to purchase and cancel such MHGE PIK Toggle Notes and (d) the use by MHE of up to \$7,000 of its cash on hand to purchase MHGE PIK Toggle Notes and the contribution by MHE to MHGE Parent for cancellation of any MHGE PIK Toggle Notes so purchased.

On February 15, 2017, MHGE paid a dividend of \$50,000 to MHGE Parent in order to provide MHGE Parent with funds to purchase outstanding MHGE PIK Toggle Notes. As of March 21, 2017, MHGE Parent and MHE has repurchased a total of \$46,911 face value of outstanding MHGE PIK Toggle Notes.

McGraw-Hill Education, Inc. and subsidiaries
Condensed Financial Information of Registrant
Parent Company Information
(Dollars in thousands)

Consolidated Statements of Operations

	As Restated	As Restated	As Restated
	Year Ended	Year Ended	Year Ended
	December 31, 2016	December 31, 2015	December 31, 2014
Revenue	\$ —	\$ —	\$ —
Cost of sales	—	—	—
Gross profit	—	—	—
Operating expenses			
Operating and administration expenses	—	—	—
Depreciation	—	—	—
Amortization of intangibles	—	—	—
Equity in income/loss of subsidiaries	135,607	174,989	344,051
Transaction costs	1,400	4,142	—
Total operating expenses	137,007	179,131	344,051
Operating (loss) income	(137,007)	(179,131)	(344,051)
Interest expense (income), net	—	—	—
Loss on extinguishment of debt	—	—	—
Other (income) expense	—	—	—
(Loss) income from operations before taxes on income	(137,007)	(179,131)	(344,051)
Income tax provision	—	—	10,360
Net (loss) income attributable to McGraw-Hill Education, Inc.	\$ (137,007)	\$ (179,131)	\$ (354,411)
Comprehensive (loss) income attributable to McGraw-Hill Education, Inc.	\$ (137,007)	\$ (179,131)	\$ (354,411)

McGraw-Hill Education, Inc. and subsidiaries
Condensed Financial Information of Registrant
Parent Company Information
(Dollars in thousands)

Consolidated Balance Sheets

	<u>As Restated</u>	<u>As Restated</u>
	<u>December 31, 2016</u>	<u>December 31, 2015</u>
Current assets		
Cash and equivalents	\$ 7,053	\$ 4,510
Prepaid and other current assets	5,039	3,413
Total current assets	<u>12,092</u>	<u>7,923</u>
Other non-current assets	—	256
Total assets	<u>\$ 12,092</u>	<u>\$ 8,179</u>
Liabilities and equity		
Current liabilities		
Accounts payable	\$ 433	\$ 10,477
Intercompany	28,411	—
Total current liabilities	<u>28,844</u>	<u>10,477</u>
Investment losses in subsidiaries	1,075,598	635,181
Total liabilities	<u>1,104,442</u>	<u>645,658</u>
Stockholders' equity (deficit)		
Common stock	104	104
Additional paid in capital	—	67,797
Treasury stock	(6,727)	(2,164)
Accumulated deficit	<u>(1,085,727)</u>	<u>(703,216)</u>
Total stockholders' equity (deficit)	<u>(1,092,350)</u>	<u>(637,479)</u>
Total liabilities and stockholders' equity (deficit)	<u>\$ 12,092</u>	<u>\$ 8,179</u>

McGraw-Hill Education, Inc. and subsidiaries
Condensed Financial Information of Registrant
Parent Company Information
(Dollars in thousands)

