UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

(Mark One)

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

For the fiscal year ended December 31, 2018

OR

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

Commission File Number 001-38467

Ceridian HCM Holding Inc.

(Exact name of Registrant as specified in its Charter)

Delaware	**46-3231686**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**

3311 East Old Shakopee Road
Minneapolis, Minnesota 55425
(952) 853-8100

(Address, Including Zip Code, and Telephone Number, Including Area Code, of Registrant's Principal Executive Offices)

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

Common Stock, $.01 par value	**New York Stock Exchange**
Common Stock, $.01 par value	**Toronto Stock Exchange**
(Title of each class)	**(Name of each exchange on which registered)**

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

None
(Title of class)

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

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

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

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

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§229.405) is not contained herein, and will not be contained, to the best of Registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ☒

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

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

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

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

The aggregate market value of the voting and non-voting common equity held by non-affiliates of the Registrant, based on the $33.19 closing price of the shares of common stock on the New York Stock Exchange on June 30, 2018, was $938.7 million.

The number of shares of Registrant's Common Stock outstanding as of February 25, 2019 was 140,514,889.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the Registrant's Definitive Proxy Statement relating to the 2019 Annual Meeting of Stockholders, scheduled to be held on May 1, 2019, are incorporated by reference into Part III of this Form 10-K.

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Unless the context requires otherwise, references in this Annual Report on Form 10-K for the fiscal year ended December 31, 2018 of Ceridian HCM Holding Inc. and subsidiaries ("Form 10-K") to "our company," the "Company," "we," "us," "our," and "Ceridian" refer to Ceridian HCM Holding Inc. and its direct and indirect subsidiaries on a consolidated basis.

We and our subsidiaries own or have the rights to various trademarks, trade names and service marks, including the following: Ceridian®, Dayforce®, Makes Work Life Better™, Powerpay® and various logos used in association with these terms. Solely for convenience, the trademarks, trade names and service marks and copyrights referred to herein are listed without the ©, ®, and ™, symbols, but such references are not intended to indicate, in any way, that Ceridian, or the applicable owner, will not assert, to the fullest extent under applicable law, Ceridian's or their, as applicable, rights to these trademarks, trade names, and service marks. Other trademarks, service marks, or trade names appearing in this Form 10-K are the property of their respective owners.

FORWARD-LOOKING STATEMENTS

This Form 10-K contains, or incorporates by reference, not only historical information, but also forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended ("Securities Act"), and Section 21E of the Securities Exchange Act of 1934, as amended ("Exchange Act") and that are subject to the safe harbor created by those sections. Forward-looking statements, including, without limitation, statements concerning the conditions of the human capital management solutions industry and our operations, performance, and financial condition, including, in particular, statements relating to our business, growth strategies, product development efforts, and future expenses. Forward-looking statements can be identified by words such as "anticipates," "intends," "plans," "seeks," "believes," "estimates," "expects," "assumes," "projects," "could," "may," "will," "should," and similar references to future periods, or by the inclusion of forecasts or projections.

Forward-looking statements are based on our current expectations and assumptions regarding our business, the economy, and other future conditions. Because forward-looking statements relate to the future, by their nature, they are subject to inherent uncertainties, risks, and changes in circumstances that are difficult to predict. As a result, our actual results may differ materially from those contemplated by the forward-looking statements. Important factors that could cause actual results to differ materially from those in the forward-looking statements include regional, national, or global political, economic, business, competitive, market, and regulatory conditions and those risks described in Part I, Item IA, "Risk Factors" of this Form 10-K. Although we have attempted to identify important risk factors, there may be other risk factors not presently known to us or that we presently believe are not material that could cause actual results and developments to differ materially from those made in or suggested by the forward-looking statements contained in this Form 10-K. If any of these risks materialize, or if any of the above assumptions underlying forward-looking statements prove incorrect, actual results and developments may differ materially from those made in or suggested by the forward-looking statements contained in this Form 10-K. For the reasons described above, we caution you against relying on any forward-looking statements. Any forward-looking statement made by us in this Form 10-K speaks only as of the date on which we make it. Factors or events that could cause our actual results to differ may emerge from time to time, and it is not possible for us to predict all of them. We undertake no obligation to publicly update or to revise any forward-looking statement, whether as a result of new information, future developments, or otherwise, except as may be required by law. Comparisons of results for current and any prior periods are not intended to express any future trends or indications of future performance, unless specifically expressed as such, and should be viewed as historical data.

PART I

Item 1. Business.

Ceridian HCM Holding Inc. was incorporated in Delaware on July 3, 2013. On April 30, 2018, we completed our initial public offering ("IPO"), in which we issued and sold 24,150,000 shares of common stock at a public offering price of $22.00 per share. Concurrently with our IPO, we issued an additional 4,545,455 shares of our common stock in a private placement at $22.00 per share. Contemporaneously with our IPO, we distributed our controlling financial interest in LifeWorks Corporation Ltd ("LifeWorks") to our stockholders of record prior to the IPO on a pro rata basis in accordance with their pro rata interests in us.

Following our IPO, we remain a controlled company by our financial sponsors: affiliates and co-investors of Thomas H. Lee Partners, L.P. ("THL") and Cannae Holdings, Inc. ("Cannae"). Collectively, THL and Cannae are referred to as our "Sponsors."

Overview

Ceridian is a global human capital management ("HCM") software company. Dayforce, our flagship cloud HCM platform, provides human resources ("HR"), payroll, benefits, workforce management, and talent management functionality. In addition to Dayforce, we sell Powerpay, a cloud HR and payroll solution for the Canadian small business market, through both direct sales and established partner channels. We also continue to support customers using our Bureau solutions, which we generally stopped actively selling to new customers in 2012, following the acquisition of Dayforce. We invest in maintenance and necessary updates to support our Bureau customers and continue to migrate them to Dayforce.

Products and Services

Dayforce

Dayforce, our principle cloud HCM platform, is a single application that provides continuous real-time calculations across all modules to enable, for example, payroll administrators access to data through the entire pay period, and managers access to real-time data to optimize work schedules. Dayforce offers a comprehensive range of functionality, including global HR, payroll, benefits, workforce management, and talent management on web and native iOS and Android platforms. Our Dayforce mobile app enables employees not only to request and to trade schedules, but also to see the real-time impact of schedule changes on their pay. Our Dayforce platform is used by organizations, regardless of industry or size, to optimize management of the entire employee lifecycle, including attracting, engaging, paying, deploying, and developing their people. Key functionality of our Dayforce platform includes HR, payroll and tax, benefits, workforce management, and talent management.

Human Resources

Dayforce Human Resources functionality provides customers with a single, complete record for all employees. Our HR functionality is centered on a comprehensive, flexible workflow engine that streamlines and automates administrative tasks.

Payroll and Tax

Our payroll capabilities provide customers with the tools needed to accurately and compliantly manage their payroll processes. Through our Dayforce platform, users in the United States, Canada, and the United Kingdom are able to make updates to time and pay in real-time. In countries where we do not currently offer localized payroll, Dayforce ConnectedPay provides payroll aggregation features that allow an organization to have a centralized view of their global payroll. ConnectedPay automates the data exchange with in-country payroll providers and provides a consistent self-service experience for employees to view earnings statements and associated payroll documentation. Dayforce calculates, withholds, and files payroll related taxes in the United States and Canada as part of our localized payroll offering.

Benefits

Dayforce Benefits assists users from benefits enrollment to ongoing benefits administration, including eligibility, open enrollment and Affordable Care Act ("ACA") management.

Workforce Management

Dayforce Workforce Management provides functionality to help organizations manage their workforces, improve operational efficiency, and enhance compliance by configuring the system to meet complex labor and employment rules and policies. Through Dayforce, users are offered absence management, time and attendance, schedule, and labor planning.

Talent Management

Dayforce Talent Management enables organizations to attract, to engage, to develop, and to motivate their workforce. Users can leverage tools for recruiting, onboarding, performance, succession planning, compensation management, and employee learning.

Powerpay

We offer Powerpay for Canadian organizations with fewer than 100 employees. Powerpay is a cloud platform that provides scalable and straightforward payroll and HR solutions. Specifically designed for small businesses, Powerpay enables clients to pay their employees accurately and on-time. As of December 31, 2018, Powerpay had over 38,000 customer accounts.

Bureau

Our Bureau solutions offer payroll and payroll-related services using legacy technology. We invest in maintenance and necessary updates to support our Bureau customers. We generally stopped selling our Bureau solutions to new customers in the United States in 2012 and in Canada in 2015, and continue to convert Bureau customers to our Dayforce platform.

Revenue by Product and Service

For a quantitative discussion of our revenue by solution, please refer to Part II, Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations" of this Form 10-K.

Customers

Dayforce is designed to serve organizations with 100 to over 100,000 employees. The Dayforce customer base has increased from 482 as of December 31, 2012 to 3,718 customers live on the platform as of December 31, 2018. In addition, we had over 450 net new Dayforce customers contracted, but not yet live on Dayforce as of December 31, 2018. We expect the majority of these Dayforce customers to be taken live in 2019. For 2018, our 3,718 live Dayforce customers represented over 3.1 million active users. We define a customer as a single organization, such as a company, a non-profit association, an educational institution, or government entity. We also have over 38,000 Powerpay customer accounts. No single customer accounted for more than 1% of our revenues during the year ended December 31, 2018.

Sales and Marketing

We sell our Cloud solutions through a direct sales force and a variety of third party channels, organized by customer size and geography. We market Dayforce to organizations with more than 100 employees. We market Powerpay to organizations with fewer than 100 employees in Canada. The majority of our revenue growth comes from new customers, but we also have a small, dedicated account management team focused on serving the needs of our Bureau customers and helping them to migrate to our Dayforce platform.

Implementation and Professional Services

Our internal implementation team leverages proprietary onboarding technology for new customer activation and professional services work. Our internal team is supplemented by a small number of third party services partners. Our implementation services include solution configuration and activation for new customers. Professional services include add-on implementation services for existing customer, ongoing product configuration changes when the customer does not have the resources to do it themselves, product usage consulting and a variety of additional services, such as report writing, usage audits, and process improvement.

Customer Support

Our global customer support organization provides 24/7 application support from offices across North America and in the United Kingdom, Mauritius, and Australia. Our support function is organized into specialized pods of approximately 18 representatives with deep domain expertise across our platform. These pods are grouped by customer and product type to provide a combination of deep product knowledge, consistent relationships, and high availability.

Technology, Hosting, and Research and Development ("R&D")

Technology and innovation are at the core of Ceridian. Our innovation and development process is customer-driven. We work directly with customers to understand their needs and to deliver solutions that address their challenges through the lens of the entire user experience, without being constrained by individual modules or applications.

Our R&D team is responsible for the design, development, and testing of our applications. We believe that our modern cloud technology stack, agile design and development methodology, and efficient software deployment process enable us to innovate quickly in response to industry trends. We host Dayforce and Powerpay applications and serve all of our customers from data centers operated by third party providers, primarily NaviSite, in Boston, Massachusetts; Redhill, England; Santa Clara, California; Toronto, Canada; Vancouver, Canada; and Woking, England. We also host Dayforce Australia in Microsoft Azure in Melbourne, Australia and Sydney, Australia. While we control and have access to our servers and all of the components of our network that are located in our external data centers, we do not control the operation of these facilities. Additionally, we host our internal systems through data centers that we operate and lease or own in Atlanta, Georgia; Fountain Valley, California; Louisville, Kentucky; St. Petersburg, Florida; and Winnipeg, Canada.

Competition

The market for HCM technology solutions is rapidly changing, with legacy service bureau and on-premise software providers facing increased competition from emerging cloud players. We currently compete with firms that provide both integrated and point solutions for HCM. Legacy payroll service providers, such as Automatic Data Processing ("ADP"), provide HCM solutions primarily through service bureau models. These vendors often have more in-house resources, greater name recognition, and longer operating histories than Dayforce and may seek to expand their cloud offerings through acquisition or organic product development. We also compete with cloud-enabled client-server HCM providers, such as The Ultimate Software Group, Inc. ("Ultimate Software"). These companies, whose products were developed over 20 years ago as on-premise solutions, have modified and redeployed their platforms as hybrid software as a service ("SaaS") offerings. This has allowed them to transition their business model to offer hosted and cloud solutions, resulting in significantly larger customer bases. More recently, we face competition from modern HCM providers, such as Workday, Inc. ("Workday"), whose solutions have been specifically built as single application platforms in the cloud. In addition, we also face competition from large,

long-established enterprise application software vendors, such as Oracle Corporation ("Oracle") and SAP SE ("SAP"). These companies are seeking to expand their cloud offerings through both acquisition and internal development efforts. We also compete with point solutions, such as Kronos Incorporated ("Kronos") for workforce management and Cornerstone OnDemand Inc. ("Cornerstone OnDemand") for talent management.

We believe the principal competitive factors in our market include the following:

(i) Breadth and depth of product functionality;

(ii) Scalability and reliability of applications;

(iii) Robust workforce management;

(iv) Comprehensive tax services;

(v) Modern and intuitive technology and user experience;

(vi) Multi-country and jurisdiction domain expertise in payroll and HCM;

(vii) Quality of implementation and customer service;

(viii) Integration with a wide variety of third party applications and systems;

(ix) Total cost of ownership and ROI;

(x) Brand awareness and reputation;

(xi) Pricing; and

(xii) Distribution.

Employees and Culture

As of December 31, 2018, we had 4,444 active employees, including 3,759 in North America, Europe, and Australia, and 685 in Mauritius. We also engage temporary employees and consultants when needed to enhance our workforce. None of our employees are represented by a labor union, and we have never experienced any work stoppages.

Ceridian believes in diversity and equality for all people and fosters a culture that engages and celebrates our employees. In 2018, we were recognized with over 20 awards related to our company culture and workplace experiences, including Glassdoor Employees' Choice Awards for 2018 Best Places to Work (Canada and United States), Best Workplaces certification (Canada and United States), Brandon Hall's Excellence in Talent Management Award for Best Advance in High Potential Development, and 2018 Working Mother 100 Best Companies.

Intellectual Property

Our success depends, in part, on our ability to protect our proprietary technology and intellectual property. We rely on a combination of copyrights, trade secrets, and trademarks, as well as confidentiality and nondisclosure agreements and other contractual protections, to establish and to safeguard our intellectual property rights.

Backlog and Seasonality

For a discussion of backlog and seasonality, please refer to Part II, Item 7. "Management's Discussion and Analysis of Financial Condition and Results of Operations" of this Form 10-K.

Available Information

Our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, proxy and information statements, and amendments to reports and any registration statements filed or furnished pursuant to Sections 13(a), 14 and 15(d) of the Exchange Act are electronically filed with the Securities and Exchange Commission ("SEC"). The SEC maintains a website that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC. These materials may be obtained electronically by accessing the SEC's website at http://www.sec.gov.

We make available, free of charge on our website at http://investors.ceridian.com, our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, proxy and information statements, Section 16 reports, amendments to those reports, and other documents filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC. In addition, the following governance materials are available on our website at https://investors.ceridian.com/corporate-governance/governance-documents: (i) our current charter and bylaws; (ii) charters of our Audit, Corporate Governance and Nominating Committees of our Board of Directors (our "Board"); (iii) our Corporate Governance Guidelines; and (iv) our Code of Conduct, as well as any waivers from and amendments to our Code of Conduct. Our corporate website address is http://www.ceridian.com. Our website and the information contained on, or that can be accessed through, the

website is not deemed to be incorporated by reference into, and should not be considered part of, this Form 10-K.

Executive Officers

The following table sets forth the names and ages, as of February 15, 2019, and titles of the individuals who serve as our executive officers. Certain biographical information with respect to those executive officers follows the table.

Name	Age	Position
David D. Ossip	52	Chairman and Chief Executive Officer
Leagh E. Turner	47	President
Paul D. Elliott	53	Chief Operating Officer
Arthur Gitajn	66	Executive Vice President and Chief Financial Officer
Ozzie J. Goldschmied	41	Executive Vice President and Chief Technology Officer
Scott A. Kitching	49	Executive Vice President, General Counsel and Assistant Secretary
Lisa M. Sterling	46	Executive Vice President and Chief People and Culture Officer
Erik J. Zimmer	44	Executive Vice President and Chief Strategy Officer

David D. Ossip

Mr. Ossip is our Chairman and Chief Executive Officer, positions he has held since August 2015 and July 2013, respectively. Mr. Ossip joined the Company following the Company's acquisition of Dayforce Corporation in 2012, where he held the position of chief executive officer. Mr. Ossip is currently a director for Ossip Consulting Inc. and OSDAC Corp.

Leagh E. Turner

Ms. Turner has served as our President since August 2018. Prior to joining the Company, Ms. Turner held the position of global chief operating officer, strategic customer program of SAP from October 2016 to August 2018. In addition, Ms. Turner held the positions of acting chief operating officer of SAP Europe, Middle East, and Africa region from March 2017 to August 2017, acting president of SAP Canada Inc. from August 2015 to January 2016, chief operating officer of SAP Canada Inc. from February 2014 to October 2016, and vice president, sales central region of SAP Canada Inc. from July 2010 to February 2014.

Paul D. Elliott

Mr. Elliott is our Chief Operating Officer, a position he has held since April 2016. Additionally, Mr. Elliott served as our President from April 2016 until August 2018. Prior to that, Mr. Elliott held the position of chief operating officer at two of our affiliate companies, first at Ceridian Canada where Mr. Elliott held the position from August 2009 to February 2013, and then at Ceridian HCM, Inc., where Mr. Elliott held the position from March 2013 to March 2016.

Arthur Gitajn

Mr. Gitajn is our Executive Vice President and Chief Financial Officer, positions he has held since October 2016. Prior to joining us, Mr. Gitajn held the position of chief financial officer for SAP Canada Inc. from July 2007 to January 2012 and from January 2015 to September 2016, and the position of chief financial officer of SAP's Europe, Middle East, and Africa region from February 2012 to December 2014.

Ozzie J. Goldschmied

Mr. Goldschmied is our Executive Vice President and Chief Technology Officer, positions he has held since October 2014. Mr. Goldschmied previously served as our senior vice president of research and development from February 2012 to September 2014. Mr. Goldschmied joined the Company following the Company's acquisition of Dayforce Corporation in 2012, where he held the position of senior vice president of engineering.

Scott A. Kitching

Mr. Kitching is our Executive Vice President, a position he has held since February 2016, and General Counsel and Assistant Secretary, positions he has held since December 2013. Prior to that time, Mr. Kitching held the position of executive vice president and general counsel at our affiliate subsidiary Ceridian Canada from May 2003 to December 2013.

Lisa M. Sterling

Ms. Sterling is our Executive Vice President and Chief People and Culture Officer, positions she has held since March 2016. Ms. Sterling previously served as our vice president of product strategy from June 2015 to March 2016. Prior to joining us, Ms. Sterling was a partner and talent technology solutions leader at Mercer LLC from March 2013 to May 2015. Prior to that, Ms. Sterling served as the head of people engagement for Ultimate Software from February 2010 to March 2013.

Erik J. Zimmer

Mr. Zimmer is our Executive Vice President and Chief Strategy Officer, positions he has held since August 2018. Mr. Zimmer previously served as a managing director of Thomas H. Lee Partners, L.P. from February 2011 to August 2018.

Item 1A. Risk Factors.

Risks Related to Our Business and Industry

We have a history of losses and negative cash flows from operating activities, and we may not be able to attain or to maintain profitability or positive cash flows from operating activities in the future.

We have incurred net losses and negative cash flows from operating activities over the last few years as we made substantial investments in developing, launching, and selling our Cloud solutions. In addition, our highly leveraged capital structure has had a negative effect on our profitability. As a result, we have incurred net losses of $92.9 million in the year ended December 31, 2016, $9.2 million in the year ended December 31, 2017, and $63.4 million in the year ended December 31, 2018. As of December 31, 2018, we had an accumulated deficit of $419.3 million. We incurred negative cash flows from operating activities of $75.5 million in the year ended December 31, 2016, $39.8 million in the year ended December 31, 2017 and positive cash flows from operating activities of $9.5 million in the year ended December 31, 2018. To the extent we are successful in increasing our Cloud customer base, we may also incur increased net losses and negative cash flows from operating activities because costs associated with acquiring and implementing new Cloud customers are generally incurred up front, while subscription revenues are generally recognized ratably over the terms of the agreements. Our recent growth in revenues may not be indicative of our future performance.

We also expect our expenses to increase in the future due to anticipated increases in sales, general, and administrative expenses, including expenses associated with being a public company, and product development and management expenses, which could impact our ability to achieve or to sustain profitability or positive cash flows from operating activities in the future. Additionally, while the majority of our revenue comes from fees charged for use of the software, we are developing new products and services, which may initially have a lower profit margin than our existing Cloud solutions, which could have a material adverse effect on our business, financial condition, and results of operations. Although we believe we will be able to reach profitability and attain positive cash flows from operating activities in the next few years, we cannot provide any assurance that we will able to do so in the future.

The markets in which we participate are highly competitive, and if we do not compete effectively, it could have a material adverse effect on our business, financial condition, and results of operations.

The markets in which we participate are highly competitive, and competition could intensify in the future. We believe the principal competitive factors in our market include breadth and depth of product functionality, scalability and reliability of applications, robust workforce management, comprehensive tax services, modern and innovative cloud technology platforms combined with an intuitive user experience, multi-country and jurisdiction domain expertise in payroll and HCM, quality of implementation and customer service, integration with a wide variety of third party applications and systems, total cost of ownership and ROI, brand awareness, and reputation, pricing and distribution. We face a variety of competitors, some of which are long-established providers of HCM solutions. Many of our current and potential competitors are larger, have greater name recognition, longer operating histories, larger marketing budgets, and significantly greater resources than we do, and are able to devote greater resources to the development, promotion, and sale of their products and services. Some of our competitors could offer HCM solutions bundled as part of a larger product offering. Furthermore, our current or potential competitors may be acquired by third parties with greater available resources and the ability to initiate or to withstand substantial price competition. In addition, many of our competitors have established marketing relationships, access to larger customer bases, and major distribution agreements with consultants, system integrators, and resellers. Our competitors may also establish cooperative relationships among themselves or with third parties that may further enhance their product offerings or resources.

In order to capitalize on customer demand for cloud applications, legacy vendors are modernizing and expanding their applications through cloud acquisitions and organic development. Legacy vendors may also seek to partner with other leading cloud HCM providers. We also face competition from vendors selling custom software and point solutions, some of which offer cloud solutions. Our competitors include, without limitation: ADP, Ultimate Software, and Workday for HCM; Kronos for workforce management; and Cornerstone OnDemand for talent management. In addition, other companies, such as NetSuite and Microsoft, that provide cloud applications in different target markets, may develop applications or acquire companies that operate in our target markets, and some potential customers may elect to develop their own internal applications. Some large businesses may be hesitant to adopt cloud applications such as ours and prefer to upgrade the more familiar applications offered by these vendors that are deployed on-premise, such as Oracle and SAP. Our competitors could offer HCM solutions on a standalone basis at a low price or bundled as part of a larger product sale. With the introduction of new technologies and market entrants, competition could intensify in the future.

If our competitors' products, services, or technologies become more accepted than our applications, if they are successful in bringing their products or services to market earlier than ours, or if their products or services are more technologically capable than ours, it could have a material adverse effect on our business, financial condition, and results of operations. In addition, some of our competitors may offer their products and services at a lower price. If we are unable to achieve our target pricing levels or if we experience significant pricing pressures, it could have a material adverse effect on our business, financial condition, and results of operations.

Our growth strategy has focused on developing our Cloud solutions, which have experienced rapid revenue growth in recent periods that has been offset by revenue declines in our Bureau solutions. If we fail to manage our growth effectively or if our strategy is not successful, we may be unable to execute our business plan, to maintain high levels of service, or to adequately address competitive challenges.

We have recently experienced a period of rapid growth in our operations related to our Cloud solutions. In particular, our recurring services revenue for our Cloud solutions has continued to increase while our recurring services revenue for our Bureau solutions has continued to decline. As we implement our growth strategy for our Cloud solutions, we will continue to migrate employees and resources from our Bureau solutions to our Cloud solutions. Additionally, we are continuing to invest in the infrastructure shared by our Bureau and Cloud solutions, although we are no longer marketing our Bureau solutions to new customers. The growth of our Cloud solutions has placed, and future growth will place, a significant strain on our management, administrative, operational, and financial infrastructure. In order to manage this growth effectively, we will need to continue to improve our operational, financial, and management controls, and our reporting systems and procedures. Failure to effectively manage growth and failure to achieve our growth strategy could result in difficulty or delays in implementing customers, declines in quality or customer satisfaction, increases in costs, difficulties in introducing new features, or other operational difficulties; and any of these difficulties could have a material adverse effect on our business, financial condition, and results of operations.

Our Bureau solutions, which comprise a significant portion of our revenue, may decline at a rate faster than we anticipate, and we may not be able to successfully migrate our Bureau customers to our Cloud solutions or to offset the decline in Bureau revenue with Cloud revenue.

Our growth strategy is focused on the growth and expansion of our Cloud solutions; however, a portion of our revenue continues to be derived from our Bureau customers. We generally ceased marketing our Bureau solutions to new customers in the United States in 2012, and since that time have maintained the Bureau applications for existing customers while migrating customers to our Cloud solutions. Maintenance of our Bureau business requires investment, specifically with respect to compliance updates and security controls. If our investments are not sufficient to adequately update our Bureau solutions, such solutions may lose market acceptance and we may face security vulnerabilities.

In addition, we have marketed our Cloud solutions to our Bureau customers, and some of our Bureau customers have migrated to our Cloud solutions, but there is no guarantee that our remaining Bureau customers will migrate to our Cloud solutions. If such Bureau customers do not migrate, we may lose them in the future or we may be required to make ongoing investments to serve a smaller pool of customers. If our revenue from our Bureau solutions declines at a rate faster than anticipated, we are required to make significant investments in infrastructure shared by our Bureau and Cloud solutions that are not offset by increased revenue, we are not able to successfully convert the remaining Bureau customers to our Cloud solutions, or our Cloud solutions revenue does not grow fast enough to offset the decline in our Bureau solutions revenue, it could have a material adverse effect on our business, financial condition, and results of operations.

If the market for enterprise cloud computing develops slower than we expect or declines, it could have a material adverse effect on our business, financial condition, and results of operations.

The enterprise cloud computing market is not as mature as the market for on-premise enterprise software, and it is uncertain whether cloud computing will achieve and sustain high levels of customer demand and market acceptance. Our success will depend to a substantial extent on the widespread adoption of cloud computing in general, and of HCM solutions in particular. Many enterprises have invested substantial personnel and financial resources to integrate traditional enterprise software into their businesses and therefore may be reluctant or unwilling to migrate to cloud computing. It is difficult to predict customer adoption rates and demand for our applications, the future growth rate and size of the cloud computing market, or the entry of competitive applications. The expansion of the cloud computing market depends on a number of factors, including the cost, performance, and perceived value associated with cloud computing, as well as the ability of cloud computing companies to address security and privacy concerns. If we or other cloud computing providers experience security incidents, loss of customer data, disruptions in delivery, or other problems, the market for cloud computing applications as a whole, including our applications, may be negatively affected. If cloud computing does not achieve widespread adoption or there is a reduction in demand for cloud computing caused by a lack of customer acceptance, technological challenges, weakening economic conditions, security or privacy concerns, competing technologies and products, reductions in corporate spending, or otherwise, it could have a material adverse effect on our business, financial condition, and results of operations.

Our revenues from our Cloud solutions have grown substantially over the last few years. Our efforts to increase use of our Cloud solutions and our other applications may not succeed and may reduce our revenue growth rate.

Our revenues from our Cloud solutions have grown substantially over the last few years. Our total Cloud revenues grew from $297.8 million in 2016 to $404.3 million in 2017 and $534.3 million in 2018, a growth rate of 35.8% and 32.2%, respectively. Any factor adversely affecting sales of our Cloud solutions, including application release cycles, delays, or failures in new product functionality, market acceptance, product competition, performance and reliability, reputation, price competition, and economic and market conditions, could have a material adverse effect on our business, financial condition, and results of operations. Our participation in new markets for native payroll, and application expansion in succession management, learning management, and compensation management, is relatively new, and it is uncertain whether these areas will ever result in significant revenues for us. Further, the entry into new markets or the introduction of new features, functionality, or applications beyond our current markets and functionality may not be successful.

Our quarterly results of operations may fluctuate significantly and may not fully reflect the underlying performance of our business.

Our quarterly results of operations, including the levels of our revenues, gross margin, profitability, cash flow, and deferred revenue, may vary significantly in the future, and period-to-period comparisons of our results of operations may not be meaningful. Accordingly, the results of any one quarter should not be relied upon as an indication of future performance. Our quarterly financial results may fluctuate as a result of a variety of factors, many of which are outside of our control, and as a result, may not fully reflect the underlying performance of our business. Fluctuation in quarterly results may negatively impact the value of our common stock. Factors that may cause fluctuations in our quarterly financial results include, without limitation:

- our ability to attract new Cloud customers;
- our ability to replace declining Bureau revenue with Cloud revenue;

- the addition or loss of large Cloud customers, including through acquisitions or consolidations;
- the addition or loss of employees by our Cloud customers;
- the timing and number of paydays in a period;
- the timing of recognition of revenues;
- the tenure of our Cloud customers during that period;
- the amount and timing of operating expenses related to the maintenance and expansion of our business, operations, and infrastructure;
- network outages or security breaches;
- general economic, industry, and market conditions;
- customer renewal rates;
- increases or decreases in the number of elements of our services or pricing changes upon any renewals of customer agreements;
- changes in our pricing policies or those of our competitors;

- the mix of applications sold during a period;
- seasonal variations in sales of our applications, which has historically been highest in the fourth quarter of a calendar year;
- fluctuation in market interest rates, which impacts debt interest expense as well as float revenue;
- the timing and success of new application and service introductions by us or our competitors or any other change in the competitive dynamics of our industry, including consolidation among competitors, customers, or strategic partners; and
- the impact of new accounting rules.

If we are not able to provide new or enhanced functionality and features or keep pace with rapid technological changes and evolving industry standards, we will not be able to remain competitive and the demand for our services will likely decline, which could have a material adverse effect on our business, financial condition, and results of operations.

The markets in which we operate are characterized by changes due to rapid technological advances, additional qualification requirements related to technological challenges, and evolving industry standards and changes in the regulatory and legislative environment. Our future success will depend upon our ability to anticipate and to adapt to changes in technology and industry standards, and to effectively develop, to introduce, to market, and to gain broad acceptance of new product and service enhancements incorporating the latest technological advancements. We may not be able to successfully provide new or enhanced functionality and features for our existing solutions that achieve market acceptance or that keep pace with rapid technological developments. For example, we are focused on enhancing the features and functionality of our HCM solutions to enhance their utility for larger customers with complex, dynamic, and global operations. The success of new or enhanced functionality and features depends on several factors, including their overall effectiveness and the timely completion, introduction, and market acceptance of the enhancements, new features, or applications. Failure in this regard may significantly impair our revenue growth. In addition, because our solutions are designed to operate on a variety of systems, we will need to continuously modify and enhance our solutions to keep pace with changes in internet-related hardware, iOS, and other software, and communication, browser, and database technologies. We may not be successful in developing these new or enhanced functionality and features, or in bringing them to market in a timely fashion. If we do not continue to innovate and to deliver high-quality, technologically advanced products and services, we will not remain competitive, which could have a material adverse effect on our business, financial condition, and results of operations. Furthermore, uncertainties about the timing and nature of new functionality, or new functionality to existing platforms or technologies, could increase our research and development expenses. Any failure of our applications to operate effectively with future network platforms and technologies could reduce the demand for our applications, result in customer dissatisfaction, and have a material adverse effect on our business, financial condition, and results of operations.

An information security breach of our systems or the loss of, or unauthorized access to, customer information, the failure to comply with the U.S. Federal Trade Commission's ("FTC") ongoing consent order regarding data protection, or a system disruption could have a material adverse effect on our business, market brand, financial condition, and results of operations.

Our business is dependent on our payroll, transaction, financial, accounting, and other data processing systems. We rely on these systems to process, on a daily and time sensitive basis, a large number of complicated transactions. We electronically receive, process, store, and transmit data and personally identifiable information ("PII") about our customers and their employees, as well as our vendors and other business partners, including names, social security numbers, and checking account numbers. We keep this information confidential. However, our websites, networks, applications and technologies, and other information systems may be targeted for sabotage, disruption, or data misappropriation. The uninterrupted operation of our information systems and our ability to maintain the confidentiality of PII and other customer and individual information that resides on our systems are critical to the successful operation of our business. While we have information security and business continuity programs, these plans may not be sufficient to ensure the uninterrupted operation of our systems or to prevent unauthorized access to the systems by unauthorized third parties. Because techniques used to obtain unauthorized access or to sabotage systems change frequently and may not be recognized until launched against a target, we may be unable to anticipate these techniques or to implement adequate preventative measures. These concerns about information security are increased with the mounting sophistication of social engineering. Our network security hardening may be bypassed by phishing and other social engineering techniques that seek to use end user behaviors to distribute computer viruses and malware into our systems, which might disrupt our delivery of services and make them unavailable, and might also result in the disclosure or misappropriation of PII or other confidential or sensitive information. In addition, a significant cyber security breach could prevent or delay our ability to process payment transactions.

Any information security breach in our business processes or of our processing systems has the potential to impact our customer information and our financial reporting capabilities, which could result in the potential loss of business and our ability to accurately report financial results. If any of these systems fail to operate properly or become disabled even for a brief period of time, we could potentially miss a critical filing period, resulting in potential fees and penalties, or lose control of customer data, all of which could result in financial loss, a disruption of our businesses, liability to customers, regulatory intervention, or damage to our reputation. The continued occurrence of high-profile data breaches provides evidence of an external environment increasingly hostile to information security. If our security measures are breached as a result of third party action, employee or subcontractor error, malfeasance or otherwise, and, as a result, someone obtains unauthorized access to customer data, our reputation may be damaged, our business may suffer, and we could incur significant liability. We may also experience security breaches that may remain undetected for an extended period of time. Techniques used to obtain unauthorized access or to sabotage systems change frequently and are growing increasingly sophisticated. As a result, we may be unable to anticipate these techniques or to implement adequate preventative measures.

This environment demands that we continuously improve our design and coordination of security controls throughout the company. Despite these efforts, it is possible that our security controls over data, training, and other practices we follow may not prevent the improper disclosure of PII or other confidential information. Any issue of data privacy as it relates to unauthorized access to or loss of customer and/or employee information could result in the potential loss of business, damage to our market reputation, litigation, and regulatory investigation and penalties. For example, in December 2009 a criminal hacked into our discontinued U.S. payroll application. Following receipt of an “access letter” in May 2010 from the FTC for a non-public review of the matter, we worked with the FTC and entered into a twenty-year consent order which became final in June 2011. We conceded no wrongdoing in the order and we were not subject to any monetary fines or penalties. However, in connection with the order, we are required to, among other things, maintain a comprehensive information security program that is reasonable and appropriate for our size, and complexity, and for the type of PII we collect. We are also required to have portions of our security program, which apply to certain segments of our U.S. business, reviewed by an independent third party on a biennial basis. Maintaining, updating, monitoring, and revising an information security program in an effort to ensure that it remains reasonable and appropriate in light of changes in security threats, changes in technology, and security vulnerabilities that arise from legacy systems is time-consuming and complex, and is an ongoing effort.

There may be other such security vulnerabilities that come to our attention. The independent third party that reviews our security program pursuant to the FTC consent order may determine that the existence of vulnerabilities in our security controls or the failure to remedy them in a timeframe they deem appropriate means that our security program does not provide a reasonable level of assurance that the security, confidentiality, and integrity of PII is protected by Ceridian (or that there was a failure to protect at some point in the reporting period). While we have taken and continue to take steps to ensure compliance with the consent order, if we are determined not to be in compliance with the consent order, or if any new breaches of security occur, the FTC may take enforcement actions or other parties may initiate a lawsuit. Any such resulting fines and penalties could have a material adverse effect on our liquidity and financial results, and any reputational damage therefrom could adversely affect our relationships with our existing customers and our ability to attain new customers. Our continued investment in the security of our technology systems, continued efforts to improve the controls within our technology systems, business processes improvements and the enhancements to our culture of information security may not successfully prevent attempts to breach our security or unauthorized access to PII or other confidential, sensitive or proprietary information. In addition, in the event of a catastrophic occurrence, either natural or man-made, our ability to protect our infrastructure, including PII and other customer data, and to maintain ongoing operations could be significantly impaired. Our business continuity and disaster recovery plans and strategies may not be successful in mitigating the effects of a catastrophic occurrence. Insurance may be inadequate or may not be available in the future on acceptable terms, or at all. In addition, our insurance policies may not cover all claims made against us, and defending a suit, regardless of its merit, could be costly and divert management’s attention. If our security is breached, if PII or other confidential information is accessed, if we fail to comply with the consent order or if we experience a catastrophic occurrence, it could have a material adverse effect on our business, financial condition, and results of operations.

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

The services offered by us generally require or involve collecting PII of our customers and / or their employees, such as their full names, birth dates, addresses, employer records, tax information, social security numbers, and bank account information. This information can be used by criminals to commit identity theft, to impersonate third parties, or to otherwise gain access to the data or funds of an individual. If any of our employees take, convert, or misuse such PII, funds or other documents or data, we could be liable for damages, and our business reputation could be damaged or destroyed. Moreover, if we fail to adequately prevent third parties from accessing PII and/or business information and using that information to commit identity theft, we might face legal liabilities and other losses that could have a material adverse effect on our business, financial condition, and results of operations.

Our solutions and our business are subject to a variety of U.S. and international laws and regulations, including those regarding privacy, data protection, and information security. Any failure by us or our third party service providers, as well as the failure of our platform or services, to comply with applicable laws and regulations could have a material adverse effect on our business, financial condition, and results of operations.

We are subject to a variety of U.S. and international laws and regulations, including regulation by various federal government agencies, including the FTC, and state and local agencies. The United States and various state and foreign governments have adopted or proposed limitations on, or requirements regarding, the collection, distribution, use, security, and storage of PII of individuals; and the FTC and many state attorneys general are applying federal and state consumer protection laws to impose standards on the online collection, use and dissemination of data. Self-regulatory obligations, other industry standards, policies, and other legal obligations may apply to our collection, distribution, use, security, or storage of PII or other data relating to individuals. In addition, most states and some foreign governments have enacted laws requiring companies to notify individuals of data security breaches involving certain types of PII. These obligations may be interpreted and applied in an inconsistent manner from one jurisdiction to another and may conflict with one another, other regulatory requirements, or our internal practices. Any failure or perceived failure by us to comply with

U.S., E.U., or other foreign privacy or security laws, regulations, policies, industry standards, or legal obligations, or any security incident that results in the unauthorized access to, or acquisition, release, or transfer of, PII may result in governmental enforcement actions, litigation, fines and penalties, or adverse publicity and could cause our customers to lose trust in us, which could harm our reputation and have a material adverse effect on our business, financial condition, and results of operations.

We expect that there will continue to be new proposed laws, regulations, and industry standards concerning privacy, data protection and information security in the United States, Canada, the European Union, and other jurisdictions, and we cannot yet determine the impact such future laws, regulations, and standards may have on our business. For example, in May 2018, the General Data Protection Regulation came into force, bringing with it a complete overhaul of E.U. data protection laws: the new rules supersede E.U. data protection legislation, impose more stringent E.U. data protection requirements, and provide for greater penalties for non-compliance. Changing definitions of what constitutes PII may also limit or inhibit our ability to operate or to expand our business, including limiting strategic partnerships that may involve the sharing of data. Also, some jurisdictions require that certain types of data be retained on servers within these jurisdictions. Our failure to comply with applicable laws, directives, and regulations may result in enforcement action against us, including fines and imprisonment, and damage to our reputation, any of which may have an adverse effect on our business and operating results. Further, in October 2015, the European Court of Justice issued a ruling invalidating the U.S.-E.U. Safe Harbor Framework, which facilitated transfers of PII to the United States in compliance with applicable E.U. data protection laws. In July 2016, the E.U. and the U.S. political authorities adopted the E.U.-U.S. Privacy Shield, replacing the Safe Harbor Framework and providing a new mechanism for companies to transfer E.U. PII to the United States. U.S. organizations wishing to self-certify under the Privacy Shield must pledge their compliance with its seven core and sixteen supplemental principles, which are based on European Data Protection Law.

If our service is perceived to cause, or is otherwise unfavorably associated with, violations of privacy or data security requirements, it may subject us or our customers to public criticism and potential legal liability. Public concerns regarding PII processing, privacy and security may cause some of our customers' end users to be less likely to visit their websites or otherwise interact with them. If enough end users choose not to visit our customers' websites or otherwise interact with them, our customers could stop using our platform. This, in turn, may reduce the value of our services and slow or eliminate the growth of our business. Existing and potential privacy laws and regulations concerning privacy and data security and increasing sensitivity of consumers to unauthorized processing of PII may create negative public reactions to technologies, products, and services such as ours.

Evolving and changing definitions of what constitutes PII and / or "Personal Data" within the United States, Canada, the European Union, and elsewhere, especially relating to the classification of internet protocol, or IP addresses, machine or device identification numbers, location data and other information, may limit or inhibit our ability to operate or to expand our business. Future laws, regulations, standards and other obligations could impair our ability to collect or to use information that we utilize to provide email delivery and marketing services to our customers, thereby impairing our ability to maintain and to grow our customer base and to increase revenue. Future restrictions on the collection, use, sharing, or disclosure of our customers' data or additional requirements for express or implied consent of customers for the use and disclosure of such information may limit our ability to develop new services and features.

Privacy concerns and laws or other domestic or foreign data protection regulations may reduce the effectiveness of our applications, which could have a material adverse effect on our business, financial condition, and results of operations.

Our customers can use our applications to collect, to use, and to store PII regarding their employees, independent contractors, and job applicants. Federal, state, and foreign government bodies and agencies have adopted, are considering adopting, or may adopt laws and regulations regarding the collection, use, storage and disclosure of PII obtained from individuals. The costs of compliance with, and other burdens imposed by, such laws and regulations that are applicable to the businesses of our customers, or to our business directly, may limit the use and adoption of our applications and reduce overall demand, or lead to significant fines, penalties, or liabilities for any non-compliance with such privacy laws. Furthermore, privacy concerns may cause our customers' workers to resist providing PII necessary to allow our customers to use our applications effectively. Even the perception of privacy concerns, whether or not valid, may inhibit market adoption of our applications in certain industries.

All of these domestic and international legislative and regulatory initiatives may adversely affect our customers' ability to process, to handle, to store, to use, and to transmit demographic information and PII from their employees, independent contractors, job applicants, customers, and suppliers, which could reduce demand for our applications. The European Union and many countries in Europe have stringent privacy laws and regulations, which may impact our ability to profitably operate in certain European countries.

Further, international data protection regulations trending toward increased localized data residency rules make transfers from outside the regulation's jurisdiction increasingly complex and may impact our ability to deliver solutions that meet all customers' needs. If the processing of PII were to be further curtailed in this manner, our solutions could be less effective, which may reduce demand for our applications, which could have a material adverse effect on our business, financial condition, and results of operations.

In addition to government activity, privacy advocacy groups and the technology and other industries are considering various new, additional, or different self-regulatory standards that may place additional burdens on us. If the processing of PII were to be curtailed in this manner, our solutions would be less effective, which may reduce demand for our applications, which could have a material adverse effect on our business, financial condition, and results of operations.

We rely on third party service providers for many aspects of our business, including, but not limited to, the operation of data centers; the execution of Automated Clearing House, or ACH, and wire transfers to support our customer payroll and tax services; the monitoring of applicable laws; and the printing and delivery of checks. If any third party service providers on which we rely experience a disruption, go out of business, experience a decline in quality, or terminate their relationship with us, we could experience a material adverse effect on our business, financial condition, and results of operation.

We rely on third party service providers for many integral aspects of our business. A failure on the part of any of our third party service providers to fulfill their contracts with us could result in a material adverse effect on our business, financial condition, and results of operation. We depend on our third parties for many services, including, but not limited to:

Upkeep of data centers

We host Dayforce and Powerpay applications and serve all of our customers from data centers operated by third party providers, primarily NaviSite, in Boston, Massachusetts; Redhill, England; Santa Clara, California; Toronto, Canada; Vancouver, Canada; and Woking, England. We also host Dayforce Australia in Microsoft Azure in Melbourne, Australia and Sydney, Australia. While we control and have access to our servers and all of the components of our network that are located in our external data centers, we do not control the operation of these facilities. The owners of our data center facilities have no obligation to renew their agreements with us on commercially reasonable terms, or at all. These parties may also seek to cap their maximum contractual liability resulting in us being financially responsible for losses caused by their actions or omissions. Additionally, we host our internal systems through data centers that we operate and lease or own in Atlanta, Georgia; Fountain Valley, California; Louisville, Kentucky; St. Petersburg, Florida; and Winnipeg, Canada. If we are unable to renew our agreements with our third party providers or to renew our leases on commercially reasonable terms, or if one of our data center operators is acquired, we may be required to transfer our servers and other infrastructure to new data center facilities, and we may incur significant costs and possible service interruption in connection with any such transfer. Both our third party data centers and data centers that we lease and operate are subject to break-ins, sabotage, intentional acts of vandalism, and other misconduct. Any such acts could result in a breach of the security of our or our customers' data.

Problems faced by our third party data center locations, with the telecommunications network providers with whom we or they contract, or with the systems by which our telecommunications providers allocate capacity among their customers, including us, could adversely affect the experience of our customers. Our third party data centers operators could decide to close their facilities without adequate notice. In addition, any financial difficulties, such as bankruptcy, faced by our third party data centers operators or any of the service providers with whom we or they contract may have negative effects on our business, the nature and extent of which are difficult to predict. Additionally, if our data centers are unable to keep up with our growing needs for capacity, this could adversely affect the growth of our business. Any changes in third party service levels at our data centers or any security breaches, errors, defects, disruptions, or other performance problems with our applications could adversely affect our reputation, damage our customers' stored files, result in lengthy interruptions in our services, or otherwise result in damage or losses to our customers for which they may seek compensation from us. Interruptions in our services might reduce our revenues, cause us to issue refunds to customers for prepaid and unused subscription services, subject us to potential liability, or adversely affect our renewal rates.

Processing of electronic funds transfers

We currently have agreements with three banks in the United States, two banks in Canada, and one financial payments company in the United Kingdom to execute electronic funds transfers to support our customer payroll and tax services in the United States, Canada, and the United Kingdom. If one or more of these parties fails to process electronic funds transfers on a timely basis, or at all, then our relationship with our customers could be harmed and we could be subject to claims by a customer with respect to the failed transfers, with little or no recourse to the banks. In addition, these parties have no obligation to renew their agreements with us on commercially reasonable terms, or at all, and transferring to alternative providers could prove time-consuming and costly. If these parties terminate their relationships with us, restrict or fail to increase the dollar amounts of funds that they will process on behalf of our customers, their doing so may impede our ability to process funds and could have a material adverse effect on our business, financial condition, and results of operations.

Check printing and delivery

In Canada, we rely on a third party vendor to print payroll checks, and in Canada and the United States we rely on third party couriers, such as Federal Express and Purolator, to ship printed reports, year-end slips, and pay checks to our customers. Relying on third party check printers and couriers puts us at risk from disruptions in their operations, such as employee strikes, inclement weather, and their ability to perform tasks on our behalf. If these vendors fail to perform their tasks, we could incur liability or suffer damages to our reputation, or both. If we are forced to use other third party couriers, transferring to these competitor couriers could prove time-consuming, our costs could increase and we may not be able to meet shipment deadlines. Moreover, we may not be able to obtain terms as favorable as those we currently use, which could further increase our costs.

Monitoring of changes to applicable laws

We and our third party providers must monitor for any changes or updates in laws that are applicable to the solutions that we or our third party providers provide to our customers. In addition, we are reliant on our third party providers to modify the solutions that they provide to our customers to enable our clients to comply with changes to such laws and regulations. If our third party providers fail to reflect changes or updates in applicable laws in the solutions that they provide to our customers, we could be subject to negative customer experiences, harm to our reputation, loss of customers, claims for any fines, penalties or other damages suffered by our customers, and other financial harm.

A failure on the part of any of our third party service providers could result in a material adverse effect on our business, financial condition, and results of operations.

If we are unable to develop or to sell our existing Cloud solutions into new markets or to further penetrate existing markets, our revenue may not grow as expected.

Our ability to increase revenue will depend, in large part, on our ability to sell our existing Cloud solutions into new markets around the world, to further penetrate our existing markets, and to increase sales from existing customers who do not utilize the full Dayforce suite. The success of any enhancement or new solution or service depends on several factors, including the timely completion, introduction and market acceptance of enhanced or

new solutions, the ability to maintain and to develop relationships with third parties, and the ability to attract, to retain and to effectively train sales and marketing personnel. Any new solutions we develop or acquire may not be introduced in a timely or cost-effective manner and may not achieve the market acceptance necessary to generate significant revenue. Any new markets in which we attempt to sell our

platform and solutions, including new countries or regions, may not be receptive. Additionally, any expansion into new markets will require commensurate ongoing expansion of our monitoring of local laws and regulations, which increases our costs as well as the risk of the product not incorporating in a timely fashion or at all the necessary changes to enable a customer to be compliant with such laws. Our ability to further penetrate our existing markets depends on the quality of our platform and solutions, and our ability to design our Cloud solutions to meet consumer demand; and our ability to increase sales from existing customers depends on our customers' satisfaction with our product and need for additional solutions. If we are unable to sell our Cloud solutions into new markets or to further penetrate existing markets, or to increase sales from existing customers, our revenue may not grow as expected, which could have a material adverse effect on our business, financial condition, and results of operations.

Because a growing part of our business consists of sales of applications to manage complex operating environments for our customers, we may experience longer sales cycles and longer deployments. Some customers demand more configuration and integration services, and require increased compliance and initial support costs, which could have a material adverse effect on our business, financial condition, and results of operations in a given period.

A growing portion of our customer base requires applications that manage complex operating environments. Our ability to increase revenues and to maintain profitability depends, in large part, on widespread acceptance of our applications by businesses and other organizations. As we target our sales efforts at these customers, we face greater costs, longer sales cycles, and less predictability in completing some of our sales. For some of our customers, the customer's decision to use our applications may be an enterprise-wide decision and, therefore, these types of sales require us to provide greater levels of education regarding the use and benefits of our applications. Our typical sales cycles for Dayforce range from three to twelve months, and we expect that this lengthy sales cycle may continue or increase as customers adopt our applications. Longer sales cycles could have a material adverse effect on our business, financial condition, and results of operations in a given period.

It typically takes approximately three to nine months to implement a new customer on Dayforce, depending on the number and type of applications, the complexity and scale of the customers' business, the configuration requirements, and other factors, many of which are beyond our control. Although our contracts are generally non-cancellable by the customer, at any given time, a significant percentage of our customers may be still in the process of deploying our applications, particularly during periods of rapid growth. Some customers may opt for phased roll outs, which further lengthens the time for us to see profits from such contracts.

Some of our customers may demand more configuration and integration services, which increase our upfront investment in sales and deployment efforts. Additionally, customers may require increased compliance and initial support costs during the onboarding process. As a result of these factors, we must devote a significant amount of sales support and professional services resources to individual customers, increasing the cost and time required to complete sales. The increased costs associated with completing sales and the implementation process for these customers could have a material adverse effect on our business, financial condition, and results of operations.

If our customers are not satisfied with the implementation and professional services provided by us or our partners, it could have a material adverse effect on our business, financial condition, and results of operations.

Our business depends on our ability to implement our solutions on a timely, accurate, and cost-efficient basis and to provide professional services demanded by our customers. Implementation and other professional services may be performed by our own staff, by a third party, or by a combination of the two. Although we perform the majority of our implementations and other professional services with our staff, in some instances we work with third parties to increase the breadth of capability and depth of capacity for delivery of certain services to our customers. In 2017 and 2018, we used third parties to assist us in approximately 20% of our implementation services. If a customer is not satisfied with the quality of work performed by us or a third party or with the implementation or type of professional services or applications delivered, or there are inaccuracies or errors in the work delivered by the third party, then we could incur additional costs to address the situation, the profitability of that work might be impaired, and the customer's dissatisfaction with such services could damage our ability to expand the number of applications subscribed to by that customer or we could be liable for loss or damage suffered by the customer as a result of such third party's actions or omissions, any of which could have a material adverse effect on our business, financial condition, and results of operations. If a new customer is dissatisfied with professional service, either performed by us or a third party, the customer could refuse to go -live, which could result in a delay in our collection of revenue or could result in a customer seeking repayment of its implementation fees or suing us for damages, or could force us to enforce the termination provisions in our customer contracts in order to collect revenue. In addition, negative publicity related to our customer relationships, regardless of its accuracy, may affect our ability to compete for new business with current and prospective customers, which could also have a material adverse effect on our business, financial condition, and results of operations.

The loss of a significant portion of our customers, or a failure to renew our subscription agreements with a significant portion of our customers, could have a material adverse effect on our business, financial condition, and results of operations.

The loss of a significant portion of our customers, or a failure of some of them to renew their contracts with us, could have a significant impact on our revenues, reputation, and our ability to obtain new customers. Our agreements with our Dayforce customers are typically structured as having an initial fixed term of between three and five years, with evergreen renewal thereafter; consequently, our customers may choose to terminate their agreements with

us at any time after the expiration of the initial term by providing us with the amount of written notice stipulated in the agreement. Moreover, acquisitions of our customers could lead to cancellation of our contracts with them or by the acquiring companies, thereby reducing the number of our existing and potential customers. Acquisitions of our partners involved in referring or reselling our solutions could also result in a reduction in the number of our current and potential customers, as our partners may no longer facilitate the adoption of our applications. A failure to retain a significant portion of our customers, or a failure to renew our subscription agreements with a significant portion of customers, could have a material adverse effect on our business, financial condition, and results of operations.

Our customers may fail to pay us in accordance with the terms of their agreements, which could have a material adverse effect on our business, financial condition, and results of operations.

Our agreements with our Dayforce customers are typically structured as having an initial fixed term of between three and five years, with evergreen renewal thereafter. If customers fail to pay us under the terms of our agreements with them, we may be unable to collect amounts due and may be required to incur additional costs enforcing the terms of our contracts, including litigation. The risk of such negative effects increases with the term length of our customer arrangements. Furthermore, some of our customers may seek bankruptcy protection or other similar relief and fail to pay amounts due to us, or to pay those amounts more slowly. If our customers fail to pay us in accordance with the terms of their agreements, it could have a material adverse effect on our business, financial condition, and results of operations.

We often provide service level commitments under our customer contracts. If we fail to meet these contractual commitments, we could be considered to have breached our contractual obligations, be obligated to provide credits, or refund prepaid amounts related to unused subscription services or face contract terminations, which could have a material adverse effect on our business, financial condition, and results of operations.

Our customer agreements typically provide service level commitments which are measured on a monthly or other periodic basis. If we are unable to meet the stated service level commitments or suffer extended periods of unavailability for our applications, we may be contractually obligated to provide these customers with service credits or refunds for prepaid amounts related to unused subscription services, or we could face contract claims for damages or terminations, which could have a material adverse effect on our business, financial condition, and results of operations. In addition, our revenues could be significantly affected if we suffer unscheduled downtime that exceeds the allowed downtimes under our agreements with our customers. Any extended service outages could have a material adverse effect on our business, financial condition, and results of operations.

Any failure to offer high-quality technical support services may adversely affect our relationships with our customers and could have a material adverse effect on our business, financial condition, and results of operations.

Once our applications are deployed, our customers depend on our support organization to resolve technical issues relating to our applications. We may be unable to respond quickly enough to accommodate short-term increases in customer demand for support services. We also may be unable to modify the format of our support services to compete with changes in support services provided by our competitors. Increased customer demand for these services, without corresponding revenues, could increase costs and have an adverse effect on our results of operations. In addition, our sales process is highly dependent on our applications and business reputation and on positive recommendations from our existing customers. Any failure to maintain high-quality technical support, or a market perception that we do not maintain high-quality support, could adversely affect our reputation and our ability to sell our applications to existing and prospective customers, which could have a material adverse effect on our business, financial condition, and results of operations.

Regulatory requirements placed on our software and services could impose increased costs on us, delay or prevent our introduction of new products and services, and impair the function or value of our existing products and services.

Our products and services may become subject to increasing regulatory requirements, and as these requirements proliferate, we may be required to change or adapt our products and services to comply. Changing regulatory requirements might render our products and services obsolete or might block us from developing new products and services. This might in turn impose additional costs upon us to comply or to further develop our products and services. It might also make introduction of new products and services more costly or more time-consuming than we currently anticipate and could even prevent introduction by us of new products or services or cause the continuation of our existing products or services to become more costly. Accordingly, such regulatory requirements could have a material adverse effect on our business, financial condition, and results of operations.

Customers depend on our products and services to enable them to comply with applicable laws, which requires us and our third party providers to constantly monitor applicable laws and to make applicable changes to our solutions. If our solutions have not been updated to enable the customer to comply with applicable laws or we fail to update our solutions on a timely basis, it could have a material adverse effect on our business, financial condition, and results of operations.

Customers rely on our solutions to enable them to comply with payroll, HR, and other applicable laws for which the solutions are intended for use. Changes in tax, benefit, and other laws and regulations could require us to make significant modifications to our products or to delay or to cease sales of certain products, which could result in reduced revenues or revenue growth and our incurring substantial expenses and write-offs. There are thousands of jurisdictions and multiple laws in some or all of such jurisdictions, which may be relevant to the solutions that we or our third party providers provide to our customers. Therefore, we and our third party providers must monitor all applicable laws and as such laws expand, evolve, or are amended in any way, and when new regulations or laws are implemented, we may be required to modify our solutions to enable our customers to comply, which requires an investment of our time and resources. Although we believe that our Cloud platform provides us with flexibility to release updates in response to these changes, we cannot be certain that we will be able to make the necessary changes to our solutions and release updates on a timely basis, or at all. In addition, we are reliant on our third party providers to modify the solutions that they provide to our customers as part of our solutions to comply with changes to such laws and regulations. The number of laws and regulations that we are required to monitor will increase as we expand the geographic region in which the solutions are offered. When a law changes, we must then test our solutions to meet the requirements necessary to enable our customers to

comply with the new law. If our solutions fail to enable a customer to comply with applicable laws, we could be subject to negative customer experiences, harm to our reputation or loss of customers, claims for any fines, penalties or other damages suffered by our customer, and other financial harm. Additionally, the costs associated with such monitoring implementation of changes are significant. If our solutions do not enable our customers to comply with applicable laws and regulations, it could have a material adverse effect on our business, financial condition, and results of operations.

Additionally, if we fail to make any changes to our products as described herein, which are required as a result of such changes to, or enactment of, any applicable laws in a timely fashion, we could be responsible for fines and penalties implemented by governmental and regulatory bodies. If we fail to provide contracted services, such as processing W-2 tax forms or remitting taxes in accordance with deadlines set by law, our customers could incur fines, penalties, interest, or other damages, which we could be responsible for paying. Our payment of fines, penalties, interest, or other damages as a result of our failure to provide compliance services prior to deadlines may have a material adverse effect on our business, financial condition, and results of operations.

We operate and are subject to tax in multiple jurisdictions. Audits, investigations, and tax proceedings could have a material adverse effect on our business, results of operations, and financial condition.

We are subject to income and non-income taxes in multiple jurisdictions. Income tax accounting often involves complex issues, and judgment is required in determining our worldwide provision for income taxes. We are regularly subject to tax audits in these jurisdictions. We regularly assess the likely outcomes of these audits to determine the appropriateness of our tax reserves as well as our future tax liabilities. In addition, the application of withholding tax, value added tax, goods and services tax, sales tax, and other non-income taxes is not always clear and we may be subject to audits relating to such withholding or non-income taxes. We believe that our tax positions are reasonable and our tax reserves are adequate to cover any potential liability. However, tax authorities in these jurisdictions may challenge our position. If any of these tax authorities successfully challenge our positions, we may be liable for additional tax, penalties, and interest in excess of any reserves established, which may have a significant impact on our results and operations and future cash flow.

Sales to customers outside the United States or with international operations expose us to risks inherent in international sales.

Over 30% of our revenue for each of the years ended December 31, 2018, 2017, and 2016, was obtained from companies headquartered outside of the United States, primarily from Canada, which accounted for 30.1%, 30.3%, 30.2% of our revenue in such periods, respectively. Our Ceridian Canada Ltd. (“Ceridian Canada”) operations provide certain HCM solutions for our Canadian customers. We are continuing to expand our international Cloud solutions into other countries. As such, our international operations are subject to risks that could adversely affect those operations or our business as a whole, including:

- costs of localizing products and services for foreign customers;
- difficulties in managing and staffing international operations;
- difficulties and increased expenses related to introducing corporate policies and controls in our international operations;
- difficulties with or inability to engage global partners;
- longer sales and payment cycles;
- the burdens of complying with a wide variety of foreign laws;
- compliance with applicable anti-bribery laws, including the Foreign Corrupt Practices Act;
- additional regulatory compliance requirements;
- exposure to legal jurisdictions that may not recognize or interpret customer contracts appropriately;
- potentially adverse tax consequences, including the complexities of foreign value added tax systems, the tax cost on the repatriation of earnings, and changes in tax rates;
- restrictions on transfer of funds, laws and business practices favoring local competitors;
- reduced or varied protection for intellectual property and other legal rights as compared to the United States;
- practical difficulties in enforcing intellectual property and other rights outside of the United States;
- exposure to local economic and political conditions; and
- changes in currency exchange rates, and in particular, changes in the currency exchange rate between U.S. dollars and Canadian dollars.

In addition, we anticipate that customers and potential customers may increasingly require and demand that a single vendor provide HCM solutions and services for their employees in a number of countries. If we are unable to provide the required services on a multinational basis, there may be a negative impact on our new orders and customer retention, which would negatively impact revenue and earnings. Although we have a multinational strategy, additional investment and efforts may be necessary to implement such strategy. Some of our business partners also have international operations and are subject to the risks described above. Even if we are able to successfully manage the risks of international operations, our business may be adversely affected if our business partners are not able to successfully manage these risks.

If we fail to manage our technical operations infrastructure, our existing customers may experience service outages, and our new customers may experience delays in the deployment of our applications, which could have a material adverse effect on our business, financial condition, and results of operations.

We have experienced significant growth in the number of users, transactions, and data that our operations infrastructure supports. We seek to

maintain sufficient excess capacity in our operations infrastructure to meet the needs of all of our customers. We also seek to maintain excess capacity to facilitate the rapid provision of new customer activations and the expansion of existing customer activations. In addition, we need to properly manage our technological operations infrastructure in order to support version control, changes in hardware and software parameters, and the evolution of our applications. However, the provision of new hosting infrastructure requires significant lead time. We have experienced, and may in the future experience, website disruptions, outages and other performance problems. These problems may be caused by a variety of factors, including infrastructure changes, human or software errors, viruses, security attacks, fraud, increased resource consumption from expansion or modification to our Dayforce code, spikes in customer usage, and denial of service issues. In some instances, we may not be able to identify the cause or causes of these performance problems within an acceptable period of time. If we do not accurately predict our infrastructure requirements, our existing customers may

experience service outages that may subject them to financial penalties, causing us to incur financial liabilities and customer losses, and our operations infrastructure may fail to keep pace with increased sales, causing new customers to experience delays as we seek to obtain additional capacity, which could have a material adverse effect on our business, financial condition, and results of operations.

Aging software infrastructure may lead to increased costs and disruptions in operations that could negatively impact our financial results.

We have risks associated with aging software infrastructure assets. The age of certain of our assets may result in a need for replacement, or higher level of maintenance costs. A higher level of expenses associated with our aging software infrastructure may have a material adverse effect on our business, financial condition, and results of operations.

Our growth depends in part on the success of our strategic relationships with third parties.

In order to grow our business, we anticipate that we will continue to depend on the continuation and expansion of relationships with third parties, such as implementation partners, third party sales channel partners, some of whom have exclusive relationships with us, and technology and content providers. Identifying partners and negotiating and documenting relationships with them requires significant time and resources. In addition, the third parties we partner with may not perform as expected under our agreements, and we may have disagreements or disputes with such third parties, which could negatively affect our brand and reputation.

Additionally, we rely on the expansion of our relationships with our third party partners as we grow our Cloud solutions. Our agreements with third parties are typically non-exclusive and do not prohibit them from working with our competitors. Our competitors may be effective in providing incentives to these same third parties to favor their products or services. In addition, acquisitions of our partners by our competitors could result in a reduction in the number of our current and potential customers, as our partners may no longer facilitate the adoption of our applications by potential customers after an acquisition by any of our competitors.

If we are unsuccessful in establishing or maintaining our relationships with third parties, our ability to compete in the marketplace or to grow our revenues could be impaired, which could have a material adverse effect on our business, financial condition, and results of operations. Even if we are successful, we cannot assure you that these relationships will result in increased customer usage of our applications or increased revenues.

If our current or future applications fail to perform properly, our reputation could be adversely affected, our market share could decline, and we could be subject to liability claims, which could have a material adverse effect on our business, financial condition, and results of operations.

Our applications are inherently complex and may contain material defects or errors. Any defects in functionality or that cause interruptions in the availability of our applications could result in:

- loss or delayed market acceptance and sales;
- breach of warranty or other contractual claims for damages incurred by customers;
- errors in application output and resulting fines or penalties;
- sales credits or refunds for prepaid amounts related to unused subscription services;
- loss of customers;
- diversion of development and customer service resources; and
- injury to our reputation;

any of which could have a material adverse effect on our business, financial condition, and results of operations. In addition, the costs incurred in correcting any material defects or errors might be substantial.

Because of the large amount of data that we collect and manage, it is possible that hardware failures or errors in our systems could result in data loss or corruption or cause the information that we collect to be incomplete or contain inaccuracies that our customers regard as significant. Furthermore, the availability or performance of our applications could be adversely affected by a number of factors, including customers' inability to access the Internet, the failure of our network or software systems, security breaches, or variability in user traffic for our services. We may be required to issue credits or refunds for prepaid amounts related to unused services or otherwise be liable to our customers for damages they may incur resulting from certain of these

events. Because of the nature of our business, our reputation could be harmed as a result of factors beyond our control. For example, because our customers access our applications through their Internet service providers, if a service provider fails to provide sufficient capacity to support our applications or otherwise experiences service outages, such failure could interrupt our customers' access to or experience with our applications, which could adversely affect our reputation or our customers' perception of our applications' reliability or otherwise have a material adverse effect on our business, financial condition, and results of operations.

Our insurance intended to cover liability claims may be inadequate or may not be available in the future on acceptable terms, or at all. In addition, our policy may not cover all claims made against us, and defending a suit, regardless of its merit, could be costly and divert management's attention.

We depend on our senior management team, and the loss of one or more key employees or an inability to attract and to retain highly skilled employees could have a material adverse effect on our business, financial condition, and results of operations.

Our success depends largely upon the continued services of our key executive officers. We also rely on our leadership team in the areas of research and development, marketing, sales, services, and general and administrative functions, and on mission-critical individual contributors in all such areas. From time to time, there may be changes in our executive management team resulting from the hiring or departure of executives, which could disrupt our business. We do not have employment agreements with our executive officers or other key personnel that require them to continue to work for us for any specified period, and, therefore, they could terminate their employment with us at any time. Additionally, we do not maintain key man insurance on any of our executive officers or key employees. The loss of one or more of our executive officers or key employees could have a material adverse effect on our business, financial condition, and results of operations.

To execute our growth plan, we must attract and retain highly qualified personnel. Competition for personnel is intense, including without limitation for individuals with high levels of experience in designing and developing software and Internet-related services and senior sales executives. We have, from time to time, experienced, and we expect to continue to experience, difficulty in hiring and retaining employees with appropriate qualifications. Many of the companies with which we compete for experienced personnel have greater resources than we have. If we hire employees from competitors or other companies, their former employers may attempt to assert that these employees have or that we have breached their legal obligations, resulting in a diversion of our time and resources. In addition, job candidates and existing employees often consider the value of the stock awards they receive in connection with their employment. If the perceived value of our stock awards declines, it may adversely affect our ability to recruit and to retain highly skilled employees. If we fail to attract new personnel or fail to retain and to motivate our current personnel, it could have a material adverse effect on our business, financial condition, and results of operations.

We have significant operations in the Republic of Mauritius. Changes in the laws and regulations in Mauritius or our non-compliance with applicable laws and regulations could have a material adverse effect on our business, financial condition, and results of operations.

Our Mauritius operations, which employ 685 employees as of December 31, 2018, are subject to the laws and regulations of the Republic of Mauritius. The continuance of these operations depends upon compliance with applicable Mauritius environmental, health, safety, labor, social security, pension, and other laws and regulations. Failure to comply with such laws and regulations could result in fines, penalties, or lawsuits. In addition, there is no assurance that we will be able to comply fully with applicable laws and regulations should there be any amendment to the existing regulatory regime or implementation of any new laws and regulations. Changes in the laws and regulations in Mauritius or our non-compliance with applicable laws and regulations could have a material adverse effect on our business, financial condition, and results of operations. Additionally, Mauritius lacks the infrastructure of countries in which we do business, such as the United States, Canada, and the United Kingdom. Any disruption to the electrical grid or catastrophic event in Mauritius could result in a longer response time in our ability to address the issue due to the remote geographic location of Mauritius, which could have a material adverse effect on our business, financial condition, and results of operations. Furthermore, our business and operations in Mauritius entail the procurement of licenses and permits from the relevant authorities. Difficulties or failure in obtaining the required permits, licenses, and certificates could result in our inability to continue our business in Mauritius in a manner consistent with past practice, which could have a material adverse effect on our business, financial condition, and results of operations.

We may acquire other companies or technologies, which could divert our management's attention, result in additional indebtedness or dilution to our stockholders, and otherwise disrupt our operations, which could have a material adverse effect on our business, financial condition, and results of operations.

We may in the future seek to acquire or to invest in businesses, applications or technologies that we believe could complement or expand our applications, enhance our technical capabilities, or otherwise offer growth opportunities. The pursuit of potential acquisitions may divert the attention of management and cause us to incur various expenses in identifying, investigating, and pursuing suitable acquisitions, whether or not they are consummated.

In addition, we have limited experience in acquiring other businesses. If we acquire additional businesses, we may not be able to integrate the acquired personnel, operations, and technologies successfully, or to effectively manage the combined business following the acquisition. We also may not achieve the anticipated benefits from the acquired business due to a number of factors, including the inability to integrate or to benefit from acquired technologies or services in a profitable manner, unanticipated costs or liabilities associated with the acquisition, difficulties and additional expenses associated with supporting legacy products and hosting infrastructure of the acquired business, difficulty converting the customers of the acquired business onto our applications and contract terms, and adverse effects to our existing business relationships with business partners and customer as a result of the acquisition.

If an acquired business fails to meet our expectations, it could have a material adverse effect on our business, financial condition, and results of operations. Acquisitions could also result in dilutive issuances of equity securities or the incurrence of debt, which could increase our interest payments.

In addition, a significant portion of the purchase price of companies we acquire may be allocated to acquired goodwill and other intangible assets,

which must be assessed for impairment at least annually. In the event that the book value of goodwill or other intangible assets is impaired, any such impairment would be charged to earnings in the period of impairment. In the future, if our acquisitions do not yield expected returns, we may be required to record charges based on this impairment assessment process, which could have a material adverse effect on our financial condition and results of operations.

Adverse economic conditions may have a material adverse effect on our business, financial condition, and results of operations.

Our business depends on the overall demand for HCM solutions and on the economic health of our current and prospective customers. Past financial recessions have resulted in a significant weakening of the economy in North America and globally, the reduction in employment levels, the reduction in prevailing interest rates, more limited availability of credit, a reduction in business confidence and activity, and other difficulties that may affect one or more of the industries to which we sell our applications. In addition, there has been pressure to reduce government spending in the United States, and any tax increases and spending cuts at the federal level might reduce demand for our applications from organizations that receive funding from the U.S. government and could negatively affect the U.S. economy, which could further reduce demand for our applications. Any of these events could have a material adverse effect on our business, financial condition, and results of operations. In addition, there can be no assurance that spending levels for HCM solutions will increase following any recovery.

Catastrophic events may disrupt our business.

Our data centers are located in Atlanta, Georgia; Fountain Valley, California; Louisville, Kentucky; St. Petersburg, Florida; and Winnipeg, Canada. Additionally, our data centers hosted by third parties and our corporate offices are located in Boston, Massachusetts; Melbourne, Australia; Minneapolis, Minnesota; Redhill, England; Santa Clara, California; Sydney, Australia; Toronto, Canada; Vancouver, Canada; and Woking, England. Any location in any part of the world is susceptible to natural disasters or other risks beyond our control and its third party contractors that could impact operations. For example, the west coast of the United States contains active earthquake zones, the Midwest is subject to periodic tornadoes, and the east coast is subject to seasonal hurricanes and snowstorms. Additionally, we employ a substantial number of employees located in the Republic of Mauritius, which is subject to seasonal hurricanes, and the geographic remoteness of the location may create additional delays in recovery from any catastrophic event. Additionally, we rely on our network and third party infrastructure and enterprise applications, internal technology systems, and our website for our development, marketing, operational support, hosted services and sales activities. In the event of a major earthquake, tornado, hurricane, or catastrophic event, such as fire, power loss, telecommunications failure, cyber-attack, war, or terrorist attack in any of our domestic or international locations, we may be unable to continue our operations and may endure system interruptions, reputational harm, delays in our application development, lengthy interruptions in our services, breaches of data security and loss of critical data, all of which could have a material adverse effect on our business, financial condition, and results of operations.

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

Our success and ability to compete depend in part upon our intellectual property. We primarily rely on copyright, trade secret, and trademark laws; trade secret protection; and confidentiality or license agreements with our employees, customers, partners and others to protect our intellectual property rights. However, the steps we take to protect our intellectual property rights may be ineffective or inadequate.

In order to protect our intellectual property rights, we may be required to spend significant resources to monitor and to protect these rights. Litigation brought to protect and to enforce our intellectual property rights could be costly, time-consuming, and distracting to management, with no guarantee of success, and could result in the impairment or loss of portions of our intellectual property. Furthermore, our efforts to enforce our intellectual property rights may be met with defenses, counterclaims, and countersuits attacking the validity and enforceability of our intellectual property rights. Our failure to secure, to protect, and to enforce our intellectual property rights could have a material adverse effect on our business, financial condition, and results of operations.

Litigation and regulatory investigations aimed at us or resulting from actions of our predecessor may result in significant financial losses and harm to our reputation.

We face risk of litigation, regulatory investigations, and similar actions in the ordinary course of our business, including the risk of lawsuits and other legal actions relating to breaches of contractual obligations or tortious claims from customers or other third parties, fines, penalties, interest, or other damages as a result of erroneous transactions, breach of data privacy laws, or lawsuits and legal actions related to our predecessors. Any such action may include claims for substantial or unspecified compensatory damages, as well as civil, regulatory, or criminal proceedings against our directors, officers, or employees; and the probability and amount of liability, if any, may remain unknown for significant periods of time. We may be also subject to various regulatory inquiries, such as information requests, and book and records examinations, from regulators and other authorities in the geographical markets in which we operate. A substantial liability arising from a lawsuit judgment or settlement or a significant regulatory action against us or a disruption in our business arising from adverse adjudications in proceedings against our directors, officers, or employees could have a material adverse effect on our business, financial condition, and results or operations.

Additionally, we are subject to claims and investigations as a result of our predecessor, Control Data Corporation (“CDC”), Ceridian Corporation, and other former entities for whom we are successor-in-interest with respect to assumed liabilities. For example, in September 1989, CDC became party to an environmental matters agreement with Seagate Technology plc (“Seagate”) related to groundwater contamination on a parcel of real estate in Omaha, Nebraska sold by CDC to Seagate. In February 1988, CDC entered into an arrangement with Northern Engraving Corporation and the Minnesota Pollution Control Agency in relation to groundwater contamination at a site in Spring Grove, Minnesota. In August 2017, we received notice of a mesothelioma claim related to CDC. Although we are fully reserved for the groundwater contamination liabilities, we cannot at this time accurately assess the merits of these claims, and we cannot be certain if additional liabilities related to such predecessor companies will surface. Moreover, even if we ultimately prevail in or settle any litigation, regulatory action, or investigation, we could suffer significant harm to our reputation, which could materially affect our ability to attract new customers, to retain current customers, and to recruit and to retain employees, which could have a material adverse effect on our business, financial condition, and results of operations.

We may be sued by third parties for alleged infringement of their proprietary rights.

There is considerable patent and other intellectual property development activity in our industry. Our success depends upon our not infringing upon the intellectual property rights of others. Our competitors, as well as a number of other entities and individuals, including parties commonly referred to as "patent trolls," may own or claim to own intellectual property relating to our industry. From time to time, third parties may claim that we are infringing upon their intellectual property rights, and we may be found to be infringing upon such rights. In the future, others may claim that our applications and underlying technology infringe or violate their intellectual property rights. However, we may be unaware of the intellectual property rights that others may claim cover some or all of our technology or services. Any claims or litigation could cause us to incur significant expenses and, if successfully asserted against us, could require that we pay substantial damages or ongoing royalty payments, prevent us from offering our services, or require that we comply with other unfavorable terms. We contractually agree to indemnify our customers with respect to claims of intellectual property infringement relating to our products, and may also be obligated to indemnify our customers or business partners or to pay substantial settlement costs, including royalty payments, in connection with any such claim or litigation, and to obtain licenses, to modify applications, or to refund fees, which could be costly. Even if we were to prevail in such a dispute, any litigation regarding our intellectual property could be costly and time-consuming and divert the attention of our management and key personnel from our business operations. Any such events could have a material adverse effect on our business, financial condition, and results of operations.

Some of our applications utilize open source software, and any failure to comply with the terms of one or more of these open source licenses could have a material adverse effect on our business, financial condition, and results of operations.

Some of our applications include software covered by open source licenses, which may include, by way of example, GNU General Public License and the Apache License. The terms of various open source licenses have not been interpreted by U.S. courts, and there is a risk that such licenses could be construed in a manner that imposes unanticipated conditions or restrictions on our ability to market our applications. By the terms of certain open source licenses, we could be required to release the source code of our proprietary software and to make our proprietary software available under open source licenses if we combine our proprietary software with open source software in a certain manner. In the event that portions of our proprietary software are determined to be subject to an open source license, we could be required to publicly release the affected portions of our source code, to re-engineer all or a portion of our technologies, or otherwise to be limited in the licensing of our technologies, each of which could reduce or eliminate the value of our technologies and services. In addition to risks related to license requirements, usage of open source software can lead to greater risks than use of third party commercial software, as open source licensors generally do not provide warranties or controls on the origin of the software. Many of the risks associated with usage of open source software cannot be eliminated and could have a material adverse effect on our business, financial condition, and results of operations.

We employ third party software for use in or with both our applications and our internal operations, and the inability to maintain these licenses or errors in the software we license could result in increased costs, or reduced service levels, which could have a material adverse effect on our business, financial condition, and results of operations.

Our applications, including Dayforce, incorporate certain third party software obtained under licenses from other companies. Additionally, we are reliant on third party software licenses for our internal operational applications. We anticipate that we will continue to rely on such third party software and development tools from third parties in the future. Although we believe that there are commercially reasonable alternatives to the third party software we currently license, this may not always be the case, or it may be difficult or costly to replace, and our failure to migrate off end of life software may significantly impact our customer's ability to operate. In addition, integration of the software used in our applications and in our operations with new third party software may require significant work and require substantial investment of our time and resources. Also, our use of additional or alternative third party software would require us to enter into license agreements with third parties.

Additionally, if the quality of our third party software declines, the overall quality of our products may be negatively impacted. To the extent that our applications depend upon the successful operation of third party software in conjunction with our software, any undetected errors or defects in this third party software could prevent the deployment or impair the functionality of our applications, delay new application introductions, and result in a failure of our applications, which could have a material adverse effect on our business, financial condition, and results of operations.

Changes in laws and regulations related to the Internet or changes in the Internet infrastructure itself may diminish the demand for our applications, and could have a material adverse effect on our business, financial condition, and results of operations.

The future success of our business depends upon the continued use of the Internet as a primary medium for commerce, communication, and business applications. Federal, state or foreign government bodies or agencies have in the past adopted, and may in the future adopt, laws or regulations affecting the use of the Internet as a commercial medium. Changes in these laws or regulations could require us to modify our applications in order to comply with these changes. In addition, government agencies or private organizations may begin to impose taxes, fees, or other charges for accessing the Internet or commerce conducted via the Internet. These laws or charges could limit the growth of Internet-related commerce or communications generally, resulting in reductions in the demand for Internet-based applications such as ours, any of which could have a material adverse effect on our business, financial condition, and results of operations.

In addition, the use of the Internet as a business tool could be adversely affected due to delays in the development or adoption of new standards and protocols to handle increased demands of Internet activity, security, reliability, cost, ease of use, accessibility, and quality of service. The performance of the Internet and its acceptance as a business tool has been adversely affected by "viruses," "worms," and similar malicious programs, and the Internet has experienced a variety of outages and other delays as a result of damage to portions of its infrastructure. If the use of the Internet is adversely affected by these issues, demand for our applications could suffer, which could have a material adverse effect on our business, financial condition, and results of operations.

We may pay employees and taxing authorities amounts due for a payroll period before a customer's electronic funds transfers are settled with finality to our trust account, or make erroneous payments to employees, taxing authorities, or other entities. If customer payments are rejected by banking institutions or otherwise fail to clear into our trust accounts, or erroneous payments are not quickly resolved, we may require additional sources of short-term liquidity which could have a material adverse effect on our business, financial condition, and results of operations.

Our payroll processing business involves the movement of significant funds from the account of a customer to employees and relevant taxing authorities. We debit a customer's account prior to any disbursement on its behalf. Under certain circumstances, funds previously credited to our trust account could be reversed after our payment of amounts due to employees and taxing and other regulatory authorities. There is, therefore, a risk that the employer's funds will be insufficient to cover the amounts we have already paid on its behalf. While such funding shortage or erroneous payments and accompanying financial exposure has only occurred in limited instances in the past, should customers default on their payment obligations in the future or erroneous payment recovery be unsuccessful, we might be required to advance substantial amounts of funds to cover such obligations. In such an event, we may be required to seek additional sources of short-term liquidity, which may not be available on reasonable terms, which could have a material adverse effect on our business, financial condition, and results of operations. Further, should a customer whose funds are reversed subsequently have financial difficulty, collection of the funds advanced by us on its behalf may be difficult.

Customer funds that we hold in trust are subject to market, interest rate, credit, and liquidity risks. The loss of these funds could have a material adverse effect on our business, financial condition, and results of operations.

We invest funds held in trust for our customers in liquid, investment-grade marketable securities, money market securities, and other cash equivalents. Nevertheless, our customer fund assets are subject to general market, interest rate, credit, and liquidity risks. These risks may be exacerbated, individually or in unison, during periods of unusual financial market volatility. In the event of a global financial crisis, such as that experienced in 2008, we could be faced with a severe constriction of the availability of liquidity, which could impact our ability to fund payrolls. Any loss of or inability to access customer funds could have an adverse impact on our cash position and results of operations and could require us to obtain additional sources of liquidity, and could have a material adverse effect on our business, financial condition, and results of operations.

If we are required to collect sales and use taxes in additional jurisdictions, we might be subject to liability for past sales, and our future sales may decrease. Adverse tax laws or regulations could be enacted or existing laws could be applied to us or our customers, which could increase the costs of our services and otherwise have a material adverse effect on our business, financial condition, and results of operations.

The application of federal, state, and local tax laws to services provided electronically is evolving. New income, sales, use, or other tax laws, statutes, rules, regulations, or ordinances could be enacted at any time (possibly with retroactive effect), and could be applied solely or disproportionately to services provided over the Internet. These enactments could adversely affect our sales activity due to the inherent cost increase the taxes would represent and ultimately have a material adverse effect on our results of operations and cash flows.

In addition, existing tax laws, statutes, rules, regulations, or ordinances could be interpreted, changed, modified, or applied adversely to us (possibly with retroactive effect), which could require us or our customers to pay additional tax amounts, as well as require us or our customers to pay fines or penalties and interest for past amounts.

For example, we might lose sales or incur significant expenses if states successfully impose broader guidelines on state sales and use taxes. A successful assertion by one or more states requiring us to collect sales or other taxes on the licensing of our software or provision of our services could result in substantial tax liabilities for past transactions and otherwise harm our business. Each state has different rules and regulations governing sales and use taxes, and these rules and regulations are subject to varying interpretations that change over time. We review these rules and regulations periodically and, when we believe we are subject to sales and use taxes in a particular state, we may voluntarily engage state tax authorities in order to determine how to comply with that state's rules and regulations. There is no guarantee that we will not be subject to sales and use taxes or related penalties for past sales in states where we currently believe no such taxes are required.

Vendors of services, like us, are typically held responsible by taxing authorities for the collection and payment of any applicable sales and similar taxes. If one or more taxing authorities determines that taxes should have, but have not, been paid with respect to our services, we might be liable for past taxes in addition to taxes going forward. Liability for past taxes might also include substantial interest and penalty charges. Our customers are typically wholly responsible for applicable sales and similar taxes. Nevertheless, customers might be reluctant to pay back taxes and might refuse responsibility for interest or penalties associated with those taxes. If we are required to collect and to pay back taxes and the associated interest and penalties, and if our customers fail or refuse to reimburse us for all or a portion of these amounts, we will incur unplanned expenses that may be substantial. Moreover, imposition of such taxes on us going forward will effectively increase the cost of our software and services to our customers and might adversely affect our ability to retain existing customers or to gain new customers in the areas in which such taxes are imposed.

We have underfunded pension plan liabilities. We will require current and future operating cash flow to fund these shortfalls. We have no assurance that we will generate sufficient cash flow to satisfy these obligations.

We maintain defined benefit pension plans covering employees who meet age and service requirements. While our U.S. pension plans have been closed and frozen, our net pension liability and cost is materially affected by the discount rate used to measure pension obligations, the longevity and

actuarial profile of our plan participants, the level of plan assets available to fund those obligations, and the actual and expected long-term rate of return on plan assets. Significant changes in investment performance or a change in the portfolio mix of invested assets can result in corresponding increases and decreases in the valuation of plan assets, particularly equity securities, or in a change in the expected rate of return on plan assets. Assets available to fund the pension and other postemployment benefit obligations of our plans, as of December 31, 2018, were approximately $381.6 million, or approximately $162.6 million less than the measured pension and post-retirement benefit obligation on a GAAP basis. In addition, any changes in the discount rate could result in a significant increase or reduction in the valuation of pension obligations, affecting the reported funded status of our pension plans as well as the net periodic pension cost in the following years. Similarly, changes in the expected return on plan assets can result in significant changes in the net periodic pension cost in the following years.

Our failure to maintain effective internal control over financial reporting in accordance with Section 404 of the Sarbanes-Oxley Act could have a material adverse effect on our business, financial condition, and results of operations.

We are required, pursuant to Section 404 of the Sarbanes-Oxley Act of 2002, as amended, to furnish a report by management on, among other things, the effectiveness of our internal control over financial reporting for the first fiscal year beginning after the effective date of our IPO and in each year thereafter. Our auditors will also need to attest to the effectiveness of our internal control over financial reporting in the future to the extent we are no longer an emerging growth company, as defined by the JOBS Act, and are not a smaller reporting company. In 2017, we identified a material weakness related to our assessment of valuation allowance and classification of deferred tax liabilities associated with intangible assets for 2016 and prior periods. We remediated the material weakness and did not have a material weakness in connection with the 2017 audit; however, we cannot guarantee that we will not have additional material weaknesses in the future. If we are unable to maintain adequate internal control over financial reporting or if we identify additional material weaknesses in our internal control over financial reporting, we may be unable to report our financial information accurately on a timely basis, may suffer adverse regulatory consequences or violations of applicable stock exchange listing rules, may breach the covenants under our credit facilities, and incur additional costs. There could also be a negative reaction in the financial markets due to a loss of investor confidence in us and the reliability of our financial statements, which could have a material adverse effect on our business, financial condition, and results of operations.

We have and will continue to incur increased costs and obligations as a result of being a public company.

As a publicly traded company, we have incurred and will continue to incur additional legal, accounting and other expenses that we were not required to incur in the past, and will incur additional expenses after we cease to be an emerging growth company (to the extent that we take advantage of certain exceptions from reporting requirements that are available under the JOBS Act as an emerging growth company). We are required to file with the SEC annual and quarterly information and other reports that are specified in Section 13 of the Exchange Act. We also are subject to other reporting and corporate governance requirements, including the requirements of the New York Stock Exchange (the “NYSE”), the Toronto Stock Exchange (the “TSX”), and certain provisions of the Sarbanes-Oxley Act, and the regulations promulgated thereunder, which will impose additional compliance obligations upon us. Among other things, as a public company:

- we prepare and distribute periodic public reports and other stockholder communications in compliance with our obligations under the federal securities laws and applicable stock exchange rules;
- the roles and duties of our Board and committees of the Board are expanded;

- we comply with more comprehensive financial reporting and disclosure compliance functions;
- we manage enhanced investor relations function; and
- we involve and retain to a greater degree outside counsel and accountants in the activities listed above.

These changes require a commitment of additional resources, and many of our competitors already comply with these obligations. We may not be successful in implementing these requirements, and the commitment of resources required for implementing them could have a material adverse effect on our business, financial condition, and results of operations.

The changes necessitated by becoming a public company require a significant commitment of resources and management oversight that has increased and may continue to increase our costs and could place a strain on our systems and resources. As a result, our management’s attention might be diverted from other business concerns. If we are unable to offset these costs through other savings, then it could have a material adverse effect on our business, financial condition, and results of operations.

We are an “emerging growth company” and have elected and may elect to continue to comply with certain of the reduced reporting requirements applicable to emerging growth companies, which could make our common stock less attractive to investors.

We are an emerging growth company, and we may take advantage of certain exemptions from various reporting requirements that are applicable to other public companies that are not emerging growth companies, including, but not limited to: exemption from compliance with the auditor attestation requirements of Section 404 of Sarbanes-Oxley Act, reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements, and exemptions from the requirements of holding a nonbinding advisory vote on executive compensation, and stockholder approval of any golden parachute payments not previously approved. In addition, even if we comply with the greater obligations of public companies that are not emerging growth companies, we may avail ourselves of the reduced requirements applicable to emerging growth companies from time to time in the future. We cannot predict if investors will find our common stock less attractive if we choose to continue to rely on these exemptions. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock and our stock price may be more volatile.

We will remain an emerging growth company until December 31, 2023, or until the earliest of (i) the last day of the first fiscal year in which our annual gross revenue exceeds $1.07 billion, (ii) the date that we become a “large accelerated filer” as defined in Rule 12b-2 under the Exchange Act, which would occur if the market value of our common stock that is held by non-affiliates exceeds $700.0 million as of the last business day of our most recently completed

second fiscal quarter, or (iii) the date on which we have issued more than $1.0 billion in non-convertible debt during the preceding three-year period, whether or not issued in a registered offering.

We may not be able to utilize a significant portion of our net operating loss or research tax credit carryforwards, which could have a material adverse effect on our financial condition and results of operations.

As of December 31, 2018, we had federal and state net operating loss carryforwards due to prior period losses, which, if not utilized, will begin to expire in 2031 and 2019 for federal and state purposes, respectively. These net operating loss carryforwards could expire unused and be unavailable to offset future income tax liabilities, which could have a material adverse effect on our financial condition and results of operations.

In addition, under Section 382 of the Internal Revenue Code of 1986, as amended (the "Code"), our ability to utilize net operating loss carryforwards or other tax attributes in any taxable year may be limited if we experience an "ownership change." A Section 382 "ownership change" generally occurs if one or more stockholders or groups of stockholders who own at least 5% of our stock increase their ownership by more than 50 percentage points over their lowest ownership percentage within a rolling three-year period. Similar rules may apply under state tax laws. Future issuances of our stock could cause an "ownership change." It is possible that an ownership change, or any future ownership change, could have a material effect on the use of our net operating loss carryforwards or other tax attributes, which could have a material adverse effect on our results of operations and profitability.

Changes in generally accepted accounting principles in the United States could have a material adverse effect on our previously reported results of operations.

Generally accepted accounting principles in the United States are subject to interpretation by the Financial Accounting Standards Board (the "FASB"), the SEC, and various bodies formed to promulgate and to interpret appropriate accounting principles. A change in these principles or interpretations could have a significant effect on our previously reported results of operations and could affect the reporting of transactions completed before the announcement of a change.

In May 2014, the FASB issued new revenue recognition guidance under Accounting Standards Update ("ASU") No. 2014-09, "Revenue from Contracts with Customers," which is effective for our interim and annual periods beginning after December 31, 2017. Under this new guidance, revenue is recognized when promised goods or services are transferred to customers in an amount that reflects the consideration that is expected to be received for those goods or services. The new guidance also requires additional disclosure about the nature, amount, timing, and uncertainty of revenue that is recognized. In order to be able to comply with the requirements of ASU 2014-09 beginning in the first quarter of 2019, we need to update and to enhance our internal accounting systems, processes, and our internal controls over financial reporting. This has required, and will continue to require, additional investments by us, and may require incremental resources and system configurations that could increase our operating costs in future periods. If we are not able to properly implement ASU 2014-09 in a timely manner, the revenue that we recognize and the related disclosures that we provide under ASU 2014-09 may not be complete or accurate, and we could fail to meet our financial reporting obligations in a timely manner. We have completed our evaluation and implementation plan for adoption of this new guidance, and will be adopting the new standard effective first quarter of 2019.

Risks Related to Our Indebtedness

We are a holding company and rely on dividends, distributions, and other payments, advances, and transfers of funds from our subsidiaries to meet our obligations.

We are a holding company that does not conduct any business operations of our own. As a result, we are largely dependent upon cash transfers in the form of intercompany loans and receivables from our subsidiaries to meet our obligations. The deterioration of the earnings from, or other available assets of, our subsidiaries for any reason also could limit or impair their ability to pay dividends or other distributions to us.

Our outstanding indebtedness could have a material adverse effect on our financial condition and our ability to operate our business, and we may not be able to generate sufficient cash flows to meet our debt service obligations.

Our outstanding indebtedness as of December 31, 2018 consisted of (i) a Senior Term Loan in the original principal amount of $680.0 million and (ii) a $300.0 million committed Revolving Facility. The Senior Credit Facilities are secured substantially by all of our assets. The Senior Term Loan has a maturity date of April 30, 2025, and the Revolving Facility has a maturity date of April 30, 2023. As of December 31, 2018, we had $678.3 million outstanding principal under our Senior Term Loan and no principal outstanding under our Revolving Facility.

Our outstanding indebtedness and any additional indebtedness we incur may have important consequences for us, including, without limitation, that:

- we may be required to use a substantial portion of our cash flow to pay the principal of and interest on our indebtedness;
- our indebtedness and leverage may increase our vulnerability to adverse changes in general economic and industry conditions, as well as to competitive pressures;
- our ability to obtain additional financing for working capital, capital expenditures, acquisitions and for general corporate and other purposes may be limited;
- our indebtedness may expose us to the risk of increased interest rates because certain of our borrowings, including and most significantly our borrowings under our Senior Credit Facilities, are at variable rates of interest;
- our indebtedness may prevent us from taking advantage of business opportunities as they arise or successfully carrying out our plans to expand our business; and

- our flexibility in planning for, or reacting to, changes in our business and our industry may be limited.

Under the terms of the agreements governing our Senior Credit Facilities, we are required to comply with specified operating covenants and, under certain circumstances, a financial covenant applicable to the Revolving Facility, which may limit our ability to operate our business as we otherwise might operate it. For example, the obligations under the Senior Credit Facilities may be accelerated upon the occurrence of an event of default, including, without limitation, payment defaults, cross-defaults to certain material indebtedness, covenant defaults, material inaccuracy of representations and warranties, bankruptcy events, material judgments, material defects with respect to guarantees and collateral, and change of control. If not cured, an event of default could result in any amounts outstanding, including any accrued interest and unpaid fees, becoming immediately due and payable, which would require us, among other things, to seek additional financing in the debt or equity markets, to refinance or restructure all or a portion of our indebtedness, to sell selected assets, and/or to reduce or to delay planned capital or operating expenditures. Such measures might not be sufficient to enable us to service our debt, and any such financing or refinancing might not be available on economically favorable terms or at all. If we are not able to generate sufficient cash flows to meet our debt service obligations or are forced to take additional measures to be able to service our indebtedness, it could have a material adverse effect on our business, financial condition, and results of operations.

Despite our substantial indebtedness, we and our subsidiaries may still be able to incur substantially more debt. This could further exacerbate the risks associated with our substantial leverage.

We may incur substantial additional indebtedness in the future. Although the agreements governing our Senior Credit Facilities contain restrictions on the incurrence of additional indebtedness, these restrictions are subject to a number of qualifications and exceptions, and the indebtedness we can incur in compliance with these restrictions could be substantial. For example, pursuant to incremental facilities under the Senior Credit Facilities, we may incur up to (i) an aggregate amount equal to the greater of (x) $125.0 million and (y) 100% of EBITDA (as defined in the agreements governing the Senior Credit Facilities) of additional secured or unsecured debt plus (ii) an unlimited additional amount of secured or unsecured debt, subject to compliance with certain leverage-based tests, as described in the agreements governing our Senior Credit Facilities. If we incur additional debt, the risks associated with our substantial leverage would increase.

Restrictive covenants in the agreements governing our Senior Credit Facilities may restrict our ability to pursue our business strategies.

The agreements governing our Senior Credit Facilities contain a number of restrictive covenants that impose significant operating and financial restrictions on us, and may limit our ability to engage in acts that may be in our long-term best interests. These include covenants restricting, among other things, our (and our subsidiaries') ability:

- to incur additional indebtedness or other contingent obligations;
- to grant liens;
- to enter into burdensome agreements with negative pledge clauses or restrictions on subsidiary distributions;
- to pay dividends or make other distributions in respect of equity;
- to make payments in respect of subordinated debt;
- to make investments, including acquisitions, loans, and advances;
- to consolidate, to merge, to liquidate, or to dissolve;
- to sell, to transfer, or to otherwise dispose of assets;
- to engage in transactions with affiliates;
- to materially alter the business that we conduct; and
- to amend or to otherwise change the terms of the documentation governing certain restricted debt.

The agreements governing Senior Credit Facilities contains a financial covenant applicable only to the Revolving Facility, which requires that we maintain a ratio of consolidated first lien debt to EBITDA (with certain adjustments as set forth in the agreements governing our Senior Credit Facilities) below a specified level on a quarterly basis. However, such requirement is applicable at the end of a fiscal quarter only if more than 35% of the Revolving Facility (with an exclusion for certain letters of credit) is drawn at the end of such fiscal quarter. Our ability to meet that financial ratio can be affected by events beyond our control, and we cannot assure you that we will be able to meet that ratio. The covenant did not apply as of December 31, 2018, but there can be no assurance that we will be in compliance with such covenant in the future. A breach of any covenant or restriction contained in the agreements governing our Senior Credit Facilities could result in a default under those agreements. If any such default occurs, a majority of the lenders under the Senior Credit Facilities (or, in the case of the financial covenant described above, a majority of the lenders under the Revolving Facility), may elect (after the expiration of any applicable notice or grace periods) to declare all outstanding borrowings, together with accrued and unpaid interest and other amounts payable thereunder, to be immediately due and payable. The lenders under the Senior Term Loan and Revolving Facility also have the right upon an event of default thereunder to terminate any commitments they have to provide further borrowings. Further, following an event of default under the agreements governing our Senior Credit Facilities, the administrative agent, on behalf of the secured parties under the Senior Credit Facilities, will have the right to proceed against the collateral granted to them to secure that debt. If the debt under the Senior Term Loan or Revolving Facility was to be accelerated, our

assets may not be sufficient to repay in full that debt or any other debt that may become due as a result of that acceleration.

In the future, we may be dependent upon our lenders for financing to execute our business strategy and to meet our liquidity needs. If our lenders are unable to fund borrowings under their credit commitments or we are unable to borrow, it could have a material adverse effect on our business, financial condition, and results of operations.

During periods of volatile credit markets, there is risk that lenders, even those with strong balance sheets and sound lending practices, could fail or refuse to honor their legal commitments and obligations under existing credit commitments, including but not limited to, extending credit up to the maximum amount permitted by the Revolving Facility. If our lenders are unable to fund borrowings under their revolving credit commitments or we are unable to borrow, it could be difficult to obtain sufficient funding to execute our business strategy or to meet our liquidity needs, which could have a material adverse effect on our business, financial condition, and results of operations.

Our debt may be downgraded, which could have a material adverse effect on our business, financial condition, and results of operations.

A reduction in the ratings that rating agencies assign to our short and long-term debt may negatively impact our access to the debt capital markets and increase our cost of borrowing, which could have a material adverse effect on our business, financial condition, and results of operations.

Volatility and weakness in bank and capital markets may adversely affect credit availability and related financing costs for us.

Banking and capital markets can experience periods of volatility and disruption. If the disruption in these markets is prolonged, our ability to refinance, and the related cost of refinancing, some or all of our debt could be adversely affected. Although we currently can access the bank and capital markets, there is no assurance that such markets will continue to be a reliable source of financing for us. These factors, including the tightening of credit markets, could adversely affect our ability to obtain cost-effective financing. Increased volatility and disruptions in the financial markets also could make it more difficult and more expensive for us to refinance outstanding indebtedness and to obtain financing. In addition, the adoption of new statutes and regulations, the implementation of recently enacted laws, or new interpretations or the enforcement of older laws and regulations applicable to the financial markets or the financial services industry could result in a reduction in the amount of available credit or an increase in the cost of credit. Disruptions in the financial markets can also adversely affect our lenders, insurers, customers, and other counterparties. Any of these results could have a material adverse effect on our business, financial condition, and results of operations.

The interest rates of our term loans are priced using a spread over LIBOR.

LIBOR, the London interbank offered rate, is the basic rate of interest used in lending between banks on the London interbank market and is widely used as a reference for setting the interest rate on loans globally. We typically use LIBOR as a reference rate in the term loans and revolving loans made under our credit facilities such that the interest due to our creditors pursuant to a term loan or revolving loan extended to us under our credit facilities is calculated using the LIBOR rate plus an applicable spread above LIBOR.

On July 27, 2017, the United Kingdom's Financial Conduct Authority, which regulates LIBOR, announced that it intends to phase out LIBOR by the end of 2021. It is unclear whether or not LIBOR will cease to exist at that time or if new methods of calculating LIBOR will be established such that it continues to exist after 2021. If LIBOR ceases to be available, we are entitled to negotiate with the administrative agent under our credit facilities to amend the governing credit agreement to establish a successor benchmark rate that is generally accepted by the syndicated loan market for loans denominated in U.S. Dollars. If lenders holding more than a majority of the loans and commitments under our credit facilities have not objected to the proposed successor benchmark rate within five business days following the date on which the related amendment is posted for review by the lenders, the amendment will be deemed to have been approved by the lenders and may become effective. At this time, due to a lack of consensus as to what rate or rates may become accepted alternatives to LIBOR, it is impossible to predict the effect of any such alternatives on our liquidity, interest expense, or the value of the term loans or revolving loans.

Risks Related to Ownership of Our Common Stock

The price of our common stock may be volatile and investors may lose all or part of their investment.

Securities markets worldwide have experienced in the past, and are likely to experience in the future, significant price and volume fluctuations. This market volatility, as well as general economic, market, or political conditions could reduce the market price of our common stock regardless of our results of operations. The trading price of our common stock is likely to be highly volatile and could be subject to wide price fluctuations in response to various factors, including, among other things, the risk factors described herein and other factors beyond our control. Factors affecting the trading price of our common stock could include:

- market conditions in the broader stock market;
- actual or anticipated variations in our quarterly results of operations;
- developments in our industry in general;
- variations in operating results of similar companies;
- introduction of new services by us, our competitors, or our customers;
- issuance of new, negative, or changed securities analysts' reports or recommendations or estimates;
- investor perceptions of us and the industries in which we or our customers operate;
- sales, or anticipated sales, of our stock, including sales by our officers, directors, and significant stockholders;

- additions or departures of key personnel;
- regulatory or political developments;
- the public's response to press releases or other public announcements by us or third parties, including our filings with the SEC;
- announcements, media reports or other public forum comments related to litigation, claims or reputational charges against us;
- guidance, if any, that we provide to the public, any changes in this guidance, or our failure to meet this guidance;
- the development and sustainability of an active trading market for our common stock;
- investor perceptions of the investment opportunity associated with our common stock relative to other investment alternatives;

- other events or factors, including those resulting from system failures and disruptions, earthquakes, hurricanes, war, acts of terrorism, other natural disasters or responses to these events;
- changes in accounting principles;
- share-based compensation expense under applicable accounting standards;
- litigation and governmental investigations; and
- changing economic conditions.

These and other factors may cause the market price and demand for shares of our common stock to fluctuate substantially, which may limit or prevent investors from readily selling their shares of common stock and may otherwise negatively affect the liquidity of our common stock. In addition, in the past, when the market price of a stock has been volatile, holders of that stock sometimes have instituted securities class action litigation against the company that issued the stock. Securities litigation against us, regardless of the merits or outcome, could result in substantial costs and divert the time and attention of our management from our business, which could have a material adverse effect on our business, financial condition, and results of operations.

Future sales of our common stock, or the perception in the public markets that these sales may occur, could cause the market price for our common stock to decline.