Consolidated Statement of Cash Flows

	As Restated	As Restated	As Restated
	Year Ended December 31, 2016	Year Ended December 31, 2015	Year Ended December 31, 2014
Operating activities			
Cash provided by (used for) operating activities	\$ 6,624	\$ 1,306	\$ 2,857
Investing activities			
Proceeds on distribution received from subsidiaries	300,000	100,000	100,000
Cash provided by (used for) investing activities	300,000	100,000	100,000
Financing activities			
Issuance of common stock	—	1,639	4,281
Repurchase of common stock	(4,563)	(1,654)	—
Exercise of options	482	—	—
Repurchase of vested stock options and restricted stock units	—	(1,766)	(1,272)
Dividends paid	(300,000)	(100,000)	(100,881)
Cash provided by (used for) financing activities	(304,081)	(101,781)	(97,872)
Net change in cash and cash equivalents	2,543	(475)	4,985
Cash and cash equivalents at the beginning of the period	4,510	4,985	—
Cash and cash equivalents, ending balance	\$ 7,053	\$ 4,510	\$ 4,985

McGraw-Hill Education, Inc. and subsidiaries
Condensed Financial Information of Registrant
Parent Company Information
(Dollars in thousands)

1. Basis of Presentation

McGraw-Hill Education, Inc. (formerly known as Georgia Holdings, Inc.) (the Company) became the ultimate parent of MHE Acquisition, LLC pursuant to the Founding Acquisition on March 22, 2013 discussed in Note 1 of the Notes to the Consolidated Financial Statements. Pursuant to the terms of the credit agreements governing the MHGE Senior Notes, the Term Loan Facility and the MHGE PIK Toggle Notes as discussed in Note 10 of the Notes to Consolidated Financial Statements, the Company and certain of its subsidiaries have restrictions on their ability to, among other things, incur additional indebtedness, pay dividends or make certain intercompany loans and advances. As a result of these restrictions, these parent company financial statements have been prepared in accordance with Rule 12-04 of Regulation S-X, as restricted net assets of the Company's subsidiaries (as defined in Rule 4-08(e)(3) of Regulation S-X) exceed 25% of the Company's consolidated net assets as of December 31, 2015.

The Company on a standalone basis has accounted for all investments in subsidiaries using the equity method. Under the equity method, the investment in subsidiaries is stated at cost plus contributions and equity in undistributed income (loss) of subsidiaries. The accounting policies used in the preparation of the parent financial statements are generally consistent with those used in the preparation of the consolidated financial statements of the Company. The accompanying condensed financial information should be read in conjunction with the Consolidated Financial Statements and related Notes of McGraw-Hill Education, Inc. and Subsidiaries included in this filing.

The Company was created to facilitate the Founding Acquisition and therefore was not a legal entity in periods prior to March 22, 2013.

2. Dividends

On May 4, 2016, MHE returned \$300,000 or \$28.45 per share to the shareholders of the Company from the proceeds received from the Refinancing and cash on hand.

McGraw-Hill Education, Inc. and subsidiaries
Consolidated Financial Statements
Valuation and Qualifying Accounts
(Dollars in thousands)

	Balance at beginning of the year	Additions	Deductions	Balance at end of year
Year ended December 31, 2016				
Allowance for Doubtful Accounts	\$ 18,212	\$ 5,230	\$ (9,356)	\$ 14,086
Allowance for returns	150,511	121,012	(149,572)	121,951
Inventory	80,793	22,559	(39,200)	64,152
Valuation Allowance	323,949	69,048	—	392,997
Year ended December 31, 2015				
Allowance for Doubtful Accounts	\$ 20,807	\$ 5,436	\$ (8,031)	\$ 18,212
Allowance for returns	187,384	25,837	(62,710)	150,511
Inventory	82,902	335,290	(337,399)	80,793
Valuation Allowance	249,127	75,391	(569)	323,949
Year ended December 31, 2014				
Allowance for Doubtful Accounts	\$ 20,084	\$ 11,317	\$ (10,594)	\$ 20,807
Allowance for returns	171,526	348,064	(332,206)	187,384
Inventory	91,465	30,032	(38,595)	82,902
Valuation Allowance	784	248,775	(432)	249,127

Item 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

Item 9B. OTHER INFORMATION

None.

PART III

Item 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The following table provides information regarding the executive officers and the members of the Board of MHE, as of the date of this annual report.

Name	Age	Position
David Levin	55	President, Chief Executive Officer and Director
Patrick Milano	56	Executive Vice President, Chief Financial Officer, Chief Administrative Officer and Assistant Secretary
David Stafford	54	Senior Vice President, General Counsel and Secretary
Mark Dorman	46	President, McGraw-Hill Higher Education, Professional and International
Stephen Laster	52	Chief Digital Officer
Larry Berg	50	Chairman and Director
Nancy Lublin	45	Director
Jonathan Mariner	62	Director
Antoine Munfakh	34	Director
Ronald Schlosser	68	Director
Lloyd G. Waterhouse	65	Director
Mark Wolsey-Paige	55	Director

David Levin became the President and Chief Executive Officer and a Director of McGraw-Hill Education, Inc. in March 2014. Mr. Levin previously served as the Chief Executive of UBM plc (“UBM”), a multinational media company headquartered in London. Before his tenure at UBM, Mr. Levin was Chief Executive of Symbian Software, a U.K. headquartered software group that built the operating system to power the first generation of smartphones. He has also served as Chief Executive of Psion PLC, a London-based consumer and business technology company, and as Chief Operating Officer and Finance Director of Euromoney Institutional Investor PLC. Mr. Levin also served as a Non-Executive Director on the Finance Committee of the Oxford University Press and Board of the Press Association. Mr. Levin received his bachelor’s degree in politics, philosophy and economics from Oxford University and his MBA from Stanford University. The Board believes that Mr. Levin provides leadership and valuable insight and perspective on strategy, international business and all aspects of technology transformation matters stemming from his extensive executive and management experience at UBM, Symbian Software and Psion PLC.

Patrick Milano has been the Executive Vice President, Chief Financial Officer, Chief Administrative Officer and Assistant Secretary of McGraw-Hill Education, Inc. since the Founding Acquisition having held equivalent positions at the McGraw-Hill Education segment of MHC since May 2012. Before becoming an officer of McGraw-Hill Education in 2012, between 2000 and 2012 Mr. Milano held several leadership and financial roles at Standard & Poor’s, including his most recent role as Executive Vice President, Operations. Before that, Mr. Milano held a number of positions at McGraw-Hill Education, including Senior Vice President of Finance and Operations of Macmillan/McGraw-Hill. Mr. Milano is a graduate of Rutgers University, holds an MBA from Monmouth University and is a Certified Public Accountant.

David Stafford has been the Senior Vice President, General Counsel and Secretary of McGraw-Hill Education, Inc. since the Founding Acquisition having held equivalent positions at the McGraw-Hill Education segment of MHC since May 2012. Before becoming an officer of the McGraw-Hill Education segment of MHC in 2012, Mr. Stafford was Vice President and Associate General Counsel at MHC. From 2006 to 2009, he served as Senior Vice President, Corporate Affairs, and Assistant to the Chairman and Chief Executive Officer of MHC. Before joining MHC in 1992, he was an associate at two large New York City law firms. Mr. Stafford is a graduate

of Columbia University and received his J.D. degree from Cornell Law School. He serves on the Board of Trustees of YAI Network, a not-for-profit that provides services to people who are developmentally disabled.

Mark Dorman became President of the McGraw-Hill Higher Education, Professional and International Group of McGraw-Hill Education, Inc. in December 2016. Previously he served as President of the company's Professional and International Group. Before joining McGraw-Hill Education in 2013, he was president and CEO of Wolters Kluwer Law & Business, having previously served as vice president of Wolters Kluwer's Legal Markets Group, where he was responsible for overall strategy, business development and sales and marketing. Prior to Wolters Kluwer, Mr. Dorman was head of global product management at Gartner Inc. and head of strategy for LexisNexis UK, a unit of Reed Elsevier. Mr. Dorman graduated from the Royal Military Academy Sandhurst and served as an officer in the British Army's Corps of Royal Military Police.