As of February 25, 2019, there were 140,514,889 shares of our common stock outstanding. Additionally, as of December 31, 2018, we also have 28,672,211 registered shares of common stock reserved for issuance under our equity incentive plans of which options to purchase 13,916,146 shares of common stock and 664,073 restricted stock units representing 14,580,219 shares of common stock are outstanding. We cannot predict the effect, if any, that market sales of shares of our common stock or the availability of shares of our common stock for sale will have on the market price of our common stock prevailing from time to time. Sales of substantial amounts of shares of our common stock in the public market, or the perception that those sales will occur, could cause the market price of our common stock to decline. Of the 139,453,710 shares of common stock outstanding, 96,441,093 shares are restricted securities within the meaning of Rule 144 under the Securities Act and subject to certain restrictions on resale. Restricted securities may be sold in the public market only if they are registered under the Securities Act, or are sold pursuant to an exemption from registration such as Rule 144 or Rule 701. We have granted customary demand and piggyback registration rights to the Sponsors and certain of our other stockholders party to the registration rights agreement with us. Should the Sponsors or any other stockholders further exercise their registration rights, the shares registered would no longer be restricted securities and would be freely tradable in the open market.

Cannae holds approximately 23.3% of our outstanding common stock as of February 25, 2019. On November 7, 2018, Cannae announced that one of its subsidiaries had entered into a three-year margin loan pursuant to which it could borrow up to $300.0 million. The margin loan is guaranteed by Cannae for a period of up to one year and is further secured by a pledge of 25.0 million shares of our common stock beneficially owned by Cannae. The loan requires that a certain loan to value ratio (based on the value of the shares of our common stock pledged to secure the loan) be maintained. In the event that the ratio is not maintained, the borrower must post additional cash collateral and/or elect to repay a portion of the loan. The loan also contains provisions that, subject to their terms, effectively require prepayment in the event of certain customary events of default, including Cannae's failure to comply with specified financial ratios or the triggering of a requirement of prepayment under any other material indebtedness. In the event that Cannae borrows under the margin loan and there is an event of default, if Cannae fails to pledge additional cash collateral and/or repay a portion of the loan when it is required to do so or if Cannae otherwise fails to comply with the respective terms of the margin loan and the lender accelerates payment of all amounts outstanding under the loan as a result of this non-compliance, then the lender could foreclose on the pledged shares and sell the shares of common stock in the open market, which could cause the market price of our common stock to decline. In addition, certain lenders under the margin loan may elect at any time to hedge their exposure to the shares of common stock in transactions that could directly or indirectly impact the price of our common stock.

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

Our third amended and restated certificate of incorporation and amended and restated bylaws provide that we will indemnify our directors and officers, in each case, to the fullest extent permitted by Delaware law. Pursuant to our charter, our directors will not be liable to the company or any stockholders for monetary damages for any breach of fiduciary duty, except (i) for acts that breach his or her duty of loyalty to the company or its stockholders, (ii) for acts or omissions without good faith or involving intentional misconduct or knowing violation of the law, (iii) pursuant to Section 174

of the Delaware General Corporation Law (the "DGCL") or (iv) for any transaction from which the director derived an improper personal benefit. The bylaws also require us, if so requested, to advance expenses that such director or officer incurred in defending or investigating a threatened or pending action, suit or proceeding, provided that such person will return any such advance if it is ultimately determined that such person is not entitled to indemnification by us. Any claims for indemnification by our directors and officers may reduce our available funds to satisfy successful third party claims against us and may reduce the amount of money available to us.

We have elected to take advantage of the "controlled company" exemption to the corporate governance rules for publicly-listed companies, which could make our common stock less attractive to some investors or otherwise harm our stock price.

Because we qualify as a "controlled company" under the corporate governance rules for publicly-listed companies, we are not required to have a majority of our Board be independent under the applicable rules of the NYSE, nor are we required to have a compensation committee or a corporate governance and nominating committee comprised entirely of independent directors. In light of our status as a controlled company, our Board has established a compensation committee, and a corporate governance and nominating committee that are not comprised solely of independent members. We do, however, have a majority of independent directors serving on our Board. Should the interests of our Sponsors differ from those of other stockholders, the other stockholders may not have the same protections afforded to stockholders of companies that are subject to all of the corporate governance rules for publicly-listed companies. Our status as a controlled company could make our common stock less attractive to some investors or otherwise harm our stock price.

We are party to a voting agreement with our Sponsors, which provides our Sponsors with rights to nominate a number of designees to our Board.

In connection with the IPO, we entered into a voting agreement with THL and Cannae. Pursuant to the voting agreement, for so long as THL and Cannae collectively hold 50% or more of the then outstanding voting power, then THL and Cannae shall have the power to designate a total of five directors to the Board. After THL and Cannae cease to collectively hold 50% or more of the then outstanding voting power, then each of THL and Cannae will be able to in their own right designate four directors, for so long as it holds at least 40% of the then outstanding voting power; three directors, for so long as it holds at least 30% of the then outstanding voting power; two directors, for so long as it holds at least 20% of the then outstanding voting power; and one director, for so long as it holds at least 10% of the then outstanding voting power. The voting agreement will terminate as to each Sponsor when the Sponsor is no longer entitled to designate a director to the Board, and will terminate upon the time when neither Sponsor is entitled to designate a director to the Board. Additionally, in the event a lender forecloses on any shares of our common stock pledged in connection with any loan, advances or extensions of credit that Cannae may enter into, it could have an effect on THL and Cannae's ability to designate directors under the voting agreement.

The voting agreement grants the Sponsors the right to determine the total number of directors during the term of the voting agreement. The Sponsors could use this provision to maintain a majority representation even if they collectively hold less than 50% of the outstanding voting power by decreasing the size of the Board. THL and Cannae may have a right to designate a majority of our Board under the present Board composition even if they collectively or individually hold less than 50% of our then outstanding voting power. Finally, pursuant to the voting agreement, for so long as each Sponsor is entitled to designate a director to the Board, the Sponsors will be required to vote all of their shares, and take all other necessary actions, to cause the Board to include the individuals designated as directors by the Sponsors (as applicable). As a result, it is possible that the interests of THL and Cannae may in some circumstances conflict with our interests and the interests of our other stockholders.

Because we do not intend to pay cash dividends in the foreseeable future, investors may not receive any return on investment unless they are able to sell common stock for a price greater than the purchase price.

We have never declared nor paid cash dividends on our capital stock. We currently intend to retain any future earnings to finance the operation and expansion of our business, and we do not expect to declare or to pay any dividends in the foreseeable future. Consequently, stockholders must rely on sales of their common stock after price appreciation, which may never occur, as the only way to realize any future gains on their investment. We do not intend in the foreseeable future to pay any dividends to holders of our common stock. We currently intend to retain our future earnings, if any, for the foreseeable future to repay indebtedness and to support our general corporate purposes. Therefore, you are not likely to receive any dividends on your common stock for the foreseeable future, and the success of an investment in shares of our common stock will depend upon any future appreciation in their value. There is no guarantee that shares of our common stock will appreciate in value or even maintain the price at which investors have purchased their shares. However, the payment of future dividends will be at the discretion of our Board, subject to applicable law, and will depend on, among other things, our earnings, financial condition, capital requirements, level of indebtedness, statutory and contractual restrictions that apply to the payment of dividends, and other considerations that our Board deems relevant. As a consequence of these limitations and restrictions, we may not be able to make the payment of dividends on our common stock.

Anti-takeover protections in our third amended and restated certificate of incorporation, our amended and restated bylaws or our contractual obligations may discourage or prevent a takeover of our company, even if an acquisition would be beneficial to our stockholders.

Provisions contained in our third amended and restated certificate of incorporation and amended and restated bylaws as well as provisions of the DGCL could delay or make it more difficult to remove incumbent directors or could impede a merger, takeover or other business combination involving us or the replacement of our management, or discourage a potential investor from making a tender offer for our common stock, which, under certain circumstances, could reduce the market value of our common stock, even if it would benefit our stockholders.

In addition, our Board has the authority to cause us to issue, without any further vote or action by the stockholders, up to 10,000,000 shares of preferred stock, par value $0.01 per share, in one or more series, to designate the number of shares constituting any series, and to fix the rights, preferences, privileges, and restrictions thereof, including dividend rights, voting rights, rights and terms of redemption, redemption price, or prices and liquidation preferences of such series. The issuance of shares of preferred stock or the adoption of a stockholder rights plan may have the effect of delaying, deferring or preventing a change in control of our company without further action by the stockholders, even where stockholders are offered a premium for their

shares.

In addition, under the agreements governing our Senior Credit Facilities, a change of control would cause us to be in default. In the event of a change of control default, the administrative agent under our Senior Credit Facilities would have the right (or, at the direction of lenders holding a majority of the loans and commitments under our Senior Credit Facilities, the obligation) to accelerate the outstanding loans and to terminate the commitments under our Senior Credit Facilities, and if so accelerated, we would be required to repay all of our outstanding obligations under our Senior Credit Facilities. In addition, from time to time we may enter into contracts that contain change of control provisions that limit the value of, or even terminate, the contract upon a change of control. These change of control provisions may discourage a takeover of our company, even if an acquisition would be beneficial to our stockholders.

Item 1B. Unresolved Staff Comments.

None.

Item 2. Properties.

Our corporate headquarters is located in Minneapolis, Minnesota, and consists of approximately 195,000 square feet of space.

We have major North American offices in: Atlanta, Georgia; Fountain Valley, California; Honolulu, Hawaii; Montreal, Canada; Ottawa, Canada; St. Petersburg, Florida; Toronto, Canada; and Winnipeg, Canada. In addition, we have offices in Ebene, Mauritius, and in Glasgow, Scotland. We lease all facilities, except for our St. Petersburg, Florida, facility, which we own. We believe that our current facilities meet our needs, and we are confident that we will be able to obtain additional space on commercially reasonable terms to accommodate future growth.

Item 3. Legal Proceedings.

From time to time, we may become involved in legal proceedings arising in the ordinary course of our business. We are not presently a party to any legal proceedings that, if determined adversely to us, we believe would individually or taken together have a material adverse effect on our business, financial condition or liquidity. Discussion of Legal Matters is incorporated by reference from Part II, Item 8, Note 15, “Commitments and Contingencies,” of this Form 10-K and should be considered an integral part of Part I, Item 3, “Legal Proceedings”.

Item 4. Mine Safety Disclosures.

Not applicable.

PART II

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

Market Information for Common Stock

Our common stock has traded on the NYSE and the TSX under the symbol “CDAY” since April 26, 2018. Prior to that time, there was no public market for our shares.

Dividend Policy

We do not currently intend to pay cash dividends on our common stock in the foreseeable future. However, in the future, subject to factors described below and our future liquidity and capitalization, we may change this policy and choose to pay dividends.

Stockholders

As of December 31, 2018, there were 175 stockholders of record of our common stock. The actual number of stockholders is considerably greater than this number of record holders, and includes stockholders who are beneficial owners but whose shares are held in street name by brokers and other nominees.

Recent Sales of Unregistered Securities

The following sets forth information regarding all unregistered securities sold by the Registrant in transactions that were exempt from the requirements of the Securities Act during the year ended December 31, 2018**:**

- On April 30, 2018, the Registrant sold 4,545,455 shares of common stock in a private placement to THL / Cannae Investors LLC, a price of $22.00 per share for an aggregate purchase price of $100,000,000.
- From January 1, 2018 to March 2, 2018, the Registrant granted options to one employee to purchase an aggregate of 175,000 shares of its common stock under the 2013 Ceridian HCM Holding Inc. Stock Incentive Plan (the “2013 Plan”) with an exercise price of $20.96 per share.

- From January 1, 2018 to March 30, 2018, the Registrant issued 12,174 shares of its common stock to a total of six employees or former employees upon the exercise of options previously granted under the 2013 Plan at strike prices ranging from $13.46 to $16.80 per share.
- From January 1, 2018 to March 9, 2018, the Registrant issued 76,190 shares of its common stock to two employees upon the vesting of restricted stock units granted under the 2013 Plan with a fair market value of $20.96 per share.

The shares of common stock in all of the transactions listed above were issued or will be issued in reliance upon Section 4(a)(2) of the Securities Act or Rule 701 promulgated under Section 3(b) of the Securities Act as the sale of such securities did not or will not involve a public offering. The recipients of the securities in each of these transactions represented their intentions to acquire the securities for investment only and not with a view to or for sale in connection with any distribution thereof, and appropriate legends were placed upon the stock certificates issued in these transactions. All recipients had adequate access, through their relationships with the Registrant, to information about the Registrant.

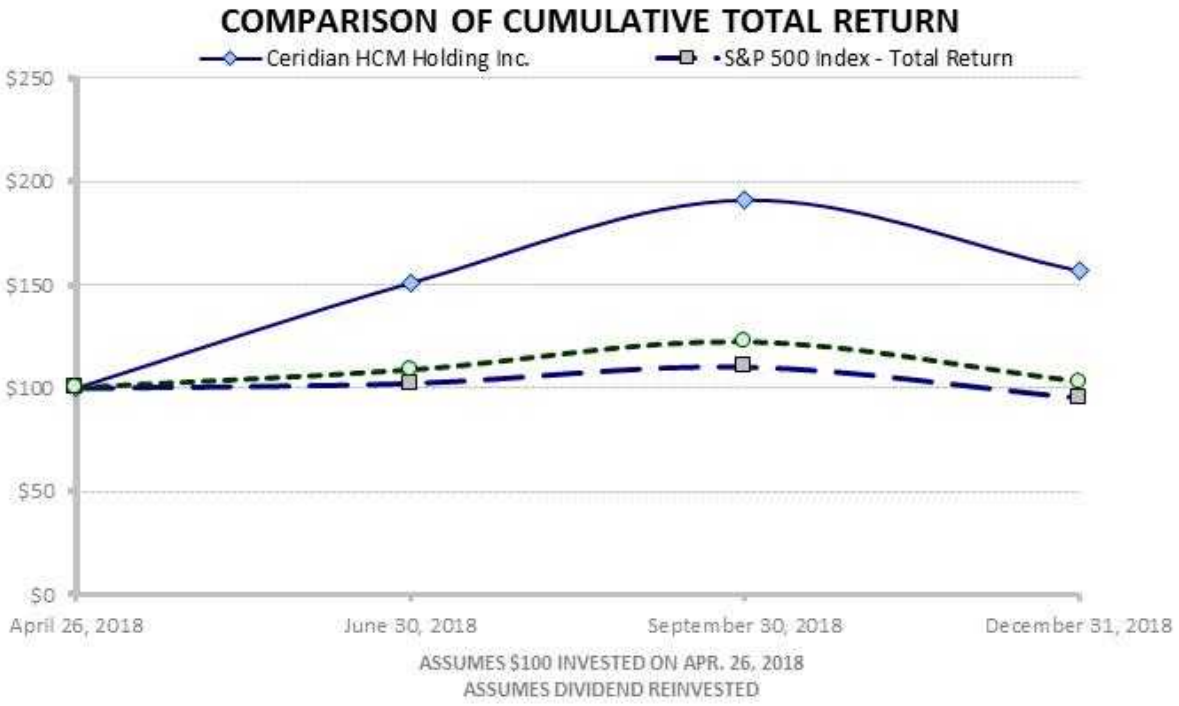
Issuer Purchases of Equity Securities

None.

Stock Performance Graph

The following shall not be deemed "filed" for purposes of Section 18 of the Exchange Act, or incorporated by reference into any of our other filings under the Exchange Act or the Securities Act, except to the extent we specifically incorporate it by reference into such filing.

The following graph compares the cumulative total shareholder returns on our common stock with the cumulative total return on the S&P 500 Index and the S&P 500 Application Software Index. The graph assumes $100 was invested in each, based on closing prices, from our initial public offering to the last trading day of each quarter for the period April 26, 2018 (the date our common stock began trading on the NYSE) through December 31, 2018. Stock price performance shown in the Stock Performance Graph for our common stock is historical and not necessarily indicative of future performance.



Item 6. Selected Financial Data.

The following tables set forth selected historical consolidated financial data for the periods as of the dates indicated. We derived the consolidated statements of operations data for the years ended December 31, 2018, 2017, and 2016, and the consolidated balance sheet data as of December 31, 2018, 2017, and 2016, from our audited consolidated financial statements included elsewhere in this report.

In the second quarter of 2018, contemporaneously with our IPO and concurrent private placement, we distributed our controlling financial interest in LifeWorks to our stockholders of record prior to the IPO on a pro rata basis in accordance with their pro rata interests in us. As a result, the financial

statements in this Form 10-K have been adjusted to reflect the LifeWorks Disposition and show the former LifeWorks business as discontinued operations for all periods presented.

Our historical results are not necessarily indicative of future results of operations. You should read the information set forth below together with "Management's Discussion and Analysis of Financial Condition and Results of Operations," and our consolidated financial statements and the related notes thereto included elsewhere in this report.

	Year Ended December 31,		
	2018	2017	2016
	(Dollars in millions, except share and per share amounts)		
Consolidated Statements of Operations Data:			
Total revenue	$ 746.4	$ 670.8	$ 623.4
Cost of revenue	425.8	407.5	396.4
Selling, general, and administrative expenses	270.7	223.0	225.3
Other (income) expense, net	(2.9)	7.3	12.9
Operating profit (loss)	52.8	33.0	(11.2)
Interest expense, net	83.2	87.1	87.4
Loss from continuing operations before income taxes	(30.4)	(54.1)	(98.6)
Income tax expense (benefit)	7.7	(49.6)	6.7
Loss from continuing operations	(38.1)	(4.5)	(105.3)
(Loss) income from discontinued operations	(25.8)	(6.0)	12.5
Net loss	(63.9)	(10.5)	(92.8)
Net (loss) income attributable to noncontrolling interest	(0.5)	(1.3)	0.1
Net loss attributable to Ceridian	$ (63.4)	$ (9.2)	$ (92.9)
Net loss per share attributable to Ceridian:			
Basic	$ (0.62)	$ (0.46)	$ (1.65)
Diluted	$ (0.62)	$ (0.46)	$ (1.65)
Weighted average shares outstanding:			
Basic	114,049,682	65,204,960	64,988,338
Diluted	114,049,682	65,204,960	64,988,338

	As of December 31,		
	2018	2017	2016
	(Dollars in millions)		
Consolidated Balance Sheet Data:			
Cash and equivalents	$ 217.8	$ 94.2	$ 120.8
Total assets	5,154.4	6,729.9	6,326.0
Long-term debt (1)	663.5	1,119.8	1,139.8
Total liabilities	3,622.4	5,600.9	5,320.1
Working capital	169.9	175.2	196.0
Total stockholders' equity	$ 1,532.0	$ 1,091.2	$ 967.2

(1) Excludes the current portion of our long-term debt of $6.8 million as of December 31, 2018, $0.0 million as of December 31, 2017, $2.3 million as of December 31, 2016.

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

The following is a discussion and analysis of our financial condition and results of operations as of, and for, the periods presented. You should read the following discussion and analysis of our financial condition and results of operations together with our consolidated financial statements and the related notes thereto included elsewhere in this report. This discussion and analysis contains forward-looking statements, including statements regarding industry outlook, our expectations for the future of our business, and our liquidity and capital resources as well as other non-historical statements. These statements are based on current expectations and are subject to numerous risks and uncertainties, including but not limited to the risks and uncertainties described in "Risk Factors" and "Forward-Looking Statements." Our actual results may differ materially from those contained in or implied by these forward-looking statements.

Overview

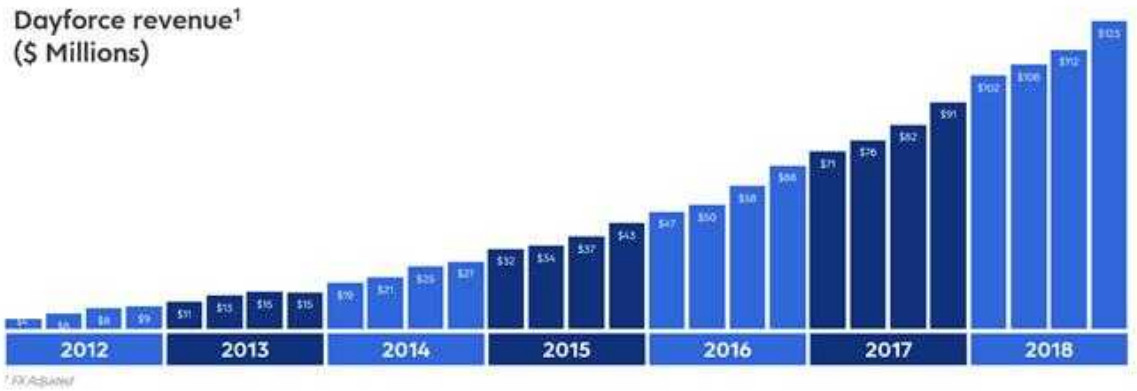
Ceridian is a global HCM software company. We categorize our solutions into two categories: Cloud and Bureau solutions. Cloud revenue is generated from HCM solutions that are delivered via two cloud offerings: Dayforce, our flagship cloud HCM platform, and Powerpay, a cloud HR and payroll solution for the Canadian small business market. We also continue to support customers using our Bureau solutions, which we generally stopped actively selling to new customers following the acquisition of Dayforce in 2012. We invest in maintenance and necessary updates to support our Bureau customers and continue to migrate them to Dayforce.

Dayforce provides HR, payroll, benefits, workforce management, and talent management functionality. Our platform is used by organizations,

regardless of industry or size, to optimize management of the entire employee lifecycle, including attracting, engaging, paying, deploying, and developing their people. Dayforce was built as a single application from the ground up that combines a modern, consumer-grade user experience with proprietary application architecture, including a single employee record and a rules engine spanning all areas of HCM. Dayforce provides continuous real-time calculations across all modules to enable, for example, payroll administrators access to data through the entire pay period, and managers access to real-time data to optimize work schedules. Our platform is designed to make work life better for our customers and their employees by improving HCM decision-making processes, streamlining workflows, exposing strategic organizational insights, and simplifying legislative compliance. The platform is designed to ease administrative work for both employees and managers, creating opportunities for companies to increase employee engagement. We are a founder-led organization, and our culture combines the agility and innovation of a start-up with a history of deep domain and operational expertise.

We sell Dayforce through our direct sales force on a subscription per-employee, per-month ("PEPM") basis. Our subscriptions are typically structured with an initial fixed term of between three and five years, with evergreen renewal thereafter. Dayforce can serve customers of all sizes, ranging from 100 to over 100,000 employees. We have rapidly grown the Dayforce platform to more than 3,700 live Dayforce customers, representing approximately 3.1 million active global users as of December 31, 2018. In 2018, we added over 715 net new live Dayforce customers. Our customers vary across industries, and no single customer constituted more than 1% of our revenues for the year ended December 31, 2018. We have experienced significant Cloud revenue growth at scale, particularly from Dayforce, which has grown at a compound annual growth rate ("CAGR") of more than 55% since 2012. Our annual Cloud revenue retention rate continues to exceed 95% due to our intense focus on solving complex problems and our superior customer experience.

The following table presents Dayforce revenue by quarter from 2012 to 2018.



Our Business Model

Our business model focuses on supporting the rapid growth of Dayforce and maximizing the lifetime value of our Dayforce customer relationships. Due to our subscription model, where we recognize subscription revenues ratably over the term of the subscription period, and high customer retention rates, we have a high level of visibility into our future revenues. The profitability of a customer to our business depends, in large part, on how long they have been a customer. Because in our current business model, PEPM subscription fees are not charged until the customer goes live, and because we incur costs in advance of receiving PEPM revenue that are not offset by our implementation fees, we estimate that it takes an average of 2.5 years before we are able to recover our implementation, customer acquisition, and other direct costs on a new Dayforce customer contract. As the proportion of Dayforce customers who have been live for two or more years increases, our related profitability increases. The following sets forth the number of live Dayforce customers at the end of each quarter presented:

	Three Months Ended											
	December 31, 2018	September 30, 2018	June 30,2018	March 31,2018	December 31, 2017	September 30, 2017	June 30,2017	March 31,2017	December 31, 2016	September 30, 2016	June 30,2016	March 31,2016
Live Dayforce customers	3,718	3,465	3,308	3,154	3,001	2,855	2,690	2,480	2,339	2,148	2,014	1,872
Dayforce customers live for two or more years	2,339	2,148	2,014	1,872	1,770	1,628	1,524	1,377	1,276	1,116	997	816
Proportion of Dayforce customers live for two or more years	63%	62%	61%	59%	59%	57%	57%	56%	55%	52%	50%	44%

Over the lifetime of the customer relationship, we have the opportunity to realize additional PEPM revenue, both as the customer grows or rolls out the Dayforce solution to additional employees, and also by selling additional functionality to existing customers that do not currently utilize our full platform. We also incur costs to manage the account, to retain customers, and to sell additional functionality. These costs, however, are significantly less than the costs initially incurred to acquire and to implement the customer.

How We Assess Our Performance

In assessing our performance, we consider a variety of performance indicators in addition to revenue and net income. Set forth below is a description of our key performance measures.

	Year Ended December 31,		
	2018	2017	2016
Live Dayforce customers	3,718	3,001	2,339
Annual Cloud revenue retention rate (a)	96.3%	97.0%	95.7%
Cloud annualized recurring revenue (ARR) (a) (Dollars in millions)	$ 506.2	$ 391.0	$ 289.7
Adjusted EBITDA (b) (Dollars in millions)	$ 157.1	$ 117.8	$ 85.5
Adjusted EBITDA margin	21.0%	17.6%	13.7%

(a) Annual Cloud revenue retention rate and Cloud annualized recurring revenue are calculated on an annual basis, and the disclosure reflects data as of the most recent fiscal year end. Please see below for further explanation.

(b) For a reconciliation of Adjusted EBITDA to operating profit, please see “Non-GAAP Measures.”

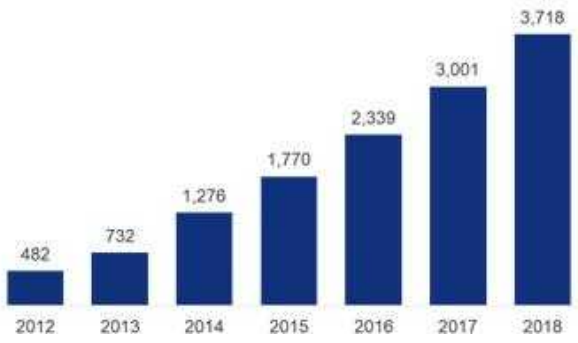
Live Dayforce Customers

We use the number of customers live on Dayforce as an indicator of future revenue and the overall performance of the business and to assess the performance of our implementation services. As shown in the following table, the number of customers live on Dayforce has increased from 482 as of December 31, 2012 to 3,718 as of December 31, 2018. In addition, we had over 450 net new Dayforce customers contracted, but not yet live on Dayforce as of December 31, 2018. We expect the majority of these Dayforce customers to be taken live in 2019. For 2018, our 3,718 live Dayforce customers represented over 3.1 million active users. We market Dayforce to customers of all sizes, including small (under 500 employees), mid-sized (501 to 2,500 employees), and enterprise (over 2,500 employees). For 2018, small businesses accounted for 14% of the total number of active customer employees, mid-sized businesses accounted for 32% of the total number of active customer employees, and enterprise businesses accounted for 54% of the total number of active customer employees. As our business and go-to-market strategy continues to evolve, in 2019, we will be modifying our customer segmentation for increased relevance.

From 2017 to 2018, live Dayforce customers increased from 3,001 to 3,718, a net increase of 717. Of the customers taken live during 2018, 77% represented net new customers to Dayforce, and the remainder were migration customers from our Bureau solution. Of the net new customers to Dayforce, small businesses accounted for 9% of the total number of active customer employees, mid-sized businesses accounted for 33% of the total number of active customer employees, and enterprise businesses accounted for 58% of the total number of active customer employees. Of the migration customers, small businesses accounted for 23% of the total number of active customer employees, mid-sized businesses accounted for 41% of the total number of active customer employees, and enterprise businesses accounted for 36% of the total number of active customer employees.

From 2016 to 2017, live Dayforce customers increased from 2,339 to 3,001, a net increase of 662. Of the customers taken live during 2017, 58% represented net new customers to Dayforce and the remainder were migration customers from our Bureau solutions. Of the net new customers to Dayforce, small businesses accounted for 13% of the total number of active customer employees, mid-sized businesses accounted for 33% of the total number of active customer employees, and enterprise businesses accounted for 54% of the total number of active customer employees. Of the migration customers, small businesses accounted for 20% of the total number of active customer employees, mid-sized businesses accounted for 48% of the total number of active customer employees, and enterprise businesses accounted for 32% of the total number of active customer employees.

The following table sets forth the number of live Dayforce customers at the end of the years presented:



Annual Cloud Revenue Retention Rate

Our annual Cloud revenue retention rate measures the percentage of revenues that we retain from our existing Cloud customers. We use this retention rate as an indicator of customer satisfaction and future revenues. We calculate the annual Cloud revenue retention rate as a percentage, where the numerator is the Cloud annualized recurring revenue for the prior year, less the Cloud annualized recurring revenue from lost Cloud customers during that year; and the denominator is the Cloud annualized recurring revenue for the prior year. Our annual Cloud revenue retention rate has been 95% or above for the years ended December 31, 2018, 2017, and 2016. We set annual targets for Cloud revenue retention rate and monitor progress toward those targets on a quarterly basis by reviewing known and anticipated customer losses. Our Cloud revenue retention rate may fluctuate as a result of a number of factors,

including the mix of Cloud solutions used by customers, the level of customer satisfaction, and changes in the number of users live on our Cloud solutions.

Cloud Annualized Recurring Revenue ("ARR")

We derive the majority of our Cloud revenues from recurring fees, primarily PEPM subscription charges. We also derive recurring revenue from fees related to the rental and maintenance of clocks, charges for once-a-year services, such as year-end tax statements, and investment income on our customer funds held in trust before such funds are remitted to taxing authorities, customer employees, or other third parties. To calculate Cloud ARR, we start with recurring revenue at year end, subtract the once-a-year charges, annualize the revenue for customers live for less than a full year to reflect the revenue that would have been realized if the customer had been live for a full year, and add back the once-a-year charges. We set annual targets for Cloud ARR and monitor progress toward those targets on a quarterly basis.

Adjusted EBITDA and Adjusted EBITDA margin

We believe that Adjusted EBITDA and Adjusted EBITDA margin, non-GAAP financial measures, are useful to management and investors as supplemental measures to evaluate our overall operating performance. Adjusted EBITDA and Adjusted EBITDA margin are components of our management incentive plan and are used by management to assess performance and to compare our operating performance to our competitors. We define Adjusted EBITDA as net income or loss before interest, taxes, depreciation, and amortization, as adjusted to exclude net income or loss from discontinued operations, sponsor management fees, non-cash charges for asset impairments, gains or losses on assets and liabilities held in a foreign currency other than the functional currency of a company subsidiary, share-based compensation expense, severance charges, restructuring consulting fees, transaction costs, and environmental reserve charges. Adjusted EBITDA margin is determined by calculating the percentage Adjusted EBITDA is of Total Revenue. Management believes that Adjusted EBITDA and Adjusted EBITDA margin are helpful in highlighting management performance trends because Adjusted EBITDA and Adjusted EBITDA margin exclude the results of decisions that are outside the normal course of our business operations. For a reconciliation of Adjusted EBITDA to operating profit, please see "Non-GAAP Measures."

Our History

Ceridian was acquired in 2007 by affiliates and co-investors of the Sponsors. In April 2012, Ceridian acquired Dayforce Corporation, which had built Dayforce, a cloud HCM solution. In the months following the acquisition, Dayforce founder, David D. Ossip, was named Chief Executive Officer of Ceridian HCM, and shortly thereafter, we generally stopped actively selling our Bureau solutions to new customers in the United States to focus our resources on expanding the Dayforce platform and growing Cloud solutions. For each quarter since September 30, 2016, our Cloud revenue has surpassed our Bureau revenue. Cloud revenue grew from 39% of total revenue during the quarter ended December 31, 2015 to 74% of total revenue during the quarter ended December 31, 2018.

As part of our strategy to focus on the growth of our Cloud solutions business, we undertook the following initiatives to simplify our business model:

(i) sold our consumer-directed benefit services business in 2013,

(ii) merged Comdata, our payment systems business unit, with FleetCor Technologies in 2014,

(iii) sold our benefits administration and post-employment compliance business in 2015,

(iv) sold our United Kingdom and Ireland Bureau businesses and a portion of our operations that supported such businesses in Mauritius in 2016, and

(v) contributed our LifeWorks employee assistance program business to a joint venture, LifeWorks, in 2016, then distributed our ownership in this joint venture to a holding company owned by our stockholders in April 2018 (the "LifeWorks Disposition").

As a result of these transactions, we only actively sell Dayforce and Powerpay, which we believe simplifies our business model and positions us well for continued growth.

Our benefits administration and post-employee compliance business, our United Kingdom and Ireland businesses, our divested Mauritius operations, and our LifeWorks joint venture are presented as discontinued operations in our financial statements. Our consumer-directed benefits services business and our benefits administration and post-employment compliance business are collectively referred to as our "Divested Benefits Businesses." After the LifeWorks Disposition, management has concluded that we have one operating and reportable segment. This conclusion aligns with how management monitors operating performance, allocates resources, and deploys capital. Please refer to Note 3, "Discontinued Operations," to our consolidated financial statements for further information regarding these transactions.

On April 30, 2018, we completed our IPO, in which we issued and sold 21,000,000 shares of common stock at a public offering price of $22.00 per share. We granted the underwriters a 30-day option to purchase an additional 3,150,000 shares of common stock at the offering price, which was exercised in full. A total of 24,150,000 shares of common stock were issued on April 30, 2018, with gross proceeds of $531.3 million from the IPO before deducting underwriting discounts, commissions, and other offering expenses. Immediately subsequent to the closing of our IPO on April 30, 2018, THL / Cannae Investors LLC, one of our existing stockholders controlled by our Sponsors, purchased from us in a private placement $100.0 million of our common stock at

a price per share equal to the offering price. Based on the offering price of $22.00 per share, 4,545,455 shares were issued in this private placement. Please refer to Note 1, “Organization,” for further discussion of the IPO transaction.

We applied a portion of the net proceeds from the IPO to satisfy and to discharge the indenture governing our outstanding $475.0 million principal amount Senior Notes, and they were redeemed on May 30, 2018. Concurrently, we also refinanced our remaining debt under our (i) $702.0 million (original principal amount) Senior Term Debt and (ii) $130.0 million Revolving Credit Facility, including accrued interest and related costs and expenses, with new senior credit facilities consisting of a $680.0 million term loan debt facility and a $300.0 million revolving credit facility. Please refer to Note 9, “Debt,” for further discussion of the debt transactions.

The IPO, private placement, and debt refinancing had the following impacts to our results of operations and cash during 2018:

	Impacts to Statement of Operations	Impact to Cash
Gross proceeds from the IPO and private placement		$ 631.3
Costs capitalized within stockholders' equity		(36.3)
Redemption of Senior Notes		(475.0)
Debt refinancing fees, reflected as a reduction to long-term debt		(3.6)
IPO and debt refinancing related expenses reflected within results of operations:		
Cost of revenue	$ (2.1)	
Selling, general, and administrative	(23.2)	
Impact on operating profit	$ (25.3)	
Interest expense	(25.7)	
Impact on net loss	$ (51.0)	(51.0)
Non-cash IPO-related share-based compensation expense		8.1
Non-cash interest expense adjustments		(4.9)
Cash to balance sheet from the IPO and private placement		$ 68.6
Proceeds from issuance of the new $680.0 million Senior Term Debt		680.0
Repayment of the $702.0 million Senior Term Debt		(657.0)
Cash to balance sheet from the IPO, private placement, and debt refinancing		$ 91.6

On November 16, 2018, we completed a secondary offering, in which certain of our stockholders (the “Selling Stockholders”) sold 11,000,000 shares of common stock, in an underwritten public offering at $36.00 per share. The Selling Stockholders granted the underwriters a 30-day option to purchase an additional 1,650,000 shares of common stock at the offering price, which was exercised in full. A total of 12,650,000 shares of common stock were sold by the Selling Stockholders on November 16, 2018, with all proceeds going to the Selling Stockholders. We incurred expenses of $1.3 million during the year ended December 31, 2018, related to the secondary offering within selling, general, and administrative expense.

Components of Our Results of Operations

Revenues

We generate recurring revenues primarily from recurring fees charged for the use of our Cloud solutions, Dayforce and Powerpay, as well as from our Bureau solutions. We also generate professional services and other revenue associated primarily with the work performed to assist customers with the planning, design, implementation, and staging of their cloud-based solution. Our solutions are typically provided through long-term customer relationships that result in a high level of recurring revenue. We also generate recurring services revenue from investment income on our Cloud and Bureau customer funds held in trust before such funds are remitted to taxing authorities, customer employees, or other third parties. We refer to this investment income as float revenue.

For Dayforce, we primarily charge monthly recurring fees on a PEPM basis, generally one-month in advance of service, based on the number and type of solutions provided to the customer and the number of employees and other users at the customer. Our standard Dayforce contracts are generally for a three to five-year period. The average time it takes to implement Dayforce typically ranges from three months for smaller customers to nine months for larger customers. Once Dayforce is implemented, the customer goes live, and we begin to generate recurring revenue. We also provide outsourced human resource solutions to certain of our Dayforce customers, which are tailored to meet their individual needs, and entail performing the duties of a customer’s human resources department, including payroll processing, time and labor management, performance management, and recruiting, as needed.

The Powerpay offering is our solution designed primarily for small market Canadian customers. The typical Powerpay customer has fewer than 20 employees, and the majority of the revenue is generated from recurring fees charged on a per-employee, per-process basis. Typical processes include the customer’s payroll runs, year-end tax packages, and delivery of customers’ remittance advices or checks. Powerpay can typically be implemented on a remote basis within one to three days, at which point we start receiving recurring fees.

For our Bureau solutions, we typically charge recurring fees on a per-process basis. Typical processes include the customer’s payroll runs, year-end tax packages, and delivery of customers’ remittance advices or checks. In addition to customers who use our payroll services, certain customers use our tax filing services on a stand-alone basis. Our outsourced human resource solutions are tailored to meet the needs of individual customers, and entail our contracting to perform many of the duties of a customer’s human resources department, including payroll processing, time and labor management,

performance management, and recruiting. We also perform individual services for customers, such as check printing, wage attachment and disbursement, and ACA management.

Cost of Revenue

Cost of revenue consists of costs to deliver our solutions. Most of these costs are recognized as incurred. Some costs of revenue are recognized in the period that a service is sold and delivered. Other costs of revenue are recognized over the period of use or in proportion to the related revenue.

The costs recognized as incurred consist primarily of customer service staff costs, customer technical support costs, implementation personnel costs, costs of hosting applications, consulting and purchased services, delivery services, and royalties. The costs of revenue recognized over the period of use are depreciation and amortization, rentals of facilities and equipment, and direct and incremental costs associated with deferred implementation service revenue.

Cost of recurring services revenues primarily consists of costs to provide maintenance and technical support to our customers and the costs of hosting our applications. The cost of recurring services revenues also includes compensation and other employee-related expenses for data center staff, payments to outside service providers, data center expenses, and networking expenses.

Cost of professional services and other revenues primarily consists of costs to provide implementation consulting services and training to our customers, as well as the cost of time clocks. Costs to provide implementation consulting services include compensation and other employee-related expenses for professional services staff, costs of subcontractors, and travel. Implementation consulting services are expected to continue to be primarily associated with the implementation of our Cloud solutions.

Product development and management expense, included in cost of revenue, consists of costs related to software development activities that do not qualify for capitalization, such as development, quality assurance, testing of new technologies, and enhancements to our existing solutions that do not result in additional functionality. Product development and management expense also includes costs related to the management of our solutions.

Depreciation and amortization related to cost of revenue primarily consists of amortization of capitalized software.

Selling, General, and Administrative Expense

Selling expense includes costs related to maintaining a direct marketing infrastructure and sales force and other direct marketing efforts, such as marketing events, advertising, telemarketing, direct mail, and trade shows. Advertising costs are expensed as incurred. Our sales and marketing expenses are expected to continue to be primarily associated with selling and marketing our Cloud solutions.

General and administrative expense includes costs that are not directly related to delivery of services, selling efforts, or product development and management, primarily consisting of corporate-level costs, such as administration, finance, legal, and human resources, as well as management fees payable to affiliates of our Sponsors, FNF and THLM, until termination of the management agreements upon IPO in April 2018. Also included in this category are depreciation, and amortization of other intangible assets not reflected in cost of revenue, the provision for doubtful accounts receivable, and net periodic pension costs.

Other Expense, net

Other expense, net includes the results of transactions that are not appropriately classified in another category. These items include certain foreign currency translation gains and losses resulting mainly from intercompany receivables and payables denominated in currencies other than the subsidiary's functional currency, environmental reserve charges, and charges related to the impairment of asset values.

Income Tax Provision

Our income tax provision represents federal, state, and international taxes on our income recognized for financial statement purposes and includes the effects of temporary differences between financial statement income and income recognized for tax return purposes. Deferred tax assets and liabilities are recorded for temporary differences between the financial reporting basis and the tax basis of assets and liabilities as adjusted for the expected benefits of utilizing net operating loss carryforwards. We record a valuation allowance to reduce our deferred tax assets to reflect the net deferred tax assets that we believe will be realized. In assessing the likelihood that we will be able to recover our deferred tax assets and the need for a valuation allowance, we consider all available evidence, both positive and negative, including historical levels of pre-tax book income, expiration of net operating losses, expectations and risks associated with estimates of future taxable income and ongoing prudent and feasible tax planning strategies, as well as current tax laws. As of December 31, 2018, we continue to record a full valuation allowance against our domestic deferred tax assets that are not offset by the reversal of deferred tax liabilities. In the future, if it is determined that we no longer have a requirement to record a valuation allowance against all or a portion of our deferred tax assets, the release of the valuation allowance would have a positive impact on our income tax provision.

On December 22, 2017, the Tax Cut and Jobs Act legislation (the "Tax Act") was enacted. The Tax Act amended the Code to reduce tax rates and to modify policies, credits, and deductions for businesses. For businesses, the Tax Act reduced the corporate federal tax rate from a maximum of 35% to a flat 21% rate.

Results of Operations

Year Ended December 31, 2018 Compared with Year Ended December 31, 2017

The following table sets forth our results of operations for the periods presented.

	Year Ended December 31,		Increase/ (Decrease)		% of Revenue	
	2018	2017	Amount	%	2018	2017
	(Dollars in millions)					
Revenue:						
Recurring services						
Cloud	$ 443.1	$ 336.2	$ 106.9	31.8%	59.4%	50.1%
Bureau	209.4	262.3	(52.9)	(20.2)%	28.1%	39.1%
Total recurring services	652.5	598.5	54.0	9.0%	87.4%	89.2%
Professional services and other	93.9	72.3	21.6	29.9%	12.6%	10.8%
Total revenue	746.4	670.8	75.6	11.3%	100.0%	100.0%
Cost of revenue:						
Recurring services						
Cloud	141.1	125.1	16.0	12.8%	18.9%	18.6%
Bureau	59.2	71.7	(12.5)	(17.4)%	7.9%	10.7%
Total recurring services	200.3	196.8	3.5	1.8%	26.8%	29.3%
Professional services and other	132.2	135.8	(3.6)	(2.7)%	17.7%	20.2%
Product development and management	59.0	43.6	15.4	35.3%	7.9%	6.5%
Depreciation and amortization	34.3	31.3	3.0	9.6%	4.6%	4.7%
Total cost of revenue	425.8	407.5	18.3	4.5%	57.0%	60.7%
Gross profit	320.6	263.3	57.3	21.8%	43.0%	39.3%
Costs and expenses:						
Selling, general, and administrative	270.7	223.0	47.7	21.4%	36.3%	33.2%
Other (income) expense, net	(2.9)	7.3	(10.2)	(139.7)%	(0.4)%	1.1%
Operating profit	52.8	33.0	19.8	60.0%	7.1%	4.9%
Interest expense, net	83.2	87.1	(3.9)	(4.5)%	11.1%	13.0%
Loss from continuing operations before income taxes	(30.4)	(54.1)	23.7	43.8%	(4.1)%	(8.1)%
Income tax expense (benefit)	7.7	(49.6)	57.3	115.5%	1.0%	(7.4)%
Loss from continuing operations	(38.1)	(4.5)	(33.6)	(746.7)%	(5.1)%	(0.7)%
Loss from discontinued operations	(25.8)	(6.0)	(19.8)	(330.0)%	(3.5)%	(0.9)%
Net loss	(63.9)	(10.5)	(53.4)	(508.6)%	(8.6)%	(1.6)%
Net loss attributable to noncontrolling interest	(0.5)	(1.3)	0.8	61.5%	(0.1)%	(0.2)%
Net loss attributable to Ceridian	$ (63.4)	$ (9.2)	$ (54.2)	(589.1)%	(8.5)%	(1.4)%
Adjusted EBITDA (a)	$ 157.1	$ 117.8	$ 39.3	33.4%	21.0%	17.6%

(a) For a reconciliation of Adjusted EBITDA to operating profit, please see "Non-GAAP Measures."

Revenue. The following table sets forth certain information regarding our consolidated revenues for the year ended December 31, 2018, compared with the year ended December 31, 2017.

	Year Ended December 31,		Growth rate year-over-year	Impact of changes in foreign currency(a)	Growth rate on a constant currency basis (a)
	2018	2017	2018 vs. 2017		2018 vs. 2017
	(Dollars in millions)				
Revenue					
Cloud					
Recurring services	$ 443.1	$ 336.2	31.8%	(0.2)%	32.0%
Professional services and other	91.2	68.1	33.9%	0.5%	33.4%
Total Cloud revenue	534.3	404.3	32.2%	(0.1)%	32.3%
Bureau					
Recurring services	209.4	262.3	(20.2)%	0.1%	(20.3)%
Professional services and other	2.7	4.2	(35.7)%	(2.4)%	(33.3)%

Total Bureau revenue	212.1	266.5	(20.4)%	0.1%	(20.5)%
Total revenue	$ 746.4	$ 670.8	11.3%	—	11.3%

(a) We present revenue growth in a constant currency to assess how our underlying businesses performed, excluding the effect of foreign currency rate fluctuations. We calculate percentage change in revenue on a constant currency basis by applying a fixed $1.30 Canadian dollar to $1.00 U.S. dollar foreign exchange rate to revenues originally booked in Canadian dollars for all applicable periods.

Total revenue increased $75.6 million, or 11.3%, to $746.4 million for the year ended December 31, 2018, compared to $670.8 million for the year ended December 31, 2017. This increase was primarily driven by an increase in Cloud revenue of $130.0 million, or 32.2% from $404.3 million for the year ended December 31, 2017 to $534.3 million for the year ended December 31, 2018. The Cloud revenue increase was primarily due to an increase of $106.9 million, or 31.8%, in Cloud recurring services revenue, and $23.1 million, or 33.9% , in Cloud professional services and other revenue. The increase in Cloud recurring services revenue of $106.9 million was attributable to increases of $76.0 million from new customers, add-ons, and revenue uplift from migrations of Bureau customers; $22.9 million from the migration of Bureau customers; and $20.0 million from increased float revenue related to Cloud recurring services revenue, partially offset by customer attrition of $12.0 million. The increase in Cloud revenue was partially offset by a decline in Bureau revenue of $54.4 million, or 20.4%. There was an immaterial impact on revenue due to changes in foreign currency rate fluctuations. Please refer to the table above for our revenue growth rates on a constant currency basis.

Of the decline in Bureau revenue, approximately 58% was driven by customer attrition and approximately 42% was attributable to customer migrations to Dayforce. Excluding the impact of migrations, our annual Bureau revenue retention rate was 86.9% in 2018 and 89.7% in 2017. For the year ended December 31, 2018, recurring services revenue from payroll Bureau customers accounted for $161.2 million, and tax-only Bureau recurring services revenue accounted for $48.2 million. The payroll Bureau customers consist of approximately 1.5 million active users, of which approximately 1.4 million are customers that we believe could be candidates for migration to Dayforce. Some of our customers are not candidates to migrate to Dayforce due to a variety of factors, including the type of functionality that they require and their system configuration. Of the approximately 1.4 million active users that we believe could be candidates for migration to Dayforce, small businesses accounted for 21% of the total number of active users, mid-sized businesses accounted for 28% of the total number of active users, and enterprise businesses accounted for 51% of the total number of active users.

Cloud revenue by solution. The following table presents our Cloud revenue for both recurring and professional services and other, for both our Dayforce and Powerpay solution for the periods presented.

	Year Ended December 31,		Growth rate year-over-year	Growth rate on a constant currency basis
	2018	2017	2018 vs. 2017	2018 vs. 2017
	(Dollars in millions)			
Dayforce	$ 443.0	$ 319.9	38.5%	38.5%
Powerpay	91.3	84.4	8.2%	8.3%
Total Cloud Revenue	$ 534.3	$ 404.3	32.2%	32.3%

Cloud revenue was $534.3 million for 2018, an increase of 32.2% when compared to 2017. Dayforce revenue grew 38.5%, and Powerpay revenue grew 8.2% in 2018 as compared to 2017. There was an immaterial impact on revenue due to changes in foreign currency rate fluctuations. Please refer to the table above for our revenue growth rates on a constant currency basis. Our new business sales to Dayforce and Powerpay customers comprised 82% of our increase in Cloud revenue for the year ended December 31, 2018, and the remaining 18% consisted primarily of customer migration to Dayforce from our Bureau solutions. As we migrate our Bureau customers to Dayforce, we typically experience a revenue increase from such customers driven by increased product density on the Dayforce platform. This revenue increase can vary by customer, but has been 22% on average since 2016, as measured at the time of initial migration.

Float revenue. Investment income from invested customer trust funds included in revenue was $67.0 million and $46.5 million for the years ended December 31, 2018 and 2017, respectively. The average float balance for our customer trust funds for the year ended December 31, 2018 was $3,361.5 million, compared to $3,228.2 million for the year ended December 31, 2017. The average yield was 2.00% during the year ended December 31, 2018, an increase of 55 basis points compared to the average yield for the year ended December 31, 2017. Based on current investment practices, an increase in market investment rates of 100 basis points would increase float revenue by approximately $17 million over the twelve months following a rate increase. In addition to interest rate risks, we also have exposure to risks associated with changes in laws and regulations that may affect customer fund balances. For example, a change in regulations, either reducing the amount of taxes to be withheld or allowing less time to remit taxes to government authorities, would reduce our average customer trust fund balances and float revenue. There are no incremental costs of revenue associated with increases or declines in float revenue.

Cost of revenue. Total cost of revenue for the year ended December 31, 2018, was $425.8 million, an increase of $18.3 million, or 4.5%, compared to the year ended December 31, 2017. Of the total $18.3 million increase, $2.1 million was attributable to IPO-related share-based compensation expense. Excluding IPO-related items, cost of revenue increased $16.2 million.

Recurring services cost of revenue increased by $3.5 million for the year ended December 31, 2018, compared to the year ended December 31, 2017, due to additional costs incurred to support the growing Dayforce customer base, partially offset by reductions in costs to support our Bureau customers.

The reduction in cost of revenue for professional services and other of $3.6 million for the year ended December 31, 2018, compared to the year ended December 31, 2017, was primarily due to productivity improvements in implementing new customers.

In accordance with Accounting Standards Codification ("ASC") 350, we are required to capitalize certain software development costs. Please refer to Note 2, "Summary of Significant Accounting Policies," for further discussion of our accounting policy for internally developed software costs. Costs related to software development activities that do not qualify for capitalization, such as development, quality assurance, testing of new technologies, enhancements to our existing solutions that do not result in additional functionality, and costs related to the management of our solutions are presented as product development and management expense. The increase in product development and management expense of $15.4 million for the year ended December 31, 2018, compared to the year ended December 31, 2017, reflects increases in Dayforce product development efforts. For the years ended December 31, 2018, and 2017, our investment in software development was $54.9 million and $45.0 million, respectively, consisting of $29.6 million and $19.0 million of research and development expense, which is included within product development and management expense, and $25.3 million and $26.0 million of capitalized software development, respectively.

Depreciation and amortization expense associated with cost of revenue increased by $3.0 million for the year ended December 31, 2018, compared to the year ended December 31, 2017, as we continue to capitalize Dayforce related and other development costs and subsequently amortize those costs.

The table below presents total gross margin and solution gross margins for the periods presented:

	Year Ended December 31,	
	2018	2017
Total gross margin	43.0%	39.3%
Gross margin by solution:		
Cloud recurring services	68.2%	62.8%
Bureau recurring services	71.7%	72.7%
Professional services and other	(40.8)%	(87.8)%

Total gross margin is defined as total gross profit as a percentage of total revenue, inclusive of product development and management costs as well as depreciation and amortization associated with cost of revenue. Gross margin for each solution in the table above is defined as total revenue less cost of revenue for the applicable solution as a percentage of total revenue for that related solution, exclusive of any product development and management or depreciation and amortization cost allocations.

The overall 11.3% increase in revenue outpaced the 4.5% increase in cost of revenue, and gross profit increased by $57.3 million, or 21.8%, as we continued to leverage our investment in people and processes to realize economies of scale.