Stephen Laster has been the Chief Digital Officer of McGraw-Hill Education, Inc. since the Founding Acquisition having held the same position at the McGraw-Hill Education segment of MHC since September 2012. Before joining McGraw-Hill Education, Mr. Laster led Intelligent Solutions, LLC, and served as the Chief Information and Technology Officer of the Harvard Business School. Before joining Harvard, Mr. Laster held several leadership positions at Babson College, including Chief Technology Officer for Babson's for-profit eLearning company and Director of Curriculum Innovation and Technology. While at Babson, Mr. Laster taught courses at the undergraduate, graduate and executive/professional level in technology leadership, problem solving, software design, and eLearning product development. Mr. Laster holds a bachelor's degree from Bowdoin College, an MBA from the F.W. Olin Graduate School of Business at Babson College, is a former trustee of Babson College, is on the board of the Sloan Consortium for Online Learning and is a member of the board of directors of the IMS Global Learning Consortium.

Larry Berg has been the Chairman of the Board of McGraw-Hill Education, Inc. since March 2014 and has been a Director since March 2013. Mr. Berg is a Senior Partner at Apollo having joined in 1992, and oversees the Firm's efforts in industrials and education. Before that time, Mr. Berg was a member of the Mergers and Acquisitions group of Drexel Burnham Lambert Incorporated. Mr. Berg serves on the board of directors of Jacuzzi Bath, Panolam, and Crisis Text Line and he previously served on the boards of Laureate International Universities, Sylvan Learning, Berlitz, and Connections Academy. Mr. Berg graduated magna cum laude with a BS in Economics from the University of Pennsylvania's Wharton School of Business and received an MBA from the Harvard Business School. The Board believes that Mr. Berg's extensive experience in making and managing private equity investments on behalf of Apollo and his experience in financing, analyzing and investing in public and private companies enables him to provide meaningful input and guidance to the Board and the Company.

Nancy Lublin has been a Director of McGraw-Hill Education, Inc. since November 2015. Ms. Lublin has served as CEO of Crisis Text Line since 2015. From 2003 until 2015, Ms. Lublin has served as CEO of DoSomething.org. In 2013, while still the CEO of DoSomething.org, Ms. Lublin turned her popular TED talk into Crisis Text Line. Crisis Text Line is the first 24/7, free, nationwide-text line for people in crisis. Prior to her work at DoSomething.org and Crisis Text Line, Ms. Lublin founded Dress for Success, a global entity that provides interview suits and career development training to women in need. Ms. Lublin is the author of the best-selling business books, *Zilch: The Power of Zero in Business* and *XYZ Factor*. She serves on the board of trustees for The New School. Ms. Lublin serves as a director because her leadership experience provides valuable insight and perspective on general strategic and business matters.

Jonathan Mariner has been a Director of McGraw-Hill Education, Inc. since February 2016. Mr. Mariner is the Chief Investment Officer of Major League Baseball (MLB) and is responsible for managing the baseball industry's endowment fund, its pension assets and potential new strategic investments. Mr. Mariner served as MLB's Chief Financial Officer from 2002 until 2014. Before joining MLB, Mr. Mariner served as Executive Vice President and CFO of the Florida Marlins. Mr. Mariner earned a B.S. degree in accounting from the University of Virginia and received an MBA from Harvard Business School. He serves as a director because of his financial acumen and operational and leadership experience, which enables him to provide valuable insight and perspective on various strategic, financial, risk management, operational and business matters.