Cloud recurring services gross margin was 68.2% for the year ended December 31, 2018, compared to 62.8% for the year ended December 31, 2017. The increase in Cloud recurring services gross margin reflects an increase in the proportion of Dayforce customers live for more than two years, which increased from 59% as of December 31, 2017 to 63% as of December 31, 2018, and was also attributable to consistent configuration of new customers, which enabled us to realize economies of scale in customer support and hosting costs. Professional services and other gross margin was (40.8)% for the year ended December 31, 2018, improving from (87.8)% for the year ended December 31, 2018, reflecting an increase in profitable post go-live professional services and productivity improvements in implementing new customers.

Selling, general, and administrative expense. Selling, general, and administrative expense increased $47.7 million for the year ended December 31, 2018, compared to the year ended December 31, 2017. Of the total $47.7 million increase, $24.5 million was attributable to transaction expenses associated with our IPO, debt refinancing, and secondary offering, including $11.3 million in sponsor management termination fees, $6.0 million in IPO-related share-based compensation expense, $3.7 million in other IPO transactions costs, and $3.5 million in restructuring consulting expenses. Excluding transaction-related items, selling, general, and administrative expense increased $23.2 million, primarily due to sales and marketing expense, which increased by $13.4 million. We continue to invest in our sales and marketing efforts, as we drive growth in our Cloud solutions, particularly in Dayforce. The increase in selling, general, and administrative expenses also reflected increases in employee related costs and increased costs associated with being a public company.

Other (income) expense, net. For the year ended December 31, 2018, we incurred $2.9 million of other income, net, compared to $7.3 million of other expense, net, for the year ended December 31, 2017. The other (income) expense, net, for the years ended December 31, 2018, and 2017, was primarily related to remeasurement gains and losses an intercompany payable denominated in a foreign currency, which was repaid in the second quarter of 2018.

Operating profit. We realized operating profit of $52.8 million for the year ended December 31, 2018, compared to an operating profit of $33.0 million for the year ended December 31, 2017. Excluding the impact of $24.5 million in transaction costs within selling, general, and administrative expense, and $2.1 million in other increased share-based compensation expense related to the IPO within cost of revenue, operating profit would have been $79.4 million for the year ended December 31, 2018. This $46.4 million increase was primarily due to a $75.6 million increase in revenue and gross margin improvement.

Interest expense, net. Interest expense for the year ended December 31, 2018, was $83.2 million, compared to $87.1 million for the year ended December 31, 2017. This reduction was primarily due to the refinancing of our debt, which resulted in a reduction in interest expense of $30.6 million upon the extinguishment of the Senior Notes in April 2018, representing seven fewer months of interest on the Senior Notes as compared to the prior year, partially offset by a loss on extinguishment of debt of $25.7 million. As of December 31, 2018, a 100 point basis increase in the London Inter-bank Offered Rate ("LIBOR") rates would result in an approximately $7 million increase in our interest expense over the ensuring twelve-month period. Please refer to

Note 9, "Debt," for additional information.

Income tax expense. For the year ended December 31, 2018, we had income tax expense of $7.7 million, compared to income tax benefit of $49.6 million for the year ended December 31, 2017. The $57.3 million increase in tax expense is primarily attributable to the $59.4 million tax benefit recorded during the year ended December 31, 2017, reflecting the revaluation of our deferred tax assets and liabilities upon the initial implementation of the Tax Act.

Loss from discontinued operations. As a result of the LifeWorks Disposition, the financial results of the LifeWorks business have been included within discontinued operations for all periods presented. For the year ended December 31, 2018, we had a loss from discontinued operations of $25.8 million, compared to $6.0 million for the year ended December 31, 2017. The loss from discontinued operations for the year ended December 31, 2018, is primarily related to income tax expense incurred as a result of the LifeWorks Disposition.

Net loss attributable to Ceridian. Net loss attributable to Ceridian was $63.4 for the year ended December 31, 2018, primarily due to $52.3 million of expenses incurred related to our IPO, debt refinancing, and secondary offering transactions, partially offset by an increase in gross profit. Net loss attributable to Ceridian was $9.2 for the year ended December 31, 2017, primarily due to a tax benefit of approximately $59.4 million related to the 2017 tax reform legislation. Please refer to the "Our History" section above for additional information on the financial statement impacts of our IPO, debt refinancing, and secondary offering transactions.

Adjusted EBITDA. Adjusted EBITDA increased by $39.3 million for the year ended December 31, 2018, compared to the year ended December 31, 2017, and Adjusted EBITDA margin increased to 21.0% in 2018 from 17.6% in 2017.

Year Ended December 31, 2017 Compared with Year Ended December 31, 2016

The following table sets forth our results of operations for the periods presented.

	Year Ended December 31,		Increase/ (Decrease)		% of Revenue	
	2017	2016	Amount	%	2017	2016
	(Dollars in millions)					
Revenue:						
Recurring services						
Cloud	$ 336.2	$ 239.5	$ 96.7	40.4%	50.1%	38.4%
Bureau	262.3	319.0	(56.7)	(17.8)%	39.1%	51.2%
Total recurring services	598.5	558.5	40.0	7.2%	89.2%	89.6%
Professional services and other	72.3	64.9	7.4	11.4%	10.8%	10.4%
Total revenue	670.8	623.4	47.4	7.6%	100.0%	100.0%
Cost of revenue:						
Recurring services						
Cloud	125.1	86.2	38.9	45.1%	18.6%	13.8%
Bureau	71.7	128.2	(56.5)	(44.1)%	10.7%	20.6%
Total recurring services	196.8	214.4	(17.6)	(8.2)%	29.3%	34.4%
Professional services and other	135.8	115.6	20.2	17.5%	20.2%	18.5%
Product development and management	43.6	43.3	0.3	0.7%	6.5%	6.9%
Depreciation and amortization	31.3	23.1	8.2	35.5%	4.7%	3.7%
Total cost of revenue	407.5	396.4	11.1	2.8%	60.7%	63.6%
Gross profit	263.3	227.0	36.3	16.0%	39.3%	36.4%
Costs and expenses:						
Selling, general, and administrative	223.0	225.3	(2.3)	(1.0)%	33.2%	36.1%
Other expense, net	7.3	12.9	(5.6)	(43.4)%	1.1%	2.1%
Operating profit (loss)	33.0	(11.2)	44.2	394.6%	4.9%	(1.8)%
Interest expense, net	87.1	87.4	(0.3)	(0.3)%	13.0%	14.0%
Loss from continuing operations before income taxes	(54.1)	(98.6)	44.5	45.1%	(8.1)%	(15.8)%
Income tax (benefit) expense	(49.6)	6.7	(56.3)	(840.3)%	(7.4)%	1.1%
Loss from continuing operations	(4.5)	(105.3)	100.8	95.7%	(0.7)%	(16.9)%
(Loss) income from discontinued operations	(6.0)	12.5	(18.5)	(148.0)%	(0.9)%	2.0%
Net loss	(10.5)	(92.8)	82.3	88.7%	(1.6)%	(14.9)%
Net (loss) income attributable to noncontrolling interest	(1.3)	0.1	(1.4)	(1400.0)%	(0.2)%	0.0%
Net loss attributable to Ceridian	$ (9.2)	$ (92.9)	$ 83.7	90.1%	(1.4)%	(14.9)%
Adjusted EBITDA (a)	$ 117.8	$ 85.5	$ 32.3	37.8%	17.6%	13.7%

(a) For a reconciliation of Adjusted EBITDA to operating profit, please see "Non-GAAP Measures."

Revenue. The following table sets forth certain information regarding our consolidated revenues for the year ended December 31, 2017, compared with the year ended December 31, 2016.

	Year Ended December 31, 2017	Year Ended December 31, 2016	Growth rate year-over-year 2017 vs. 2016	Impact of changes in foreign currency(a)	Growth rate on a constant currency basis (a) 2017 vs. 2016
	(Dollars in millions)				
Revenue					
Cloud					
Recurring services	$ 336.2	$ 239.5	40.4%	1.4%	39.0%
Professional services and other	68.1	58.3	16.8%	0.9%	15.9%
Total Cloud revenue	404.3	297.8	35.8%	1.3%	34.5%
Bureau					
Recurring services	262.3	319.0	(17.8)%	0.4%	(18.2)%
Professional services and other	4.2	6.6	(36.4)%	—	(36.4)%
Total Bureau revenue	266.5	325.6	(18.2)%	0.4%	(18.6)%
Total revenue	$ 670.8	$ 623.4	7.6%	0.8%	6.8%

(a) We present revenue growth in a constant currency to assess how our underlying businesses performed excluding the effect of foreign currency rate fluctuations. We calculate percentage change in revenue on a constant currency basis by applying a fixed $1.30 Canadian dollar to $1.00 U.S. dollar foreign exchange rate to revenues originally booked in Canadian dollars for all applicable periods.

Total revenue increased $47.4 million, or 7.6%, to $670.8 million for the year ended December 31, 2017, compared to $623.4 million for the year ended December 31, 2016. This increase was primarily driven by an increase in Cloud revenue of $106.5 million, or 35.8%, from $297.8 million for the year ended December 31, 2016 to $404.3 million for the year ended December 31, 2017. The Cloud revenue increase was driven by an increase of $96.7 million, or 40.4%, in Cloud recurring services revenue, and $9.8 million, or 16.8%, in Cloud professional services and other revenue. The increase in Cloud recurring services revenue of $96.7 million was due to $68.0 million from new customers, add-ons, and revenue uplift from migrations of Bureau customers; $28.1 million from the migration of Bureau customers; $10.0 million from increased float revenue related to Cloud recurring services revenue; partially offset by customer losses of $9.4 million. The increase in Cloud revenue was partially offset by a decline in Bureau recurring services revenue of $56.7 million, or 17.8%.

On a constant currency basis, total revenue grew 6.8%. This adjusted revenue growth was driven by an increase of 34.5% in Cloud revenue, partially offset by a decline of 18.6% in Bureau revenue. On a constant currency basis, Cloud revenue growth for the year ended December 31, 2017, compared to the year ended December 31, 2016, was driven by Cloud recurring services revenue, which increased by 39.0%, and professional services and other revenue, which increased by 15.9%, as we continued to sign and to activate new customers.

Of the decline in Bureau revenue, approximately 50% was driven by customer attrition and approximately 50% was driven by customer migrations to Dayforce. Excluding the impact of migrations, our annual Bureau revenue retention rate was 89.7% in 2017 and 87.4% in 2016. For the year ended December 31, 2017, recurring services revenue from payroll Bureau customers accounted for $210.2 million and tax-only Bureau recurring services revenue accounted for $52.1 million. The payroll Bureau customers consist of approximately 1.9 million active users, of which approximately 1.7 million of these active users are with customers that we believe could be candidates for migration to Dayforce. Some of our customers are not candidates to migrate to Dayforce due to a variety of factors, including the type of functionality that they require and their system configuration. Of the approximately 1.7 million active users, small businesses accounted for 20% of the total number of active users, mid-sized businesses accounted for 30% of the total number of active users, and enterprise businesses accounted for 50% of the total number of active users.

Cloud revenue by solution. The following table presents our Cloud revenue for both recurring and professional services and other, for both our Dayforce and Powerpay solution for the periods presented.

	Year Ended December 31, 2017	Year Ended December 31, 2016	Growth rate year-over-year 2017 vs. 2016	Growth rate on a constant currency basis 2017 vs. 2016
	(Dollars in millions)			
Dayforce	$ 319.9	$ 219.0	46.1%	45.5%
Powerpay	84.4	78.8	7.1%	4.6%
Total Cloud Revenue	$ 404.3	$ 297.8	35.8%	34.5%

Cloud revenue was $404.3 million during 2017, an increase of 35.8% when compared to 2016. Dayforce revenue grew 46.1%, and Powerpay revenue grew 7.1% during 2017 as compared to 2016. Our new business sales to Dayforce customers comprised 74% of our increase in Cloud revenue for the year ended December 31, 2017, and the remaining 26% consisted primarily of customer migration to Dayforce from our Bureau solutions.

Float revenue. Investment income from invested customer trust funds included in revenue was $46.5 million and $39.1 million for the years ended December 31, 2017 and 2016, respectively. The average float balance for our customer trust funds for the year ended December 31, 2017, was $3,228.2 million, compared to $3,260.4 million for the year ended December 31, 2016. The yield was 1.44% during the year ended December 31, 2017, an increase of 24 basis points compared to the year ended December 31, 2016. In addition to interest rate risks, we also have exposure to risks associated with changes in laws and regulations that may affect customer fund balances. For example, a change in regulations, either reducing the amount of taxes to be withheld or allowing less time to remit taxes to government authorities, would reduce our average customer trust fund balances and float revenue. There are no incremental costs of revenue associated with increases or declines in float revenue.

Cost of revenue. Total cost of revenue for the year ended December 31, 2017, was $407.5 million, an increase of $11.1 million, or 2.8%, compared to the year ended December 31, 2016.

During 2017, we changed the presentation and classification of certain expenses within our statements of operations to better facilitate comparisons with revenue and expenses of similar businesses, to better align our income statement presentation with the way management and reporting of our business has evolved internally, and to enhance our overall disclosure and understanding of the business for external users. We reallocated certain expenses between cost of recurring services revenue, cost of professional services and other revenue, and selling, general, and administrative expense. The net impact of these reallocations was to increase total cost of revenue by $3.4 million and to reduce selling, general, and administrative expense by $3.4 million. These changes in presentation and classification represent a change in estimate and have been accounted for on a prospective basis. Therefore, to facilitate the discussion in this section, the following table presents the actual reported costs and expenses as well as the costs and expenses on a pro forma basis as if the changes to allocation methodologies in 2017 had been in effect in 2016:

	Year Ended December 31,			Pro Forma Increase (Decrease)	
	2017	2016	2016 Pro Forma	Amount	%
	(Dollars in millions)				
Cost of revenue:					
Recurring services	$ 196.8	$ 214.4	$ 182.9	$ 13.9	7.6%
Professional services and other	135.8	115.6	138.7	(2.9)	(2.1)%
Product development and management	43.6	43.3	46.9	(3.3)	(7.0)%
Depreciation and amortization	31.3	23.1	31.3	—	—
Total cost of revenue	$ 407.5	$ 396.4	$ 399.8	$ 7.7	1.9%
Selling, general, and administrative	$ 223.0	$ 225.3	$ 221.9	$ 1.1	0.5%

The increase in total cost of revenue for year ended December 31, 2017, compared to the year ended December 31, 2016, included a net reallocation of $3.4 million from selling, general, and administrative expense due to a change in estimate of expense allocations. Excluding the effect of these reallocations, total cost of revenue would have increased by $7.7 million, or 1.9%.

Recurring services cost of revenue was reduced by $17.6 million for the year ended December 31, 2017, compared to the year ended December 31, 2016. This reduction included a reallocation of $31.5 million of costs from recurring services cost of revenue, consisting primarily of $13.4 million in technology and facilities expenses, $10.9 million in finance related expenses, and $9.3 million in corporate function expenses. Excluding the effect of these reallocations, recurring services cost of revenue would have increased by $13.9 million due to additional costs incurred to support the growing Dayforce customer base, partially offset by reductions in Bureau costs.

The increase in cost of revenue for professional services and other of $20.2 million for the year ended December 31, 2017, compared to the year ended December 31, 2016, included a net reallocation of $23.1 million of costs to professional services and other cost of revenue, primarily $23.2 million of technology and facilities expenses. Excluding the effect of these reallocations, professional services and other cost of revenue would have been reduced by $2.9 million, as we achieved productivity improvements in implementing new customers.

The increase in product development and management expense of $0.3 million for the year ended December 31, 2017, compared to the year ended December 31, 2016, included the reallocation of $3.6 million of costs to product development and management, primarily $7.9 million in technology and facilities expenses, offset by $2.8 million in corporate function expenses. Excluding the effect of these reallocations, product development and management expense would have been reduced by $3.3 million, due to reductions in product management costs associated with our Bureau solution and technology expenses, partially offset by higher headcount to support the continued development of the Dayforce platform.

Depreciation and amortization expense associated with cost of revenue increased by $8.2 million for the year ended December 31, 2017, compared to the year ended December 31, 2016. Excluding the effect of these reallocations of $8.2 million, depreciation and amortization expense would have been consistent with 2016.

The table below presents total gross margin and solution gross margins for the periods presented, both as presented and on a pro forma basis as if the changes to allocation methodologies of certain costs in 2017 discussed above had been in effect in 2016.

	Year Ended December 31,		
	2017	2016	2016 Pro Forma
Total gross margin	39.3%	36.4%	35.9%

Gross margin by solution:			
Cloud recurring services	62.8%	64.0%	60.2%
Bureau recurring services	72.7%	59.8%	72.5%
Professional services and other	(87.8)%	(78.1)%	(113.7)%

Selling, general, and administrative expense. Selling, general, and administrative expense was reduced by $2.3 million for the year ended December 31, 2017, compared to the year ended December 31, 2016. This reduction included the reallocation of $3.4 million of costs. Excluding the effect of these reallocations, selling, general, and administrative expense would have increased by $1.1 million, reflecting increases in sales and marketing expenses and share-based compensation expense, partially offset by reductions in restructuring consulting fees, severance expense, sponsor management fees and other cost reduction measures related to our declining Bureau solutions.

Other expense, net. For the year ended December 31, 2017, we incurred $7.3 million of other expense, net, compared to $12.9 million, for the year ended December 31, 2016. The other expense, net, for the year ended December 31, 2017, was primarily related to foreign currency remeasurement losses on intercompany receivables or payables denominated in foreign currencies. The other expense, net, for the year ended December 31, 2016, was primarily related to an impairment of $10.2 million to our trade name intangible asset and an increase of $5.9 million to our environmental reserve liability to reflect more stringent remediation requirements, partially offset by foreign currency remeasurement gains on intercompany receivables or payables denominated in foreign currencies. Please refer to Note 12, “Supplementary Data to Statement of Operations,” for further discussion.

Operating profit (loss). We realized operating profit of $33.0 million for the year ended December 31, 2017, compared to an operating loss of $11.2 million for the year ended December 31, 2016. This $44.2 million increase was primarily due to a $47.4 million increase in revenue and gross margin improvement.

Interest expense, net. Interest expense, net, for the year ended December 31, 2017, was $87.1 million, compared to $87.4 million for the year ended December 31, 2016.

Income tax (benefit) expense. For the year ended December 31, 2017, we had an income tax benefit of $49.6 million, compared to income tax expense of $6.7 million for the year ended December 31, 2016. Income tax benefit for the year ended December 31, 2017, was primarily related to a tax benefit of approximately $59.4 million related to the 2017 tax reform legislation, of which $26.4 million was attributable to the revaluation of our deferred tax assets and liabilities and $33.0 million was attributable to the reduction in our valuation allowance.

(Loss) income from discontinued operations. For the year ended December 31, 2017, we had a loss from discontinued operations of $6.0 million, compared to income from discontinued operation of $12.5 million for the year ended December 31, 2016. The loss from discontinued operations for the year ended December 31, 2017, was primarily related to our LifeWorks business. Income from discontinued operations for the year ended December 31, 2016, was primarily attributable to proceeds of $10.7 million from our Divested Benefits Businesses, net of tax, which were sold in a series of transactions in the third quarter of 2015, and our United Kingdom business, which was sold in the second quarter of 2016, resulting in a gain on sale of $5.9 million.

Net loss attributable to Ceridian. Net loss attributable to Ceridian improved by $83.7 million to $9.2 million for the year ended December 31, 2017, compared to $92.9 million for the year ended December 31, 2016.

Adjusted EBITDA. Adjusted EBITDA increased by $32.3 million for the year ended December 31, 2017, compared to the year ended December 31, 2016, and Adjusted EBITDA margin increased to 17.6% in 2017 from 13.7% in 2016.

Quarterly Results of Operations

The following table sets forth statements of operations data for each of the quarters presented. We have prepared the quarterly statements of operations data on a basis consistent with the audited consolidated financial statements. In the opinion of management, the financial information reflects all adjustments, consisting of normal recurring adjustments, which we consider necessary for a fair presentation of this data. This information should be read in conjunction with the audited consolidated financial statements and related notes. The results of historical periods are not necessarily indicative of the results for any future period.

	Three Months Ended							
	December 31, 2018	September 30, 2018	June 30, 2018	March 31, 2018	December 31, 2017	September 30, 2017	June 30, 2017	March 31, 2017
	(Dollars in millions)							
Revenue:								
Recurring services	$ 171.7	$ 157.2	$ 156.6	$ 167.0	$ 160.3	$ 145.6	$ 140.8	$ 151.8
Professional services and other	28.6	22.4	22.7	20.2	22.1	17.9	16.7	15.6
Total revenue	200.3	179.6	179.3	187.2	182.4	163.5	157.5	167.4
Cost of revenue:								

Recurring services	51.0	49.1	49.5	50.7	51.0	48.4	48.1	49.3
Professional services and other	33.5	32.5	33.4	32.8	33.0	34.8	34.1	33.9
Product development and management	15.7	14.5	15.1	13.7	11.8	11.0	10.0	10.8
Depreciation and amortization	8.6	8.5	8.5	8.7	8.1	8.0	7.6	7.6
Total cost of revenue	108.8	104.6	106.5	105.9	103.9	102.2	99.8	101.6
Gross profit	91.5	75.0	72.8	81.3	78.5	61.3	57.7	65.8
Costs and expenses:								
Selling, general, and administrative	70.4	59.4	84.1	56.8	62.0	52.4	54.8	53.8
Other (income) expense, net	(0.4)	0.3	—	(2.8)	0.4	3.8	2.0	1.1
Operating profit (loss)	21.5	15.3	(11.3)	27.3	16.1	5.1	0.9	10.9
Interest expense, net	8.8	8.8	43.4	22.2	21.8	21.9	22.0	21.4
Income (loss) from continuing operations before income taxes	12.7	6.5	(54.7)	5.1	(5.7)	(16.8)	(21.1)	(10.5)
Income tax expense (benefit)	1.9	(0.9)	1.1	5.6	(53.4)	0.9	1.9	1.0
Income (loss) from continuing operations	10.8	7.4	(55.8)	(0.5)	47.7	(17.7)	(23.0)	(11.5)
(Loss) income from discontinued operations	(11.0)	(3.0)	(9.7)	(2.1)	(3.6)	(2.9)	0.2	0.3
Net (loss) income	(0.2)	4.4	(65.5)	(2.6)	44.1	(20.6)	(22.8)	(11.2)
Net (loss) income attributable to noncontrolling interest	—	—	—	(0.5)	(0.9)	(0.5)	0.1	—
Net (loss) income attributable to Ceridian	$ (0.2)	$ 4.4	$ (65.5)	$ (2.1)	$ 45.0	$ (20.1)	$ (22.9)	$ (11.2)

Liquidity and Capital Resources

Our primary sources of liquidity are our existing cash and equivalents, cash provided by operating activities, borrowings under our credit facilities, and proceeds from equity offerings. As of December 31, 2018, we had cash and equivalents of $217.8 million and availability under our revolving credit facility of $300.0 million. No cash amounts were drawn on the revolving credit facility during 2018. Our total indebtedness was $678.3 million as of December 31, 2018. Please refer to Note 9, “Debt,” to our consolidated financial statements, for further information on our debt.

Our primary liquidity needs are related to funding of general business requirements, including the payment of interest and principal on our indebtedness, capital expenditures, pension contributions, and product development.

Our customer trust funds are held and invested with the primary objectives being to protect the principal balance and to ensure adequate liquidity to meet cash flow requirements. Accordingly, we maintain on average approximately 46% of customer trust funds in liquidity portfolios with maturities ranging from one to 120 days, consisting of high-quality bank deposits, money market mutual funds, commercial paper, or collateralized short-term investments; and we maintain on average approximately 54% of customer trust funds in fixed income portfolios with maturities ranging from 120 days to 10 years, consisting of U.S. Treasury and agency securities, Canada government and provincial securities, as well as highly rated asset-backed, mortgage-backed, municipal, corporate and bank securities. To maintain sufficient liquidity in the trust to meet payment obligations, we also have financing arrangements and may pledge fixed income securities for short-term financing. The assets held in trust are intended for the specific purpose of satisfying client fund obligations and therefore are not freely available for our general business use.

We believe that our cash flow from operations, availability under our revolving credit facility, and available cash and equivalents will be sufficient to meet our liquidity needs for the foreseeable future. We anticipate that to the extent that we require additional liquidity, it will be funded through the issuance of equity, the incurrence of additional indebtedness, or a combination thereof. We cannot assure you that we will be able to obtain this additional liquidity on reasonable terms, or at all. Additionally, our liquidity and our ability to meet our obligations and to fund our capital requirements are also dependent on our future financial performance, which is subject to general economic, financial, and other factors that are beyond our control. Accordingly, we cannot assure you that our business will generate sufficient cash flow from operations or that future borrowings will be available from additional indebtedness or otherwise to meet our liquidity needs. Although we have no specific current plans to do so, if we decide to pursue one or more significant acquisitions, we may incur additional debt or sell additional equity to finance such acquisitions, which would result in additional expenses or dilution.

Statements of Cash Flows

Changes in cash flows due to purchases of customer trust fund marketable securities, proceeds from the sale or maturity of customer trust fund marketable securities, and the net increase (decrease) of restricted cash held to satisfy customer trust fund obligations, as well as the carrying value of customer trust fund accounts as of period end dates can vary significantly due to several factors, including the specific day of the week the period ends, which impacts the timing of funds collected from customers and payments made to satisfy customer obligations to employees, taxing authorities, and others. For example, December 31, 2018 was a Monday, when trust fund balances are generally lower; whereas, the last business day of 2017 was a Friday, when trust fund balances are generally higher. The customer trust funds are fully segregated from our operating cash accounts and are evaluated and tracked separately by management. Therefore, to provide meaningful information to the readers, the following discussion is regarding the net cash flows excluding customer trust funds.

Operating Activities

Net cash provided by operating activities from continuing operations of $10.7 million during the year ended December 31, 2018, was primarily attributable to operating profit of $52.8 million, partially offset by a $45.0 million reduction in cash as a result of net changes in working capital. The $45.0 million reduction in net working capital was primarily attributable to a reduction of $22.1 million in liabilities for employee compensation and benefits,

primarily due to payments of accrued incentive compensation and pension contributions, and a $15.7 million reduction in liabilities for accrued interest, associated with our debt refinancing. Included within net cash flows provided by operating activities for the year ended December 31, 2018, was $74.5 million in cash interest payments on our long-term debt, $18.5 million in pension payments, and $16.7 million in cash taxes, net of refunds received.

Net cash used in operating activities from continuing operations of $29.4 million during the year ended December 31, 2017, was primarily attributable to operating losses of $4.5 million, net changes in working capital of $37.2 million, and a deferred tax benefit of $62.3 million, partially offset by certain non-cash items, primarily $53.8 million of depreciation and amortization and $16.1 million of share-based compensation expense. Net changes in working capital were driven by employee compensation and benefits, primarily pension contributions, accrued taxes, and prepaid expenses.

Net cash used in operating activities from continuing operations of $73.2 million during the year ended December 31, 2016, was primarily attributable to operating losses of $105.3 million with offsetting adjustments for certain non-cash items and net changes in working capital. The adjustments for non-cash items included $53.2 million of depreciation and amortization, $12.5 million of share-based compensation expense, a $10.4 million asset impairment, and a $5.9 million adjustment to our environmental reserve liability, partially offset by $8.3 million of deferred income tax benefit. Net changes in working capital of $49.3 million were primarily driven by pension contributions exceeding pension expense.

Investing Activities

During the year ended December 31, 2018, net cash used in investing activities from continuing operations, excluding customer trust fund activity, was $40.2 million, including $32.2 million in capital expenditures for software and technology and $8.0 million in capital expenditures for property and equipment.

During the year ended December 31, 2017, net cash used in investing activities from continuing operations excluding customer trust fund activity was $51.1 million, primarily related to capital expenditures, partially offset by proceeds from divestitures. Our capital expenditures included $33.1 million for software and technology and $17.5 million for property and equipment.

During the year ended December 31, 2016, net cash provided by investing activities from continuing operations excluding customer trust fund activity was $68.7 million, primarily related to the net proceeds from divestitures of $101.6 million, offset by capital expenditures. Our capital expenditures included $25.5 million for software and technology and $7.4 million for property and equipment.

Financing Activities

Net cash provided by financing activities from continuing operations, excluding the change in customer trust fund obligations, was $163.5 million during the year ended December 31, 2018. This cash inflow is primarily attributable to the net proceeds received from our IPO and concurrent private placement of $595.0 million, a net increase in the principal of our term loan of $23.0 million, and proceeds from the issuance of common stock upon exercise of stock options of $45.8 million, partially offset by a $475.0 million payment to redeem our Senior Notes and debt refinancing costs of $23.3 million.

Net cash provided by financing activities from continuing operations excluding the change in customer trust fund obligations was $50.7 million during the year ended December 31, 2017, primarily related to the funding of the remaining $75.2 million from the issuance of Senior Preferred Stock, partially offset by a $25.9 million payment made on our term debt.

Net cash provided by financing activities from continuing operations excluding the change in customer trust fund obligation was $63.2 million during the year ended December 31, 2016, related to proceeds received from the issuance of Senior Preferred Stock, partially offset by payments made on our term debt.

Cash Flows from Discontinued Operations

During the year ended December 31, 2018, net cash used in discontinued operations was $1.2 million. During the year ended December 31, 2017, net cash used in discontinued operations was $10.6 million. During the year ended December 31, 2016, net cash used in discontinued operations was $1.9 million. The cash flows from discontinued operations for all periods primarily relate to changes in working capital.

Backlog

We do not believe that any measure of backlog is a meaningful indicator of revenues that can be expected for a particular future period as the amount and timing can be influenced by multiple factors, including the timing of the completion of implementation, the accuracy and success of implementation services provided by us and by third parties, the timing in which new customers go-live, and our ability to meet service level commitments.

Seasonality

We have in the past and expect in the future to experience seasonal fluctuations in our revenues and new customer contracts with the fourth quarter historically being our strongest quarter for new customer contracts, renewals, and customer go-lives. Although the growth of our Cloud solutions and the ratable nature of our fees makes this seasonality less apparent in our overall results of operations, we expect our revenue to fluctuate quarterly and to be higher in the fourth and first quarters of each year. Fourth quarter revenue is driven by year-end processing fees and Dayforce customer go-lives; and first quarter revenue is driven by revenue earned for printing of year-end tax packages.

Off-Balance Sheet Arrangements

As of December 31, 2018, we did not have any "off-balance sheet arrangements" (as such term is defined in Item 303 of Regulation S-K).

Our Indebtedness

On April 30, 2018, Ceridian entered into a credit agreement pursuant to which the lenders agreed to provide Senior Credit Facilities, consisting of the Senior Term Loan in the original principal amount of $680.0 million and a $300.0 million Revolving Facility. The Revolving Facility may, at our option, be made available in United States Dollars, Canadian Dollars, Euros and/or Pounds Sterling; up to $70.0 million may, at our option, be made available for letters of credit and $100.0 million may, at our option, be made available for swingline loans (denominated in Canadian Dollars and/or United States Dollars).

The Senior Term Loan will mature on April 30, 2025. We are required to make annual amortization payments in respect of the Senior Term Loan in an amount equal to 1.00% of the original principal amount thereof, payable in equal quarterly installments of 0.25% of the original principal amount of the first lien term loan. The Revolving Facility matures on April 30, 2023 and does not require amortization payments.

The obligations of Ceridian under the Senior Credit Facilities are secured by first priority security interests in substantially all of the assets of Ceridian and the guarantors, subject to permitted liens and other exceptions. All of our subsidiaries are guarantors under the Senior Credit Facilities, subject to certain exceptions. The Senior Credit Facilities contain financial covenants and certain business covenants, including restrictions on dividend payments, which Ceridian must comply with during the term of the agreement. As of December 31, 2018, Ceridian was in full compliance with the terms of the Senior Credit Facilities.

Borrowings under the Senior Credit Facilities bear interest at a rate per annum equal to:

1. in the case of borrowings denominated in U.S. dollars on any day (a) at Ceridian's election, either (i) an amount (not less than 1.00%) equal to the greater of (A) a base rate determined by reference to the rate of interest per annum announced by Deutsche Bank AG New York Branch ("DBNY") as its prime rate on such day, (B) the federal funds effective rate on such date plus 1/2 of 1.00% and (C) the London interbank offered rate ("LIBOR") plus 1.00% or (ii) if available, LIBOR for U.S. dollars determined by reference to the applicable Reuters screen page two business days prior to the commencement of the interest period relevant to the subject borrowing, adjusted for certain additional costs, which may not be less than 0.00% plus (b) an applicable margin;
2. in the case of borrowings under the Revolving Facility denominated in Canadian Dollars on any day (a) at Ceridian's election, either (i) the rate of interest per annum quoted or established as the "prime rate" of Deutsche Bank AG Canada Branch plus an applicable margin or (ii) CDOR for Canadian dollars determined by reference to the applicable Reuters screen page on date of the commencement of the interest period relevant to the subject borrowing, adjusted for certain additional costs, which may not be less than 0.00% plus (b) an applicable margin;
3. in the case of borrowings under the Revolving Facility denominated in Euros on any day, (a) The London interbank offered rate in Euros ("EURIBOR") determined by reference to the applicable Reuters screen page two business days prior to the commencement of the interest period relevant to the subject borrowing, which may not be less than 0.00% plus (b) an applicable margin; or
4. in the case of borrowings under the Revolving Facility denominated in Pounds Sterling, (a) Sterling LIBOR determined by reference to the applicable Reuters screen page one business day prior to the commencement of the interest period relevant to the subject borrowing, which may not be less than 0.00% plus (b) an applicable margin.

The applicable margin for the Senior Term Loan is (i) 3.25% per annum, in the case of LIBOR loans and (ii) 2.25% per annum, in the case of base rate loans. Such applicable margin will be reduced by 0.25% per annum if the corporate family rating of Ceridian from Moody's is B2 or better, each such reduction being effective during the period commencing on the date of such change in rating becomes effective and ending on the date immediately preceding the effective date of next change in rating.

The applicable margin for loans under the Revolving Facility is determined in accordance with the table set forth below:

Consolidated First Lien Leverage Ratio	Applicable Margin for LIBOR, CDOR, EURIBOR and Sterling LIBOR Rate Loans	Applicable Margin for Base Rate and Canadian Prime Rate Loans
Category 1		
Greater than 4.50:1.00	2.75%	1.75%
Category 2		
Less than or equal to 4.50:1.00 and greater than 4.00:1.00	2.50%	1.50%
Category 3		
Less than or equal to 4.00:1.00	2.25%	1.25%

We are also required to pay a customary annual administration fee to the administrative agent under the Senior Credit Facilities.

For an additional description of the Senior Credit Facilities, please refer to Note 9, "Debt," to our consolidated financial statements.

Contractual Obligations

The following table sets forth our contractual obligations and other commercial commitments as of December 31, 2018, whether or not they appear on our consolidated balance sheet. Variable interest payments are projected based on an interest rate forecast in effect at the end of 2018. All amounts in the table may reflect rounding.

	Payments due by period (Dollars in millions)				
	Less than one year	1-3 Years	3-5 Years	More than 5 Years	Total
Long-term debt	$ 6.8	$ 13.6	$ 13.6	$ 644.3	$ 678.3
Interest payable on long-term debt	40.6	79.9	78.1	51.1	249.7
Operating leases	9.1	14.7	11.6	7.6	43.0
Postretirement plan obligations (a)	2.3	3.9	3.5	6.3	16.0
Retirement plan obligations (a)	7.7	54.0	37.6	33.4	132.7
Total	$ 66.5	$ 166.1	$ 144.4	$ 742.7	$ 1,119.7

(a) We have not estimated our pension funding obligations beyond 2027, and thus, any potential future contributions have been excluded from the table.

Our long-term debt obligations are described in Note 9, “Debt,” to our consolidated financial statements.

The lease payments represent scheduled payments under the terms of the lease agreements. We conduct substantially all of our operations in leased facilities. Most of these leases contain renewal options and require payments for taxes, insurance, and maintenance. We also lease equipment for use in our business.

Payments of retirement plan obligations include employer commitments to fund our defined benefit and postretirement plans and do not include estimated future benefit payments to participants expected to be made from liquidation of the assets in our defined benefit plan trusts. At December 31, 2018, our defined benefit pension plans had a projected benefit obligation that exceeded the fair value of the plans’ assets by $145.8 million and our postretirement benefit plan had an accumulated benefit obligation that exceeded the fair value of the plans’ assets by $16.8 million. We expect to satisfy these remaining obligations through investment income from and appreciation in the fair value of plan assets held in trust and from future employer contributions.

The amount of our obligation to vendors for capital expenditures at December 31, 2018 was not material, and no such amount is included in the table above.

Critical Accounting Policies and Estimates

Our discussion and analysis of our financial condition and results of operations is based upon our consolidated financial statements and related notes, which have been prepared in accordance with GAAP. The preparation of these financial statements and related notes requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenue, and expenses. Certain of our accounting policies require the application of significant judgment by management in selecting the appropriate assumptions for calculating financial estimates. By their nature, these judgments are subject to an inherent degree of uncertainty. These judgments are based on our historical experience, terms of existing contracts, our evaluation of trends in the industry, information provided by our customers, and information available from other outside sources, as appropriate. We evaluate our estimates and judgments on an on-going basis. Our actual results may differ from these estimates.

Please refer to Note 2, “Summary of Significant Accounting Policies,” for a description of our significant accounting policies. The accounting policies that we believe to be the most critical to an understanding of our financial condition and results of operations and that require the most complex and subjective management judgments are discussed below.

Revenue Recognition

We recognize revenue from the sale of our services, net of applicable sales taxes, when the following criteria are met: (1) persuasive evidence of an arrangement exists; (2) delivery has occurred or services have been rendered; (3) the seller’s price to the buyer is fixed or determinable; and (4) collectability is reasonably assured. We rely on a signed contract with the customer as the persuasive evidence of a sales arrangement.

We enter into revenue arrangements that may consist of multiple deliverables based on the needs of our customers. For example, our services address a broad range of employment process needs, such as payroll, payroll-related tax filing, human resource information, employee self-service capabilities, time and labor management, and recruitment and applicant screening. A customer arrangement may contain any of these elements with different elements delivered across multiple reporting periods.

We have a single unit of accounting for each deliverable in a contract based on the use of estimated selling price (“ESP”) in those cases where vendor-specific objective evidence of selling price (“VSOE”) or third party evidence (“TPE”) cannot be established. Our determination of ESP involves the consideration of several factors based on the specific facts and circumstances of each contract. Specifically, we consider the cost to produce or to provide the deliverable, the anticipated margin on that deliverable, the selling price and profit margin for similar services, the value of any enhancements that have been built into the deliverable, and the characteristics of the varying markets in which the deliverable will be sold.

When we are unable to establish a selling price using VSOE or TPE, we use ESP in the allocation of arrangement consideration. The objective of ESP is to determine the price at which we would transact a sale if the service were sold on a standalone basis.

We regularly review VSOE, TPE, and ESP and maintain internal controls over the establishment and updates of these estimates. There were no material impacts during the period, nor do we currently expect a material impact in the near term from changes in VSOE, TPE, or ESP.

Deferred revenue consists primarily of customer billings in advance of revenues being recognized from our contracts. Deferred revenue also includes certain deferred professional services fees that are accounted for as a single unit of accounting with subscription fees and are recognized as revenues over the same period as the related customer contract. Deferred revenue that is anticipated to be recognized during the succeeding twelve-month period is recorded as current deferred revenue, and the remaining portion is recorded as noncurrent.

Recently Issued Accounting Pronouncements

Please refer to Note 2, “Summary of Significant Accounting Policies,” for a full discussion of recent accounting pronouncements.

Non-GAAP Measures

Adjusted EBITDA and Adjusted EBITDA Margin

We believe that Adjusted EBITDA and Adjusted EBITDA margin, non-GAAP financial measures, are useful to management and investors as supplemental measures to evaluate our overall operating performance. Adjusted EBITDA is a component of our management incentive plan and Adjusted EBITDA and Adjusted EBITDA margin are used by management to assess performance and to compare our operating performance to our competitors. We define Adjusted EBITDA as net income or loss before interest, taxes, depreciation, and amortization, as adjusted to exclude net income or loss from discontinued operations, sponsor management fees, non-cash charges for asset impairments, gains or losses on assets and liabilities held in a foreign currency other than the functional currency of a company subsidiary, share-based compensation expense, severance charges, restructuring consulting fees, transaction costs, and environmental reserve charges. Adjusted EBITDA margin is determined by calculating the percentage Adjusted EBITDA is of total revenue. Management believes that Adjusted EBITDA and Adjusted EBITDA margin are helpful in highlighting management performance trends because Adjusted EBITDA and Adjusted EBITDA margin exclude the results of decisions that are outside the control of operating management.

Our presentation of Adjusted EBITDA and Adjusted EBITDA margin are intended as supplemental measures of our performance that are not required by, or presented in accordance with, GAAP. Adjusted EBITDA and Adjusted EBITDA margin should not be considered as alternatives to operating profit (loss), net income (loss), earnings per share, or any other performance measures derived in accordance with GAAP, or as measures of operating cash flows or liquidity. Our presentation of Adjusted EBITDA and Adjusted EBITDA margin should not be construed to imply that our future results will be unaffected by similar items to those eliminated in this presentation. Adjusted EBITDA and Adjusted EBITDA margin are included in this discussion because they are key metrics used by management to assess our operating performance.

Adjusted EBITDA and Adjusted EBITDA margin are not defined under GAAP, are not measures of net income, operating income, or any other performance measures derived in accordance with GAAP, and are subject to important limitations. Our use of the terms Adjusted EBITDA and Adjusted EBITDA margin may not be comparable to similarly titled measures of other companies in our industry and are not measures of performance calculated in accordance with GAAP.

Adjusted EBITDA and Adjusted EBITDA margin 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 GAAP. Some of these limitations are:

- Adjusted EBITDA and Adjusted EBITDA margin do not reflect our cash expenditures or future requirements for capital expenditures or contractual commitments;
- Adjusted EBITDA and Adjusted EBITDA margin do not reflect changes in, or cash requirements for, our working capital needs;
- Adjusted EBITDA and Adjusted EBITDA margin do not reflect any charges for the assets being depreciated and amortized that may need to be replaced in the future;
- Adjusted EBITDA and Adjusted EBITDA margin do not reflect the impact of share-based compensation upon our results of operations;
- Adjusted EBITDA and Adjusted EBITDA margin do not reflect the significant interest expense or the cash requirements necessary to service interest or principal payments on our debt; and
- Adjusted EBITDA and Adjusted EBITDA margin do not reflect our income tax expense or the cash requirements to pay our income taxes.

In evaluating Adjusted EBITDA and Adjusted EBITDA margin, you should be aware that in the future we may incur expenses similar to those eliminated in this presentation.

The following table reconciles operating profit to Adjusted EBITDA for the periods presented:

	Year Ended December 31,		
	2018	2017	2016

Operating profit (loss)	$ 52.8	$ 33.0	$ (11.2)
Depreciation and amortization	56.6	53.8	53.2
EBITDA from continuing operations (1)	109.4	86.8	42.0
Sponsorship management fees (2)	12.0	1.9	5.0
Asset impairments	—	—	10.2
Intercompany foreign exchange (gain) loss	(2.9)	7.4	(3.4)
Share-based compensation (3)	24.7	16.1	12.5
Severance charges (4)	5.4	5.6	8.4
Restructuring consulting fees (5)	4.8	—	4.9
Environmental reserve charges (6)	—	—	5.9
Transaction costs (7)	3.7	—	—
Adjusted EBITDA	$ 157.1	$ 117.8	$ 85.5
Adjusted EBITDA margin	21.0%	17.6%	13.7%

(1) We define EBITDA from continuing operations as net income or loss before interest, taxes, depreciation and amortization, and net income or loss from discontinued operations.

(2) Represents expenses related to management, monitoring, consulting, transaction, and advisory fees and related expenses paid to the affiliates of our Sponsors pursuant to the management agreement with THL Managers VI, LLC ("THLM") and Cannae. In April 2018, the management agreements terminated upon consummation of our IPO. Upon termination, the management agreements provided that we pay a termination fee equal to the net present value of the management fee for a seven-year period, which was $11.3 million. Please refer to Note 16 to our consolidated financial statements, "Related Party Transactions," for further information.

(3) Share-based compensation expense during the year months ended December 31, 2018, includes $8.1 million of expense recognized upon meeting the performance criteria of stock appreciation rights and performance-based stock options that were triggered by our IPO.

(4) Represents costs for severance compensation paid to employees whose positions have been eliminated or who have been terminated not for cause.

(5) Represents consulting fees and expenses incurred during the periods presented in connection with any acquisition, investment, disposition, recapitalization, equity offering, issuance or repayment of debt, issuance of equity interests, or refinancing.

(6) Reflects charges to increase the reserve for environmental claims from a predecessor company. Please refer to Note 12 to our consolidated financial statements for further information regarding our environmental reserves.

(7) Represents expenses related to the IPO and refinancing of our debt that were not eligible for capitalization.

The following tables present a reconciliation of our reported results to our non-GAAP Adjusted EBITDA basis for all periods presented:

	Year Ended December 31, 2018				
	As reported	Share-based compensation	Severance charges	Other operating expenses (1)	Adjusted
	(Dollars in millions)				
Cost of revenue:					
Recurring services	$ 200.3	$ 2.1	$ 1.3	$ —	$ 196.9
Professional services and other	132.2	1.2	1.0	—	130.0
Product development and management	59.0	1.1	0.1	—	57.8
Depreciation and amortization	34.3	—	—	—	34.3
Total cost of revenue	425.8	4.4	2.4	—	419.0
Sales and marketing	131.9	4.3	1.4	—	126.2
General and administrative	138.8	16.0	1.6	20.5	100.7
Other income, net	(2.9)	—	—	(2.9)	—
Operating profit	52.8	24.7	5.4	17.6	100.5
Depreciation and amortization	56.6	—	—	—	56.6
EBITDA from continuing operations	$ 109.4	$ 24.7	$ 5.4	$ 17.6	$ 157.1

(1) Other operating expenses includes sponsor management fees, intercompany foreign exchange gain, restructuring consulting fees, and transaction costs.

	Year Ended December 31, 2017				
	As reported	Share-based compensation	Severance charges	Other operating expenses (1)	Adjusted
	(Dollars in millions)				
Cost of revenue:					
Recurring services	$ 196.8	$ 1.0	$ 2.2	$ —	$ 193.6
Professional services and other	135.8	1.1	0.9	—	133.8
Product development and management	43.6	0.7	0.7	—	42.2
Depreciation and amortization	31.3	—	—	—	31.3
Total cost of revenue	407.5	2.8	3.8	—	400.9
Sales and marketing	116.7	1.7	1.1	—	113.9
General and administrative	106.3	11.6	0.7	1.9	92.1
Other expense (income), net	7.3	—	—	7.4	(0.1)
Operating profit	33.0	16.1	5.6	9.3	64.0
Depreciation and amortization	53.8	—	—	—	53.8

EBITDA from continuing operations	$ 86.8	$ 16.1	$ 5.6	$ 9.3	$ 117.8

(1) Other operating expenses includes sponsor management fees, intercompany foreign exchange loss (gain), and restructuring consulting fees.

	Year Ended December 31, 2016				
	As reported	Share-based compensation	Severance charges	Other operating expenses (1)	Adjusted
	(Dollars in millions)				
Cost of revenue:					
Recurring services	$ 214.4	$ 2.0	$ 1.6	$ —	$ 210.8
Professional services and other	115.6	—	1.7	—	113.9
Product development and management	43.3	0.8	1.4	—	41.1
Depreciation and amortization	23.1	—	—	—	23.1
Total cost of revenue	396.4	2.8	4.7	—	388.9
Sales and marketing	101.5	1.2	0.7	—	99.6
General and administrative	123.8	8.5	3.0	9.9	102.4
Other expense, net	12.9	—	—	12.7	0.2
Operating (loss) profit	(11.2)	12.5	8.4	22.6	32.3
Depreciation and amortization	53.2	—	—		53.2
EBITDA from continuing operations	$ 42.0	$ 12.5	$ 8.4	$ 22.6	$ 85.5

(1) Other operating expenses includes sponsor management fees, intercompany foreign exchange loss, restructuring consulting fees, asset impairments, and environmental reserve charges.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk.

We are exposed to market risks related to foreign currency exchange rates, interest rates, and pension obligations. We seek to minimize or manage these market risks through normal operating and financing activities. We do not trade or use instruments with the objective of earning financial gains on the market fluctuations, nor do we use instruments where there are not underlying exposures.

Foreign Currency Risk. Our results of operations and cash flows are subject to fluctuations due to changes in foreign currency exchange rates, particularly changes in the Canadian Dollar. Due to the relative size of our international operations to date, we have not instituted an active hedging program. We expect our international operations to continue to grow in the near term, and we are monitoring the foreign currency exposure to determine if we should begin a hedging program.

Interest Rate Risk. In connection with our U.S. and Canadian payroll and tax filing services, we collect funds for payment of payroll and taxes; temporarily hold such funds in trust until payment is due; remit the funds to the customers' employees and appropriate taxing authority; file federal, state and local tax returns; and handle related regulatory correspondence and amendments. We invest the U.S. customer trust funds primarily in high- quality bank deposits, money market mutual funds, or collateralized short-term investments. We may also invest these funds in U.S. Treasury and agency securities, as well as highly rated asset-backed, mortgage-backed, municipal, and corporate securities. Our Canadian customer trust funds are invested in securities issued by the government and provinces of Canada, highly rated Canadian banks and corporations, asset-backed trusts, and mortgages.

We do not enter into investments for trading or speculative purposes. Our cash equivalents and our portfolio of marketable securities are subject to market risk due to changes in interest rates. Fixed rate securities may have their market value adversely affected due to a rise in interest rates, while floating rate securities may produce less income than expected if interest rates fall. Due in part to these factors, our future investment income may fall short of expectation due to changes in interest rates or we may suffer losses in principal if we are forced to sell securities that decline in market value due to changes in interest rates. However, because we classify our securities as "available for sale," no gains or losses are recognized due to changes in interest rates unless such securities are sold prior to maturity or declines in fair value are determined to be other-than-temporary.

We do not believe that an increase or decrease in interest rates of 100 basis points would have a material effect on our operating results or financial condition. Fluctuations in the value of our investment securities caused by a change in interest rates (gains or losses on the carrying value) are recorded in other comprehensive income, and are realized only if we sell the underlying securities.

Pension Obligation Risk. We provide a pension plan for a number of former employees. In applying relevant accounting policies, we have made critical estimates related to actuarial assumptions, including assumptions of expected returns on plan assets, discount rates, and health care cost trends. The cost of pension benefits in future periods will depend on actual returns on plan assets, assumptions for future periods, contributions, and benefit experience. In 2018, we contributed $18.5 million to our pension plan.

The effective discount rate used in accounting for pension and other benefit obligations in 2018 ranged from 3.70% to 3.92%. The expected rate of return on plan assets for qualified pension benefits in 2018 was 6.30%. The following table reflects the estimated sensitivity associated with a change in certain significant actuarial assumptions (each assumption change is presented mutually exclusive of other assumption changes):

		Impact on 2018 Pension Expense Increase (Decrease)	
	Change in Assumption	Pension Benefits	Post Retirement
		(Dollars in millions)	
Increase in discount rate	50 basis points	$ 0.2	$ —

Decrease in discount rate	50 basis points	$	(0.2)	$	—
Increase in return on plan asset	50 basis points	$	(2.0)	$	—
Decrease in return on plan asset	50 basis points	$	2.0	$	—

Item 8. Financial Statements and Supplementary Data.

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Report of Independent Registered Public Accounting Firm

The Stockholders and Board of Directors
Ceridian HCM Holding Inc.:

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of Ceridian HCM Holding Inc. and its subsidiaries (the Company) as of December 31, 2018 and 2017, the related consolidated statements of operations, comprehensive income (loss), stockholders' equity, and cash flows for each of the years in the three year period ended December 31, 2018, and the related notes (collectively, the consolidated financial statements). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2018 and 2017, and the results of its operations and its cash flows for each of the years in the three year period ended December 31, 2018, in conformity with U.S. generally accepted accounting principles.

Basis for Opinion

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

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

/s/ KPMG LLP

We have served as the Company's auditor since 1958.

Minneapolis, Minnesota

February 28, 2019

Ceridian HCM Holding Inc.
Consolidated Balance Sheets
(Dollars in millions, except share data)

	December 31, 2018	December 31, 2017
ASSETS		
Current assets:		
Cash and equivalents	$ 217.8	$ 94.2
Trade and other receivables, net	69.9	66.6
Prepaid expenses	40.3	36.4
Assets of discontinued operations	—	156.2
Other current assets	2.0	5.3
Total current assets before customer trust funds	330.0	358.7
Customer trust funds	2,603.5	4,099.7
Total current assets	2,933.5	4,458.4
Property, plant, and equipment, net	104.4	102.0
Goodwill	1,927.4	1,961.0
Other intangible assets, net	187.5	206.5
Other assets	1.6	2.0
Total assets	$ 5,154.4	$ 6,729.9
LIABILITIES AND EQUITY		
Current liabilities:		
Current portion of long-term debt	6.8	$ —
Accounts payable	41.5	44.4
Accrued interest	0.1	15.9
Deferred revenue	17.2	14.0
Employee compensation and benefits	54.5	68.8
Liabilities of discontinued operations	0.2	19.6
Other accrued expenses	23.6	15.0
Total current liabilities before customer trust funds obligations	143.9	177.7
Customer trust funds obligations	2,619.7	4,105.5
Total current liabilities	2,763.6	4,283.2
Long-term debt, less current portion	663.5	1,119.8
Employee benefit plans	153.3	152.4
Other liabilities	42.0	45.5
Total liabilities	3,622.4	5,600.9
Commitments and contingencies (Note 15)		
Stockholders' equity:		
Senior preferred stock, $0.01 par, 70,000,000 shares authorized, 16,802,144 shares issued and outstanding as of December 31, 2017	—	184.8
Junior preferred stock, $0.01 par, 70,000,000 shares authorized, 58,244,308 shares issued and outstanding as of December 31, 2017	—	0.6
Common stock, $0.01 par, 500,000,000 shares authorized, 139,453,710 shares issued and outstanding as of December 31, 2018, and 150,000,000 shares authorized, 65,285,962 shares issued and outstanding as of December 31, 2017	1.4	0.7
Additional paid in capital	2,325.6	1,565.4
Accumulated deficit	(419.3)	(348.2)
Accumulated other comprehensive loss	(375.7)	(312.1)
Total stockholders' equity	1,532.0	1,091.2
Noncontrolling interest	—	37.8
Total equity	1,532.0	1,129.0
Total liabilities and equity	$ 5,154.4	$ 6,729.9

See accompanying notes to consolidated financial statements.

Ceridian HCM Holding Inc.
Consolidated Statements of Operations
(Dollars in millions, except share and per share data)

	Year Ended December 31, 2018	Year Ended December 31, 2017	Year Ended December 31, 2016
Revenue:			
Recurring services	$ 652.5	$ 598.5	$ 558.5
Professional services and other	93.9	72.3	64.9
Total revenue	746.4	670.8	623.4

Cost of revenue:			
Recurring services	200.3	196.8	214.4
Professional services and other	132.2	135.8	115.6
Product development and management	59.0	43.6	43.3
Depreciation and amortization	34.3	31.3	23.1
Total cost of revenue	425.8	407.5	396.4
Gross profit	320.6	263.3	227.0
Costs and expenses:			
Selling, general and administrative	270.7	223.0	225.3
Other (income) expense, net	(2.9)	7.3	12.9
Operating profit (loss)	52.8	33.0	(11.2)
Interest expense, net	83.2	87.1	87.4
Loss from continuing operations before income taxes	(30.4)	(54.1)	(98.6)
Income tax expense (benefit)	7.7	(49.6)	6.7
Loss from continuing operations	(38.1)	(4.5)	(105.3)
(Loss) income from discontinued operations	(25.8)	(6.0)	12.5
Net loss	(63.9)	(10.5)	(92.8)
Net (loss) income attributable to noncontrolling interest	(0.5)	(1.3)	0.1
Net loss attributable to Ceridian	$ (63.4)	$ (9.2)	$ (92.9)
Net loss per share attributable to Ceridian—basic and diluted (Note 19)	$ (0.62)	$ (0.46)	$ (1.65)
Weighted-average shares used to compute net loss per share attributable to Ceridian—basic and diluted (Note 19)	114,049,682	65,204,960	64,988,338

See accompanying notes to consolidated financial statements.

Ceridian HCM Holding Inc.
Consolidated Statements of Comprehensive Income (Loss)
(Dollars in millions)

	Year Ended December 31,		
	2018	2017	2016
Net loss	$ (63.9)	$ (10.5)	$ (92.8)
Items of other comprehensive income (loss) before income taxes:			
Change in foreign currency translation adjustment	(47.4)	39.7	24.4
Change in unrealized gain from invested customer trust funds	(10.5)	(17.3)	(10.2)
Change in pension liability adjustment (1)	(7.6)	13.8	13.6
Other comprehensive (loss) income before income taxes	(65.5)	36.2	27.8
Income tax (benefit) expense, net	(1.2)	(3.6)	0.6
Other comprehensive (loss) income after income taxes	(64.3)	39.8	27.2
Comprehensive (loss) income	(128.2)	29.3	(65.6)
Comprehensive loss attributable to noncontrolling interest	(0.5)	(0.9)	(0.5)
Comprehensive (loss) income attributable to the Ceridian	$ (127.7)	$ 30.2	$ (65.1)

(1) The amount of the pension liability adjustment recognized in the Consolidated Statements of Operations within selling, general, and administrative expense was $11.7, $10.1 and $9.9 during the years ended December 31, 2018, 2017, and 2016, respectively.

See accompanying notes to consolidated financial statements.

Ceridian HCM Holding Inc.
Consolidated Statements of Stockholders' Equity
(Dollars in millions, except share data)

	Senior Preferred Stock		Junior Preferred Stock		Common Stock		Additional Paid In Capital	Accumulated Deficit	Accumulated Other Comprehensive Loss	Receivable from Stockholder	Total Stockholders Equity	Non-controlling Interest	Total Equity
	Shares	$	Shares	$	Shares	$							
Balance as of December 31, 2015	—	$ —	58,244,308	$ 0.6	64,924,845	$ 0.7	$ 1,531.5	$ (211.5)	$ (379.2)	$ —	$ 942.1	$ —	$ 942.1
Net (loss)													

income	—	—	—	—	—	—	—	(92.9)	—	—	(92.9)	0.1	(92.8)
Issuance of Common Stock upon vesting of restricted stock units	—	—	—	—	76,192	—	—	—	—	—	—	—	—
Issuance of Senior Preferred Stock	16,802,144	150.2	—	—	—	—	—	—	—	(75.2)	75.0	—	75.0
Addition of noncontrolling interest	—	—	—	—	—	—	—	—	—	—	—	39.2	39.2
Sale of the UK Business, net of tax $2.5	—	—	—	—	—	—	—	—	25.9	—	25.9	—	25.9
Senior preferred dividends declared	—	14.1	—	—	—	—	—	(14.1)	—	—	—	—	—
Share-based compensation	—	—	—	—	—	—	15.3	—	—	—	15.3	—	15.3
Foreign currency translation	—	—	—	—	—	—	—	—	8.0	—	8.0	(0.6)	7.4
Change in unrealized loss, net of tax of ($2.0)	—	—	—	—	—	—	—	—	(8.2)	—	(8.2)	—	(8.2)
Change in minimum pension & postretirement liability, net of tax of $0.1	—	—	—	—	—	—	—	—	2.0	—	2.0	—	2.0
Balance as of December 31, 2016	16,802,144	$ 164.3	58,244,308	$ 0.6	65,001,037	$ 0.7	$ 1,546.8	$ (318.5)	$ (351.5)	$ (75.2)	$ 967.2	$ 38.7	$ 1,005.9
Net loss	—	—	—	—	—	—	—	(9.2)	—	—	(9.2)	(1.3)	(10.5)
Issuance of common stock	—	—	—	—	183,425	—	3.2	—	—	—	3.2	—	3.2
Issuance of common stock upon exercise of options	—	—	—	—	653,214	—	—	—	—	—	—	—	—
Issuance of common stock upon vesting of restricted stock units	—	—	—	—	76,190	—	—	—	—	—	—	—	—
Share repurchase	—	—	—	—	(627,904)	—	(1.8)	—	—	—	(1.8)	—	(1.8)
Payment for Issuance of Senior Preferred Stock	—	—	—	—	—	—	—	—	—	75.2	75.2	—	75.2
Senior preferred dividends declared	—	20.5	—	—	—	—	—	(20.5)	—	—	—	—	—
Share-based compensation	—	—	—	—	—	—	17.2	—	—	—	17.2	—	17.2
Foreign currency translation	—	—	—	—	—	—	—	—	39.3	—	39.3	0.4	39.7
Change in unrealized loss, net of tax ($3.6)	—	—	—	—	—	—	—	—	(13.7)	—	(13.7)	—	(13.7)
Change in minimum pension & postretirement liability, net of tax of $0.0	—	—	—	—	—	—	—	—	13.8	—	13.8	—	13.8
Balance as of December 31, 2017	16,802,144	$ 184.8	58,244,308	$ 0.6	65,285,962	$ 0.7	$ 1,565.4	$ (348.2)	$ (312.1)	$ —	$ 1,091.2	$ 37.8	$ 1,129.0
Net loss	—	—	—	—	—	—	—	(63.4)	—	—	(63.4)	(0.5)	(63.9)
Issuance of common stock	—	—	—	—	28,695,455	0.3	594.7	—	—	—	595.0	—	595.0
Issuance of common stock upon exercise													

of options	—	—	—	—	3,119,653	—	45.0	—	—	—	45.0	—	45.0
Issuance of common stock upon vesting of restricted stock units	—	—	—	—	105,990	—	—	—	—	—	—	—	—
Senior preferred dividends declared	—	7.7	—	—	—	—	—	(7.7)	—	—	—	—	—
Conversion of senior and junior preferred shares	(16,802,144)	(192.5)	(58,244,308)	(0.6)	42,246,650	0.4	192.7	—	—	—	—	—	—
LifeWorks Disposition							(95.7)		0.7		(95.0)	(37.3)	(132.3)
Share-based compensation	—	—	—	—	—	—	23.5	—	—	—	23.5	—	23.5
Foreign currency translation	—	—	—	—	—	—	—	—	(47.4)	—	(47.4)	—	(47.4)
Change in unrealized loss, net of tax ($1.2)	—	—	—	—	—	—	—	—	(9.3)	—	(9.3)	—	(9.3)
Change in minimum pension & postretirement liability, net of tax of $0.0	—	—	—	—	—	—	—	—	(7.6)	—	(7.6)	—	(7.6)
Balance as of December 31, 2018	—	$ —	—	$ —	139,453,710	$ 1.4	$ 2,325.6	$ (419.3)	$ (375.7)	$ —	$ 1,532.0	$ —	$ 1,532.0

See accompanying notes to consolidated financial statements.

Ceridian HCM Holding Inc.
Consolidated Statements of Cash Flows
(Dollars in millions)

	Year Ended December 31,		
	2018	2017	2016
Net loss	$ (63.9)	$ (10.5)	$ (92.8)
Loss (income) from discontinued operations	25.8	6.0	(12.5)
Adjustments to reconcile net loss to net cash provided by (used in) operating activities:			
Deferred income tax benefit	(16.8)	(62.3)	(8.3)
Depreciation and amortization	56.6	53.8	53.2
Asset impairment	—	—	10.4
Amortization of debt issuance costs and debt discount	2.1	3.7	3.5
Loss on debt extinguishment	25.7	—	—
Net periodic pension and postretirement cost	2.7	1.5	3.0
Share-based compensation	23.2	16.1	12.5
Environmental reserve	—	—	5.9
Other	0.3	(0.5)	1.2
Changes in operating assets and liabilities excluding effects of acquisitions and divestitures:			
Trade and other receivables	(5.3)	5.3	(5.8)
Prepaid expenses and other current assets	(4.6)	(6.9)	1.1
Accounts payable and other accrued expenses	(6.4)	0.1	(4.4)
Deferred revenue	3.5	2.6	(1.8)
Employee compensation and benefits	(22.1)	(26.1)	(49.1)
Accrued interest	(15.7)	(4.8)	(0.2)
Accrued taxes	8.4	(6.7)	14.7
Other assets and liabilities	(2.8)	(0.7)	(3.8)
Net cash provided by (used in) operating activities—continuing operations	10.7	(29.4)	(73.2)
Net cash used in operating activities—discontinued operations	(1.2)	(10.4)	(2.3)
Net cash provided by (used in) operating activities	9.5	(39.8)	(75.5)
Cash Flows from Investing Activities			
Purchase of customer trust funds marketable securities	(855.2)	(598.5)	(699.7)
Proceeds from sale and maturity of customer trust funds marketable securities	844.3	610.2	677.6
Net change in restricted cash and other restricted assets held to satisfy customer trust funds obligations	1,430.3	(367.8)	677.8
Expenditures for property, plant, and equipment	(8.0)	(17.5)	(7.4)
Expenditures for software and technology	(32.2)	(33.1)	(25.5)
Net proceeds from divestitures	—	(0.5)	101.6
Net cash provided by (used in) investing activities—continuing operations	1,379.2	(407.2)	724.4
Net cash (used in) provided by investing activities—discontinued operations	—	(0.2)	38.6

Net cash provided by (used in) investing activities	1,379.2	(407.4)	763.0
Cash Flows from Financing Activities			
(Decrease) increase in customer trust funds obligations, net	(1,419.4)	356.1	(655.7)
Net proceeds from issuance of stock	595.0	78.4	75.0
Proceeds from issuance of common stock upon exercise of stock options	45.8	—	—
Repurchase of stock	—	(1.8)	—
Proceeds from debt issuance	680.0	—	—
Repayment of long-term debt obligations	(1,134.0)	(25.9)	(11.8)
Payment of debt refinancing costs	(23.3)	—	—
Net cash (used in) provided by financing activities—continuing operations	(1,255.9)	406.8	(592.5)
Net cash used in financing activities—discontinued operations	—	—	(38.2)
Net cash (used in) provided by financing activities	(1,255.9)	406.8	(630.7)
Effect of Exchange Rate Changes on Cash	(9.7)	8.6	1.3
Net increase (decrease) in cash and equivalents	123.1	(31.8)	58.1
Elimination of cash from discontinued operations	0.5	5.2	(0.5)
Cash and equivalents at beginning of year	94.2	120.8	63.2
Cash and equivalents at end of year	$ 217.8	$ 94.2	$ 120.8
Supplemental Cash Flow Information:			
Cash paid for interest	$ 74.5	$ 89.7	$ 84.9
Cash paid for income taxes	$ 21.1	$ 21.3	$ 14.8
Cash received from income tax refunds	$ 4.4	$ 1.9	$ 0.2

See accompanying notes to consolidated financial statements.

Ceridian HCM Holding Inc.
Notes to Consolidated Financial Statements
(Dollars in millions, except share and per share data)

1. Organization

Ceridian HCM Holding Inc. and its subsidiaries (also referred to in this report as “Ceridian,” “we,” “our,” and “us”) offer a broad range of services and software designed to help employers more effectively manage employment processes, such as payroll, payroll-related tax filing, human resource information systems, employee self-service, time and labor management, and recruitment and applicant screening. Our technology-based services are typically provided through long-term customer relationships that result in a high level of recurring revenue. Our operations are primarily located in the United States and Canada.

On April 30, 2018, we completed our initial public offering (“IPO”), in which we issued and sold 21,000,000 shares of common stock at a public offering price of $22.00 per share. We granted the underwriters a 30-day option to purchase an additional 3,150,000 shares of common stock at the offering price, which was exercised in full. A total of 24,150,000 shares of common stock were issued in our IPO. Concurrently with our IPO, we issued an additional 4,545,455 shares of our common stock in a private placement at $22.00 per share. We received gross proceeds of $631.3 from the IPO and concurrent private placement before deducting underwriting discounts, commissions, and other offering related expenses.

The use of the proceeds from the IPO were as follows:

Gross proceeds	$ 631.3
Less:	
Underwriters' discount and commissions	29.2
IPO-related expenses	11.8
Redemption of 11% Senior Notes due 2021 (Note 9)	475.0
Call premium on redemption of 11% Senior Notes due 2021	13.1
Interest on redemption of 11% Senior Notes due 2021	10.9
Sponsor management fee	11.3
Debt refinancing expenses	11.4
Cash to balance sheet	$ 68.6

On November 16, 2018, we completed a secondary offering, in which certain of our stockholders (the “Selling Stockholders”) sold 11,000,000 shares of common stock, in an underwritten public offering at $36.00 per share. The Selling Stockholders granted the underwriters a 30-day option to purchase an additional 1,650,000 shares of common stock at the offering price, which was exercised in full. A total of 12,650,000 shares of common stock were sold by the Selling Stockholders on November 16, 2018, with all proceeds going to the Selling Stockholders. We incurred expenses of $1.3 during the year ended December 31, 2018, related to the secondary offering within selling, general and administrative expense.

Prior to our IPO, Ceridian HCM Holding Inc. was primarily owned by Ceridian LLC (the “Parent”) and Ceridian Holding II LLC (“Ceridian Holding II”). The Parent was 100% owned by Foundation Holding LLC, which in turn was 100% owned by Ceridian Holding LLC (“Ceridian Holding”). The owners of Ceridian Holding and Ceridian Holding II included (i) affiliates and co-investors of Thomas H. Lee Partners, L.P. (“THL Partners”) and Cannae Holdings, LLC (“Cannae”) (THL Partners and Cannae are together referred to as the “Sponsors”), who collectively owned approximately 96% of the outstanding interests of both Ceridian Holding and Ceridian Holding II, and (ii) other individuals, who collectively owned approximately 4% of the outstanding interests of each holding company.

Subsequent to the IPO and concurrent private placement, we completed an internal corporate reorganization, pursuant to which the limited liability companies that held shares in us were merged with and into Ceridian HCM Holding Inc. At the time of these transactions, these limited liability companies had no assets other than equity interests in us or the other limited liability companies. As a result of these transactions, our previous, pre-IPO stockholders now hold shares of our common stock directly, rather than through a series of limited liability companies. These transactions had no impact on our assets, liabilities, or operations.

Our History

Ceridian was acquired in 2007 by affiliates and co-investors of the Sponsors (the "2007 Merger"). In April 2012, Ceridian acquired Dayforce Corporation, which had built Dayforce, a cloud HCM solution. In the months following the acquisition, Dayforce founder, David D. Ossip, was named Chief Executive Officer of Ceridian HCM, and shortly thereafter, we generally stopped actively selling our Bureau solutions to new customers in the United States to focus our resources on expanding the Dayforce platform and growing Cloud solutions.

As part of our strategy to focus on the growth of our Cloud solutions business, we undertook the following initiatives to simplify our business model:

(i) sold our consumer-directed benefit services business in 2013,

(ii) merged Comdata, our payment systems business unit, with FleetCor Technologies in 2014,

(iii) sold our benefits administration and post-employment compliance business in 2015,

(iv) sold our United Kingdom and Ireland Bureau businesses and a portion of our operations that supported such businesses in Mauritius in 2016, and

(v) contributed our LifeWorks employee assistance program business to a joint venture, LifeWorks, in 2016, then distributed our ownership in this joint venture to a holding company owned by our stockholders in April 2018.

As a result of these transactions, we only actively sell Dayforce and Powerpay, which we believe simplifies our business model and positions us well for continued growth. Please refer to Note 3, "Discontinued Operations," for further discussion of these transactions.

2. Summary of Significant Accounting Policies

Basis of Presentation

The accompanying consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States ("GAAP"). The accompanying consolidated financial statements include the operations and accounts of Ceridian and all subsidiaries, as well as any variable interest entity ("VIE") in which we have controlling financial interest. All intercompany balances and transactions have been eliminated from our consolidated financial statements.

We consolidate the grantor trusts that hold funds provided by our payroll and tax filing customers pending remittance to employees of those customers or tax authorities in the United States and Canada, although Ceridian does not own the grantor trusts. Under consolidation accounting, the enterprise with a controlling financial interest consolidates a VIE. A controlling financial interest in an entity is determined through analysis that identifies the primary beneficiary which has (1) the power to direct the activities of a VIE that most significantly impact the entity's economic performance and (2) the obligation to absorb losses of the entity that could potentially be significant to the VIE or the right to receive benefits from the entity that could potentially be significant to the VIE. In addition, ongoing reassessments must be performed to confirm whether an enterprise is the primary beneficiary of a VIE. The grantor trusts are VIEs, and we are deemed to have a controlling financial interest as the primary beneficiary. Please refer to Note 5, "Customer Trust Funds," for further information on our accounting for these funds.

Reverse Stock Split

On April 10, 2018, we effected a 1-for-2 reverse stock split of our common stock. All of the common share and per share information referenced throughout the consolidated financial statements and accompanying notes thereto have been retroactively adjusted to reflect this reverse stock split.

Use of Estimates

The preparation of consolidated financial statements in conformity with GAAP requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of our financial statements and our reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates. Estimates that could significantly affect our results of operations or financial condition include the assignment of fair values to goodwill and other intangible assets and testing for impairment; the testing of impairment of long-lived assets; the determination of our liability for pensions and postretirement benefits; the determination of fair value of stock options granted; and the resolution of tax matters and legal contingencies. Further discussion on these estimates can be found in related disclosures elsewhere in our notes to the consolidated financial statements.

Cash and Equivalents

As of December 31, 2018, and 2017, cash and equivalents were comprised of cash held in bank accounts and investments with an original maturity of three months or less.

Concentrations

Cash deposits of client and corporate funds are maintained primarily in large credit-worthy financial institutions in the countries in which we operate. These deposits may exceed the amount of any deposit insurance that may be available through government agencies. All deliverable securities are held in custody with large credit-worthy financial institutions, which bear the risk of custodial loss. Non-deliverable securities, primarily money market securities, are held in custody by large, credit-worthy broker-dealers and financial institutions.

Trade and Other Receivables, Net

Trade and other receivables balances are presented on the consolidated balance sheets net of the allowance for doubtful accounts of $1.3 and $1.3 and the reserve for sales adjustments of $3.8 and $4.7 as of December 31, 2018 and 2017, respectively. We experience credit losses on accounts receivable and, accordingly, must make estimates related to the ultimate collection of the receivables. Specifically, management analyzes accounts receivable, historical bad debt experience, customer concentrations, customer creditworthiness, and current economic trends when evaluating the adequacy of the allowance for doubtful accounts. We estimate the reserve for sales adjustment based on historical sales adjustment experience. We write off accounts receivable when we determine that the accounts are uncollectible, generally upon customer bankruptcy or the customer's nonresponse to continued collection efforts.

Property, Plant, and Equipment

Our property, plant, and equipment assets are stated at cost less depreciation. Depreciation is calculated on a straight-line basis over the shorter of the remaining lease term or estimated useful life of the related assets, which are generally as follows:

Buildings	40 years
Building improvements	5 years
Machinery and equipment	4-6 years
Computer equipment	3-4 years

Repairs and maintenance costs are expensed as incurred. We capitalized interest of $0.5 and $0.6 in property, plant, and equipment during the years ended December 31, 2018 and 2017, respectively. Property, plant, and equipment assets are assessed for impairment as described under the heading "Impairment of Long-Lived Assets" below.

Assignment of Fair Values Upon Acquisition of Goodwill and Other Intangible Assets

In the event of a business combination where we are the acquiring party, we are required to assign fair values to all identifiable assets and liabilities acquired, including intangible assets, such as customer lists, identifiable intangible trademarks, technology and non-compete agreement. We are also required to determine the useful life for definite-lived identifiable intangible assets acquired. These determinations require significant judgments, estimates, and assumptions; and, when material amounts are involved, we generally utilize the assistance of third-party valuation consultants. The remainder of the purchase price of the acquired business not assigned to identifiable assets or liabilities is then recorded as goodwill.

In conjunction with the 2007 Merger, affiliates of the Sponsors completed the acquisition of all outstanding equity of the Ceridian entities. Although Parent continued as the same legal entity after the 2007 Merger, the application of push down accounting representing the termination of the old accounting entity and the creation of a new one resulted in the adjustment of all net assets to their respective fair values as of the 2007 Merger. Net assets of the Parent were adjusted to their respective fair values, which included goodwill, trademarks, customer lists, and other intangible assets.

Goodwill and Intangible Assets

Goodwill, which represents the excess purchase price over the fair value of net assets of businesses acquired, is assigned to reporting units based on the benefits derived from the acquisition. Goodwill and indefinite-lived intangibles are not amortized against earnings, but instead are subject to impairment review on at least an annual basis. We perform our annual assessment of goodwill and indefinite-lived intangible balances as of October 1 of each year. There was no indication of impairment at October 1, 2018.

We assess goodwill impairment risk by first performing a qualitative review of entity-specific, industry, market, and general economic factors for each reporting unit. If significant potential goodwill impairment risk exists for a specific reporting unit, we apply a quantitative test. The quantitative test compares the reporting unit's estimated fair value with its carrying amount. In estimating fair value of our reporting units, we use a combination of the income approach and the market-based approach. A number of significant assumptions and estimates are involved in determining the current fair value of the reporting units, including operating cash flows, markets and market share, sales volumes and prices, and working capital changes. We consider historical experience and all available information at the time the fair values of our reporting units are estimated. However, fair values that could be realized in an actual transaction may differ from those used to evaluate the goodwill for impairment. The evaluation of impairment involves comparing the current fair value of the reporting unit to the carrying amount. To the extent that the carrying amount of goodwill of the reporting unit exceeds the fair value of the reporting unit, an impairment loss is recognized.

Intangible assets represent amounts assigned to specifically identifiable intangible assets at the time of an acquisition. Definite-lived assets are amortized on a straight-line basis generally over the following periods:

Customer lists and relationships	5-15 years
Technology	3-4 years

Indefinite-lived intangible assets, which consist of trade names, are tested for impairment on an annual basis, or more frequently if certain events or circumstances occur that could indicate impairment. When evaluating whether the indefinite-lived intangible assets are impaired, the carrying amount is compared to its estimated fair value. The estimate of fair value is based on a relief from royalty method which calculates the cost savings associated with owning rather than licensing the trademark. An estimated royalty rate is applied to forecasted revenue and the resulting cash flows are discounted. Definite-lived assets are assessed for impairment as described under the heading “Impairment of Long-Lived Assets” below.

Internally Developed Software Costs

In accordance with Accounting Standards Codification (“ASC”) Topic 350, we capitalize costs associated with software developed or obtained for internal use when both the preliminary project stage is completed and our management has authorized further funding for the project, which it deems probable of completion. Capitalized software costs include only: (1) external direct costs of materials and services consumed in developing or obtaining the software; (2) payroll and payroll-related costs for employees who are directly associated with and who devote time to the project; and (3) interest costs incurred while developing the software. Capitalization of these costs ceases no later than the point at which the project is substantially complete and ready for its intended purpose. We do not include general and administrative costs and overhead costs in capitalizable costs. We charge research and development costs, product management, and other software maintenance costs related to software development to earnings as incurred.

We had capitalized software costs, net of accumulated amortization, of $61.9 and $56.4 as of December 31, 2018 and 2017, respectively, included in property, plant, and equipment in the accompanying consolidated balance sheets. We amortize software costs on a straight-line basis over the expected life of the software, generally a range of two to seven years. Amortization of software costs totaled $26.2, $23.6, and $20.9 for the years ended December 31, 2018, 2017, and 2016, respectively.

Impairment of Long-Lived Assets

Long-lived assets, such as property, plant, and equipment, capitalized software, and definite-lived intangible assets are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset group may not be recoverable. Recoverability of asset groups to be held and used is measured by a comparison of the carrying amount of an asset group to the estimated undiscounted future cash flows expected to be generated by the asset group. If the carrying amount of an asset group exceeds its estimated future cash flows, an impairment charge is recognized for the amount by which the carrying amount of the asset group exceeds the fair value of the asset group.

Revenue Recognition

We recognize revenue from the sale of our services, net of applicable sales taxes, when the following criteria are met: (1) persuasive evidence of an arrangement exists; (2) delivery has occurred or services have been rendered; (3) the seller’s price to the buyer is fixed or determinable; and (4) collectability is reasonably assured. We rely on a signed contract with the customer as the persuasive evidence of a sales arrangement.

We enter into revenue arrangements that may consist of multiple deliverables based on the needs of our customers. For example, our services address a broad range of employment process needs, such as payroll, payroll-related tax filing, human resource information, employee self-service capabilities, time and labor management, and recruitment and applicant screening. A customer arrangement may contain any of these elements with different elements delivered across multiple reporting periods.

We have a single unit of accounting for each deliverable in a contract based on the use of estimated selling price (“ESP”) in those cases where vendor-specific objective evidence of selling price (“VSOE”) or third party evidence (“TPE”) cannot be established. Our determination of ESP involves the consideration of several factors based on the specific facts and circumstances of each contract. Specifically, we consider the cost to produce or to provide the deliverable, the anticipated margin on that deliverable, the selling price and profit margin for similar services, the value of any enhancements that have been built into the deliverable and the characteristics of the varying markets in which the deliverable will be sold.

When we are unable to establish a selling price using VSOE or TPE, we use ESP in the allocation of arrangement consideration. The objective of ESP is to determine the price at which we would transact a sale if the service were sold on a stand-alone basis.

We regularly review VSOE, TPE, and ESP and maintain internal controls over the establishment and updates of these estimates. There were no material impacts during the period nor do we currently expect a material impact in the near term from changes in VSOE, TPE, or ESP.

Deferred revenue primarily consists of customer billings in advance of revenues being recognized from our contracts. Deferred revenue also includes certain deferred professional services fees that are accounted for as a single unit of accounting with subscription fees and are recognized as

revenues over the same period as the related customer contract. Deferred revenue that is anticipated to be recognized during the succeeding twelve-month period is recorded as current deferred revenue and the remaining portion is recorded as noncurrent.

Recurring Services Revenues

Revenues are presented within the consolidated statements of operations in two categories: recurring services, and professional services and other. Recurring services revenues consist of monthly fees that we charge for our Cloud and Bureau solutions. For our Dayforce solutions, we primarily charge monthly recurring fees on a per employee, per month ("PEPM") basis, generally one-month in advance of service, based on the number and type of solutions provided to the customer and the number of employees at the customer. We charge Powerpay customers monthly recurring fees on a per-employee, per-process basis. For our Bureau solutions, we typically charge monthly recurring fees on a per-process basis. The typical recurring services customer contract has an initial term of three years. The initial recurring services contracts have general acceptance criteria that consist of the completion of user acceptance testing. Any credits related to service level commitments are recognized as incurred, as service level failures are not anticipated at contract signing. Should a customer cancel the initial contract, an early termination fee may be applicable, and revenue is recognized upon collection. We also generate recurring services revenue from investment income on our Cloud and Bureau customer funds held in trust before such funds are remitted to taxing authorities, customer employees, or other third parties. We refer to this investment income as float revenue. Please refer to Note 17, "Financial Data by Segment and Geographic Area," for a full description of our sources of revenue.

Professional Services and Other Revenues

Professional services and other revenues consist primarily of charges relating to the work performed to assist customers with the planning, design, implementation, and staging of their solutions. Also included in professional services are any related training services, post-implementation professional services, and purchased time clocks. We also generate professional services and other revenues from custom professional services and consulting services that we provide and for certain third-party services that we arrange for our Bureau customers. Professional services revenue is primarily recognized as hours are incurred.

Costs and Expenses

Cost of Revenue

Cost of revenue consists of costs to deliver our revenue-producing services. Most of these costs are recognized as incurred, that is, as we become obligated to pay for them. Some costs of revenue are recognized in the period that a service is sold and delivered. Other costs of revenue are recognized over the period of use or in proportion to the related revenue.

The costs recognized as incurred consist primarily of customer service staff costs, customer technical support costs, implementation personnel costs, costs of hosting applications, consulting and purchased services, delivery services, and royalties. The costs of revenue recognized over the period of use are depreciation and amortization, rentals of facilities and equipment, and direct and incremental costs associated with deferred implementation service revenue.

Cost of recurring services revenues primarily consists of costs to provide maintenance and technical support to our customers, and the costs of hosting our applications. The cost of recurring services revenues includes compensation and other employee-related expenses for data center staff, payments to outside service providers, data center, and networking expenses.

Cost of professional services and other revenues primarily consists of costs to provide implementation consulting services and training to our customers, as well as the cost of time clocks. Costs to provide implementation consulting services include compensation and other employee-related expenses for professional services staff, costs of subcontractors, and travel.

Product development and management expense includes costs related to software development activities that do not qualify for capitalization, such as development, quality assurance, testing of new technologies, and enhancements to our existing solutions that do not result in additional functionality. Product development and management expense also includes costs related to the management of our service offerings. Research and development expense, which is included within product development and management expense, was $29.6, $19.0, and $13.0 for the years ended December 31, 2018, 2017, and 2016, respectively.

Depreciation and amortization related to cost of revenue primarily consists of amortization of capitalized software.

Selling, General, and Administrative Expense

Selling expense includes costs related to maintaining a direct marketing infrastructure and sales force and other direct marketing efforts, such as marketing events, advertising, telemarketing, direct mail, and trade shows. Advertising costs are expensed as incurred. Advertising expense was $5.8, $5.6, and $5.9 for the years ended December 31, 2018, 2017, and 2016, respectively.

General and administrative expense includes costs that are not directly related to delivery of services, selling efforts, or product development, primarily consisting of corporate-level costs, such as administration, finance, legal and human resources. Also included in this category are depreciation, and amortization of other intangible assets not reflected in cost of revenue, the provision for doubtful accounts receivable, and net periodic pension costs.

Other (Income) Expense, Net

Other (income) expense, net includes the results of transactions that are not appropriately classified in another category. These items are primarily

foreign currency translation gains and losses resulting mainly from intercompany receivables and payables denominated in currencies other than the subsidiary's functional currency, environmental reserve charges, and charges related to the impairment of asset values.

Income Taxes

Income taxes have been provided for using the asset and liability method. The asset and liability method requires an asset and liability based approach in accounting for income taxes. Deferred tax assets and liabilities are recorded for temporary differences between the financial reporting basis and the tax basis of assets and liabilities as adjusted for the expected benefits of utilizing net operating loss carryforwards. The impact on deferred taxes of changes in tax rates and laws, if any, applied to the years during which temporary differences are expected to be settled, is reflected in the consolidated financial statements in the period of enactment.

We classify interest and penalties related to income taxes as a component of the income tax provision.

Fair Value of Financial Instruments

The carrying amounts of cash and equivalents, trade and other receivables, net, customer trust funds, customer trust funds obligations, customer advance payments, and accounts payable approximate fair value because of the short-term nature of these items.

Share-Based Compensation

Our employees participate in share-based compensation plans. Under the fair value recognition provisions of share-based compensation accounting, we measure share-based compensation cost at the grant date based on the fair value of the award and recognize the compensation expense over the requisite service period, which is the period during which an employee is required to provide services in exchange for the award.

We use the Black-Scholes standard option pricing model ("Black-Scholes model") to determine the fair value of stock options with term-based vesting conditions. The determination of the fair value of the awards on the date of grant using the Black-Scholes model is affected by the value of our common stock as well as other inputs and assumptions described below. Prior to our IPO, the value of our common stock was determined by the Board of Directors with assistance from a third-party valuation expert.

If factors change and we employ different assumptions for estimating share-based compensation expense in future periods or if we adopt a different valuation model, the future periods may differ significantly from what we have recorded in the current period and could materially affect our operating results.

To determine the fair value of both term- and performance-based stock options, the risk-free interest rate used was based on the implied yield currently available on U.S. Treasury zero coupon issues with remaining term equal to the contractual term of the performance-based options and the expected term of the term-based options. Given our limited history as a public company, the estimated volatility of our common stock is based on volatility data for selected comparable public companies over the expected term of our stock options. Because we do not anticipate paying any cash dividends in the foreseeable future, we use an expected dividend yield of zero. The amount of share-based compensation expense we recognize during a period is based on the portion of the awards that are ultimately expected to vest.

We estimate option forfeitures at the time of grant and revise those estimates in subsequent periods if actual forfeitures differ from those estimates. We analyze historical data to estimate pre-vesting forfeitures and record share-based compensation expense for those awards expected to vest. We recognize term-based stock compensation expense using the straight-line method.

Pension and Other Postretirement Benefits Liability

We present information about our pension and postretirement benefit plans in Note 10 to our consolidated financial statements, "Employee Benefit Plans." Liabilities and expenses for pensions and other postretirement benefits are determined with the assistance of third-party actuaries, using actuarial methodologies and incorporating significant assumptions, including the rate used to discount the future estimated liability, the long-term rate of return on plan assets, and several assumptions relating to the employee workforce (medical costs, retirement age and mortality). The discount rate assumption utilizes a full yield curve approach by applying the specific spot rates along the yield curve used in the determination of the benefit obligation to the relevant projected cash flows. The impact of a change in the discount rate of 25 basis points would be approximately $12 million on the liabilities and $0.1 million on pre-tax earnings in the following year. The long-term rate of return is estimated by considering historical returns and expected returns on current and projected asset allocations and is generally applied to a five-year average market value of assets. A change in the assumption for the long-term rate of return on plan assets of 25 basis points would impact pre-tax earnings by approximately $1 million. At December 31, 2017, we updated our mortality assumptions utilizing an improvement scale issued by the Society of Actuaries in October 2017, which resulted in a $6.0 million reduction in the projected benefit obligation. At December 31, 2018, we updated our mortality assumptions utilizing an improvement scale issued by the Society of Actuaries in October 2018, which resulted in a $1.5 million reduction in the projected benefit obligation.

Foreign Currency Translation

We have international operations whereby the local currencies serve as functional currencies. We translate foreign currency denominated assets and liabilities at the end-of-period exchange rates and foreign currency denominated statements of operations at the weighted-average exchange rates for each period. We report the effect of changes in the U.S. dollar carrying values of assets and liabilities of our international subsidiaries that are due to changes in exchange rates between the U.S. dollar and the subsidiaries' functional currency as foreign currency translation within accumulated other comprehensive income (loss) in the accompanying consolidated statements of stockholders' equity and comprehensive income (loss). Gains and losses

from transactions and translation of assets and liabilities denominated in currencies other than the functional currency of the subsidiaries are recorded in the consolidated statements of operations within other (income) expense, net.

Recently Issued and Adopted Accounting Pronouncements

In May 2014, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2014-09, "Revenue from Contracts with Customers," which replaced all existing revenue guidance created by ASC Topic 605, including prescriptive industry-specific guidance, and created ASC Topic 606 for revenue and ASC Subtopic 340-40 for incremental costs of obtaining a contract with customers. This standard's core principle is that an entity will recognize revenue when it transfers 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. Entities will need to apply more judgment and make more estimates than under the previous guidance. In July 2015 the FASB deferred the effective date for all entities by one year, making the guidance for non-public companies effective for annual reporting periods beginning after December 15, 2018. As an emerging growth company, we have elected to follow the non-public company timeline for adopting this guidance. The standard permits the use of either the retrospective transition method or modified retrospective approach with a cumulative effect recognized at the date of initial application. Management has decided to adopt the new standard effective in the first quarter of 2019, using the retrospective transition method for adoption.

In preparation for this adoption, we have evaluated the impact of the new standard to our financial statements and accompanying disclosures in the notes to our consolidated financial statements. Our assessment of the impact included an evaluation of the five-step process set forth in the new standard along with the enhancement of disclosures that will be required. We executed a plan for implementing the standard, which included identifying customer contracts within the scope of the new standard, identifying performance obligations within those customer contracts, and evaluating the impact of incremental variable consideration paid to obtain those customer contracts. We also undertook a comprehensive review of all contracts that fall under the scope of the new standard; and, as of the date of this report, we have completed our review of in-scope contracts.

Based on our analysis, the adoption of the new standard will result in changes to the classification and timing of our revenue recognition. Specifically, revenue classified as professional services and other revenue will increase and revenue classified as recurring services revenue will be reduced under the new standard, compared to current GAAP. Further, the new standard will result in changes to the timing of our revenue recognition compared to current GAAP. In compliance with the new standard, a contract asset will be reflected on the consolidated balance sheets and will be amortized over the contract period, which is generally three years. We also will have changes to the timing of certain selling, general, and administrative expenses, as the new standard requires capitalizing and amortizing certain selling expenses, such as commissions and bonuses paid to the sales force. These sales expenses will be amortized over the period of benefit, generally five years. Additionally, the adoption of the new standard will have an immaterial impact on cost of revenue for the year ended December 31, 2017, as a small number of customer contracts had previously been recognized under revenue guidance prior to ASC Topic 605.

In periods of revenue growth, the changes above will result in higher overall earnings before income taxes and net income when compared to current GAAP.

The following tables present the impacts that the adoption of ASC 606 would have on the years ended December 31, 2018 and 2017:

	Year Ended December 31, 2018		
	As Reported	Under ASC 606	Impact
Revenue:			
Recurring services	$ 652.5	$ 625.0	$ (27.5)
Professional services and other	93.9	115.7	21.8
Total revenue	$ 746.4	$ 740.7	$ (5.7)
Operating profit	$ 52.8	$ 56.3	$ 3.5

	Year Ended December 31, 2017		
	As Reported	Under ASC 606	Impact
Revenue:			
Recurring services	$ 598.5	$ 573.9	$ (24.6)
Professional services and other	72.3	102.3	30.0
Total revenue	$ 670.8	$ 676.2	$ 5.4
Operating profit	$ 33.0	$ 46.6	$ 13.6

In February 2016, the FASB issued ASU No. 2016-02, "Leases," which created ASC Topic 842 and is intended to increase transparency and comparability among organizations by recognizing lease assets and lease liabilities on the balance sheet and by disclosing key information about leasing arrangements. This standard requires balance sheet recognition for both finance leases and operating leases. This guidance is effective for public companies for fiscal years beginning after December 15, 2018, including interim periods within those fiscal years. An entity will, in effect, continue to account for leases that commence before the effective date in accordance with previous GAAP unless the lease is modified, except that lessees are required to recognize a right-of-use asset and a lease liability for all operating leases at each reporting date based on the present value of the remaining minimum rental payments that were tracked and disclosed under previous GAAP. Management will adopt this guidance beginning in the first quarter of 2019, and has chosen to take advantage of the additional transition method in ASU No. 2018-11 discussed below, in which a cumulative-effect adjustment will be made to the opening balance of retained earnings in the period of adoption. Currently, based on management's implementation efforts, we will recognize a right-of-use asset and a lease liability on the consolidated balance sheets as of January 1, 2019, in the range of $35.0 to $45.0.

In August 2016, the FASB issued ASU No. 2016-15, “Statement of Cash Flows—Classification of Certain Cash Receipts and Cash Payments,” which addresses eight specific cash flow issues with the objective of reducing the existing diversity in practice of certain cash receipts and cash payments. This guidance is effective for non-public companies for fiscal years beginning after December 15, 2018, and interim periods within fiscal years beginning after December 15, 2019. We have chosen to early adopt this guidance as of January 1, 2018, and have applied this guidance to the presentation of our debt refinancing transactions that occurred during 2018.

In February 2018, the FASB issued ASU No. 2018-02, “Income Statement—Reporting Comprehensive Income,” which is in response to a narrow-scope financial reporting issue that arose because of the Tax Cuts and Jobs Act. The amendment in this update allows a reclassification from accumulated other comprehensive income to retained earnings for stranded tax effects resulting from the Tax Cuts and Jobs Act. This amendment is intended to improve the usefulness of information reported to financial statement users by requiring certain disclosures about stranded tax effects. The amendment in this update is effective for all entities for fiscal years beginning after December 15, 2018, and interim periods within those fiscal years. Management will adopt this guidance beginning in the first quarter of 2019. We anticipate the adoption of this guidance will not have a significant impact on our consolidated balance sheets.

In July 2018, the FASB issued ASU No. 2018-10, “Codification Improvements to Topic 842, Leases” and 2018-11, “Leases (Topic 842): Targeted Improvements.” The amendments in ASU No. 2018-10 affect narrow aspects of the guidance issued in ASU No. 2016-02. For non-early adopters, this amendment is effective under the same timelines as ASU No. 2016-02. The amendments in ASU No. 2018-11 provide entities with an additional (and optional) transition method to adopt the new lease requirements. Under the additional transition method, entities may initially apply the requirements by recognizing a cumulative-effect adjustment to the opening balance of retained earnings in the period of adoption. The amendments in this update also provide lessors with a practical alternative to separate non-lease components from the associated lease component. Under this alternative, lessors may account for those components as a single component if the non-lease components otherwise would be accounted for under the new revenue guidance (Topic 606) and certain other criteria are met. For entities that have not adopted Topic 842 before the issuance of this update, the effective date and transition requirements are the same as the effective date and transition requirements in ASU No. 2016-02. As discussed above, management has chosen to take advantage of the additional transition method created by this guidance and will record a cumulative-effect adjustment to the opening balance of retained earnings in the period of adoption, which will be the first quarter of 2019.

3. Discontinued Operations

Life Works Disposition

On March 1, 2016, we entered into a strategic joint venture with WorkAngel Technology Limited (“WorkAngel”) in which we contributed our existing LifeWorks employee assistance program business to WorkAngel Organisation Limited, a newly formed English limited company. On January 20, 2017, WorkAngel Organisation Limited changed its name to LifeWorks Corporation Ltd (“LifeWorks”). We had a controlling interest in LifeWorks, including certain preferential distribution rights; therefore, LifeWorks was consolidated within our financial statements, and the other joint venture ownership interest component was presented as a noncontrolling interest. During the years ended December 31, 2018, and 2017, there were losses attributable to the noncontrolling interest of $0.5 and $1.3, respectively. During the year ended December 31, 2016, there was income attributable to the noncontrolling interest of $0.1.

In the second quarter of 2018, contemporaneously with our IPO and concurrent private placement, we distributed our controlling financial interest in LifeWorks to our stockholders of record prior to the IPO on a pro rata basis in accordance with their pro rata interest in us (the “LifeWorks Disposition”).

The LifeWorks Disposition represented a strategic shift in our overall business and had a significant impact on the financial statement results. Therefore, the LifeWorks business has been presented as discontinued operations in our consolidated financial statements and accompanying notes for all periods presented. Ceridian’s net book value related to LifeWorks of $95.7 was recorded as a distribution through additional paid in capital within our consolidated balance sheet during the second quarter of 2018.

The amounts in the table below reflect the operating results of LifeWorks reported as discontinued operations, as well as supplemental disclosures of the discontinued operations:

	Year Ended December 31,		
	2018	2017	2016
Net revenues	$ 28.3	$ 79.9	$ 80.8
(Loss) income from operations before income taxes	(0.9)	(0.4)	7.1
Income tax expense	(24.9)	(4.9)	(11.1)
Loss from discontinued operations, net of income taxes	$ (25.8)	$ (5.3)	$ (4.0)
Depreciation and amortization	$ 1.4	$ 4.1	$ 4.1
Capital expenditures	$ —	$ 0.2	$ 0.3

The amounts in the table below reflect the assets and liabilities reported as discontinued operations for LifeWorks:

	December 31, 2017
Assets:	
Cash and equivalents	$ 5.4
Trade and other receivables, net	13.3
Prepaid expenses	1.5
Property, plant, and equipment, net	1.8
Other intangible assets, net	5.9
Goodwill	126.3
Other assets	2.0
Assets of discontinued operations	$ 156.2
Liabilities:	
Accounts payable	$ 4.4
Deferred revenue	2.8
Employee compensation and benefits	1.2
Other liabilities	10.9
Liabilities of discontinued operations	$ 19.3

Sale of UK Business

On June 15, 2016, we completed the stock sale of our United Kingdom and Ireland businesses, along with the portion of our Mauritius operations that supported these businesses (the "UK Business"). We received $93.2 in connection with this transaction. Concurrent with this transaction, we entered into a strategic partnership with the acquirer, SD Worx, a leading European provider of payroll and HCM services, to deliver cloud human capital management ("HCM") services across Europe.

This transaction represented a strategic shift in our overall business and had a significant impact on our financial statement results. Therefore, the UK Business has been presented as discontinued operations in the consolidated financial statements and accompanying notes for all periods presented. The sale of the UK Business, which made up the International reporting unit, was considered a sale of a business, and as such, the entire goodwill balance assigned to the International reporting unit of $23.8 was included in the carrying amount used in determining the gain on sale of the UK Business. During the year ended December 31, 2017, there was a settlement payment made to SD Worx.

The amounts in the table below reflect the operating results of the UK Business reported as discontinued operations, as well as supplemental disclosures of the discontinued operations:

	Year Ended December 31,	
	2017	2016
Net revenues	$ —	$ 37.0
Income from operations before income taxes	—	0.5
(Loss) gain on sale of businesses	(1.0)	5.9
Income tax benefit	—	0.2
(Loss) income from discontinued operations, net of income taxes	$ (1.0)	$ 6.6
Depreciation and amortization	$ —	$ 1.3
Capital expenditures	$ —	$ 0.7

Sale of Divested Benefits Continuation Businesses

In the third quarter of 2013, we entered into an agreement for the sale of certain of our customer contracts for consumer-directed benefit services, including flexible spending accounts, health reimbursement accounts, health savings accounts, commuter (parking or transit) premium-only plans, and tuition reimbursement plans (collectively, the "Consumer-Directed Benefit Services"). During the third quarter of 2015, we completed two separate transactions that resulted in the sale of our benefits administration and post-employment health insurance portability compliance businesses (the "Divested Benefits Continuation Businesses").

These three transactions represented a strategic shift in our overall business and had a significant impact on our financial statement results. Accordingly, the Divested Benefits Continuation Businesses, as well as the Consumer-Directed Benefit Services, have been presented as discontinued operations in the consolidated financial statements and accompanying notes for all periods presented. The amounts in the table below reflect the operating results and gain on sale of the Divested Benefits Continuation Businesses reported as discontinued operations, as well as supplemental disclosures of the discontinued operations:

The purchase price of the Consumer-Directed Benefit Services was subject to adjustment, dependent upon which customers transitioned to the acquirer. Since a portion of the customer contracts were assigned to the acquirer on the sale date, that portion of the purchase price was recognized upon the sale date. For the remaining contracts that required transition, the purchase price was deferred and recognized as each contract transferred.

	Year Ended December 31,

	2017	2016
Net revenues	$ —	$ 4.8
Loss from operations before income taxes	—	(0.8)
Gain on sale of businesses	0.5	21.0
Income tax expense	(0.2)	(10.3)
Income from discontinued operations, net of income taxes	$ 0.3	$ 9.9
Depreciation and amortization	$ —	$ —
Capital expenditures	$ —	$ —

For both sales of the Divested Benefits Continuation Businesses, consideration received was contingent upon the number and dollar value of successful customer transitions and was recorded when earned. Proceeds of $21.0 were received and earned based on the customers transitioned during the years ended December 31, 2016. The proceeds received during the year ended December 31, 2017, were for a final purchase price true-up related to one of the transactions.

The remaining liabilities related to discontinued operations for the Divested Benefits Continuation Businesses as of December 31, 2018, and 2017, were $0.2 and $0.3 of other accrued expenses.

4. Fair Value Measurements

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date (an exit price). GAAP outlines a valuation framework and creates a fair value hierarchy intended to increase the consistency and comparability of fair value measurements and the related disclosures. Certain assets and liabilities must be measured at fair value, and disclosures are required for items measured at fair value.

We measure our financial instruments using inputs from the following three levels of the fair value hierarchy. The three levels are as follows:

- Level 1 inputs are unadjusted quoted prices in active markets for identical assets or liabilities that we have the ability to access at the measurement date.
- Level 2 inputs include quoted prices for similar assets and liabilities in active markets, quoted prices for identical or similar assets or liabilities in markets that are not active, inputs other than quoted prices that are observable for the asset or liability (that is, interest rates, yield curves, etc.), and inputs that are derived principally from or corroborated by observable market data by correlation or other means (market corroborated inputs).
- Level 3 inputs include unobservable inputs that reflect our assumptions about the assumptions that market participants would use in pricing the asset or liability. These inputs are developed based on the best information available, including internal data.

Financial Assets and Liabilities Measured at Fair Value on a Recurring Basis

As of December 31, 2018, our financial assets and liabilities measured at fair value on a recurring basis were categorized as follows:

	Total	Level 1	Level 2	Level 3
Assets				
Available for sale customer trust funds assets	$ 1,719.6	$ —	$ 1,719.6 (a)	$ —
Total assets measured at fair value	$ 1,719.6	$ —	$ 1,719.6	$ —

As of December 31, 2017, our financial assets and liabilities measured at fair value on a recurring basis were categorized as follows:

	Total	Level 1	Level 2	Level 3
Assets				
Available for sale customer trust funds assets	$ 1,782.1	$ —	$ 1,782.1 (a)	$ —
Total assets measured at fair value	$ 1,782.1	$ —	$ 1,782.1	$ —

(a) Fair value is based on inputs that are observable for the asset or liability, other than quoted prices.

Assets and Liabilities Measured at Fair Value on a Nonrecurring Basis

During the years ended December 31, 2018 and 2017, we did not re-measure any financial assets or liabilities at fair value on a nonrecurring basis.

5. Customer Trust Funds

Overview

In connection with our U.S. and Canadian payroll and tax filing services, we collect funds for payment of payroll and taxes; temporarily hold such

funds in trust until payment is due; remit the funds to the clients' employees and appropriate taxing authorities; file federal, state and local tax returns; and handle related regulatory correspondence and amendments. The assets held in trust are intended for the specific purpose of satisfying client fund obligations and therefore are not freely available for our general business use.