Antoine Munfakh has been a Director of McGraw-Hill Education, Inc. since the Founding Acquisition. Mr. Munfakh is a Partner at Apollo having joined in 2008. Before that time, Mr. Munfakh spent two years as an Associate at the private equity firm Court Square Capital Partners. Previously, Mr. Munfakh was an Analyst in the Financial Sponsor Investment Banking group at JPMorgan. Mr. Munfakh serves on the board of directors of Maxim Crane Works, CH2M Hill Companies, Apollo Education Group Inc., and Claire's Stores. Mr. Munfakh graduated summa cum laude from Duke University with a BS in Economics, where he was elected to Phi Beta Kappa. The Board believes that Mr. Munfakh provides valuable insight to the Board on strategic and business matters, stemming from his experience analyzing, making and managing investments in public and private companies.

Ronald Schlosser has been a Director of McGraw-Hill Education, Inc. since the Founding Acquisition and previously served as Executive Chairman of McGraw-Hill Education, Inc. since the Founding Acquisition through May 1, 2014. Mr. Schlosser currently advises global leaders in private equity investing in information services, including healthcare, data services and education. He has served as Chairman and Chief Executive Officer of Hights Cross Communications, an educational and library information company, and has served as a Senior Advisor to Providence Equity Partners and Chairman of several education and information services portfolio companies, including Jones & Bartlett, Assessment Technologies Institute, Edline and Survey Sampling International. Mr. Schlosser served as Chief Executive Officer of Thomson Learning Group, after serving as Chief Executive Officer of Thomson Scientific and Healthcare, after joining Thomson Financial Publishing as its President & Chief Executive Officer in 1995. He is a Board Member of Copyright Clearance Center, New York University POLY and The Peddie School. Mr. Schlosser is a graduate of Rider University and holds an MBA from Fairleigh Dickinson University. Mr. Schlosser serves as a Director because of his extensive industry and business experience in the education and information sectors, which enables him to offer the Board important industry-specific perspectives, and his experience as CEO of Thomson, which provides the Board with operational matters expertise.

Lloyd G. Waterhouse has been a Director of McGraw-Hill Education, Inc. since the Founding Acquisition and was the President and Chief Executive Officer since the Founding Acquisition until his retirement on April 8, 2014. He was previously the President of the McGraw-Hill Education segment of MHC since June 2012. Mr. Waterhouse began his career with International Business Machines Corporation ("IBM") in 1973 in the firm's data processing division. He later became General Manager of Marketing and Services for IBM Asia Pacific. In 1992, he was appointed President of IBM's Asia Pacific Services Corporation and later became Director of Global Strategy at IBM. In 1996, Mr. Waterhouse was named General Manager Marketing and Business Development, IBM Global Services, before being promoted to General Manager, E-Business Services, a division focused on consulting, education and training for customers. In 1999, Mr. Waterhouse became President and Chief Operating Officer, and later Chief Executive Officer of Reynolds & Reynolds Co., a company primarily focused on software for the automotive industry. In 2006, he was appointed Chief Executive Officer of Harcourt Education, a leader in the United States School Education sector. The parent company of Harcourt Education decided to sell the business in 2007 and it merged with Houghton Mifflin Harcourt at the end of that year. Mr. Waterhouse has since served as a director of SolarWinds, Inc., ITT Educational Services, Ascend Learning LLC, Digimarc Corporation, i2 Technologies, Inc., Atlantic Mutual Insurance Companies, JDA Software and Instructure. Mr. Waterhouse is a graduate of Pennsylvania State University and holds an MBA from Youngstown State University. The Board believes that Mr. Waterhouse provides valuable insight and perspective on general strategic and business matters, stemming from his extensive executive and management experience with IBM and Houghton Mifflin Harcourt.