Our customer trust funds are held and invested with the primary objectives being to protect the principal balance and to ensure adequate liquidity to meet cash flow requirements. Accordingly, we maintain on average approximately 46% of customer trust funds in liquidity portfolios with maturities ranging from one to 120 days, consisting of high-quality bank deposits, money market mutual funds, commercial paper, or collateralized short-term investments; and we maintain on average approximately 54% of customer trust funds in fixed income portfolios with maturities ranging from 120 days to 10 years, consisting of U.S. Treasury and agency securities, Canada government and provincial securities, as well as highly rated asset-backed, mortgage-backed, municipal, corporate and bank securities. To maintain sufficient liquidity in the trust to meet payment obligations, we also have financing arrangements and may pledge fixed income securities for short-term financing.

Financial Statement Presentation

Investment income from invested customer trust funds constitutes a component of our compensation for providing services under agreements with our customers. Investment income from invested customer trust funds included in revenue amounted to $67.0, $46.5, and $39.1 for the years ended December 31, 2018, 2017, and 2016, respectively. Investment income includes interest income, realized gains and losses from sales of customer trust funds' investments, and unrealized credit losses determined to be other-than-temporary.

The amortized cost of customer trust funds as of December 31, 2018 and 2017, is comprised of the original cost of assets acquired. The amortized cost and fair values of investments of customer trust funds available for sale at December 31, 2018 and 2017, were as follows:

Investments of Customer Trust Funds at December 31, 2018

	Amortized Cost	Gross Unrealized Gain	Gross Unrealized Loss	Fair Value
Money market securities, investments carried at cost and other cash equivalents	$ 872.3	$ —	$ —	$ 872.3
Available for sale investments:				
U.S. government and agency securities	573.4	0.2	(11.4)	562.2
Canadian and provincial government securities	392.5	3.4	(1.4)	394.5
Corporate debt securities	499.5	0.5	(4.7)	495.3
Asset-backed securities	247.1	0.2	(2.7)	244.6
Mortgage-backed securities	8.5	—	(0.2)	8.3
Other securities	14.8	—	(0.1)	14.7
Total available for sale investments	1,735.8	4.3	(20.5)	1,719.6
Invested customer trust funds	2,608.1	$ 4.3	$ (20.5)	2,591.9
Trust receivables	11.6			11.6
Total customer trust funds	$ 2,619.7			$ 2,603.5

Investments of Customer Trust Funds at December 31, 2017

	Amortized Cost	Gross Unrealized Gain	Gross Unrealized Loss	Fair Value
Money market securities, investments carried at cost and other cash equivalents	$ 2,309.3	$ —	$ —	$ 2,309.3
Available for sale investments:				
U.S. government and agency securities	584.6	0.1	(7.1)	577.6
Canadian and provincial government securities	418.2	6.6	(1.5)	423.3
Corporate debt securities	472.3	0.8	(2.5)	470.6
Asset-backed securities	280.8	—	(1.8)	279.0
Mortgage-backed securities	15.0	—	(0.2)	14.8
Other securities	17.0	—	(0.2)	16.8
Total available for sale investments	1,787.9	7.5	(13.3)	1,782.1
Invested customer trust funds	4,097.2	$ 7.5	$ (13.3)	4,091.4
Trust receivables	8.3			8.3
Total customer trust funds	$ 4,105.5			$ 4,099.7

The following represents the gross unrealized losses and the related fair value of the investments of customer trust funds available for sale, aggregated by investment category and length of time that individual securities have been in a continuous unrealized loss position at December 31, 2018.

	Less than 12 months		12 months or more		Total	
	Unrealized Losses	Fair Value	Unrealized Losses	Fair Value	Unrealized Losses	Fair Value
U.S. government and agency securities	$ (1.0)	$ 100.1	$ (10.4)	$ 419.1	$ (11.4)	$ 519.2
Canadian and provincial government securities	(0.1)	14.5	(1.3)	130.5	(1.4)	145.0
Corporate debt securities	(1.1)	136.6	(3.6)	204.6	(4.7)	341.2
Asset-backed securities	(0.2)	40.7	(2.5)	169.1	(2.7)	209.8
Mortgage-backed securities	—	—	(0.2)	8.2	(0.2)	8.2
Other securities	(a)	1.7	(0.1)	12.8	(0.1)	14.5
Total available for sale investments	$ (2.4)	$ 293.6	$ (18.1)	$ 944.3	$ (20.5)	$ 1,237.9

(a) These investments have been in an unrealized loss position; however, the amount of unrealized loss is less than $0.05.

Management does not believe that any individual unrealized loss as of December 31, 2018, represents an other-than-temporary impairment. The unrealized losses are primarily attributable to changes in interest rates and not to credit deterioration. We currently do not intend to sell or expect to be required to sell the securities before the time required to recover the amortized cost.

The amortized cost and fair value of investment securities available for sale at December 31, 2018, by contractual maturity are shown below. Expected maturities will differ from contractual maturities because borrowers may have the right to call or to prepay obligations with or without call or prepayment penalties.

	December 31, 2018	
	Cost	Fair Value
Due in one year or less	$ 1,139.4	$ 1,139.4
Due in one to three years	599.9	593.8
Due in three to five years	651.3	646.9
Due after five years	217.5	211.8
Invested customer trust funds	$ 2,608.1	$ 2,591.9

6. Trade and Other Receivables, Net

The balance in trade and other receivables, net, is comprised of the following:

	December 31,	
	2018	2017
Trade receivables from customers	$ 68.6	$ 67.2
Interest receivable from invested customer trust funds	0.9	1.7
Other	5.5	3.7
Total gross receivables	75.0	72.6
Less: reserve for sales adjustments	(3.8)	(4.7)
Less: allowance for doubtful accounts	(1.3)	(1.3)
Trade and other receivables, net	$ 69.9	$ 66.6

The activity related to the allowance for doubtful accounts is as follows for each of the periods:

	Year Ended December 31,		
	2018	2017	2016
Balance at beginning of year	$ 1.3	$ 1.8	$ 1.1
Provision for doubtful accounts	0.7	0.2	1.1
Charge-offs, net of recoveries	(0.7)	(0.7)	(0.4)
Balance at end of year	$ 1.3	$ 1.3	$ 1.8

7. Property, Plant, and Equipment

Property, plant, and equipment consist of the following:

	December 31,

	2018	2017
Land	$ 7.5	$ 7.5
Software	225.0	197.4
Machinery and equipment	117.5	120.3
Buildings and improvements	40.5	36.3
Total property, plant and equipment	390.5	361.5
Accumulated depreciation	(286.1)	(259.5)
Property, plant and equipment, net	$ 104.4	$ 102.0

Depreciation expense of property, plant, and equipment totaled $38.1, $35.3, and $34.8 for the years ended December 31, 2018, 2017, and 2016, respectively.

8. Goodwill and Intangible Assets

Goodwill

Goodwill and changes therein were as follows for the years ended December 31, 2018, and 2017:

Balance at December 31, 2016	$ 1,933.1
Translation	27.9
Balance at December 31, 2017	1,961.0
Translation	(33.6)
Balance at December 31, 2018	$ 1,927.4
Tax-deductible goodwill at December 31, 2018	$ 10.6

We perform an impairment assessment of our goodwill balances as of October 1 of each year. Goodwill impairment testing is performed at the reporting unit level, which is the operating segment level or one level below. After consideration of the LifeWorks Disposition, management has concluded that we have one reporting unit. Please refer to Note 3, “Discontinued Operations,” for further discussion of the LifeWorks Disposition.

We performed a qualitative impairment test as of October 1, 2018, and concluded that it is not more likely than not that the fair value of our reporting unit is less than its carrying amount.

Intangible Assets

Other intangible assets consist of the following as of December 31, 2018:

	Gross Carrying Amount	Accumulated Amortization	Net	Estimated Life Range (Years)
Customer lists and relationships	$ 205.4	$ (190.2)	$ 15.2	5-15
Tradename	173.5	(1.9)	171.6	—
Technology	152.2	(151.5)	0.7	3-4
Total other intangible assets	$ 531.1	$ (343.6)	$ 187.5	

We perform an impairment assessment of our trade name intangible assets as of October 1 of each year. We performed the relief from royalty method impairment test as of October 1, 2018, and concluded that the fair value of our trade name intangible assets exceeded their respective carrying amount. We continue to evaluate the use of our trade names and branding in our sales and marketing efforts. If there is a fundamental shift in the method of our branding in the future, we will assess the impact on the carrying amount of our trade name intangible assets and to determine whether an impairment exists. If it is determined that an impairment has occurred, a non-cash expense would be recognized during the period in which the decision was made to make the fundamental shift.

Other intangible assets consist of the following as of December 31, 2017:

	Gross Carrying Amount	Accumulated Amortization	Net	Estimated Life Range (Years)
Customer lists and relationships	$ 210.1	$ (177.0)	$ 33.1	5-15
Tradename	174.1	(2.1)	172.0	—
Technology	155.6	(154.2)	1.4	2-7
Total other intangible assets	$ 539.8	$ (333.3)	$ 206.5	

Amortization expense related to definite-lived intangible assets was $18.5, $18.5, and $18.4 for the years ended December 31, 2018, 2017, and 2016, respectively. We estimate the future amortization of other intangible assets held at December 31, 2018, will be:

Years Ending December 31,	Amount

2019	$	15.2
2020		0.2
2021		0.2
2022		0.2
2023	$	0.1

9. Debt

Overview

Set forth below is a description of certain debt facilities for which Ceridian was obligated during the periods covered by these consolidated financial statements. Our debt obligations consist of the following:

	December 31,			
		2018		2017
Term Debt, interest rate of 5.8% and 5.1% as of December 31, 2018 and 2017, respectively	$	678.3	$	657.3
Senior Notes, interest rate of 11.0% as of December 31, 2017		—		475.0
Revolving Credit Facility ($300.0 available capacity less amounts reserved for letters of credit, which were $2.7 as of December 31, 2018, and $130.0 available capacity less amounts reserved for letters of credit, which were $2.9 as of December 31, 2017)		—		—
Canada Line of Credit (CDN $7.0 available capacity as of December 31, 2018 and 2017; USD $5.1 as of December 31, 2018 and USD $5.6 as of December 31, 2017)		—		—
Total debt		678.3		1,132.3
Less unamortized discount on Term Debt		1.7		0.9
Less unamortized debt issuance costs on Senior Notes and Term Debt		6.3		11.6
Less current portion of long-term debt		6.8		—
Long-term debt, less current portion	$	663.5	$	1,119.8

Senior Secured Credit Facilities

Principal Amounts and Maturity Dates

On November 14, 2014, the 2014 Senior Secured Credit Facility was put into place, consisting of (i) a $702.0 term loan debt facility (the “2014 Term Debt”) and (ii) a $130.0 revolving credit facility (the “2014 Revolving Credit Facility”). As of December 31, 2017, the 2014 Term Debt had a maturity date of September 2020, and the 2014 Revolving Credit Facility had a maturity date of September 2019. The 2014 Term Debt required quarterly principal payments of 0.25% of the original principal amount. Ceridian made mandatory pre-payments towards the principal balance of the 2014 Term Debt with the proceeds received from the sale of the UK Business during the years ended December 31, 2018, and 2017, of $0.3 and $25.9, respectively. These pre-payments were applied against the scheduled quarterly principal payments.

On April 30, 2018, Ceridian completed the refinancing of the remaining debt under the 2014 Senior Secured Credit Facility by entering into a new credit agreement. Pursuant to the terms of the new credit agreement, Ceridian became borrower of (i) a $680.0 term loan debt facility (the “2018 Term Debt”) and (ii) a $300.0 revolving credit facility (the “2018 Revolving Credit Facility”) (collectively, the “2018 Senior Secured Credit Facility”). The 2018 Senior Secured Credit Facility is secured by all assets of Ceridian.

In connection with the refinancing of the 2014 Senior Secured Credit Facility, we recognized a loss on debt extinguishment of $7.1 within interest expense, net on our consolidated statement of operations during the year ended December 31, 2018.

Interest

The effective interest rate on the 2014 Term Debt at December 31, 2017 was 5.1%. The 2014 Term Debt had an interest rate of LIBOR plus 3.5%, subject to a 1.0% LIBOR floor.

The effective interest rate on the 2018 Term Debt at December 31, 2018 was 5.8%. The 2018 Term Debt is currently subject to an interest rate of LIBOR plus 3.25%. In the event our corporate rating from Moody’s Investors Service, Inc. is B2 or better, the interest rate is reduced to LIBOR plus 3.00%, so long as the rating is maintained.

Financing Costs and Issuance Discounts

The 2014 Term Debt had associated unamortized deferred financing costs of $5.4 at December 31, 2017 which were being amortized at the effective interest rate of 4.8%.

In connection with the refinancing of the 2014 Senior Secured Credit Facility, we capitalized $3.6 of additional financing costs and wrote off $0.5 of existing unamortized deferred financing costs, which was included in the loss on extinguishment of debt. The 2018 Term Debt had associated unamortized deferred financing costs of $8.0 at December 31, 2018, which are being amortized at an effective interest rate of 5.3%.

Collateral and Guarantees

The 2018 Senior Secured Credit Facility names Ceridian as the sole borrower and is unconditionally guaranteed by Ceridian's domestic, wholly-owned financially material restricted subsidiaries, subject to certain customary exceptions. The 2018 Senior Secured Credit Facility is secured by a perfected first priority security interest, subject to certain exceptions (including customer trust funds), in substantially all of Ceridian's and the subsidiary guarantors' tangible and intangible assets. The security interest includes a pledge of the capital stock of certain of Ceridian's direct and indirect material restricted subsidiaries.

Representations, Warranties and Covenants

The documents governing the 2018 Senior Secured Credit Facility contain certain customary representations and warranties. In addition, those documents contain customary covenants restricting Ceridian's ability and certain of its subsidiaries' ability to, among other things: incur additional indebtedness, issue disqualified stock and preferred stock; create liens; declare dividends; redeem capital stock; make investments; engage in a materially different line of business; engage in certain mergers, consolidations, acquisitions, asset sales or other fundamental changes; engage in certain transactions with affiliates; enter into certain restrictive agreements; make prepayments on any subordinated indebtedness; modify junior financing documentation; and make changes to our fiscal year.

The 2018 Senior Secured Credit Facility documents contain a requirement that Ceridian maintain a ratio of adjusted first lien debt to Credit Facility EBITDA below specified levels on a quarterly basis; however, such requirement is applicable only if more than 35% of the 2018 Revolving Credit Facility is drawn. As of December 31, 2018, no portion of the 2018 Revolving Credit Facility was drawn.

Events of Default

Events of default under the 2018 Senior Secured Credit Facility documents include, but are not limited to: failure to pay interest, principal and fees or other amounts when due; material breach of any representation or warranty; covenant defaults; cross defaults to other material indebtedness; events of bankruptcy, invalidity of security interests; a change of control; material judgments for payment of money; involuntary acceleration of any debt; and other customary events of default. There were no events of default as of December 31, 2018.

Senior Notes

General Description

On October 1, 2013, Ceridian issued the Senior Notes due 2021 in the principal amount of $475.0.

Using the net proceeds received from the IPO and concurrent private placement, we satisfied and discharged the indenture governing the Senior Notes on April 30, 2018, and the Senior Notes were redeemed on May 30, 2018. In connection with the redemption of the Senior Notes, we recognized a loss on extinguishment of debt of $18.6 within interest expense, net on our consolidated statement of operations during the year ended December 31, 2018.

Interest

The interest rate on the Senior Notes was fixed at 11.0% as of December 31, 2017.

Financing Costs and Issuance Discounts

The Senior Notes had unamortized deferred financing costs of $6.2 at December 31, 2017, which were being amortized at an effective interest rate of 11.45%. On May 30, 2018, the redemption date, the Senior Notes had unamortized deferred financing costs of $5.5, which were written off and included in the loss on extinguishment of debt.

Other Information Relating to Indebtedness

Future Payments and Maturities of Debt

The future principal payments and maturities of our indebtedness are as follows:

Years Ending December 31,	Amount
2019	$ 6.8
2020	6.8
2021	6.8
2022	6.8

2023	6.8
Thereafter	644.3
	$ 678.3

Ceridian may be required to make additional payments on the 2018 Term Debt from various sources, including proceeds of certain indebtedness which may be incurred from time to time, certain asset sales and a certain percentage of cash flow. There is an excess cash flow calculation associated with the 2018 Term Debt commencing with the year ending December 31, 2019.

Fair Value of Debt

Our debt does not trade in active markets. Based on the borrowing rates currently available to us for bank loans with similar terms and average maturities and the limited trades of our debt, the fair value of our indebtedness was estimated to be $649.5 and $1,154.1 as of December 31, 2018, and 2017, respectively.

Other Debt Financing

Ceridian Canada had available at December 31, 2018, and 2017, a committed bank credit facility that provides up to CDN $7.0, for issuance of letters of credit, and it is a discretionary line at the option of the bank. The amounts of letters of credit outstanding under this facility were CDN $7.0 (USD $5.1) and CDN $7.0 (USD $5.6) at December 31, 2018, and 2017, respectively.

10. Employee Benefit Plans

Ceridian maintains numerous benefit plans for current and former employees. As of December 31, 2018, our current active benefit plans include defined contributions plans for substantially all employees. All defined benefit plans have been frozen.

Defined Contribution Plans

Ceridian maintains defined contribution plans that provide retirement benefits to substantially all of our employees. Contributions are based upon the contractual obligations of each respective plan. We recognized expense of $8.4, $7.5, and $7.0 for the years ended December 31, 2018, 2017, and 2016, respectively, with regard to employer contributions to these plans.

Defined Benefit Plans

Ceridian maintains defined benefit pension plans covering certain of our current and former U.S. employees (the U.S. defined benefit plan and nonqualified defined benefit plan, collectively referred to as our “defined benefit plans”), as well as other postretirement benefit plans for certain U.S. retired employees that include heath care and life insurance benefits.

Pension Benefits

The largest defined benefit pension plan (the “U.S. defined benefit plan”) is a defined benefit plan for certain current and former U.S. employees that closed to new participants on January 2, 1995. In 2007, the U.S. defined benefit plan was amended (1) to exclude from further participation any participant or former participant who was not employed by the Parent or another participating employer on January 1, 2008, (2) to discontinue participant contributions, and (3) to freeze the accrual of additional benefits as of December 31, 2007. The measurement date for pension benefit plans is December 31.

Assets of the U.S. defined benefit plan are held in an irrevocable trust and do not include any Ceridian securities. Benefits under this plan are generally calculated on final or career average earnings and years of participation in the plan. Most participating employees were required to permit salary reduction contributions to the plan on their behalf by the employer as a condition of active participation. Retirees and other former employees are inactive participants in this plan and constitute approximately 99% of the plan participants. This plan is funded in accordance with funding requirements under the Employee Retirement Income Security Act of 1974, based on determinations of a third-party consulting actuary. Investment of the U.S. defined benefit plan assets in Ceridian securities is prohibited by the investment policy. We made contributions amounting to $18.5 in 2018 to the U.S. defined benefit plan. The required minimum contributions to the U.S. benefit plan are expected to be $6.4 during 2019.

Ceridian also sponsors a nonqualified supplemental defined benefit plan (the “nonqualified defined benefit plan”), which is unfunded and provides benefits to selected U.S. employees in addition to the U.S. defined benefit plan. We made contributions to the nonqualified defined benefit plan amounting to $1.9 in 2018 and expect to make contributions of $1.7 during 2019.

We account for our defined benefit plans using actuarial models. These models use an attribution approach that generally spreads the effect of individual events over the estimated life expectancy of the employees in such plans. These events include plan amendments and changes in actuarial assumptions such as the expected long-term rate of return on plan assets, discount rate related to the benefit obligation, and mortality rates.

One of the principal components of the net periodic pension calculation is the expected long-term rate of return on plan assets. The required use of expected long-term rate of return on plan assets may result in recognized pension income that is greater or less than the actual returns of those plan assets in any given year. Over time, however, the expected long-term returns are designed to approximate the actual long-term returns that contribute to the settlement of the liability. Differences between actual and expected returns are recognized in the net periodic pension calculation over three years. We use long-term historical actual return information, the mix of investments that comprise plan assets, and future estimates of long-term investment returns by reference to external sources to develop our expected return on plan assets.

The discount rate assumption is used to determine the benefit obligation and the interest portion of the net periodic pension cost (credit) for the following year. We utilize a full yield curve approach for our discount rate assumption by applying the specific spot rates along the yield curve used in the determination of the benefit obligation to the relevant projected cash flows. As of December 31, 2018, a 25 basis point decrease in the discount rate would result in a $0.1 decrease to expense for all pension plans.

At December 31, 2017, we updated our mortality assumptions utilizing an improvement scale issued by the Society of Actuaries in October 2017, which resulted in a $6.0 reduction in the projected benefit obligation. At December 31, 2018, we updated our mortality assumptions utilizing an improvement scale issued by the Society of Actuaries in October 2018, which resulted in a $1.5 reduction in the projected benefit obligation.

The funded status of defined benefit plans represents the difference between the projected benefit obligation and the plan assets at fair value. The projected benefit obligation of defined benefit plans exceeded the fair value of plan assets by $145.8 and $154.4 at December 31, 2018 and 2017, respectively. We are required to record the unfunded status as a liability in our consolidated balance sheets and recognize the change in the funded status in comprehensive income, net of deferred income taxes.

The projected future payments to participants from defined benefit plans are included in the table below.

Years Ending December 31,	Amount
2019	$ 46.0
2020	45.0
2021	44.0
2022	42.7
2023	41.5
Next five years	$ 183.5

The accompanying tables reflect the combined funded status and net periodic pension cost and combined supporting assumptions for the defined benefit elements of our defined benefit plans.

	Year Ended December 31,	
	2018	2017
Funded Status of Defined Benefit Retirement Plans at Measurement Date		
Change in Projected Benefit Obligation During the Year:		
Projected benefit obligation at beginning of year	$ 593.0	$ 605.9
Service cost	—	—
Interest cost	16.3	17.2
Actuarial (gain) loss	(31.6)	20.3
Benefits paid and plan expenses	(50.3)	(50.4)
Projected benefit obligation at end of year	$ 527.4	$ 593.0
Change in Fair Value of Plan Assets During the Year:		
Plan assets at fair value at beginning of year	438.6	416.4
Actual return on plan assets	(27.1)	49.6
Employer contributions	20.4	23.0
Benefits paid and plan expenses	(50.3)	(50.4)
Plan assets at fair value at end of year	381.6	438.6
Funded status of plans	$ (145.8)	$ (154.4)

	December 31,	
	2018	2017
Amounts recognized in Consolidated Balance Sheets		
Current liability	$ 8.1	$ 20.3
Noncurrent liability	137.7	134.1
Amounts recognized in Accumulated Other Comprehensive Loss		
Accumulated other comprehensive loss, net of tax of $91.5 and $91.5, respectively	$ 158.6	$ 151.4

The other comprehensive (income) loss related to pension benefit plans is as follows:

	Year Ended December 31,		
	2018	2017	2016
Net actuarial loss (gain)	$ 21.4	$ (3.0)	$ 9.5
Amortization of net actuarial loss	(14.2)	(12.8)	(12.5)

Tax expense	—	—	0.1
Other comprehensive income, net of tax	$ 7.2	$ (15.8)	$ (2.9)

	Year Ended December 31,		
	2018	2017	2016
Assumptions Used in Calculations			
Discount rate used to determine net benefit cost	3.25%	3.63%	3.76%
Expected return on plan assets	6.30%	6.30%	6.30%
Discount rate used to determine benefit obligations%	3.92%	3.25%	3.63%

	Year Ended December 31,		
	2018	2017	2016
Net Periodic Pension Cost			
Interest cost	$ 16.3	$ 17.2	$ 18.2
Actuarial loss amortization	14.2	12.8	12.5
Less: Expected return on plan assets	(25.8)	(26.3)	(25.7)
Net periodic pension cost	$ 4.7	$ 3.7	$ 5.0

The accumulated benefit obligation of defined benefit plans was $527.4 and $593.0 as of December 31, 2018 and 2017, respectively.

The amount in accumulated other comprehensive loss that is expected to be recognized as a component of net periodic pension cost during 2019 is a net actuarial loss of $12.7.

Our overall investment strategy for the U.S. defined benefit plan is to achieve a mix of approximately 70% of investments for long term growth, 28% for liability hedging purposes and 2% for near-term benefit payments. Target asset allocations are based upon actuarial and capital market studies performed by experienced outside consultants. The target allocations for the growth assets are 41% fixed income, 26% international equities, 23% domestic equities and 10% hedge funds. Specifically, the target allocation is managed through investments in fixed income securities, equity funds, collective investment funds, partnerships and other investment types. The underlying domestic equity securities include exposure to large/mid-cap companies and small-cap companies. Fixed income securities include corporate debt, mortgage-backed securities, U.S. Treasury and U.S. agency debt, emerging market debt and high yield debt securities. The alternative investment strategy is allocated to investments in hedge funds. The liability hedging portfolio fair value is intended to move in a direction that partially offsets the increase or decrease in the liabilities resulting from changes in interest rates. To achieve this objective, the portfolio will invest in U.S. Treasury strips and various interest rate derivatives contracts. We hire outside managers to manage all assets of the U.S. defined benefit plan.

In determining the fair values of the defined benefit plan’s assets, we calculate the fair value of certain investments using net asset value ("NAV") per share. Collective investment funds are valued at the NAV, which is based on the readily determinable fair value of the underlying securities owned by the fund. The NAV unit price is quoted on a private market or one that is not active. Partnerships consist primarily of a bond fund partnership valued at the NAV as reported by the fund manager and an investment in a venture capital fund valued by an independent appraisal. The NAV represents the value at which the defined benefit plan initiates a transaction. These investments do not have any significant unfunded commitments, conditions or restrictions on redemption, or any other significant restriction on their sale. The hedge fund of funds investment has a quarterly redemption restriction with a 65 day notice period. Plan investments with estimated fair value using NAV were $212.6 and $280.6 as of December 31, 2018 and 2017, respectively.

The fair values of the defined benefit plan’s assets at December 31, 2018, by asset category are as follows:

	Total	Level 1	Level 2	Level 3
Investments, at fair value:				
Short-term investments	$ 57.9	$ 57.9	$ —	$ —
Derivatives (a)	—	—	—	—
Government securities	92.4	—	92.4	—
Corporate debt securities	18.7	—	18.7	—
Collective investment funds:				
Domestic equity (b)	80.1	—	80.1	—
Foreign equity (b)	48.5	—	48.5	—
Foreign bond (c)	23.8	—	23.8	—
Partnerships (d)	32.1	—	32.1	—
Hedge fund of funds (e)	28.1	—	28.1	—
Total investments, at fair value	$ 381.6	$ 57.9	$ 323.7	$ —

The fair values of our defined benefit plan's assets at December 31, 2017, by asset category are as follows:

	Total	Level 1	Level 2	Level 3
Investments, at fair value:				
Short-term investments	$ 36.8	$ 36.8	$ —	$ —
Derivatives (a)	14.8	—	14.8	—
Government securities	88.1	—	88.1	—
Corporate debt securities	18.3	—	18.3	—
Collective investment funds:				
Domestic equity (b)	144.4	—	144.4	—
Foreign equity (b)	57.5	—	57.5	—
Foreign bond (c)	41.8	—	41.8	—
Partnerships (d)	35.3	—	35.3	—
Hedge fund of funds (e)	1.6	—	1.6	—
Total investments, at fair value	$ 438.6	$ 36.8	$ 401.8	$ —

(a) Funds in this category invest in futures (2018) and interest rate swaps (2017) to reduce exposure to long-term interest rate risk and to achieve overall investment portfolio objectives. The future derivatives are marked to market and settled in cash on a daily basis.
(b) Funds in this category invest in a diversified portfolio of domestic and/or foreign stocks to achieve a long-term rate of return.
(c) Funds in this category invest in various types of domestic and/or foreign debt securities to achieve a long-term rate of return while preserving capital.
(d) Funds within this category invest in a bond fund partnership which holds various types of domestic debt securities to achieve a long-term rate of return while preserving capital.
(e) Funds within this category invest in various underlying hedge funds and are designed to provide superior risk adjusted returns as well as portfolio diversification relative to traditional asset classes.

Postretirement Benefits

Ceridian provides health care and life insurance benefits for eligible retired employees, including individuals who retired from operations we subsequently sold or discontinued. Ceridian sponsors several health care plans in the United States for both pre- and post-age 65 retirees. The contributions to these plans differ for various groups of retirees and future retirees. Most retirees outside of the United States are covered by governmental health care programs, and our cost is not significant. The measurement date for postretirement benefit plans is December 31.

The discount rate assumption is used to determine the benefit obligation and the interest portion of the net periodic postretirement cost (credit) for the following year. We utilize a full yield curve approach for our discount rate assumption by applying the specific spot rates along the yield curve used in the determination of the benefit obligation to the relevant projected cash flows. As of December 31, 2018, a 25 basis point decrease in the discount rate would result in an immaterial impact on expense for the postretirement plan.

The accompanying tables present the amounts and changes in the aggregate benefit obligation and the components of net periodic postretirement benefit cost for U.S. plans. We fund these costs as they become due.

	Year Ended December 31,	
	2018	2017
Funded Status of Postretirement Health Care and Life Insurance Plans		
Change in Benefit Obligation:		
At beginning of year	$ 19.6	$ 21.0
Interest cost	0.5	0.5
Participant contributions	0.5	1.1
Actuarial gain	(2.1)	(0.7)
Benefits paid	(1.7)	(2.3)
At end of year	$ 16.8	$ 19.6
Change in Plan Assets:		
At beginning of year	$ —	$ —
Company contributions	1.2	1.2
Participant contributions	0.5	1.1
Benefits paid	(1.7)	(2.3)
At end of year	—	—
Funded Status	$ (16.8)	$ (19.6)

	December 31,	
	2018	2017
Amounts recognized in Consolidated Balance Sheets		

Current liability	$ 2.2	$ 2.4
Noncurrent liability	14.6	17.2
Amounts recognized in Accumulated Other Comprehensive Loss		
Accumulated other comprehensive income, net of tax of $(9.9) and $(9.9), respectively	$ (8.5)	$ (8.9)

The other comprehensive (income) loss related to postretirement benefits is as follows:

	Year Ended December 31,		
	2018	2017	2016
Net actuarial gain	$ (2.1)	$ (0.7)	$ (1.4)
Amortization of net actuarial gain	2.5	2.7	2.6
Tax expense	—	—	—
Other comprehensive loss (income), net of tax	$ 0.4	$ 2.0	$ 1.2

	Year Ended December 31,		
	2018	2017	2016
Net Periodic Postretirement Benefit			
Service cost	$ —	$ —	$ —
Interest cost	0.5	0.5	0.6
Actuarial gain amortization	(2.2)	(2.4)	(2.3)
Prior service credit amortization	(0.3)	(0.3)	(0.3)
Net periodic postretirement benefit gain	$ (2.0)	$ (2.2)	$ (2.0)

The amount in accumulated other comprehensive loss that is expected to be recognized as a component of net periodic postretirement benefit cost during 2019 is a $2.6 gain, comprised of $2.3 of actuarial gain and $0.3 of prior service credit.

The assumed health care cost trend rate represents the rate at which health care costs are assumed to increase. The assumed health care cost trend rate used in measuring the benefit obligation in 2018 is 6.90% for pre-age 65 retirees and 7.70% for post-age 65 retirees. These rates are assumed to decrease gradually to the ultimate health care cost trend rate of 4.5% in 2028 for both groups. A one percent increase in this rate would increase the benefit obligation at December 31, 2018, by $0.7 and would have an immaterial impact on the interest cost for 2018. A one percent decrease in this rate would decrease the benefit obligation at December 31, 2018, by $0.6 and would have an immaterial impact on the interest cost for 2018.

	Year Ended December 31,		
	2018	2017	2016
Assumptions Used in Calculations			
Weighted average discount rate used to determine net periodic postretirement cost (credit)	3.01%	3.26%	3.38%
Weighted average discount rate used to determine benefit obligation at measurement date	3.70%	3.01%	3.26%

The projected future postretirement benefit payments and future receipts from the federal subsidy for each of the next five years and the five-year period following are included in the table below.

Years Ending December 31,	Payments	Receipts
2019	$ 2.2	$ 0.1
2020	1.9	0.1
2021	1.9	—
2022	1.8	—
2023	1.6	0.1
Next five years	$ 6.2	$ 0.1

11. Share-Based Compensation

Prior to November 1, 2013, Ceridian employees participated in a share-based compensation plan of the ultimate parent of Ceridian. The 2007 Stock Incentive Plan (“2007 SIP”) authorized the issuance of up to 10,540,540 shares of common stock of Parent to eligible participants through stock options and stock awards. Eligible participants in the 2007 SIP included the Parent’s directors, employees and consultants.

Effective November 1, 2013, most participants who held stock options under the 2007 SIP converted their options to a newly created option plan, the 2013 Ceridian HCM Holding Inc. Stock Incentive Plan (“2013 SIP”). A small number of participants maintained their stock options in the 2007 SIP. As of December 31, 2018, there were 5,000 stock options outstanding under the 2007 SIP.

The 2013 SIP authorized the issuance of up to 12,500,000 shares of common stock of Ceridian to eligible participants through stock options and other stock awards, which was increased to 15,000,000 on March 20, 2017, by the Board of Directors. Eligible participants in the 2013 HCM SIP include Ceridian's directors, employees, and consultants.

As part of the 2013 SIP, the Board of Directors approved a stock appreciation rights program that authorized the issuance of up to 600,000 stock appreciation rights. The performance criteria for all stock appreciation rights was met on April 30, 2018, resulting in the vesting and cash settlement of all outstanding stock appreciation rights. We recognized $1.5 of share-based compensation expense related to the vesting of these stock appreciation rights during the year ended December 31, 2018. As of December 31, 2018, there were no remaining outstanding stock appreciation rights.

Stock options awarded under the 2013 SIP vest either annually on a pro rata basis over a four- or five-year period or on a specific date if certain performance criteria are satisfied and certain equity values are attained. In addition, upon termination of service, all vested options must be exercised generally within 90 days after termination, or these awards will be forfeited. The stock option awards have a 10-year contractual term and have an exercise price that is not less than the fair market value of the underlying stock on the date of grant. As of December 31, 2018, there were 9,356,904 stock options and restricted stock units outstanding under the 2013 SIP. We do not intend to grant any additional awards under the 2007 SIP or the 2013 SIP following our IPO.

On April 24, 2018, in connection with the IPO, the Board of Directors approved the Ceridian HCM Holding Inc. 2018 Equity Incentive Plan ("2018 EIP"), which authorizes the issuance of up to 13,500,000 shares of common stock to eligible participants through equity awards. Equity awards under the 2018 EIP vest annually on a pro rata basis, generally over a four-year period. In addition, upon termination of service, all vested awards must be exercised within 90 days after termination, or these awards will be forfeited. The equity awards have a 10-year contractual term and have an exercise price that is not less than the fair market value of the underlying stock on the date of the grant. As of December 31, 2018, there were 5,218,315 stock options and restricted stock units outstanding and 8,281,685 shares available for future grants of equity awards under the 2018 EIP.

On November 9, 2018, the Compensation Committee of the Board of Directors approved the Ceridian HCM Holding Inc. Global Employee Stock Purchase Plan (the "GESPP"), which authorizes the issuance of up to 2,500,000 shares of common stock to eligible participants through purchases via payroll deductions at a discount to the fair market value of our common stock. The GESPP has a 10-year contractual term, and purchases will commence in 2019, subject to approval by the Company's stockholders.

Share-based compensation expense was $24.7, $16.1, and $12.5 for the years ended December 31, 2018, 2017, and 2016, respectively.

Performance-Based Stock Options

Performance-based option activity under the 2007 SIP and the 2013 SIP for the periods presented was as follows:

	Shares	Weighted Average Exercise Price (per share)	Weighted Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value (in millions)
Options outstanding at December 31, 2015	1,283,368	$ 13.46	5.2	$ —
Granted	—	—	—	—
Exercised	—	—	—	—
Forfeited or expired	(52,942)	(13.46)	—	—
Options outstanding at December 31, 2016	1,230,426	$ 13.46	4.2	$ —
Granted	—	—	—	—
Exercised	(167,202) (a)	(13.46)	—	—
Forfeited or expired	(25,077)	(13.46)	—	—
Options outstanding at December 31, 2017	1,038,147	$ 13.46	3.5	$ —
Granted	—	—	—	—
Exercised	(663,412)	(13.46)	—	—
Forfeited or expired	(8,358)	(13.46)	—	—
Options outstanding at December 31, 2018	366,377	$ 13.50	3.1	$ 7.7
Options exercisable at December 31, 2018	366,377	$ 13.50	3.1	$ 7.7

(a) During the year ended December 31, 2017, certain performance-based options were modified and exercised.

The performance criteria for all outstanding performance-based stock options was met on June 7, 2018, resulting in the vesting of all outstanding performance-based stock options on this date. We recognized $4.8 of share-based compensation expense related to the vesting of these performance-based stock options during the year ended December 31, 2018. As of December 31, 2018, there was no share-based compensation expense related to unvested

performance-based stock options not yet recognized.

Term-Based Stock Options

Term-based option activity, including stock options under the 2007 SIP, the 2013 SIP and the 2018 EIP, for the periods presented was as follows:

	Shares	Weighted Average Exercise Price (per share)	Weighted Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value (in millions)
Options outstanding at December 31, 2015	7,609,658	$ 16.02	7.3	$ 14.1
Granted	2,339,238	16.80	—	—
Exercised	—	—	—	—
Forfeited or expired	(176,626)	(16.54)	—	—
Options outstanding at December 31, 2016	9,772,270	$ 16.20	7.1	$ 9.9
Granted	2,285,981	17.46	—	—
Exercised	(595,464)	(15.14)	—	—
Forfeited or expired	(468,606)	(16.10)	—	—
Options outstanding at December 31, 2017	10,994,181	$ 16.52	6.9	$ 48.8
Granted	5,236,037	23.07	—	—
Exercised	(2,501,983)	(15.26)	—	—
Forfeited or expired	(178,466)	(17.30)	—	—
Options outstanding at December 31, 2018	13,549,769	$ 19.28	7.5	$ 206.8
Options exercisable at December 31, 2018	5,731,295	$ 16.75	5.7	$ 101.7

Other information pertaining to term-based options is as follows:

	Year Ended December 31,		
	2018	2017	2016
Weighted average grant date fair value per share	$ 7.80	$ 5.88	$ 5.74

The fair value of the term-based stock options was estimated at the date of grant using the Black-Scholes option pricing model with the following weighted-average assumptions:

	Year Ended December 31,		
	2018	2017	2016
Expected volatility	25.0%	30.0%	30.0%
Expected dividend rate	—	—	—
Risk-free interest rate	2.9%	2.3%	1.9%

For stock options granted under the 2007 SIP, we used the simplified method to estimate the expected term of the stock options. For stock options granted under the 2013 SIP and 2018 EIP, we estimated an expected term of 7.0 years, based on the vesting period and contractual life. As of December 31, 2018, there was $46.6 of share-based compensation expense related to unvested term-based awards not yet recognized, which is expected to be recognized over a weighted average period of 1.8 years. As of December 31, 2018, there were 5,731,295 vested term-based stock options.

Restricted Stock Units

Restricted stock units (“RSUs”) activity, including RSUs under the 2013 SIP and the 2018 EIP, for the periods presented was as follows:

	Shares
RSUs outstanding at December 31, 2015	228,572
Granted	29,800
Shares issued upon vesting of RSUs	(76,192)
Forfeited or canceled	—
RSUs outstanding at December 31, 2016	182,180
Granted	500,000
Shares issued upon vesting of RSUs	(76,190)
Forfeited or canceled	—
RSUs outstanding at December 31, 2017	605,990
Granted	164,073
Shares issued upon vesting of RSUs	(105,990)

Forfeited or canceled	—
RSUs outstanding at December 31, 2018	664,073
RSUs releasable at December 31, 2018	125,000

Other information pertaining to restricted stock units is as follows:

	Year Ended December 31,		
	2018	2017	2016
Weighted average grant date fair value per share	$ 35.55	$ 17.26	$ 17.40

During the year ended December 31, 2018, 230,990 RSUs vested, of which 105,990 shares of common stock were issued, and 125,000 RSUs remained vested and releasable. Restricted stock units generally vest annually over a three- or four-year period. As of December 31, 2018, there was $9.9 of share-based compensation expense related to unvested restricted stock units not yet recognized, which is expected to be recognized over a weighted average period of 2.9 years.

12. Supplementary Data to Statements of Operations

	Year Ended December 31,		
	2018	2017	2016
Other (Income) Expense, Net			
Asset impairment	$ —	$ —	$ 10.4
Environmental reserve	—	—	5.9
Foreign currency translation (income) expense	(2.9)	7.3	(3.4)
Total other (income) expense, net	$ (2.9)	$ 7.3	$ 12.9

Asset Impairment

The sale of the UK Business in 2016 was considered a triggering event to test the trade name intangible asset for impairment. Given the reduction in future revenues of the UK Business previously included in the relief from royalty models used to support the trade name value, we recorded an impairment charge during the year ended December 31, 2016, of $10.2 to the trade name intangible asset. The remaining impairment amount is related to immaterial asset write-offs.

Environmental Reserve

In September 1989, Parent's predecessor entered into an Environmental Matters Agreement ("EMA") with Seagate Technology plc ("Seagate") related to groundwater contamination on a parcel of real estate sold by Parent's predecessor to Seagate. Ceridian is now responsible for the EMA. The EMA requires expense sharing between Ceridian and Seagate for the remediation of groundwater contamination up to a certain limit. Based on additional information obtained with respect to more stringent remediation requirements, we updated our estimate of the potential liability related to the EMA, resulting in an increase to the environmental reserve of $5.9 during the year ended December 31, 2016, which represented the limit under the EMA. Please refer to Note 15, "Commitments and Contingencies," for further discussion of our environmental liabilities.

Foreign Currency Translation (Income) Expense

We had foreign currency translation income of $2.9 for the year ended December 31, 2018. The foreign currency translation income for the year ended December 31, 2018, was primarily related to foreign currency remeasurement gains resulting from an intercompany payable of a U.S. operating subsidiary which is repaid in Canadian dollars. This intercompany payable was repaid in the second quarter of 2018.

We incurred foreign currency translation expense of $7.3 for the year ended December 31, 2017. The foreign currency translation expense for the year ended December 31, 2017, was primarily related to foreign currency remeasurement losses resulting from an intercompany payable of a U.S. operating subsidiary which is repaid in Canadian dollars.

We had foreign currency translation income of $3.4 for the year ended December 31, 2016. The foreign currency translation income for the year ended December 31, 2016, was primarily related to foreign currency remeasurement gains on intercompany receivables and payables between international subsidiaries that were settled in early 2017.

13. Accumulated Other Comprehensive Income (Loss)

The components of accumulated other comprehensive income (loss) were as follows:

	Foreign Currency Translation Adjustment	Unrealized Gain (Loss) from Invested Customer Trust Funds	Pension Liability Adjustment	Total

Balance as of December 31, 2016	$ (199.9)	$ 4.7	$ (156.3)	$ (351.5)
Other comprehensive income (loss) before income taxes and reclassifications	39.3	(17.3)	3.7	25.7
Income tax benefit	—	3.6	—	3.6
Reclassifications to earnings	—	—	10.1	10.1
Other comprehensive income (loss) attributable to Ceridian	39.3	(13.7)	13.8	39.4
Balance as of December 31, 2017	(160.6)	(9.0)	(142.5)	(312.1)
Other comprehensive loss before income taxes and reclassifications	(47.4)	(10.5)	(19.3)	(77.2)
Income tax benefit	—	1.2	—	1.2
Reclassifications to earnings	—	—	11.7	11.7
Other comprehensive (loss) income attributable to Ceridian	(47.4)	(9.3)	(7.6)	(64.3)
LifeWorks Disposition	0.7	—	—	0.7
Balance as of December 31, 2018	$ (207.3)	$ (18.3)	$ (150.1)	$ (375.7)

14. Income Taxes

	Year Ended December 31,		
	2018	2017	2016
Components of Earnings and Taxes from Operations			
(Loss) Income Before Income Taxes:			
U.S.	$ (73.2)	$ (83.4)	$ (163.4)
International	42.8	29.3	64.8
Total	$ (30.4)	$ (54.1)	$ (98.6)
Income Tax Expense (Benefit):			
Current:			
U.S.	$ 3.8	$ (0.3)	$ (0.4)
State and local	0.3	0.1	0.2
International	20.4	12.9	15.2
Total current income tax expense	24.5	12.7	15.0
Deferred:			
U.S.	(14.4)	(60.3)	(15.7)
State and local	(2.2)	0.8	(0.1)
International	(0.2)	(2.8)	7.5
Total deferred income tax (benefit) expense	(16.8)	(62.3)	(8.3)
Total income tax expense (benefit)	$ 7.7	$ (49.6)	$ 6.7

	Year Ended December 31,		
	2018	2017	2016
Effective Rate Reconciliation			
U.S. statutory rate%	(21.0)%	(35.0)%	(35.0)%
Change in valuation allowance	10.5	(116.9)	(5.4)
State income taxes, net of federal benefit	(27.9)	(5.2)	(1.2)
Share-based compensation	(8.8)	8.3	2.6
International tax rate differential	11.5	(6.7)	(6.4)
Foreign dividend income	17.8	48.1	1.0
Foreign capital gain income	6.3	—	—
Unremitted foreign earnings	3.6	(35.6)	22.0
Global intangible low-taxed income	20.4	—	—
Base erosion tax	12.5	—	—
Reserve for tax contingencies	0.3	—	(0.2)
Expiration of un-utilized tax credits	—	1.5	—
Unrealized gain on investments	—	—	30.7
Change in tax rate	(5.2)	52.4	—
Other	5.3	(2.6)	(1.5)
Income tax provision%	25.3%	(91.7)%	6.6%

Our income tax provision represents federal, state, and international taxes on our income recognized for financial statement purposes and includes the effects of temporary differences between financial statement income and income recognized for tax return purposes. Deferred tax assets and liabilities are

recorded for temporary differences between the financial reporting basis and the tax basis of assets and liabilities as adjusted for the expected benefits of utilizing net operating loss carryforwards. We record a valuation allowance to reduce our deferred tax assets to reflect the net deferred tax assets that we believe will be realized. In assessing the likelihood that we will be able to recover our deferred tax assets and the need for a valuation allowance, we consider all available evidence, both positive and negative, including historical levels of pre-tax book income, expiration of net operating losses, expectations and risks associated with estimates of future taxable income and ongoing prudent and feasible tax planning strategies, as well as current tax laws. As of December 31, 2018, and December 31, 2017, we continue to record a full valuation allowance against our domestic deferred tax assets that are not offset by the reversal of deferred tax liabilities. In the future, if it is determined that we no longer have a requirement to record a valuation allowance against all or a portion of our deferred tax assets, the release of the valuation allowance would have a positive impact on our income tax provision.

On December 22, 2017, the Tax Cut and Jobs Act legislation (the "Tax Act") was signed into law. The Tax Act made broad and complex changes to the U.S. tax code including: (a) lower U.S. federal corporate income tax rate from 35% to 21% effective January 1, 2018, (b) accelerated expensing of qualified capital investments for a specific period, and (c) a transition from a worldwide tax system to a territorial tax system.

ASC 740, Income Taxes, requires a company to record the effects of a tax law change in the period of enactment; however, shortly after enactment of the Tax Act, the SEC staff issued Staff Accounting Bulletin ("SAB") 118, which allows a company to record a provisional amount when it does not have the necessary information available to complete its accounting for the change in the tax law. The FASB subsequently issued ASU No. 2018-05 to codify SAB 118 by amending ASC 740. ASU No. 2018-05 continues to allow a company to record a provisional amount when it does not have the necessary information available, prepared, or analyzed in reasonable detail to complete its accounting for the change in the tax law. The measurement period ends when the company has obtained, prepared, and analyzed the information necessary to finalize its accounting, but cannot extend beyond one year.

We have completed our analysis of the income tax effects of the Tax Act. In January and April of 2018, the Internal Revenue Service (the "IRS") issued guidance that provided additional clarification on certain aspects of the transition tax calculation. The application of the additional IRS guidance resulted in a $16.2 increase in includible untaxed foreign earnings, which resulted in a $5.7 increase in tax expense. This increase was offset by the tax benefit of the utilization of $16.2 of net operating loss carryover. The overall impact to tax expense in the year ended December 31, 2018, was zero.

Other provisions introduced by the Tax Act that had a significant impact on our current year tax provision were the provisions introducing the Global Intangible Low-Taxed Income ("GILTI") and the Base Erosion and Anti-Abuse Tax ("BEAT"). The GILTI resulted in an increase of $29.7 in taxable income, which resulted in a $6.6 increase in tax expense. This tax increase was offset by the tax benefit of the utilization of $29.7 of net operating loss carryover. The BEAT resulted in an increase of $3.8 in tax expense in the year ended December 31, 2018.

	December 31,	
	2018	2017
Tax Effect of Items That Comprise a Significant Portion of the Net Deferred Tax Asset and Deferred Tax Liability		
Deferred Tax Asset:		
Employment related accruals	$ 51.2	$ 51.0
Foreign tax credit carryover and other credit carryovers	0.3	0.2
Net operating loss carryforwards	78.2	100.3
Total gross deferred tax asset	129.7	151.5
Valuation allowance	(93.3)	(90.7)
Total deferred tax asset	$ 36.4	$ 60.8
Deferred Tax Liability:		
Intangibles	$ (62.1)	$ (65.7)
Unremitted foreign earnings	—	—
Unrealized gain on investment	—	(22.2)
Other	(5.8)	(5.0)
Total deferred tax liability	(67.9)	(92.9)
Net deferred tax liability	$ (31.5)	$ (32.1)

	December 31,	
	2018	2017
Net Deferred Tax by Geography		
U.S.	$ (19.8)	$ (18.4)
International	(11.7)	(13.7)
Total	$ (31.5)	$ (32.1)

As of December 31, 2018, we had federal, state, and foreign net operating loss carryovers, which will reduce future taxable income when utilized. Approximately $47.2 in net federal tax benefit is available from the loss carryovers and an additional $0.3 is available in federal tax credit carryovers. The state loss carryovers will result in state tax benefit of approximately $31.0 when utilized. The federal net operating loss tax benefit will begin to expire in 2031, and state net operating loss carryovers will begin to expire in 2019. The federal credit carryovers are composed of foreign tax credits, which will begin to expire in 2019; research credits, which will begin to expire in 2027; and alternative minimum tax credits, which have no expiration date.

As of December 31, 2018, we carried a full valuation allowance against our domestic net deferred tax asset ("DTA") position after excluding a portion of the deferred tax liability for long-lived, non-amortizable taxable temporary differences. We periodically re-assess the likelihood that DTA reported in the accompanying consolidated financial statements will be recovered from future taxable income.

We have re-evaluated the likelihood of recovering our net DTA, and we have determined that it is still more likely than not that the tax benefit associated with a portion of the DTA will not be realized. We assessed the available positive and negative evidence to estimate if sufficient future taxable income will be generated to use the existing net DTAs not already identified as requiring a valuation allowance. The cumulative loss incurred over the three-year period ended December 31, 2018, is a significant piece of objective negative evidence. Such objective evidence limits the ability to consider other subjective evidence, such as our projections for positive future growth. As of December 31, 2018, we had a total valuation allowance of $93.3. The amount of the DTA considered realizable could be adjusted in the future if objective negative evidence in the form of cumulative losses is no longer present, and additional weight may be given to subjective evidence, such as our projections for growth.

We file income tax returns in the U.S. federal jurisdiction, and various states and foreign jurisdictions. With a few exceptions, we are no longer subject to U.S. federal, state and local, or non-U.S. income tax examinations by tax authorities for years before 2014.

The following table summarizes the activity for unrecognized tax benefits:

	Year Ended December 31,	
	2018	2017
Federal, State and Foreign Tax		
Beginning unrecognized tax balance	$ 1.5	$ 1.4
Increase prior period positions	0.1	0.2
Increase current period positions	0.2	0.1
Decrease prior period positions	(0.1)	—
Decrease current period positions	(0.3)	—
Statutes expiring	(0.1)	(0.2)
Ending unrecognized tax benefits	$ 1.3	$ 1.5

The total amount of unrecognized tax benefits as of December 31, 2018, was $1.3 including $0.2 of accrued interest and penalty. Of the total amount of unrecognized tax benefits, $1.3 represents the amount that, if recognized, would impact our effective income tax rate as of December 31, 2018. It is expected that the amount of unrecognized tax benefits will change in the next 12 months; however, we cannot reasonably estimate the amount of the change. We do not expect the change to have a significant impact on our results of operations or financial condition.

The Tax Act imposed a mandatory transition tax on the unremitted earnings of our international subsidiaries and generally eliminated US taxes on foreign subsidiary distributions for years beginning after December 31, 2017. As of December 31, 2018, we have $298.5 of unremitted foreign earnings. We consider $174.6 of the unremitted earnings to be indefinitely reinvested. For the portion of the unremitted earnings not considered indefinitely reinvested, $123.9, we have provided a deferred tax liability of $6.2, which represents the expected withholding tax cost of repatriating such earnings. In the event the portion of the unremitted earnings considered to be indefinitely reinvested were repatriated, we would incur a withholding tax expense of approximately $8.7.

15. Commitments and Contingencies

Leasing

We conduct substantially all of our operations in leased facilities. Most of our leases contain renewal options and require payments for taxes, insurance and maintenance. We recognize rent holidays, including the time period during which we have access to the property for construction of improvements, construction allowances and escalating rent provisions on a straight-line basis over the term of the lease.

Substantially all of our leasing arrangements for equipment and facilities are operating leases and the rental payments under these leases are charged to operations as incurred. The amounts in the accompanying tables do not include capital lease obligations recorded as liabilities.

Our rental expense and sublease income were as follows:

	Year Ended December 31,		
	2018	2017	2016
Rental Expense, Net			
Rental expense	$ 17.6	$ 17.0	$ 16.8
Sublease rental income	(4.9)	(4.2)	(3.5)

Net rental expense	$ 12.7	$ 12.8	$ 13.3

Our future minimum noncancellable lease payments on existing operating leases at December 31, 2018, which have an initial term of more than one year, are as follows:

Years Ending December 31,	Amount
2019	$ 13.6
2020	11.8
2021	7.7
2022	7.4
2023	6.2
Thereafter	9.4
Total (a)	$ 56.1

(a) Minimum payments have not been reduced by minimum sublease rentals of $13.1 due in the future under noncancellable subleases.

Environmental Matters

We accrue for losses associated with environmental remediation obligations when such losses are probable and reasonably estimable. Accruals for estimated losses from environmental remediation obligations generally are recognized no later than completion of the remedial feasibility study. Such accruals are adjusted as further information develops or circumstances change. Costs of future expenditures for environmental remediation obligations are not discounted to their present value.

In February 1988, Parent's predecessor entered into an arrangement with Northern Engraving Corporation ("NEC") and the Minnesota Pollution Control Agency ("MPCA") in relation to groundwater contamination on a parcel of real estate sold by Parent's predecessor to NEC. Ceridian is now responsible for the arrangement with NEC and the MPCA. The arrangement requires expense sharing between Ceridian and NEC for the remediation of groundwater contamination.

In September 1989, Parent's predecessor entered into an EMA with Seagate related to groundwater contamination on a parcel of real estate sold by Parent's predecessor to Seagate. Ceridian is now responsible for the EMA. The EMA requires expense sharing between Ceridian and Seagate for the remediation of groundwater contamination up to a certain limit. Based on additional information obtained with respect to more stringent remediation requirements, we updated our estimate of the potential liability related to the EMA, resulting in an increase to the environmental reserve of $5.9 for the year ended December 31, 2016, which represented the limit under the EMA.

We have recognized an undiscounted liability of approximately $5.2 and $5.4 as of December 31, 2018 and 2017, respectively, in our consolidated balance sheets to comply with the NEC arrangement and EMA described above. The ultimate cost, however, will depend on the extent of continued monitoring activities as these projects progress. Please refer to Note 12, "Supplementary Data to Statements of Operations," for further discussion of changes in the liability during the year ended December 31, 2016.

Legal Matters

We are subject to claims and a number of judicial and administrative proceedings considered normal in the course of our current and past operations, including employment-related disputes, contract disputes, disputes with our competitors, intellectual property disputes, government audits and proceedings, customer disputes, and tort claims. In some proceedings, the claimant seeks damages as well as other relief, which, if granted, would require substantial expenditures on our part.

Our general terms and conditions in customer contracts frequently include a provision indicating we will indemnify and hold our customers harmless from and against any and all claims alleging that the services and materials furnished by us violate any third party's patent, trade secret, copyright or other intellectual property right. We are not aware of any material pending litigation concerning these indemnifications.

Some of these matters raise difficult and complex factual and legal issues and are subject to many uncertainties, including the facts and circumstances of each particular action, and the jurisdiction, forum, and law under which each action is proceeding. Because of these complexities, final disposition of some of these proceedings may not occur for several years. As such, we are not always able to estimate the amount of our possible future liabilities, if any.

There can be no certainty that we may not ultimately incur charges in excess of presently established or future financial accruals or insurance coverage. Although occasional adverse decisions or settlements may occur, it is management's opinion that the final disposition of these proceedings will not, considering the merits of the claims and available resources or reserves and insurance, and based upon the facts and circumstances currently known, have a material adverse effect on our financial position or results of operations.

16. Related Party Transactions

Management Agreements

Prior to our IPO, Ceridian was party to management agreements with affiliates of our Sponsors, Fidelity National Financial, Inc. ("FNF") and THL

Managers VI, LLC ("THLM"). FNF assigned its management agreement to Cannae in November 2017. Pursuant to these management agreements, Cannae and THLM each, respectively, agreed to provide the Company with financial advisory, strategic, and general oversight services. These management agreements provided that we pay annual management fees to each of Cannae and THLM in an amount equal to the greater of (a) $0.9, or (b) 0.5 percent of Adjusted EBITDA. Adjusted EBITDA, for purposes of the management agreements, is EBITDA as defined in the 2014 Senior Secured Credit Facility, further adjusted to exclude the payments made pursuant to the management agreements and certain stock options or other equity compensation.

In April 2018, the management agreements terminated upon consummation of our IPO. Upon termination, the management agreements provided that we pay a termination fee equal to the net present value of the management fee for a seven-year period, which was $11.3.

We recorded a management fee expense in selling, general, and administrative expense of $12.0, $1.9, and $5.0 for the years ended December 31, 2018, 2017, and 2016, respectively, related to these management agreements. The expense for the year ended December 31, 2016, included transaction advisory fees of $3.0 related to the issuance of the senior convertible participating preferred stock. Please refer to Note 18, "Capital Stock," for further discussion of this transaction.

Indebtedness

Prior to its split-off from FNF, Cannae was an affiliate of FNF. FNF and its subsidiaries owned $24.0 of the Senior Notes as of December 31, 2017, and 2016, respectively. Based on this ownership, $1.3, $3.2, and $3.2 in interest payments were made to affiliates of Cannae during the years ended December 31, 2018, 2017, and 2016, respectively. The affiliates of Cannae conducted the debt transactions through third parties in the ordinary course of their business and not directly with us. Following Cannae's split-off from FNF, FNF retained ownership of the Senior Notes.

Service and Vendor Related Agreements

Ceridian is a party to a service agreement with CompuCom Systems, Inc. ("CompuCom"), an investment portfolio company of THL Partners. Pursuant to the service agreement, CompuCom agrees to provide us with service desk and desk side support services. Pursuant to this arrangement, we made payments to CompuCom totaling $1.8, $3.1, and $5.0 during the years ended December 31, 2018, 2017, and 2016, respectively.

Other Transactions

On July 23, 2018, Ronald F. Clarke was appointed to our Board of Directors. Mr. Clarke has been the chief executive officer of FleetCor Technologies Inc. ("FleetCor Technologies") since August 2000 and its chairman of the board of directors since March 2003. We provide services to FleetCor Technologies or one of its wholly owned affiliates through certain commercial arrangements entered into in the ordinary course of business, which include provision of Dayforce HCM services, reseller or referral arrangements whereby we resell or refer FleetCor Technologies services to its customers, and other administrative services. For these services, we have recorded revenue of $2.3 and $2.9 for the years ended December 31, 2018, and 2017, respectively. We are also a corporate charge card customer of FleetCor Technologies. FleetCor Technologies receives a fee from the merchants from whom purchases are made on the FleetCor Technologies corporate charge card by us. In connection with charge card purchases made by us, FleetCor Technologies has provided us with rebates of approximately $0.2 for year ended December 31, 2017.

We provide Dayforce and related services to The Stronach Group, for which we recorded revenue of $0.3 and $0.2 for the years ended December 31, 2018, and 2016, respectively. Alon Ossip, the brother of David Ossip, was the chief executive officer, and is currently a minority shareholder, of The Stronach Group.

We provide payroll-related tax filing services to FNF for which we recorded revenue of $0.4, $0.5, and $0.3 for the years ended December 31, 2018, 2017, and 2016, respectively.

We provide Dayforce and related services to certain investment portfolio companies of THLM and Cannae. We recorded revenue of $1.8 million from American Blue Ribbon Holdings, LLC; $0.5 million from Essex Bargain Hunt Superstores; $0.5 million from Guaranteed Rate; $0.3 million from Phillips Feed Services; and $0.3 million from System One Holdings LLC for the year ended December 31, 2018.

17. Segments and Financial Data by Solution and Geographic Area

Segments

After consideration of the LifeWorks Disposition, management has concluded that we have one operating and reportable segment. This conclusion aligns with how management monitors operating performance, allocates resources, and deploys capital. Please refer to Note 3, "Discontinued Operations," for further discussion of the LifeWorks Disposition.

Our Solutions

We categorize our solutions into two categories: Cloud and Bureau offerings.

- Cloud revenue is generated from HCM solutions that are delivered via two cloud offerings: Dayforce and Powerpay. The Dayforce offering is differentiated from our market competition as being a single application that offers a comprehensive range of functionality, including global HR, payroll, benefits, workforce management, and talent management on web and native iOS and Android platforms. Dayforce provides continuous real-time calculations across all modules to enable, for example, payroll administrators access to data through the entire pay period, and managers access to real-time data to optimize work schedules. Dayforce revenue is primarily generated from monthly recurring fees charged on a PEPM basis, generally one-month in advance of service. We also provide outsourced human resource solutions

to certain of our Dayforce customers, which are tailored to meet their individual needs, and entail performing the duties of a customer's human resources department, including payroll processing, time and labor management, performance management, and recruiting, as needed. Also included within Dayforce revenue is implementation, staging, and other professional services revenue; revenues from the sale, rental, and maintenance of time clocks; and billable travel expenses. The Powerpay offering is our solution designed primarily for small market Canadian customers. The typical Powerpay customer has fewer than 20 employees, and the majority of the revenue is generated from recurring fees charged on a per-employee, per-process basis. Typical processes include the customer's payroll runs, year-end tax packages, and

delivery of customers' remittance advices or checks. In addition to the direct revenue earned from the Dayforce and Powerpay offerings, Cloud revenue also includes investment income generated from holding Cloud customer funds in trust before funds are remitted to taxing authorities, Cloud customer employees, or other third parties; and revenue from the sale of third party services.

- Bureau revenue is generated primarily from HCM solutions delivered via a service-bureau model. These solutions are delivered via three primary service lines: payroll, payroll-related tax filing services, and outsourced human resource solutions. Revenue from payroll services is generated from recurring fees charged on a per-process basis. Typical processes include the customer's payroll runs, year-end tax packages, and delivery of customers' remittance advices or checks. In addition to customers who use our payroll services, certain customers use our tax filing services on a stand-alone basis. Our outsourced human resource solutions are tailored to meet the needs of individual customers, and entail our contracting to perform many of the duties of a customer's human resources department, including payroll processing, time and labor management, performance management, and recruiting. We also perform individual services for customers, such as check printing, wage attachment and disbursement, and Affordable Care Act ("ACA") management. Additional items included in Bureau revenue are custom professional services revenue; investment income generated from holding Bureau customer funds in trust before funds are remitted to taxing authorities, Bureau customer employees, or other third parties; consulting services related to Bureau offerings; and revenue from the sale of third party services.

Revenue by solution is as follows:

	Year Ended December 31,		
	2018	2017	2016
Cloud	$ 534.3	$ 404.3	$ 297.8
Bureau	212.1	266.5	325.6
Total revenue	$ 746.4	$ 670.8	$ 623.4

Geographic and Customer Information

No single customer accounts for 1% or more of our consolidated revenue for any of the periods presented.

Revenue by country is as follows. The country in which the revenue is recorded is determined by the legal entity with which the customer has contracted.

	Year Ended December 31,		
	2018	2017	2016
United States	$ 518.5	$ 465.2	$ 432.7
Canada	224.7	203.4	189.0
Other	3.2	2.2	1.7
Total revenue	$ 746.4	$ 670.8	$ 623.4

Long-lived assets by country is as follows:

	December 31,	
	2018	2017
United States	$ 1,778.7	$ 1,786.1
Canada	438.1	480.6
Other	2.5	2.8
Total long-lived assets	$ 2,219.3	$ 2,269.5

18. Capital Stock

As of October 1, 2013, Ceridian was authorized to issue 100,000,000 shares of common stock with a par value of $0.01 per share and 70,000,000 shares of junior convertible participating preferred stock ("Junior Preferred Stock") with a par value of $0.01 per share. On March 30, 2016, the Board of Directors increased the number of authorized shares of common stock to 150,000,000 and authorized 70,000,000 shares of senior convertible participating

preferred stock ("Senior Preferred Stock") with a par value of $0.01 per share. In April 2018, the Board of Directors increased the number of authorized shares of common stock to 500,000,000 and decreased the number of authorized shares of preferred stock to 10,000,000.

On March 30, 2016, we entered into an equity financing transaction with Ceridian Holding II. Ceridian Holding II raised $150.2 from our Sponsors, certain of their co-investors, and certain other existing stockholders of Ceridian Holding. Of such amount, $75.0 was contributed by Ceridian Holding II to Ceridian on March 30, 2016. The remaining $75.2 was committed to be funded to Ceridian HCM Holding Inc. within the following three years, and was recorded within equity as a receivable from stockholder. During the second quarter of 2017, the board of directors of Ceridian Holding II approved the funding of the remaining $75.2, which was transferred to Ceridian HCM Holding Inc. on June 28, 2017.

In connection therewith, Ceridian issued $150.2 of the Senior Preferred Stock to Ceridian Holding II. The Senior Preferred Stock was senior in priority to all outstanding equity securities of Ceridian and had the rights to be converted to common stock at the option of the stockholder for a number of shares based on the conversion price. The initial conversion price was equal to the original issuance price and was subject to adjustment for certain events of dilution, including common stock dividends, stock splits, mergers and reorganizations, and the initial public offering price upon such event. In the event of an initial public offering, the Senior Preferred Stock would be automatically converted to common stock. The Senior Preferred Stock received a 12.5% annual dividend (not cash paying). In the event of liquidation, the Senior Preferred Stock had a liquidation preference equal to 1.5 times the initial face amount plus any accrued but unpaid dividends.

The Junior Preferred Stock provided holders with the equivalent number of votes on an "as converted" basis. The Junior Preferred Stock had the rights to be converted to common stock at the option of the holder for a number of shares based on the conversion price. The initial conversion price was equal to the original issuance price adjusted for certain events of dilution other than shares issued to employees and directors pursuant to the 2013 SIP and certain other instances of issuances of shares of common stock. In the event of an initial public offering, the Junior Preferred Stock would be automatically converted to common stock. In the event of liquidation, Junior Preferred Stock received the greater of up to $13.50 per share of preferred stock (adjusted for dividend, stock split, combination or other similar recapitalization with respect to the convertible participating preferred stock) or a pro rata price per share of all common stock if converted in a liquidation event, subject to the total amount of net assets available in liquidation.

On April 30, 2018, we completed our IPO, in which we issued a total of 24,150,000 shares of common stock at a public offering price of $22.00. Concurrently with our IPO, we issued an additional 4,545,455 shares of our common stock in a private placement at $22.00 per share. Concurrent with the IPO and private placement, all outstanding Junior and Senior Preferred Stock were automatically converted into common shares pursuant to their terms.

As of December 31, 2018, there were 139,453,710 shares of common stock issued and outstanding. As of December 31, 2017, there were 65,285,962 shares of common stock issued and outstanding, 16,802,144 shares of Senior Preferred Stock issued and outstanding, and 58,244,308 shares of Junior Preferred Stock issued and outstanding.

Holders of our common stock are entitled to the rights set forth as follows. Directors are elected by a plurality of the votes entitled to be cast except as set forth below with respect to directors to be elected by the holders of common stock. Our stockholders do not have cumulative voting rights. Except as otherwise provided in our third amended and restated certificate of incorporation or as required by law, all matters to be voted on by our stockholders other than matters relating to the elections and removal of directors must be approved by a majority of the shares present in person or by proxy at the meeting and entitled to vote on the subject matter or by a written resolution of the stockholders representing the number of affirmative votes required for such matter at a meeting.

Our stockholders have no preemptive or other rights to subscribe for additional shares. All holders of our common stock are entitled to share equally on a share-for-share basis in any assets available for distribution to common stockholders upon our liquidation, dissolution or winding up. All outstanding shares are validly issued, fully paid and nonassessable.

19. Net Loss per Share

We compute net loss per share of common stock using the treasury stock method.

Basic net loss per share is computed by dividing net loss attributable to Ceridian available to common stockholders by the weighted-average number of shares of common stock outstanding during the period.

For the calculation of diluted net loss per share, net loss per share is adjusted by the effect of dilutive securities, including awards under our share-based compensation plans. Diluted net loss per share is computed by dividing the resulting net loss attributable to Ceridian available to common stockholders by the weighted-average number of fully diluted common shares outstanding. In the years ended December 31, 2018, 2017, and 2016, our potential dilutive shares, such as stock options, RSUs, and shares of senior and junior convertible preferred stock were not included in the computation of diluted net loss per share as the effect of including these shares in the calculation would have been anti-dilutive.

The numerators and denominators of the basic and diluted net loss per share computations are calculated as follows:

	Year Ended December 31,		
	2018	2017	2016
Numerator:			
Net loss attributable to Ceridian	$ (63.4)	$ (9.2)	$ (92.9)
Less: (Loss) income from discontinued operations	(25.8)	(6.0)	12.5
Net loss from continuing operations attributable to Ceridian	(37.6)	(3.2)	(105.4)
Less: Senior Preferred Stock dividends declared	7.7	20.5	14.1

Net loss from continuing operations attributable to Ceridian available to common stockholders	$ (45.3)	$ (23.7)	$ (119.5)
Denominator:			
Weighted-average shares outstanding—basic	114,049,682	65,204,960	64,988,338
Weighted-average shares outstanding—diluted	114,049,682	65,204,960	64,988,338
Net loss per share from continuing operations attributable to Ceridian—basic and diluted	$ (0.40)	$ (0.36)	$ (1.84)
Net (loss) income per share from discontinued operations—basic and diluted	$ (0.22)	$ (0.10)	$ 0.19
Net loss per share attributable to Ceridian—basic and diluted	$ (0.62)	$ (0.46)	$ (1.65)

The following potentially dilutive shares were excluded from the calculation of diluted net loss per share because their effect would have been anti-dilutive:

	Year Ended December 31,		
	2018	2017	2016
Senior convertible preferred stock	5,523,993	16,802,144	12,601,608
Junior convertible preferred stock	19,148,814	58,244,308	58,244,308
Stock options	14,227,487	10,201,105	8,423,124
RSUs	587,283	451,190	155,692

Item 9. Changes in and Disagreements With Accountants on Accounting and Financial Disclosure.

None.

Item 9A. Controls and Procedures.

Evaluation of Disclosure Controls and Procedures

We maintain “disclosure controls and procedures,” as defined in Rule 13a-15(e) and Rule 15d-15(e) under the Exchange Act that are designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC’s rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is accumulated and communicated to our management, including our principal executive and principal financial officers, as appropriate to allow timely decisions regarding required disclosure.

Our management, with the participation of our Chief Executive Officer and our Chief Financial Officer, evaluated the effectiveness of our disclosure controls and procedures as of December 31, 2018. Based on the evaluation of our disclosure controls and procedures as of December 31, 2018, our Chief Executive Officer and Chief Financial Officer concluded that, as of such date, our disclosure controls and procedures were effective at the reasonable assurance level.

Management's Report on Internal Control over Financial Reporting

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

Changes in Internal Control Over Financial Reporting

There was no change in our internal control over financial reporting identified in connection with the evaluation required by Rule 13a-15(d) and 15d-15(d) of the Exchange Act that occurred during the fiscal quarter ended December 31, 2018 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Inherent Limitations on Effectiveness of Controls

Our management, including our Chief Executive Officer and Chief Financial Officer, believes that our disclosure controls and procedures and internal control over financial reporting are designed to provide reasonable assurance of achieving their objectives and are effective at the reasonable assurance level. However, our management does not expect that our disclosure controls and procedures or our internal control over financial reporting will prevent all errors and all fraud. A control system, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. Further, the design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, have been detected. These inherent limitations include the realities that judgments in decision making can be faulty, and that breakdowns can occur because of a simple error or mistake. Additionally, controls can be circumvented by the individual acts of some persons, by collusion of two or more people or by management override of the controls. The design of any system of controls also is based in part upon certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions; over time, controls may become inadequate because of changes in conditions, or the degree of compliance with policies or procedures may deteriorate. Because of the inherent limitations in a cost-effective control system, misstatements due to error or

fraud may occur and not be detected.

Item 9B. Other Information.

None.

PART III

Item 10. Directors, Executive Officers and Corporate Governance.

Other than “Executive Officers of the Registrant” which is set forth at the end of Item 1 in Part I of this Form 10-K, the information required by this item (other than the information set forth in the next paragraph in this Item) is incorporated herein by reference to the information set forth in Ceridian’s Proxy Statement for the 2019 Annual Meeting of Stockholders under the headings “Board of Directors and Corporate Governance”, “Security Ownership of Certain Beneficial Owners and Management, Section 16(a) Beneficial Ownership Reporting Compliance”, and “Additional Information”.

We have a Code of Conduct that applies to all of our employees, officers and directors. A copy of the Code of Conduct is available on our website located at www.ceridian.com. Any amendments or waivers from our Code of Conduct granted to directors or executive officers will be disclosed on our Internet website promptly following the date of such amendment or waiver.

Item 11. Executive Compensation.

The information required by this item is incorporated herein by reference to the information set forth in Ceridian’s Proxy Statement for the 2019 Annual Meeting of Stockholders under the headings “Executive and Director Compensation” and “Equity Compensation Plan Information”.

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

The information required by this item is incorporated herein by reference to the information set forth in Ceridian’s Proxy Statement for the 2019 Annual Meeting of Stockholders under the heading “Security Ownership of Certain Beneficial Owners and Management”, “Equity Compensation Plan Information”, and “Board of Directors and Corporate Governance”.

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

The information required by this item is incorporated herein by reference to the information set forth in Ceridian’s Proxy Statement for the 2019 Annual Meeting of Stockholders under the headings “Certain Relationships and Related Party Transactions” and “Board of Directors and Corporate Governance”.

Item 14. Principal Accounting Fees and Services.

The information required by this item is incorporated herein by reference to the information set forth in Ceridian’s Proxy Statement for the 2019 Annual Meeting of Stockholders under the heading “Proposal Three, Ratification of the Appointment of our Independent Registered Public Accounting Firm”.

PART IV

Item 15. Exhibits, Financial Statement Schedules.

(1) Consolidated Financial Statements

See Index to Consolidated Financial Statements at Item 8 herein.

(2) Financial Statement Schedules

All schedules are omitted because they are not applicable or the required information is shown in the consolidated financial statements or notes thereto.

(3) Exhibits

The following is a list of exhibits filed as part of this Annual Report on Form 10-K.

Exhibit Number	Description
3.1	Third Amended and Restated Certificate of Incorporation of Ceridian HCM Holding Inc. (incorporated by reference to Exhibit 3.1 to the Quarterly Report filed on Form 10-Q by the Company on May 24, 2018).
3.2	Amended and Restated Bylaws of Ceridian HCM Holding Inc. (incorporated by reference to Exhibit 3.2 to the Quarterly Report filed on Form 10-Q by the Company on May 24, 2018).
4.1	Certificate of Common Stock (incorporated by reference to Exhibit 4.1 to the Quarterly Report filed on Form 10-Q by the Company on May 24, 2018).
4.2	Registration Rights Agreement, dated April 30, 2018, by and among Ceridian HCM Holding Inc. and the other parties thereto (incorporated by reference to Exhibit 4.4 to the Quarterly Report filed on Form 10-Q by the Company on May 24, 2018).
10.1	Senior Secured Credit Agreement, dated April 30, 2018, between Ceridian HCM Holding Inc., as borrowers, the lenders party thereto, Deutsche Bank AG New York Branch (as administrative agent and collateral agent) and Deutsche Bank AG Canadian branch (as Canadian subagent) (incorporated by reference to Exhibit 10.1 to the Quarterly Report filed on Form 10-Q by the Company on August 9, 2018).
10.2*	Employment Agreement, dated April 2, 2012, by and between Ceridian Dayforce Corporation and David D. Ossip (incorporated by reference to Exhibit 10.2 to the Registration on Form S-1 filed by the Company on March 26, 2018).
10.3*	Amended and Restated Restrictive Covenant Agreement, effective as of March 20, 2017, by and among Ceridian Holding LLC, Ceridian LLC, Ceridian Canada Ltd., Ceridian Dayforce Corporation and David D. Ossip (incorporated by reference to Exhibit 10.3 to the Registration on Form S-1 filed by the Company on March 26, 2018).
10.4*	Employment Agreement, dated August 7, 2018, between Ceridian Canada Ltd. and Leagh E. Turner (incorporated by reference to Exhibit 10.4 to the Registration on Form S-1 filed by the Company on November 9, 2018.)
10.5*	Employment Agreement, dated April 20, 2016, by and between Ceridian Canada Ltd. and Paul D. Elliott (incorporated by reference to Exhibit 10.4 to the Registration on Form S-1 filed by the Company on March 26, 2018).
10.6*	Employment Agreement, dated September 14, 2016, by and between Ceridian Canada Ltd. and Arthur Gitajn (incorporated by reference to Exhibit 10.5 to the Registration on Form S-1 filed by the Company on March 26, 2018).
10.7*	Employment Agreement, dated April 3, 2012, by and between Ceridian Dayforce Corporation and Ozzie J. Goldschmied (incorporated by reference to Exhibit 10.9 to the Registration on Form S-1 filed by the Company on March 26, 2018).
10.8*	Employment Agreement, dated December 7, 2017, by and between Ceridian Canada Ltd. and Scott A. Kitching (incorporated by reference to Exhibit 10.6 to the Registration on Form S-1 filed by the Company on March 26, 2018).
10.9*	Employment Agreement, dated January 4, 2018, by and between Ceridian HCM, Inc. and Lisa Sterling (incorporated by reference to Exhibit 10.8 to the Registration on Form S-1 filed by the Company on March 26, 2018).
10.10*	Employment Agreement, dated August 7, 2018, between Ceridian HCM, Inc. and Erik J. Zimmer (incorporated by reference to Exhibit 10.11 to the Registration on Form S-1 filed by the Company on November 9, 2018).
10.11*	Separation and Consulting Agreement, dated August 7, 2018, by and between Ceridian HCM Holding Inc., Ceridian Canada Ltd. and Paul D. Elliott (incorporated by reference to Exhibit 10.12 to the Registration on Form S-1 filed by the Company on November 9, 2018).
10.12*	2013 Ceridian HCM Holding Inc. Stock Incentive Plan, dated October 1, 2013, and as amended on March 30, 2016, August 11, 2016, December 30, 2016, and March 20, 2017 (incorporated by reference to Exhibit 10.10 to the Registration on Form S-1 filed by the Company on March 26, 2018).
10.13*	Form of Director Indemnification Agreement for Ceridian HCM Holding Inc. (incorporated by reference to Exhibit 10.11 to the Registration on Form S-1 filed by the Company on April 12, 2018).
10.14*	Ceridian HCM Holding Inc. 2018 Equity Incentive Plan (incorporated by reference to Exhibit 4.1 to the Registration on Form S-8 filed by the Company on April 25, 2018).
10.15*	Form of Director Restricted Stock Unit Award Agreement (incorporated by reference to Exhibit 10.13 to the Registration on Form S-1 filed by the Company on April 12, 2018).
10.16*	Form of Employee Restricted Stock Unit Award Agreement (incorporated by reference to Exhibit 10.14 to the Registration on Form S-1 filed by the Company on April 12, 2018).

10.17*	Form of Employee Stock Option Award Agreement (incorporated by reference to Exhibit 10.15 to the Registration on Form S-1 filed by the Company on April 12, 2018).
10.18	Voting Agreement, dated April 30, 2018, by and among Ceridian HCM Holding Inc. and the other parties thereto (incorporated by reference to Exhibit 10.2 to the Quarterly Report filed on Form 10-Q by the Company on August 9, 2018).
10.19	Common Stock Purchase Agreement, dated April 16, 2018, by and between Ceridian HCM Holding Inc. and THL / Cannae Investors LLC (incorporated by reference to Exhibit 10.17 to the Registration on Form S-1 filed by the Company on April 20, 2018).
10.20	Ceridian HCM Holding Inc. Global Employee Stock Purchase Plan (incorporated by reference to Exhibit 99.1 to the Registration Statement on Form S-8 filed by the Company on November 28, 2018).
21.1	List of subsidiaries of Ceridian HCM Holding Inc. (incorporated by reference to Exhibit 21.1 to the Registration on Form S-1 filed by the Company on March 26, 2018).
23.1**	Consent of KPMG LLP, Independent Registered Public Accounting Firm.
24.1	Power of Attorney (included on signature page).
31.1**	Certification of Principal Executive Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2**	Certification of Principal Financial Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1**	Certification of Principal Executive Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act

	of 2002.
32.2**	Certification of Principal Financial Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	XBRL Taxonomy Extension Label Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document

* Management compensatory plan or arrangement.

** Filed herewith.

Item 16. Form 10-K Summary.

Not applicable.

SIGNATURES

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

CERIDIAN HCM HOLDING INC.

Date: February 28, 2019

By: /s/ David D. Ossip
Name: David D. Ossip
Title: Chief Executive Officer

KNOW ALL MEN BY THESE PRESENTS, that each of the undersigned constitutes and appoints each of Arthur Gitajn, Scott A. Kitching and William E. McDonald, or any of them, each acting alone, his true and lawful attorney-in-fact and agent, with full power of substitution and resubstitution, for such person and in his name, place and stead, in any and all capacities, to sign this Annual Report on Form 10-K, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, each acting alone, full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he might or could do in person, hereby ratifying and confirming that any such attorney-in-fact and agent, or his substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, as amended, this Report has been signed below by the following persons on behalf of the Registrant in the capacities and on the dates indicated.

Name	Title	Date
/s/ David D. Ossip David D. Ossip	Chairman and Chief Executive Officer (Principal Executive Officer)	February 28, 2019
/s/ Arthur Gitajn Arthur Gitajn	Executive Vice President and Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)	February 28, 2019
/s/ Brent B. Bickett Brent B. Bickett	Director	February 28, 2019
/s/ Ronald F. Clarke Ronald F. Clarke	Director	February 28, 2019
/s/ William P. Foley, II William P. Foley, II	Director	February 28, 2019
/s/ Thomas M. Hagerty Thomas M. Hagerty	Director	February 28, 2019
/s/ Ganesh B. Rao Ganesh B. Rao	Director	February 28, 2019
/s/ Andrea S. Rosen Andrea S. Rosen	Director	February 28, 2019
/s/ Gerald C. Throop Gerald C. Throop	Director	February 28, 2019

Exhibit 23.1

Consent of Independent Registered Public Accounting Firm

The Stockholders and Board of Directors
Ceridian HCM Holding Inc.:

We consent to the incorporation by reference in the registration statements (Nos. 333-224438, 333-228578) on Form S-8 of Ceridian HCM Holding Inc. of our report dated February 28, 2019, with respect to the consolidated balance sheets of Ceridian HCM Holding Inc. and subsidiaries as of December 31, 2018 and 2017, the related consolidated statements of operations, comprehensive income (loss), stockholders' equity, and cash flows for each of the years in the three-year period ended December 31, 2018, and the related notes (collectively, the "consolidated financial statements"), which report appears in the December 31, 2018 annual report on Form 10-K of Ceridian HCM Holding Inc.

/s/ KPMG LLP

Minneapolis, Minnesota
February 28, 2019

Exhibit 31.1

CERTIFICATION PURSUANT TO
RULES 13a-14(a) AND 15d-14(a) UNDER THE SECURITIES EXCHANGE ACT OF 1934,
AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, David D. Ossip, certify that:

1. I have reviewed this Annual Report on Form 10-K of Ceridian HCM Holding Inc. (the “registrant”) for the year ended December 31, 2018;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 28, 2019

By: /s/ David D. Ossip
David D. Ossip
Chief Executive Officer

Exhibit 31.2

CERTIFICATION PURSUANT TO
RULES 13a-14(a) AND 15d-14(a) UNDER THE SECURITIES EXCHANGE ACT OF 1934,
AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Arthur Gitajn, certify that:

1. I have reviewed this Annual Report on Form 10-K of Ceridian HCM Holding Inc. (the "registrant") for the year ended December 31, 2018;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 28, 2019

By: /s/ Arthur Gitajn
Arthur Gitajn
Executive Vice President and
Chief Financial Officer

Exhibit 32.1

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report of Ceridian HCM Holding Inc. (the "Company") on Form 10-K for the year ended December 31, 2018 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that:

(1) The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and result of operations of the Company.

Date: February 28, 2019

By: /s/ David D. Ossip
David D. Ossip
Chief Executive Officer

Exhibit 32.2

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report of Ceridian HCM Holding Inc. (the "Company") on Form 10-K for the year ended December 31, 2018 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that:

(1) The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and result of operations of the Company.

Date: February 28, 2019

By: /s/ Arthur Gitajn
Arthur Gitajn
Executive Vice President and
Chief Financial Officer

Document and Entity Information

Document and Entity Information - USD ($) $ in Millions	12 Months Ended		
	Dec. 31, 2018	Feb. 25, 2019	Jun. 30, 2018
Document And Entity Information [Abstract]			
Document Type	10-K		
Amendment Flag	false		
Document Period End Date	Dec. 31, 2018		
Document Fiscal Year Focus	2018		
Document Fiscal Period Focus	FY		
Trading Symbol	CDAY		
Entity Registrant Name	Ceridian HCM Holding Inc.		
Entity Central Index Key	0001725057		
Current Fiscal Year End Date	--12-31		
Entity Well-known Seasoned Issuer	No		
Entity Current Reporting Status	Yes		
Entity Voluntary Filers	No		
Entity Filer Category	Non-accelerated Filer		
Entity Small Business	false		
Entity Emerging Growth Company	true		
Entity Ex Transition Period	false		
Entity Shell Company	false		
Entity Common Stock, Shares Outstanding		140,514,889	
Entity Public Float			$ 938.7

Consolidated Balance Sheets

Consolidated Balance Sheets - USD ($) $ in Millions	Dec. 31, 2018	Dec. 31, 2017
Current assets:		
Cash and equivalents	$ 217.8	$ 94.2
Trade and other receivables, net	69.9	66.6
Prepaid expenses	40.3	36.4
Assets of discontinued operations		156.2
Other current assets	2.0	5.3
Total current assets before customer trust funds	330.0	358.7
Customer trust funds	2,603.5	4,099.7
Total current assets	2,933.5	4,458.4
Property, plant, and equipment, net	104.4	102.0
Goodwill	1,927.4	1,961.0
Other intangible assets, net	187.5	206.5
Other assets	1.6	2.0
Total assets	5,154.4	6,729.9
Current liabilities:		
Current portion of long-term debt	6.8	
Accounts payable	41.5	44.4
Accrued interest	0.1	15.9
Deferred revenue	17.2	14.0
Employee compensation and benefits	54.5	68.8
Liabilities of discontinued operations	0.2	19.6
Other accrued expenses	23.6	15.0
Total current liabilities before customer trust funds obligations	143.9	177.7
Customer trust funds obligations	2,619.7	4,105.5
Total current liabilities	2,763.6	4,283.2
Long-term debt, less current portion	663.5	1,119.8
Employee benefit plans	153.3	152.4
Other liabilities	42.0	45.5
Total liabilities	$ 3,622.4	$ 5,600.9
Commitments and contingencies (Note 15)		
Stockholders' equity:		
Common stock, $0.01 par, 500,000,000 shares authorized, 139,453,710 shares issued and outstanding as of December 31, 2018, and 150,000,000 shares authorized, 65,285,962 shares issued and outstanding as of December 31, 2017	$ 1.4	$ 0.7
Additional paid in capital	2,325.6	1,565.4
Accumulated deficit	(419.3)	(348.2)
Accumulated other comprehensive loss	(375.7)	(312.1)
Total stockholders' equity	1,532.0	1,091.2
Noncontrolling interest		37.8
Total equity	1,532.0	1,129.0
Total liabilities and equity	$ 5,154.4	6,729.9
Senior Preferred Stock [Member]		
Stockholders' equity:		
Preferred stock		184.8
Total equity		184.8
Junior Preferred Stock [Member]		

Stockholders' equity:		
Preferred stock		0.6
Total equity		$ 0.6

Consolidated Balance Sheets (Parenthetical)

Consolidated Balance Sheets (Parenthetical) - $ / shares	Dec. 31, 2018	Nov. 16, 2018	Apr. 30, 2018	Dec. 31, 2017	Mar. 30, 2016	Oct. 01, 2013
Preferred Stock, shares authorized			10,000,000			
Common Stock, par value	$ 0.01			$ 0.01		$ 0.01
Common Stock, shares authorized	500,000,000		500,000,000	150,000,000	150,000,000	100,000,000
Common Stock, shares issued	139,453,710	12,650,000	24,150,000	65,285,962		
Common Stock, shares outstanding	139,453,710			65,285,962		
Senior Preferred Stock [Member]						
Preferred Stock, par value				$ 0.01	$ 0.01	
Preferred Stock, shares authorized				70,000,000	70,000,000	
Preferred Stock, shares issued				16,802,144		
Preferred Stock, shares outstanding				16,802,144		
Junior Preferred Stock [Member]						
Preferred Stock, par value				$ 0.01		$ 0.01
Preferred Stock, shares authorized				70,000,000		70,000,000
Preferred Stock, shares issued				58,244,308		
Preferred Stock, shares outstanding				58,244,308		

Consolidated Statements of Operations

Consolidated Statements of Operations - USD ($) $ in Millions	12 Months Ended		
	Dec. 31, 2018	Dec. 31, 2017	Dec. 31, 2016
Revenue:			
Recurring services	$ 652.5	$ 598.5	$ 558.5
Professional services and other	93.9	72.3	64.9
Total revenue	746.4	670.8	623.4
Cost of revenue:			
Recurring services	200.3	196.8	214.4
Professional services and other	132.2	135.8	115.6
Product development and management	59.0	43.6	43.3
Depreciation and amortization	34.3	31.3	23.1
Total cost of revenue	425.8	407.5	396.4
Gross profit	320.6	263.3	227.0
Costs and expenses:			
Selling, general and administrative	270.7	223.0	225.3
Other (income) expense, net	(2.9)	7.3	12.9
Operating profit (loss)	52.8	33.0	(11.2)
Interest expense, net	83.2	87.1	87.4
Loss from continuing operations before income taxes	(30.4)	(54.1)	(98.6)
Income tax expense (benefit)	7.7	(49.6)	6.7
Loss from continuing operations	(38.1)	(4.5)	(105.3)
(Loss) income from discontinued operations	(25.8)	(6.0)	12.5
Net loss	(63.9)	(10.5)	(92.8)
Net (loss) income attributable to noncontrolling interest	(0.5)	(1.3)	0.1
Net loss attributable to Ceridian	$ (63.4)	$ (9.2)	$ (92.9)
Net loss per share attributable to Ceridian—basic and diluted (Note 19)	$ (0.62)	$ (0.46)	$ (1.65)
Weighted-average shares used to compute net loss per share attributable to Ceridian—basic and diluted (Note 19)	114,049,682	65,204,960	64,988,338

Consolidated Statements of Comprehensive Income (Loss)

Consolidated Statements of Comprehensive Income (Loss) - USD ($) $ in Millions		12 Months Ended		
		Dec. 31, 2018	Dec. 31, 2017	Dec. 31, 2016
Statement Of Income And Comprehensive Income [Abstract]				
Net loss		$ (63.9)	$ (10.5)	$ (92.8)
Items of other comprehensive income (loss) before income taxes:				
Change in foreign currency translation adjustment		(47.4)	39.7	24.4
Change in unrealized gain from invested customer trust funds		(10.5)	(17.3)	(10.2)
Change in pension liability adjustment	*[1]*	(7.6)	13.8	13.6
Other comprehensive (loss) income before income taxes		(65.5)	36.2	27.8
Income tax (benefit) expense, net		(1.2)	(3.6)	0.6
Other comprehensive (loss) income after income taxes		(64.3)	39.8	27.2
Comprehensive (loss) income		(128.2)	29.3	(65.6)
Comprehensive loss attributable to noncontrolling interest		(0.5)	(0.9)	(0.5)
Comprehensive (loss) income attributable to the Ceridian		$ (127.7)	$ 30.2	$ (65.1)

[1] The amount of the pension liability adjustment recognized in the Consolidated Statements of Operations within selling, general, and administrative expense was $11.7, $10.1 and $9.9 during the years ended December 31, 2018, 2017, and 2016, respectively.

Consolidated Statements of Comprehensive Income (Loss) (Parenthetical)

Consolidated Statements of Comprehensive Income (Loss) (Parenthetical) - USD ($) $ in Millions	12 Months Ended		
	Dec. 31, 2018	Dec. 31, 2017	Dec. 31, 2016
Selling, General and Administrative Expense and Income (Loss) from Discontinued Operations [Member]			
Pension liability adjustment	$ 11.7	$ 10.1	$ 9.9

Consolidated Statements of Stockholders' Equity

Consolidated Statements of Stockholders' Equity - USD ($) $ in Millions	Total	Senior Preferred Stock [Member]	Junior Preferred Stock [Member]	Common Stock [Member]	Additional Paid In Capital [Member]	Accumulated Deficit [Member]	Accumulated Other Comprehensive Loss [Member]	Receivables from Stockholder [Member]	Total Stockholders Equity [Member]	Non-controlling Interest [Member]
Balance at Dec. 31, 2015	$ 942.1		$ 0.6	$ 0.7	$ 1,531.5	$ (211.5)	$ (379.2)		$ 942.1	
Balance, shares at Dec. 31, 2015			58,244,308	64,924,845						
Net (loss) income	(92.8)					(92.9)			(92.9)	$ 0.1
Issuance of Common Stock upon vesting of restricted stock units, shares				76,192						
Issuance of stock	75.0	$ 150.2						$ (75.2)	75.0	
Issuance of stock, shares		16,802,144								
Addition of noncontrolling interest	39.2									39.2
Sale of the UK Business, net of tax	25.9						25.9		25.9	
Senior preferred dividends declared		$ 14.1				(14.1)				
Share-based compensation	15.3				15.3				15.3	
Foreign currency translation	7.4						8.0		8.0	(0.6)
Change in unrealized loss, net of tax	(8.2)						(8.2)		(8.2)	
Change in minimum pension & postretirement liability, net of tax	2.0						2.0		2.0	
Balance at Dec. 31, 2016	1,005.9	$ 164.3	$ 0.6	$ 0.7	1,546.8	(318.5)	(351.5)	(75.2)	967.2	38.7
Balance, shares at Dec. 31, 2016		16,802,144	58,244,308	65,001,037						
Net (loss) income	(10.5)					(9.2)			(9.2)	(1.3)
Issuance of Common Stock upon vesting of restricted stock units, shares				76,190						
Issuance of stock	3.2				3.2				3.2	
Issuance of stock, shares				183,425						
Issuance of common stock upon exercise of options, shares				653,214						
Share repurchase	(1.8)				(1.8)				(1.8)	
Share repurchase, shares				(627,904)						
Payment for Issuance of Senior Preferred Stock	75.2							$ 75.2	75.2	
Senior preferred dividends declared		$ 20.5				(20.5)				
Share-based compensation	17.2				17.2				17.2	
Foreign currency translation	39.7						39.3		39.3	0.4
Change in unrealized loss, net of tax	(13.7)						(13.7)		(13.7)	
Change in minimum pension & postretirement liability, net of tax	13.8						13.8		13.8	
Balance at Dec. 31, 2017	1,129.0	$ 184.8	$ 0.6	$ 0.7	1,565.4	(348.2)	(312.1)		1,091.2	37.8
Balance, shares at Dec. 31, 2017		16,802,144	58,244,308	65,285,962						
Net (loss) income	(63.9)					(63.4)			(63.4)	(0.5)
Issuance of Common Stock upon vesting of restricted stock units, shares				105,990						
Issuance of stock	595.0			$ 0.3	594.7				595.0	
Issuance of stock, shares				28,695,455						
Issuance of common stock upon exercise of options	45.0				45.0				45.0	
Issuance of common stock upon exercise of options, shares				3,119,653						
Senior preferred dividends declared		$ 7.7				(7.7)				
Conversion of stock		$ (192.5)	$ (0.6)	$ 0.4	192.7					
Conversion of stock, shares		(16,802,144)	(58,244,308)	42,246,650						
LifeWorks Disposition	(132.3)				(95.7)		0.7		(95.0)	$ (37.3)
Share-based compensation	23.5				23.5				23.5	
Foreign currency translation	(47.4)						(47.4)		(47.4)	
Change in unrealized loss, net of tax	(9.3)						(9.3)		(9.3)	
Change in minimum pension & postretirement liability, net of tax	(7.6)						(7.6)		(7.6)	
Balance at Dec. 31, 2018	$ 1,532.0			$ 1.4	$ 2,325.6	$ (419.3)	$ (375.7)		$ 1,532.0	
Balance, shares at Dec. 31, 2018				139,453,710						

Consolidated Statements of Stockholders' Equity (Parenthetical)

Consolidated Statements of Stockholders' Equity (Parenthetical) - USD ($) $ in Millions	12 Months Ended		
	Dec. 31, 2018	Dec. 31, 2017	Dec. 31, 2016
Statement Of Stockholders Equity [Abstract]			
Sale of the UK Business, tax			$ 2.5
Change in unrealized loss, tax	$ (1.2)	$ (3.6)	(2.0)
Change in minimum pension & postretirement liability, tax	$ 0.0	$ 0.0	$ 0.1

Consolidated Statements of Cash Flows

Consolidated Statements of Cash Flows - USD ($) $ in Millions	12 Months Ended		
	Dec. 31, 2018	Dec. 31, 2017	Dec. 31, 2016
Statement Of Cash Flows [Abstract]			
Net loss	$ (63.9)	$ (10.5)	$ (92.8)
Loss (income) from discontinued operations	25.8	6.0	(12.5)
Adjustments to reconcile net loss to net cash provided by (used in) operating activities:			
Deferred income tax benefit	(16.8)	(62.3)	(8.3)
Depreciation and amortization	56.6	53.8	53.2
Asset impairment			10.4
Amortization of debt issuance costs and debt discount	2.1	3.7	3.5
Loss on debt extinguishment	25.7		
Net periodic pension and postretirement cost	2.7	1.5	3.0
Share-based compensation	23.2	16.1	12.5
Environmental reserve			5.9
Other	0.3	(0.5)	1.2
Changes in operating assets and liabilities excluding effects of acquisitions and divestitures:			
Trade and other receivables	(5.3)	5.3	(5.8)
Prepaid expenses and other current assets	(4.6)	(6.9)	1.1
Accounts payable and other accrued expenses	(6.4)	0.1	(4.4)
Deferred revenue	3.5	2.6	(1.8)
Employee compensation and benefits	(22.1)	(26.1)	(49.1)
Accrued interest	(15.7)	(4.8)	(0.2)
Accrued taxes	8.4	(6.7)	14.7
Other assets and liabilities	(2.8)	(0.7)	(3.8)
Net cash provided by (used in) operating activities—continuing operations	10.7	(29.4)	(73.2)
Net cash used in operating activities—discontinued operations	(1.2)	(10.4)	(2.3)
Net cash provided by (used in) operating activities	9.5	(39.8)	(75.5)
Cash Flows from Investing Activities			
Purchase of customer trust funds marketable securities	(855.2)	(598.5)	(699.7)
Proceeds from sale and maturity of customer trust funds marketable securities	844.3	610.2	677.6
Net change in restricted cash and other restricted assets held to satisfy customer trust funds obligations	1,430.3	(367.8)	677.8
Expenditures for property, plant, and equipment	(8.0)	(17.5)	(7.4)
Expenditures for software and technology	(32.2)	(33.1)	(25.5)
Net proceeds from divestitures		(0.5)	101.6
Net cash provided by (used in) investing activities—continuing operations	1,379.2	(407.2)	724.4
Net cash (used in) provided by investing activities—discontinued operations		(0.2)	38.6

Net cash provided by (used in) investing activities	1,379.2	(407.4)	763.0
Cash Flows from Financing Activities			
(Decrease) increase in customer trust funds obligations, net	(1,419.4)	356.1	(655.7)
Net proceeds from issuance of stock	595.0	78.4	75.0
Proceeds from issuance of common stock upon exercise of stock options	45.8		
Repurchase of stock		(1.8)	
Proceeds from debt issuance	680.0		
Repayment of long-term debt obligations	(1,134.0)	(25.9)	(11.8)
Payment of debt refinancing costs	(23.3)		
Net cash (used in) provided by financing activities—continuing operations	(1,255.9)	406.8	(592.5)
Net cash used in financing activities—discontinued operations			(38.2)
Net cash (used in) provided by financing activities	(1,255.9)	406.8	(630.7)
Effect of Exchange Rate Changes on Cash	(9.7)	8.6	1.3
Net increase (decrease) in cash and equivalents	123.1	(31.8)	58.1
Elimination of cash from discontinued operations	0.5	5.2	(0.5)
Cash and equivalents at beginning of year	94.2	120.8	63.2
Cash and equivalents at end of year	217.8	94.2	120.8
Supplemental Cash Flow Information:			
Cash paid for interest	74.5	89.7	84.9
Cash paid for income taxes	21.1	21.3	14.8
Cash received from income tax refunds	$ 4.4	$ 1.9	$ 0.2

Organization

Organization	12 Months Ended
	Dec. 31, 2018
Organization Consolidation And Presentation Of Financial Statements [Abstract]	

Organization

1. Organization

Ceridian HCM Holding Inc. and its subsidiaries (also referred to in this report as “Ceridian,” “we,” “our,” and “us”) offer a broad range of services and software designed to help employers more effectively manage employment processes, such as payroll, payroll-related tax filing, human resource information systems, employee self-service, time and labor management, and recruitment and applicant screening. Our technology-based services are typically provided through long-term customer relationships that result in a high level of recurring revenue. Our operations are primarily located in the United States and Canada.

On April 30, 2018, we completed our initial public offering (“IPO”), in which we issued and sold 21,000,000 shares of common stock at a public offering price of $22.00 per share. We granted the underwriters a 30-day option to purchase an additional 3,150,000 shares of common stock at the offering price, which was exercised in full. A total of 24,150,000 shares of common stock were issued in our IPO. Concurrently with our IPO, we issued an additional 4,545,455 shares of our common stock in a private placement at $22.00 per share. We received gross proceeds of $631.3 from the IPO and concurrent private placement before deducting underwriting discounts, commissions, and other offering related expenses.

The use of the proceeds from the IPO were as follows:

Gross proceeds	$	631.3
Less:		
Underwriters' discount and commissions		29.2
IPO-related expenses		11.8
Redemption of 11% Senior Notes due 2021 (Note 9)		475.0
Call premium on redemption of 11% Senior Notes due 2021		13.1
Interest on redemption of 11% Senior Notes due 2021		10.9
Sponsor management fee		11.3
Debt refinancing expenses		11.4
Cash to balance sheet	$	68.6

On November 16, 2018, we completed a secondary offering, in which certain of our stockholders (the “Selling Stockholders”) sold 11,000,000 shares of common stock, in an underwritten public offering at $36.00 per share. The Selling Stockholders granted the underwriters a 30-day option to purchase an additional 1,650,000 shares of common stock at the offering price, which was exercised in full. A total of 12,650,000 shares of common stock were sold by the Selling Stockholders on November 16, 2018, with all proceeds going to the Selling Stockholders. We incurred expenses of $1.3 during the year ended December 31, 2018, related to the secondary offering within selling, general and administrative expense.

Prior to our IPO, Ceridian HCM Holding Inc. was primarily owned by Ceridian LLC (the “Parent”) and Ceridian Holding II LLC (“Ceridian Holding II”). The Parent was 100% owned by Foundation Holding LLC, which in turn was 100% owned by Ceridian Holding LLC (“Ceridian Holding”). The owners of Ceridian Holding and Ceridian Holding II included (i) affiliates and co-investors of Thomas H. Lee Partners, L.P. (“THL Partners”) and Cannae Holdings, LLC (“Cannae”) (THL Partners and Cannae are together referred to as the “Sponsors”), who collectively owned approximately 96% of the outstanding interests of both Ceridian Holding and Ceridian Holding II, and (ii) other individuals, who collectively owned approximately 4% of the outstanding interests of each holding company.

Subsequent to the IPO and concurrent private placement, we completed an internal corporate reorganization, pursuant to which the limited liability companies that held shares in us were merged with and into Ceridian HCM Holding Inc. At the time of these transactions, these limited liability companies had no assets other than equity interests in us or the other limited liability companies. As a result of these transactions, our previous, pre-IPO stockholders now hold shares of our common stock directly, rather than through a series of limited liability companies. These transactions had no impact on our assets, liabilities, or operations.