Mark Wolsey-Paige has been a Director of McGraw-Hill Education, Inc. since May 2013. From 2010 to 2014 Mr. Wolsey-Paige served as an advisor to Apollo, largely on healthcare-related deals. Before becoming an advisor to Apollo, Mr. Wolsey-Paige served as Executive Vice President, Product Development & Supply at Siemens Healthcare Diagnostics from 2007 to 2009. In 2007, he was appointed Chief Strategy and Technology Officer for Dade Behring Inc. before its acquisition by Siemens. Previously, Mr. Wolsey-Paige worked at Baxter Diagnostics, which became a part of Dade Behring, and became Vice President, Strategy and Business Development in 2000; he remained in this role until the company was acquired, while also becoming head of Research and Development, Instrument Manufacturing and Supply Chain Management. Before joining Dade Behring, he was a consultant at Bain & Company in Boston. Before that, Mr. Wolsey-Paige served four years in the U.S. Army, achieving the rank of Captain and worked in the Strategic Plans and Policy Directorate on the Army staff in the

Pentagon. Mr. Wolsey-Paige holds an MBA from Harvard University and is a graduate of Washington University. Mr. Wolsey-Paige serves as a director because his product development, corporate strategy and technology experience provides valuable knowledge and to the Board.

Committees of the Board

Audit Committee. The Audit Committee consists of four members: Ms. Lublin and Messrs. Mariner, Munfakh and Wolsey-Paige, all of whom qualify as audit committee financial experts, as such term is defined in Item 407(d)(5) of Regulation S-K. Mr. Mariner is the chair of the Audit Committee. In light of our status as a privately-held company and the absence of a public trading market for our common stock, there are no requirements that we have an independent audit committee.

The Audit Committee is directly responsible for the appointment, compensation, retention (including termination) and oversight of the independent auditors, the granting of appropriate pre-approvals of all auditing services and nonaudit services to be provided by the independent auditors, meeting and discussing with management, the internal audit group and independent auditors the annual audited and quarterly unaudited financial statements, any legal, regulatory any compliance matters (including tax) that could have a significant impact on financial statements, reviewing and discussing with management major financial risk exposures and steps taken to monitor, controlling and managing them and review the responsibilities and results of the internal audit group.

Compensation Committee. The Compensation Committee is responsible for formulating, evaluating and approving the compensation and employment arrangements of the officers of McGraw-Hill Education and the Company. The Compensation Committee consists of three members: Messrs. Berg, Munfakh and Schlosser.

Nominating and Corporate Governance Committee. The Nominating and Corporate Governance Committee is responsible for assisting McGraw-Hill Education in identifying and recommending candidates to the Board, recommending composition of the Board and committees and reviewing and recommend revisions to the corporate governance guidelines. The Nominating and Corporate Governance Committee consists of three members: Ms. Lublin and Messrs. Berg and Waterhouse.

Code of Ethics

We have adopted a code of ethics, referred to as our “Code of Business Ethics,” that applies to all of our employees, including our Chief Executive Officer, Chief Financial Officer and senior financial and accounting officers. A copy of our Code of Business Ethics is available on our website at www.mheducation.com.

Item 13. CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS

We or one of our subsidiaries may occasionally enter into transactions with certain “related parties.” Related parties include its executive officers, directors, nominees for directors, a beneficial owner of 5% or more of its common stock and immediate family members of these parties. We refer to transactions in which the related party has a direct or indirect material interest as “related party transactions.”

Founding Acquisition Fee Agreement

In connection with the Founding Acquisition, Apollo Global Securities, LLC (the “Service Provider”) entered into a transaction fee agreement with McGraw-Hill Education and MHE Acquisition, LLC (the “Founding Acquisition Fee Agreement”) relating to the provision of certain structuring, financial, investment banking and other similar advisory services by the Service Provider to MHE Acquisition, LLC, its direct and indirect divisions and subsidiaries, parent entities or controlled affiliates (collectively, the “Company Group”) in connection with the Founding Acquisition and future transactions. MHE Acquisition, LLC paid the Service Provider a one-time transaction fee of \$25 million in the aggregate in exchange for services rendered in connection with structuring the Founding Acquisition, arranging the financing and performing other services in connection with the Founding Acquisition. Subject to the terms and conditions of the Founding Acquisition Fee Agreement, MHE Acquisition, LLC will pay to the Service Provider an additional transaction fee equal to 1% of the aggregate enterprise value paid or provided in connection with any merger, acquisition, disposition, recapitalization, divestiture, sale of assets, joint venture, issuance of securities (whether equity, equity-linked, debt or otherwise), financing or any similar transaction effected by a member of the Company Group. As a result of executing the Founding Acquisition Fee Agreement, we are able to retain the services of the Service Provider. In exchange, we agreed to pay the fees as described above.

Management Fee Agreement

In connection with the Founding Acquisition, Apollo Management VII, L.P. (the “Management Service Provider”) entered into a management fee agreement with McGraw-Hill Education and MHE Acquisition, LLC (the “Management Fee Agreement”) relating to the provision of certain management consulting and advisory services to the members of the Company Group. In exchange for the provision of such services, MHE Acquisition, LLC will pay the Management Service Provider a non-refundable annual management fee of \$3.5 million in the aggregate. Subject to the terms and conditions of the Management Fee Agreement, upon a change of control or an initial public offering (“IPO”) of a member of the Company Group, the Management Service Provider may elect to receive a lump sum payment in lieu of future management fees payable to them under the Management Fee Agreement. As a result of executing the Management Fee Agreement, we are able to retain the expertise of the Management Service Provider. In exchange, we agreed to pay the fees as described above.

Leader's Quest Ltd

Leader’s Quest Ltd (“Quest”) is a UK-based non-profit enterprise at which Lindsay Levin is the founder and managing partner. Ms. Levin is the spouse of David Levin, who serves as our President and Chief Executive Officer. Beginning in 2014, the Company entered into an agreement with Quest pursuant to which Quest provided leadership workshops and other leadership training for twelve members of the Company’s executive leadership team. During 2016 and 2015, the Company entered into agreements which Quest will provide additional leadership workshops and other leadership training for additional members of the Company’s leadership team. The Company paid Quest total fees of \$0.2 million, \$0.3 million and \$0.1 million during 2016, 2015 and 2014, respectively, in connection with the agreements.

Presidio

The Company entered into a master lease agreement with Presidio Technology Capital, LLC (“Presidio Technology”), a portfolio company of the Sponsors, primarily for the lease of computer equipment and software. For the years ended December 31, 2016, 2015 and 2014 the Company paid Presidio Technology \$2.6 million, \$3.3

million and \$2.7 million, respectively.

In addition, the Company purchases technology equipment from Presidio Networked Solutions ("Presidio Networked"), a portfolio company of the Sponsors. For the years ended December 31, 2016, 2015 and 2014 the Company paid Presidio Networked \$2.7 million, \$2.8 million and \$0.8 million, respectively.

Knovation

Knovation is a privately owned education company that delivers personalized learning solutions to its customers. The Company's K-12 President is a non-controlling shareholder in Knovation. During 2016, the Company entered into a collaboration agreement with Knovation which provides Engrade users access to the Knovation Content Collection online learning resources. The Company paid Knovation \$0.3 million during the year ended December 31, 2016 to cover usage of Knovation's online resources through June 30, 2017.

Item 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

Fees for professional services provided by our independent auditors, Ernst & Young LLP, for fiscal year 2016 and 2015, in each of the following categories, including related expenses, are:

	2016	2015
Audit Fees (1)	\$ 5,759	\$ 7,861
Audit Related Fees (2)	51	43
Tax Fees (3)	971	1,283
	\$ 6,781	\$ 9,187

(1) This category includes the aggregate fees billed for professional services rendered for the audit of the Company's annual financial statements, the reviews of the financial statements included in the Company's quarterly reports, consents related to documents filed with the SEC, statutory audits of certain international subsidiaries and services normally provided by the independent auditor in connection with statutory and regulatory filings.

(2) Audit-Related Fees consisted of fees for services that are reasonably related to the performance of the audit and the review of our financial statements.

(3) This category includes the aggregate fees billed for tax services. Tax Fees consisted of fees for federal, state, local and international tax compliance and tax advisory services.