Our History

Ceridian was acquired in 2007 by affiliates and co-investors of the Sponsors (the “2007 Merger”). In April 2012, Ceridian acquired Dayforce Corporation, which had built Dayforce, a cloud HCM solution. In the months following the acquisition, Dayforce founder, David D. Ossip, was named Chief Executive Officer of Ceridian HCM, and shortly thereafter, we generally stopped actively selling our Bureau solutions to new customers in the United States to focus our resources on expanding the Dayforce platform and growing Cloud solutions.

As part of our strategy to focus on the growth of our Cloud solutions business, we undertook the following initiatives to simplify our business model:

(i) sold our consumer-directed benefit services business in 2013,

(ii) merged Comdata, our payment systems business unit, with FleetCor Technologies in 2014,

(iii) sold our benefits administration and post-employment compliance business in 2015,

(iv) sold our United Kingdom and Ireland Bureau businesses and a portion of our operations that supported such businesses in Mauritius in 2016, and

(v) contributed our LifeWorks employee assistance program business to a joint venture, LifeWorks, in 2016, then distributed our ownership in this joint venture to a holding company owned by our stockholders in April 2018.

As a result of these transactions, we only actively sell Dayforce and Powerpay, which we believe simplifies our business model and positions us well for continued growth. Please refer to Note 3, “Discontinued Operations,” for further discussion of these transactions.

Summary of Significant Accounting Policies

Summary of Significant Accounting Policies	12 Months Ended
	Dec. 31, 2018
Accounting Policies [Abstract]	
Summary of Significant Accounting Policies	

2. Summary of Significant Accounting Policies

Basis of Presentation

The accompanying consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States (“GAAP”). The accompanying consolidated financial statements include the operations and accounts of Ceridian and all subsidiaries, as well as any variable interest entity (“VIE”) in which we have controlling financial interest. All intercompany balances and transactions have been eliminated from our consolidated financial statements.

We consolidate the grantor trusts that hold funds provided by our payroll and tax filing customers pending remittance to employees of those customers or tax authorities in the United States and Canada, although Ceridian does not own the grantor trusts. Under consolidation accounting, the enterprise with a controlling financial interest consolidates a VIE. A controlling financial interest in an entity is determined through analysis that identifies the primary beneficiary which has (1) the power to direct the activities of a VIE that most significantly impact the entity’s economic performance and (2) the obligation to absorb losses of the entity that could potentially be significant to the VIE or the right to receive benefits from the entity that could potentially be significant to the VIE. In addition, ongoing reassessments must be performed to confirm whether an enterprise is the primary beneficiary of a VIE. The grantor trusts are VIEs, and we are deemed to have a controlling financial interest as the primary beneficiary. Please refer to Note 5, “Customer Trust Funds,” for further information on our accounting for these funds.

Reverse Stock Split

On April 10, 2018, we effected a 1-for-2 reverse stock split of our common stock. All of the common share and per share information referenced throughout the consolidated financial statements and accompanying notes thereto have been retroactively adjusted to reflect this reverse stock split.

Use of Estimates

The preparation of consolidated financial statements in conformity with GAAP requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of our financial statements and our reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates. Estimates that could significantly affect our results of operations or financial condition include the assignment of fair values to goodwill and other intangible assets and testing for impairment; the testing of impairment of long-lived assets; the determination of our liability for pensions and postretirement benefits; the determination of fair value of stock options granted; and the resolution of tax matters and legal contingencies. Further discussion on these estimates can be found in related disclosures elsewhere in our notes to the consolidated financial statements.

Cash and Equivalents

As of December 31, 2018, and 2017, cash and equivalents were comprised of cash held in bank accounts and investments with an original maturity of three months or less.

Concentrations

Cash deposits of client and corporate funds are maintained primarily in large credit-worthy financial institutions in the countries in which we operate. These deposits may exceed the amount of any deposit insurance that may be available through government agencies. All deliverable securities are held in custody with large credit-worthy financial institutions, which bear the risk of custodial loss. Non-deliverable securities, primarily money market securities, are held in custody by large, credit-worthy broker-dealers and financial institutions.

Trade and Other Receivables, Net

Trade and other receivables balances are presented on the consolidated balance sheets net of the allowance for doubtful accounts of $1.3 and $1.3 and the reserve for sales adjustments of $3.8 and $4.7 as

of December 31, 2018 and 2017, respectively. We experience credit losses on accounts receivable and, accordingly, must make estimates related to the ultimate collection of the receivables. Specifically, management analyzes accounts receivable, historical bad debt experience, customer concentrations, customer creditworthiness, and current economic trends when evaluating the adequacy of the allowance for doubtful accounts. We estimate the reserve for sales adjustment based on historical sales adjustment experience. We write off accounts receivable when we determine that the accounts are uncollectible, generally upon customer bankruptcy or the customer's nonresponse to continued collection efforts.

Property, Plant, and Equipment

Our property, plant, and equipment assets are stated at cost less depreciation. Depreciation is calculated on a straight-line basis over the shorter of the remaining lease term or estimated useful life of the related assets, which are generally as follows:

Buildings	40 years
Building improvements	5 years
Machinery and equipment	4-6 years
Computer equipment	3-4 years

Repairs and maintenance costs are expensed as incurred. We capitalized interest of $0.5 and $0.6 in property, plant, and equipment during the years ended December 31, 2018 and 2017, respectively. Property, plant, and equipment assets are assessed for impairment as described under the heading "Impairment of Long-Lived Assets" below.

Assignment of Fair Values Upon Acquisition of Goodwill and Other Intangible Assets

In the event of a business combination where we are the acquiring party, we are required to assign fair values to all identifiable assets and liabilities acquired, including intangible assets, such as customer lists, identifiable intangible trademarks, technology and non-compete agreement. We are also required to determine the useful life for definite-lived identifiable intangible assets acquired. These determinations require significant judgments, estimates, and assumptions; and, when material amounts are involved, we generally utilize the assistance of third-party valuation consultants. The remainder of the purchase price of the acquired business not assigned to identifiable assets or liabilities is then recorded as goodwill.

In conjunction with the 2007 Merger, affiliates of the Sponsors completed the acquisition of all outstanding equity of the Ceridian entities. Although Parent continued as the same legal entity after the 2007 Merger, the application of push down accounting representing the termination of the old accounting entity and the creation of a new one resulted in the adjustment of all net assets to their respective fair values as of the 2007 Merger. Net assets of the Parent were adjusted to their respective fair values, which included goodwill, trademarks, customer lists, and other intangible assets.

Goodwill and Intangible Assets

Goodwill, which represents the excess purchase price over the fair value of net assets of businesses acquired, is assigned to reporting units based on the benefits derived from the acquisition. Goodwill and indefinite-lived intangibles are not amortized against earnings, but instead are subject to impairment review on at least an annual basis. We perform our annual assessment of goodwill and indefinite-lived intangible balances as of October 1 of each year. There was no indication of impairment at October 1, 2018.

We assess goodwill impairment risk by first performing a qualitative review of entity-specific, industry, market, and general economic factors for each reporting unit. If significant potential goodwill impairment risk exists for a specific reporting unit, we apply a quantitative test. The quantitative test compares the reporting unit's estimated fair value with its carrying amount. In estimating fair value of our reporting units, we use a combination of the income approach and the market-based approach. A number of significant assumptions and estimates are involved in determining the current fair value of the reporting units, including operating cash flows, markets and market share, sales volumes and prices, and working capital changes. We consider historical experience and all available information at the time the fair values of our reporting units are estimated. However, fair values that could be realized in an actual transaction may differ from those used to evaluate the goodwill for impairment. The evaluation of impairment involves comparing the current fair value of the reporting unit to the carrying amount. To the extent that the carrying amount of goodwill of the reporting unit exceeds the fair value of the reporting unit, an impairment loss is recognized.

Intangible assets represent amounts assigned to specifically identifiable intangible assets at the time of an acquisition. Definite-lived assets are amortized on a straight-line basis generally over the following periods:

Customer lists and relationships	5-15 years
Technology	3-4 years

Indefinite-lived intangible assets, which consist of trade names, are tested for impairment on an annual basis, or more frequently if certain events or circumstances occur that could indicate impairment. When evaluating whether the indefinite-lived intangible assets are impaired, the carrying amount is compared to its estimated fair value. The estimate of fair value is based on a relief from royalty method which calculates the cost savings associated with owning rather than licensing the trademark. An estimated royalty rate is applied to forecasted revenue and the resulting cash flows are discounted. Definite-lived assets are assessed for impairment as described under the heading “Impairment of Long-Lived Assets” below.

Internally Developed Software Costs

In accordance with Accounting Standards Codification (“ASC”) Topic 350, we capitalize costs associated with software developed or obtained for internal use when both the preliminary project stage is completed and our management has authorized further funding for the project, which it deems probable of completion. Capitalized software costs include only: (1) external direct costs of materials and services consumed in developing or obtaining the software; (2) payroll and payroll-related costs for employees who are directly associated with and who devote time to the project; and (3) interest costs incurred while developing the software. Capitalization of these costs ceases no later than the point at which the project is substantially complete and ready for its intended purpose. We do not include general and administrative costs and overhead costs in capitalizable costs. We charge research and development costs, product management, and other software maintenance costs related to software development to earnings as incurred.

We had capitalized software costs, net of accumulated amortization, of $61.9 and $56.4 as of December 31, 2018 and 2017, respectively, included in property, plant, and equipment in the accompanying consolidated balance sheets. We amortize software costs on a straight-line basis over the expected life of the software, generally a range of two to seven years. Amortization of software costs totaled $26.2, $23.6, and $20.9 for the years ended December 31, 2018, 2017, and 2016, respectively.

Impairment of Long-Lived Assets

Long-lived assets, such as property, plant, and equipment, capitalized software, and definite-lived intangible assets are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset group may not be recoverable. Recoverability of asset groups to be held and used is measured by a comparison of the carrying amount of an asset group to the estimated undiscounted future cash flows expected to be generated by the asset group. If the carrying amount of an asset group exceeds its estimated future cash flows, an impairment charge is recognized for the amount by which the carrying amount of the asset group exceeds the fair value of the asset group.

Revenue Recognition

We recognize revenue from the sale of our services, net of applicable sales taxes, when the following criteria are met: (1) persuasive evidence of an arrangement exists; (2) delivery has occurred or services have been rendered; (3) the seller’s price to the buyer is fixed or determinable; and (4) collectability is reasonably assured. We rely on a signed contract with the customer as the persuasive evidence of a sales arrangement.

We enter into revenue arrangements that may consist of multiple deliverables based on the needs of our customers. For example, our services address a broad range of employment process needs, such as payroll, payroll-related tax filing, human resource information, employee self-service capabilities, time and labor management, and recruitment and applicant screening. A customer arrangement may contain any of these elements with different elements delivered across multiple reporting periods.

We have a single unit of accounting for each deliverable in a contract based on the use of estimated selling price (“ESP”) in those cases where vendor-specific objective evidence of selling price (“VSOE”) or third party evidence (“TPE”) cannot be established. Our determination of ESP involves the consideration of several factors based on the specific facts and circumstances of each contract. Specifically, we consider the cost to produce or to provide the deliverable, the anticipated margin on that deliverable, the selling price and profit margin for similar services, the value of any enhancements that have been built into the deliverable and the characteristics of the varying markets in which the deliverable will be sold.

When we are unable to establish a selling price using VSOE or TPE, we use ESP in the allocation of arrangement consideration. The objective of ESP is to determine the price at which we would transact a sale if the service were sold on a stand-alone basis.

We regularly review VSOE, TPE, and ESP and maintain internal controls over the establishment and updates of these estimates. There were no material impacts during the period nor do we currently expect a material impact in the near term from changes in VSOE, TPE, or ESP.

Deferred revenue primarily consists of customer billings in advance of revenues being recognized from our contracts. Deferred revenue also includes certain deferred professional services fees that are accounted for as a single unit of accounting with subscription fees and are recognized as revenues over the same period as the related customer contract. Deferred revenue that is anticipated to be recognized during the succeeding twelve-month period is recorded as current deferred revenue and the remaining portion is recorded as noncurrent.

Recurring Services Revenues

Revenues are presented within the consolidated statements of operations in two categories: recurring services, and professional services and other. Recurring services revenues consist of monthly fees that we charge for our Cloud and Bureau solutions. For our Dayforce solutions, we primarily charge monthly recurring fees on a per employee, per month ("PEPM") basis, generally one-month in advance of service, based on the number and type of solutions provided to the customer and the number of employees at the customer. We charge Powerpay customers monthly recurring fees on a per-employee, per-process basis. For our Bureau solutions, we typically charge monthly recurring fees on a per-process basis. The typical recurring services customer contract has an initial term of three years. The initial recurring services contracts have general acceptance criteria that consist of the completion of user acceptance testing. Any credits related to service level commitments are recognized as incurred, as service level failures are not anticipated at contract signing. Should a customer cancel the initial contract, an early termination fee may be applicable, and revenue is recognized upon collection. We also generate recurring services revenue from investment income on our Cloud and Bureau customer funds held in trust before such funds are remitted to taxing authorities, customer employees, or other third parties. We refer to this investment income as float revenue. Please refer to Note 17, "Financial Data by Segment and Geographic Area," for a full description of our sources of revenue.

Professional Services and Other Revenues

Professional services and other revenues consist primarily of charges relating to the work performed to assist customers with the planning, design, implementation, and staging of their solutions. Also included in professional services are any related training services, post-implementation professional services, and purchased time clocks. We also generate professional services and other revenues from custom professional services and consulting services that we provide and for certain third-party services that we arrange for our Bureau customers. Professional services revenue is primarily recognized as hours are incurred.

Costs and Expenses

Cost of Revenue

Cost of revenue consists of costs to deliver our revenue-producing services. Most of these costs are recognized as incurred, that is, as we become obligated to pay for them. Some costs of revenue are recognized in the period that a service is sold and delivered. Other costs of revenue are recognized over the period of use or in proportion to the related revenue.

The costs recognized as incurred consist primarily of customer service staff costs, customer technical support costs, implementation personnel costs, costs of hosting applications, consulting and purchased services, delivery services, and royalties. The costs of revenue recognized over the period of use are depreciation and amortization, rentals of facilities and equipment, and direct and incremental costs associated with deferred implementation service revenue.

Cost of recurring services revenues primarily consists of costs to provide maintenance and technical support to our customers, and the costs of hosting our applications. The cost of recurring services revenues includes compensation and other employee-related expenses for data center staff, payments to outside service providers, data center, and networking expenses.

Cost of professional services and other revenues primarily consists of costs to provide implementation consulting services and training to our customers, as well as the cost of time clocks. Costs to provide implementation consulting services include compensation and other employee-related expenses for professional services staff, costs of subcontractors, and travel.

Product development and management expense includes costs related to software development activities that do not qualify for capitalization, such as development, quality assurance, testing of new technologies, and enhancements to our existing solutions that do not result in additional functionality. Product development and management expense also includes costs related to the management of our

service offerings. Research and development expense, which is included within product development and management expense, was $29.6, $19.0, and $13.0 for the years ended December 31, 2018, 2017, and 2016, respectively.

Depreciation and amortization related to cost of revenue primarily consists of amortization of capitalized software.

Selling, General, and Administrative Expense

Selling expense includes costs related to maintaining a direct marketing infrastructure and sales force and other direct marketing efforts, such as marketing events, advertising, telemarketing, direct mail, and trade shows. Advertising costs are expensed as incurred. Advertising expense was $5.8, $5.6, and $5.9 for the years ended December 31, 2018, 2017, and 2016, respectively.

General and administrative expense includes costs that are not directly related to delivery of services, selling efforts, or product development, primarily consisting of corporate-level costs, such as administration, finance, legal and human resources. Also included in this category are depreciation, and amortization of other intangible assets not reflected in cost of revenue, the provision for doubtful accounts receivable, and net periodic pension costs.

Other (Income) Expense, Net

Other (income) expense, net includes the results of transactions that are not appropriately classified in another category. These items are primarily foreign currency translation gains and losses resulting mainly from intercompany receivables and payables denominated in currencies other than the subsidiary's functional currency, environmental reserve charges, and charges related to the impairment of asset values.

Income Taxes

Income taxes have been provided for using the asset and liability method. The asset and liability method requires an asset and liability based approach in accounting for income taxes. Deferred tax assets and liabilities are recorded for temporary differences between the financial reporting basis and the tax basis of assets and liabilities as adjusted for the expected benefits of utilizing net operating loss carryforwards. The impact on deferred taxes of changes in tax rates and laws, if any, applied to the years during which temporary differences are expected to be settled, is reflected in the consolidated financial statements in the period of enactment.

We classify interest and penalties related to income taxes as a component of the income tax provision.

Fair Value of Financial Instruments

The carrying amounts of cash and equivalents, trade and other receivables, net, customer trust funds, customer trust funds obligations, customer advance payments, and accounts payable approximate fair value because of the short-term nature of these items.

Share-Based Compensation

Our employees participate in share-based compensation plans. Under the fair value recognition provisions of share-based compensation accounting, we measure share-based compensation cost at the grant date based on the fair value of the award and recognize the compensation expense over the requisite service period, which is the period during which an employee is required to provide services in exchange for the award.

We use the Black-Scholes standard option pricing model ("Black-Scholes model") to determine the fair value of stock options with term-based vesting conditions. The determination of the fair value of the awards on the date of grant using the Black-Scholes model is affected by the value of our common stock as well as other inputs and assumptions described below. Prior to our IPO, the value of our common stock was determined by the Board of Directors with assistance from a third-party valuation expert.

If factors change and we employ different assumptions for estimating share-based compensation expense in future periods or if we adopt a different valuation model, the future periods may differ significantly from what we have recorded in the current period and could materially affect our operating results.

To determine the fair value of both term- and performance-based stock options, the risk-free interest rate used was based on the implied yield currently available on U.S. Treasury zero coupon issues with remaining term equal to the contractual term of the performance-based options and the expected term of

the term-based options. Given our limited history as a public company, the estimated volatility of our common stock is based on volatility data for selected comparable public companies over the expected term of our stock options. Because we do not anticipate paying any cash dividends in the foreseeable future, we use an expected dividend yield of zero. The amount of share-based compensation expense we recognize during a period is based on the portion of the awards that are ultimately expected to vest.

We estimate option forfeitures at the time of grant and revise those estimates in subsequent periods if actual forfeitures differ from those estimates. We analyze historical data to estimate pre-vesting forfeitures and record share-based compensation expense for those awards expected to vest. We recognize term-based stock compensation expense using the straight-line method.

Pension and Other Postretirement Benefits Liability

We present information about our pension and postretirement benefit plans in Note 10 to our consolidated financial statements, “Employee Benefit Plans.” Liabilities and expenses for pensions and other postretirement benefits are determined with the assistance of third-party actuaries, using actuarial methodologies and incorporating significant assumptions, including the rate used to discount the future estimated liability, the long-term rate of return on plan assets, and several assumptions relating to the employee workforce (medical costs, retirement age and mortality). The discount rate assumption utilizes a full yield curve approach by applying the specific spot rates along the yield curve used in the determination of the benefit obligation to the relevant projected cash flows. The impact of a change in the discount rate of 25 basis points would be approximately $12 million on the liabilities and $0.1 million on pre-tax earnings in the following year. The long-term rate of return is estimated by considering historical returns and expected returns on current and projected asset allocations and is generally applied to a five-year average market value of assets. A change in the assumption for the long-term rate of return on plan assets of 25 basis points would impact pre-tax earnings by approximately $1 million. At December 31, 2017, we updated our mortality assumptions utilizing an improvement scale issued by the Society of Actuaries in October 2017, which resulted in a $6.0 million reduction in the projected benefit obligation. At December 31, 2018, we updated our mortality assumptions utilizing an improvement scale issued by the Society of Actuaries in October 2018, which resulted in a $1.5 million reduction in the projected benefit obligation.

Foreign Currency Translation

We have international operations whereby the local currencies serve as functional currencies. We translate foreign currency denominated assets and liabilities at the end-of-period exchange rates and foreign currency denominated statements of operations at the weighted-average exchange rates for each period. We report the effect of changes in the U.S. dollar carrying values of assets and liabilities of our international subsidiaries that are due to changes in exchange rates between the U.S. dollar and the subsidiaries’ functional currency as foreign currency translation within accumulated other comprehensive income (loss) in the accompanying consolidated statements of stockholders’ equity and comprehensive income (loss). Gains and losses from transactions and translation of assets and liabilities denominated in currencies other than the functional currency of the subsidiaries are recorded in the consolidated statements of operations within other (income) expense, net.

Recently Issued and Adopted Accounting Pronouncements

In May 2014, the Financial Accounting Standards Board (“FASB”) issued Accounting Standards Update (“ASU”) No. 2014-09, “Revenue from Contracts with Customers,” which replaced all existing revenue guidance created by ASC Topic 605, including prescriptive industry-specific guidance, and created ASC Topic 606 for revenue and ASC Subtopic 340-40 for incremental costs of obtaining a contract with customers. This standard’s core principle is that an entity will recognize revenue when it transfers 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. Entities will need to apply more judgment and make more estimates than under the previous guidance. In July 2015 the FASB deferred the effective date for all entities by one year, making the guidance for non-public companies effective for annual reporting periods beginning after December 15, 2018. As an emerging growth company, we have elected to follow the non-public company timeline for adopting this guidance. The standard permits the use of either the retrospective transition method or modified retrospective approach with a cumulative effect recognized at the date of initial application. Management has decided to adopt the new standard effective in the first quarter of 2019, using the retrospective transition method for adoption.

In preparation for this adoption, we have evaluated the impact of the new standard to our financial statements and accompanying disclosures in the notes to our consolidated financial statements. Our assessment of the impact included an evaluation of the five-step process set forth in the new standard along with the enhancement of disclosures that will be required. We executed a plan for implementing the standard, which included identifying customer contracts within the scope of the new standard, identifying performance obligations within those customer contracts, and evaluating the impact of incremental variable consideration paid to obtain those customer contracts. We also undertook a comprehensive

review of all contracts that fall under the scope of the new standard; and, as of the date of this report, we have completed our review of in-scope contracts.

Based on our analysis, the adoption of the new standard will result in changes to the classification and timing of our revenue recognition. Specifically, revenue classified as professional services and other revenue will increase and revenue classified as recurring services revenue will be reduced under the new standard, compared to current GAAP. Further, the new standard will result in changes to the timing of our revenue recognition compared to current GAAP. In compliance with the new standard, a contract asset will be reflected on the consolidated balance sheets and will be amortized over the contract period, which is generally three years. We also will have changes to the timing of certain selling, general, and administrative expenses, as the new standard requires capitalizing and amortizing certain selling expenses, such as commissions and bonuses paid to the sales force. These sales expenses will be amortized over the period of benefit, generally five years. Additionally, the adoption of the new standard will have an immaterial impact on cost of revenue for the year ended December 31, 2017, as a small number of customer contracts had previously been recognized under revenue guidance prior to ASC Topic 605.

In periods of revenue growth, the changes above will result in higher overall earnings before income taxes and net income when compared to current GAAP.

The following tables present the impacts that the adoption of ASC 606 would have on the years ended December 31, 2018 and 2017:

	Year Ended December 31, 2018		
	As Reported	Under ASC 606	Impact
Revenue:			
Recurring services	$ 652.5	$ 625.0	$ (27.5)
Professional services and other	93.9	115.7	21.8
Total revenue	$ 746.4	$ 740.7	$ (5.7)
Operating profit	$ 52.8	$ 56.3	$ 3.5

	Year Ended December 31, 2017		
	As Reported	Under ASC 606	Impact
Revenue:			
Recurring services	$ 598.5	$ 573.9	$ (24.6)
Professional services and other	72.3	102.3	30.0
Total revenue	$ 670.8	$ 676.2	$ 5.4
Operating profit	$ 33.0	$ 46.6	$ 13.6

In February 2016, the FASB issued ASU No. 2016-02, “Leases,” which created ASC Topic 842 and is intended to increase transparency and comparability among organizations by recognizing lease assets and lease liabilities on the balance sheet and by disclosing key information about leasing arrangements. This standard requires balance sheet recognition for both finance leases and operating leases. This guidance is effective for public companies for fiscal years beginning after December 15, 2018, including interim periods within those fiscal years. An entity will, in effect, continue to account for leases that commence before the effective date in accordance with previous GAAP unless the lease is modified, except that lessees are required to recognize a right-of-use asset and a lease liability for all operating leases at each reporting date based on the present value of the remaining minimum rental payments that were tracked and disclosed under previous GAAP. Management will adopt this guidance beginning in the first quarter of 2019, and has chosen to take advantage of the additional transition method in ASU No. 2018-11 discussed below, in which a cumulative-effect adjustment will be made to the opening balance of retained earnings in the period of adoption. Currently, based on management’s implementation efforts, we will recognize a right-of-use asset and a lease liability on the consolidated balance sheets as of January 1, 2019, in the range of $35.0 to $45.0.

In August 2016, the FASB issued ASU No. 2016-15, “Statement of Cash Flows—Classification of Certain Cash Receipts and Cash Payments,” which addresses eight specific cash flow issues with the objective of reducing the existing diversity in practice of certain cash receipts and cash payments. This guidance is effective for non-public companies for fiscal years beginning after December 15, 2018, and interim periods within fiscal years beginning after December 15, 2019. We have chosen to early adopt this guidance as of January 1, 2018, and have applied this guidance to the presentation of our debt refinancing transactions that occurred during 2018.

In February 2018, the FASB issued ASU No. 2018-02, “Income Statement—Reporting Comprehensive Income,” which is in response to a narrow-scope financial reporting issue that arose because of the Tax Cuts and Jobs Act. The amendment in this update allows a reclassification from accumulated other comprehensive income to retained earnings for stranded tax effects resulting from the Tax Cuts and Jobs Act. This amendment is intended to improve the usefulness of information reported to financial statement

users by requiring certain disclosures about stranded tax effects. The amendment in this update is effective for all entities for fiscal years beginning after December 15, 2018, and interim periods within those fiscal years. Management will adopt this guidance beginning in the first quarter of 2019. We anticipate the adoption of this guidance will not have a significant impact on our consolidated balance sheets.

In July 2018, the FASB issued ASU No. 2018-10, “Codification Improvements to Topic 842, Leases” and 2018-11, “Leases (Topic 842): Targeted Improvements.” The amendments in ASU No. 2018-10 affect narrow aspects of the guidance issued in ASU No. 2016-02. For non-early adopters, this amendment is effective under the same timelines as ASU No. 2016-02. The amendments in ASU No. 2018-11 provide entities with an additional (and optional) transition method to adopt the new lease requirements. Under the additional transition method, entities may initially apply the requirements by recognizing a cumulative-effect adjustment to the opening balance of retained earnings in the period of adoption. The amendments in this update also provide lessors with a practical alternative to separate non-lease components from the associated lease component. Under this alternative, lessors may account for those components as a single component if the non-lease components otherwise would be accounted for under the new revenue guidance (Topic 606) and certain other criteria are met. For entities that have not adopted Topic 842 before the issuance of this update, the effective date and transition requirements are the same as the effective date and transition requirements in ASU No. 2016-02. As discussed above, management has chosen to take advantage of the additional transition method created by this guidance and will record a cumulative-effect adjustment to the opening balance of retained earnings in the period of adoption, which will be the first quarter of 2019.

Discontinued Operations

Discontinued Operations	12 Months Ended
	Dec. 31, 2018
Discontinued Operations And Disposal Groups [Abstract]	
Discontinued Operations	

3. Discontinued Operations

Life Works Disposition

On March 1, 2016, we entered into a strategic joint venture with WorkAngel Technology Limited ("WorkAngel") in which we contributed our existing LifeWorks employee assistance program business to WorkAngel Organisation Limited, a newly formed English limited company. On January 20, 2017, WorkAngel Organisation Limited changed its name to LifeWorks Corporation Ltd ("LifeWorks"). We had a controlling interest in LifeWorks, including certain preferential distribution rights; therefore, LifeWorks was consolidated within our financial statements, and the other joint venture ownership interest component was presented as a noncontrolling interest. During the years ended December 31, 2018, and 2017, there were losses attributable to the noncontrolling interest of $0.5 and $1.3, respectively. During the year ended December 31, 2016, there was income attributable to the noncontrolling interest of $0.1.

In the second quarter of 2018, contemporaneously with our IPO and concurrent private placement, we distributed our controlling financial interest in LifeWorks to our stockholders of record prior to the IPO on a pro rata basis in accordance with their pro rata interest in us (the "LifeWorks Disposition").

The LifeWorks Disposition represented a strategic shift in our overall business and had a significant impact on the financial statement results. Therefore, the LifeWorks business has been presented as discontinued operations in our consolidated financial statements and accompanying notes for all periods presented. Ceridian's net book value related to LifeWorks of $95.7 was recorded as a distribution through additional paid in capital within our consolidated balance sheet during the second quarter of 2018.

The amounts in the table below reflect the operating results of LifeWorks reported as discontinued operations, as well as supplemental disclosures of the discontinued operations:

	Year Ended December 31,		
	2018	2017	2016
Net revenues	$ 28.3	$ 79.9	$ 80.8
(Loss) income from operations before income taxes	(0.9)	(0.4)	7.1
Income tax expense	(24.9)	(4.9)	(11.1)
Loss from discontinued operations, net of income taxes	$ (25.8)	$ (5.3)	$ (4.0)
Depreciation and amortization	$ 1.4	$ 4.1	$ 4.1
Capital expenditures	$ —	$ 0.2	$ 0.3

The amounts in the table below reflect the assets and liabilities reported as discontinued operations for LifeWorks:

	December 31, 2017
Assets:	
Cash and equivalents	$ 5.4
Trade and other receivables, net	13.3
Prepaid expenses	1.5
Property, plant, and equipment, net	1.8
Other intangible assets, net	5.9
Goodwill	126.3
Other assets	2.0
Assets of discontinued operations	$ 156.2
Liabilities:	
Accounts payable	$ 4.4
Deferred revenue	2.8
Employee compensation and benefits	1.2

Other liabilities	10.9
Liabilities of discontinued operations	$ 19.3

Sale of UK Business

On June 15, 2016, we completed the stock sale of our United Kingdom and Ireland businesses, along with the portion of our Mauritius operations that supported these businesses (the "UK Business"). We received $93.2 in connection with this transaction. Concurrent with this transaction, we entered into a strategic partnership with the acquirer, SD Worx, a leading European provider of payroll and HCM services, to deliver cloud human capital management ("HCM") services across Europe.

This transaction represented a strategic shift in our overall business and had a significant impact on our financial statement results. Therefore, the UK Business has been presented as discontinued operations in the consolidated financial statements and accompanying notes for all periods presented. The sale of the UK Business, which made up the International reporting unit, was considered a sale of a business, and as such, the entire goodwill balance assigned to the International reporting unit of $23.8 was included in the carrying amount used in determining the gain on sale of the UK Business. During the year ended December 31, 2017, there was a settlement payment made to SD Worx.

The amounts in the table below reflect the operating results of the UK Business reported as discontinued operations, as well as supplemental disclosures of the discontinued operations:

	Year Ended December 31,	
	2017	2016
Net revenues	$ —	$ 37.0
Income from operations before income taxes	—	0.5
(Loss) gain on sale of businesses	(1.0)	5.9
Income tax benefit	—	0.2
(Loss) income from discontinued operations, net of income taxes	$ (1.0)	$ 6.6
Depreciation and amortization	$ —	$ 1.3
Capital expenditures	$ —	$ 0.7

Sale of Divested Benefits Continuation Businesses

In the third quarter of 2013, we entered into an agreement for the sale of certain of our customer contracts for consumer-directed benefit services, including flexible spending accounts, health reimbursement accounts, health savings accounts, commuter (parking or transit) premium-only plans, and tuition reimbursement plans (collectively, the "Consumer-Directed Benefit Services"). During the third quarter of 2015, we completed two separate transactions that resulted in the sale of our benefits administration and post-employment health insurance portability compliance businesses (the "Divested Benefits Continuation Businesses").

These three transactions represented a strategic shift in our overall business and had a significant impact on our financial statement results. Accordingly, the Divested Benefits Continuation Businesses, as well as the Consumer-Directed Benefit Services, have been presented as discontinued operations in the consolidated financial statements and accompanying notes for all periods presented. The amounts in the table below reflect the operating results and gain on sale of the Divested Benefits Continuation Businesses reported as discontinued operations, as well as supplemental disclosures of the discontinued operations:

The purchase price of the Consumer-Directed Benefit Services was subject to adjustment, dependent upon which customers transitioned to the acquirer. Since a portion of the customer contracts were assigned to the acquirer on the sale date, that portion of the purchase price was recognized upon the sale date. For the remaining contracts that required transition, the purchase price was deferred and recognized as each contract transferred.

	Year Ended December 31,	
	2017	2016
Net revenues	$ —	$ 4.8
Loss from operations before income taxes	—	(0.8)
Gain on sale of businesses	0.5	21.0
Income tax expense	(0.2)	(10.3)
Income from discontinued operations, net of income taxes	$ 0.3	$ 9.9
Depreciation and amortization	$ —	$ —

Capital expenditures	$ —	$ —

For both sales of the Divested Benefits Continuation Businesses, consideration received was contingent upon the number and dollar value of successful customer transitions and was recorded when earned. Proceeds of $21.0 were received and earned based on the customers transitioned during the years ended December 31, 2016. The proceeds received during the year ended December 31, 2017, were for a final purchase price true-up related to one of the transactions.

The remaining liabilities related to discontinued operations for the Divested Benefits Continuation Businesses as of December 31, 2018, and 2017, were $0.2 and $0.3 of other accrued expenses.

Fair Value Measurements

Fair Value Measurements	12 Months Ended
	Dec. 31, 2018
Fair Value Disclosures [Abstract]	
Fair Value Measurements	

4. Fair Value Measurements

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date (an exit price). GAAP outlines a valuation framework and creates a fair value hierarchy intended to increase the consistency and comparability of fair value measurements and the related disclosures. Certain assets and liabilities must be measured at fair value, and disclosures are required for items measured at fair value.

We measure our financial instruments using inputs from the following three levels of the fair value hierarchy. The three levels are as follows:

- Level 1 inputs are unadjusted quoted prices in active markets for identical assets or liabilities that we have the ability to access at the measurement date.
- Level 2 inputs include quoted prices for similar assets and liabilities in active markets, quoted prices for identical or similar assets or liabilities in markets that are not active, inputs other than quoted prices that are observable for the asset or liability (that is, interest rates, yield curves, etc.), and inputs that are derived principally from or corroborated by observable market data by correlation or other means (market corroborated inputs).
- Level 3 inputs include unobservable inputs that reflect our assumptions about the assumptions that market participants would use in pricing the asset or liability. These inputs are developed based on the best information available, including internal data.

Financial Assets and Liabilities Measured at Fair Value on a Recurring Basis

As of December 31, 2018, our financial assets and liabilities measured at fair value on a recurring basis were categorized as follows:

	Total	Level 1	Level 2	Level 3
Assets				
Available for sale customer trust funds assets	$ 1,719.6	$ —	$ 1,719.6 (a)	$ —
Total assets measured at fair value	$ 1,719.6	$ —	$ 1,719.6	$ —

As of December 31, 2017, our financial assets and liabilities measured at fair value on a recurring basis were categorized as follows:

	Total	Level 1	Level 2	Level 3
Assets				
Available for sale customer trust funds assets	$ 1,782.1	$ —	$ 1,782.1 (a)	$ —
Total assets measured at fair value	$ 1,782.1	$ —	$ 1,782.1	$ —

(a) Fair value is based on inputs that are observable for the asset or liability, other than quoted prices.

Assets and Liabilities Measured at Fair Value on a Nonrecurring Basis

During the years ended December 31, 2018 and 2017, we did not re-measure any financial assets or liabilities at fair value on a nonrecurring basis.

Customer Trust Funds

Customer Trust Funds	12 Months Ended
	Dec. 31, 2018
Investments Debt And Equity Securities [Abstract]	
Customer Trust Funds	

5. Customer Trust Funds

Overview

In connection with our U.S. and Canadian payroll and tax filing services, we collect funds for payment of payroll and taxes; temporarily hold such funds in trust until payment is due; remit the funds to the clients' employees and appropriate taxing authorities; file federal, state and local tax returns; and handle related regulatory correspondence and amendments. The assets held in trust are intended for the specific purpose of satisfying client fund obligations and therefore are not freely available for our general business use.

Our customer trust funds are held and invested with the primary objectives being to protect the principal balance and to ensure adequate liquidity to meet cash flow requirements. Accordingly, we maintain on average approximately 46% of customer trust funds in liquidity portfolios with maturities ranging from one to 120 days, consisting of high-quality bank deposits, money market mutual funds, commercial paper, or collateralized short-term investments; and we maintain on average approximately 54% of customer trust funds in fixed income portfolios with maturities ranging from 120 days to 10 years, consisting of U.S. Treasury and agency securities, Canada government and provincial securities, as well as highly rated asset-backed, mortgage-backed, municipal, corporate and bank securities. To maintain sufficient liquidity in the trust to meet payment obligations, we also have financing arrangements and may pledge fixed income securities for short-term financing.

Financial Statement Presentation

Investment income from invested customer trust funds constitutes a component of our compensation for providing services under agreements with our customers. Investment income from invested customer trust funds included in revenue amounted to $67.0, $46.5, and $39.1 for the years ended December 31, 2018, 2017, and 2016, respectively. Investment income includes interest income, realized gains and losses from sales of customer trust funds' investments, and unrealized credit losses determined to be other-than-temporary.

The amortized cost of customer trust funds as of December 31, 2018 and 2017, is comprised of the original cost of assets acquired. The amortized cost and fair values of investments of customer trust funds available for sale at December 31, 2018 and 2017, were as follows:

Investments of Customer Trust Funds at December 31, 2018

	Amortized Cost	Gross Unrealized Gain	Gross Unrealized Loss	Fair Value
Money market securities, investments carried at cost and other cash equivalents	$ 872.3	$ —	$ —	$ 872.3
Available for sale investments:				
U.S. government and agency securities	573.4	0.2	(11.4)	562.2
Canadian and provincial government securities	392.5	3.4	(1.4)	394.5
Corporate debt securities	499.5	0.5	(4.7)	495.3
Asset-backed securities	247.1	0.2	(2.7)	244.6
Mortgage-backed securities	8.5	—	(0.2)	8.3
Other securities	14.8	—	(0.1)	14.7
Total available for sale investments	1,735.8	4.3	(20.5)	1,719.6
Invested customer trust funds	2,608.1	$ 4.3	$ (20.5)	2,591.9
Trust receivables	11.6			11.6
Total customer trust funds	$ 2,619.7			$ 2,603.5

Investments of Customer Trust Funds at December 31, 2017

	Amortized Cost	Gross Unrealized Gain	Gross Unrealized Loss	Fair Value
Money market securities, investments carried at cost and other cash equivalents	$ 2,309.3	$ —	$ —	$ 2,309.3
Available for sale investments:				
U.S. government and agency securities	584.6	0.1	(7.1)	577.6
Canadian and provincial government securities	418.2	6.6	(1.5)	423.3
Corporate debt securities	472.3	0.8	(2.5)	470.6
Asset-backed securities	280.8	—	(1.8)	279.0
Mortgage-backed securities	15.0	—	(0.2)	14.8
Other securities	17.0	—	(0.2)	16.8
Total available for sale investments	1,787.9	7.5	(13.3)	1,782.1
Invested customer trust funds	4,097.2	$ 7.5	$ (13.3)	4,091.4
Trust receivables	8.3			8.3
Total customer trust funds	$ 4,105.5			$ 4,099.7

The following represents the gross unrealized losses and the related fair value of the investments of customer trust funds available for sale, aggregated by investment category and length of time that individual securities have been in a continuous unrealized loss position at December 31, 2018.

	Less than 12 months		12 months or more		Total	
	Unrealized Losses	Fair Value	Unrealized Losses	Fair Value	Unrealized Losses	Fair Value
U.S. government and agency securities	$ (1.0)	$100.1	$ (10.4)	$419.1	$ (11.4)	$ 519.2
Canadian and provincial government securities	(0.1)	14.5	(1.3)	130.5	(1.4)	145.0
Corporate debt securities	(1.1)	136.6	(3.6)	204.6	(4.7)	341.2
Asset-backed securities	(0.2)	40.7	(2.5)	169.1	(2.7)	209.8
Mortgage-backed securities	—	—	(0.2)	8.2	(0.2)	8.2
Other securities	(a)	1.7	(0.1)	12.8	(0.1)	14.5
Total available for sale investments	$ (2.4)	$293.6	$ (18.1)	$944.3	$ (20.5)	$1,237.9

(a) These investments have been in an unrealized loss position; however, the amount of unrealized loss is less than $0.05.

Management does not believe that any individual unrealized loss as of December 31, 2018, represents an other-than-temporary impairment. The unrealized losses are primarily attributable to changes in interest rates and not to credit deterioration. We currently do not intend to sell or expect to be required to sell the securities before the time required to recover the amortized cost.

The amortized cost and fair value of investment securities available for sale at December 31, 2018, by contractual maturity are shown below. Expected maturities will differ from contractual maturities because borrowers may have the right to call or to prepay obligations with or without call or prepayment penalties.

	December 31, 2018	
	Cost	Fair Value
Due in one year or less	$ 1,139.4	$ 1,139.4
Due in one to three years	599.9	593.8
Due in three to five years	651.3	646.9
Due after five years	217.5	211.8
Invested customer trust funds	$ 2,608.1	$ 2,591.9

Trade and Other Receivables, Net

Trade and Other Receivables, Net	12 Months Ended
	Dec. 31, 2018
Receivables [Abstract]	
Trade and Other Receivables, Net	

6. Trade and Other Receivables, Net

The balance in trade and other receivables, net, is comprised of the following:

	December 31,	
	2018	2017
Trade receivables from customers	$ 68.6	$ 67.2
Interest receivable from invested customer trust funds	0.9	1.7
Other	5.5	3.7
Total gross receivables	75.0	72.6
Less: reserve for sales adjustments	(3.8)	(4.7)
Less: allowance for doubtful accounts	(1.3)	(1.3)
Trade and other receivables, net	$ 69.9	$ 66.6

The activity related to the allowance for doubtful accounts is as follows for each of the periods:

	Year Ended December 31,		
	2018	2017	2016
Balance at beginning of year	$ 1.3	$ 1.8	$ 1.1
Provision for doubtful accounts	0.7	0.2	1.1
Charge-offs, net of recoveries	(0.7)	(0.7)	(0.4)
Balance at end of year	$ 1.3	$ 1.3	$ 1.8

Property, Plant, and Equipment

Property, Plant, and Equipment	12 Months Ended
	Dec. 31, 2018
Property Plant And Equipment [Abstract]	
Property, Plant, and Equipment	

7. Property, Plant, and Equipment

Property, plant, and equipment consist of the following:

	December 31,	
	2018	2017
Land	$ 7.5	$ 7.5
Software	225.0	197.4
Machinery and equipment	117.5	120.3
Buildings and improvements	40.5	36.3
Total property, plant and equipment	390.5	361.5
Accumulated depreciation	(286.1)	(259.5)
Property, plant and equipment, net	$ 104.4	$ 102.0

Depreciation expense of property, plant, and equipment totaled $38.1, $35.3, and $34.8 for the years ended December 31, 2018, 2017, and 2016, respectively.

Goodwill and Intangible Assets

Goodwill and Intangible Assets	12 Months Ended
	Dec. 31, 2018
Goodwill And Intangible Assets Disclosure [Abstract]	
Goodwill and Intangible Assets	

8. Goodwill and Intangible Assets

Goodwill

Goodwill and changes therein were as follows for the years ended December 31, 2018, and 2017:

Balance at December 31, 2016	$ 1,933.1
Translation	27.9
Balance at December 31, 2017	1,961.0
Translation	(33.6)
Balance at December 31, 2018	$ 1,927.4
Tax-deductible goodwill at December 31, 2018	$ 10.6

We perform an impairment assessment of our goodwill balances as of October 1 of each year. Goodwill impairment testing is performed at the reporting unit level, which is the operating segment level or one level below. After consideration of the LifeWorks Disposition, management has concluded that we have one reporting unit. Please refer to Note 3, “Discontinued Operations,” for further discussion of the LifeWorks Disposition.

We performed a qualitative impairment test as of October 1, 2018, and concluded that it is not more likely than not that the fair value of our reporting unit is less than its carrying amount.

Intangible Assets

Other intangible assets consist of the following as of December 31, 2018:

	Gross Carrying Amount	Accumulated Amortization	Net	Estimated Life Range (Years)
Customer lists and relationships	$ 205.4	$ (190.2)	$ 15.2	5-15
Tradename	173.5	(1.9)	171.6	—
Technology	152.2	(151.5)	0.7	3-4
Total other intangible assets	$ 531.1	$ (343.6)	$187.5	

We perform an impairment assessment of our trade name intangible assets as of October 1 of each year. We performed the relief from royalty method impairment test as of October 1, 2018, and concluded that the fair value of our trade name intangible assets exceeded their respective carrying amount. We continue to evaluate the use of our trade names and branding in our sales and marketing efforts. If there is a fundamental shift in the method of our branding in the future, we will assess the impact on the carrying amount of our trade name intangible assets and to determine whether an impairment exists. If it is determined that an impairment has occurred, a non-cash expense would be recognized during the period in which the decision was made to make the fundamental shift.

Other intangible assets consist of the following as of December 31, 2017:

	Gross Carrying Amount	Accumulated Amortization	Net	Estimated Life Range (Years)
Customer lists and relationships	$ 210.1	$ (177.0)	$ 33.1	5-15
Tradename	174.1	(2.1)	172.0	—
Technology	155.6	(154.2)	1.4	2-7
Total other intangible assets	$ 539.8	$ (333.3)	$206.5	

Amortization expense related to definite-lived intangible assets was $18.5, $18.5, and $18.4 for the years ended December 31, 2018, 2017, and 2016, respectively. We estimate the future amortization of other intangible assets held at December 31, 2018, will be:

Years Ending December 31,	Amount

2019	$ 15.2
2020	0.2
2021	0.2
2022	0.2
2023	$ 0.1

Debt

Debt	12 Months Ended
	Dec. 31, 2018
Debt Disclosure [Abstract]	
Debt	

9. Debt

Overview

Set forth below is a description of certain debt facilities for which Ceridian was obligated during the periods covered by these consolidated financial statements. Our debt obligations consist of the following:

	December 31,	
	2018	2017
Term Debt, interest rate of 5.8% and 5.1% as of December 31, 2018 and 2017, respectively	$ 678.3	$ 657.3
Senior Notes, interest rate of 11.0% as of December 31, 2017	—	475.0
Revolving Credit Facility ($300.0 available capacity less amounts reserved for letters of credit, which were $2.7 as of December 31, 2018, and $130.0 available capacity less amounts reserved for letters of credit, which were $2.9 as of December 31, 2017)	—	—
Canada Line of Credit (CDN $7.0 available capacity as of December 31, 2018 and 2017; USD $5.1 as of December 31, 2018 and USD $5.6 as of December 31, 2017)	—	—
Total debt	678.3	1,132.3
Less unamortized discount on Term Debt	1.7	0.9
Less unamortized debt issuance costs on Senior Notes and Term Debt	6.3	11.6
Less current portion of long-term debt	6.8	—
Long-term debt, less current portion	$ 663.5	$ 1,119.8

Senior Secured Credit Facilities

Principal Amounts and Maturity Dates

On November 14, 2014, the 2014 Senior Secured Credit Facility was put into place, consisting of (i) a $702.0 term loan debt facility (the “2014 Term Debt”) and (ii) a $130.0 revolving credit facility (the “2014 Revolving Credit Facility”). As of December 31, 2017, the 2014 Term Debt had a maturity date of September 2020, and the 2014 Revolving Credit Facility had a maturity date of September 2019. The 2014 Term Debt required quarterly principal payments of 0.25% of the original principal amount. Ceridian made mandatory pre-payments towards the principal balance of the 2014 Term Debt with the proceeds received from the sale of the UK Business during the years ended December 31, 2018, and 2017, of $0.3 and $25.9, respectively. These pre-payments were applied against the scheduled quarterly principal payments.

On April 30, 2018, Ceridian completed the refinancing of the remaining debt under the 2014 Senior Secured Credit Facility by entering into a new credit agreement. Pursuant to the terms of the new credit agreement, Ceridian became borrower of (i) a $680.0 term loan debt facility (the “2018 Term Debt”) and (ii) a $300.0 revolving credit facility (the “2018 Revolving Credit Facility”) (collectively, the “2018 Senior Secured Credit Facility”). The 2018 Senior Secured Credit Facility is secured by all assets of Ceridian.

In connection with the refinancing of the 2014 Senior Secured Credit Facility, we recognized a loss on debt extinguishment of $7.1 within interest expense, net on our consolidated statement of operations during the year ended December 31, 2018.

Interest

The effective interest rate on the 2014 Term Debt at December 31, 2017 was 5.1%. The 2014 Term Debt had an interest rate of LIBOR plus 3.5%, subject to a 1.0% LIBOR floor.

The effective interest rate on the 2018 Term Debt at December 31, 2018 was 5.8%. The 2018 Term Debt is currently subject to an interest rate of LIBOR plus 3.25%. In the event our corporate rating from Moody's Investors Service, Inc. is B2 or better, the interest rate is reduced to LIBOR plus 3.00%, so long as the rating is maintained.

Financing Costs and Issuance Discounts

The 2014 Term Debt had associated unamortized deferred financing costs of $5.4 at December 31, 2017 which were being amortized at the effective interest rate of 4.8%.

In connection with the refinancing of the 2014 Senior Secured Credit Facility, we capitalized $3.6 of additional financing costs and wrote off $0.5 of existing unamortized deferred financing costs, which was included in the loss on extinguishment of debt. The 2018 Term Debt had associated unamortized deferred financing costs of $8.0 at December 31, 2018, which are being amortized at an effective interest rate of 5.3%.

Collateral and Guarantees

The 2018 Senior Secured Credit Facility names Ceridian as the sole borrower and is unconditionally guaranteed by Ceridian's domestic, wholly-owned financially material restricted subsidiaries, subject to certain customary exceptions. The 2018 Senior Secured Credit Facility is secured by a perfected first priority security interest, subject to certain exceptions (including customer trust funds), in substantially all of Ceridian's and the subsidiary guarantors' tangible and intangible assets. The security interest includes a pledge of the capital stock of certain of Ceridian's direct and indirect material restricted subsidiaries.

Representations, Warranties and Covenants

The documents governing the 2018 Senior Secured Credit Facility contain certain customary representations and warranties. In addition, those documents contain customary covenants restricting Ceridian's ability and certain of its subsidiaries' ability to, among other things: incur additional indebtedness, issue disqualified stock and preferred stock; create liens; declare dividends; redeem capital stock; make investments; engage in a materially different line of business; engage in certain mergers, consolidations, acquisitions, asset sales or other fundamental changes; engage in certain transactions with affiliates; enter into certain restrictive agreements; make prepayments on any subordinated indebtedness; modify junior financing documentation; and make changes to our fiscal year.

The 2018 Senior Secured Credit Facility documents contain a requirement that Ceridian maintain a ratio of adjusted first lien debt to Credit Facility EBITDA below specified levels on a quarterly basis; however, such requirement is applicable only if more than 35% of the 2018 Revolving Credit Facility is drawn. As of December 31, 2018, no portion of the 2018 Revolving Credit Facility was drawn.

Events of Default

Events of default under the 2018 Senior Secured Credit Facility documents include, but are not limited to: failure to pay interest, principal and fees or other amounts when due; material breach of any representation or warranty; covenant defaults; cross defaults to other material indebtedness; events of bankruptcy, invalidity of security interests; a change of control; material judgments for payment of money; involuntary acceleration of any debt; and other customary events of default. There were no events of default as of December 31, 2018.

Senior Notes

General Description

On October 1, 2013, Ceridian issued the Senior Notes due 2021 in the principal amount of $475.0.

Using the net proceeds received from the IPO and concurrent private placement, we satisfied and discharged the indenture governing the Senior Notes on April 30, 2018, and the Senior Notes were redeemed on May 30, 2018. In connection with the redemption of the Senior Notes, we recognized a loss on extinguishment of debt of $18.6 within interest expense, net on our consolidated statement of operations during the year ended December 31, 2018.

Interest

The interest rate on the Senior Notes was fixed at 11.0% as of December 31, 2017.

Financing Costs and Issuance Discounts

The Senior Notes had unamortized deferred financing costs of $6.2 at December 31, 2017, which were being amortized at an effective interest rate of 11.45%. On May 30, 2018, the redemption date, the Senior Notes had unamortized deferred financing costs of $5.5, which were written off and included in the loss on extinguishment of debt.

Other Information Relating to Indebtedness

Future Payments and Maturities of Debt

The future principal payments and maturities of our indebtedness are as follows:

Years Ending December 31,	Amount
2019	$ 6.8
2020	6.8
2021	6.8
2022	6.8
2023	6.8
Thereafter	644.3
	$ 678.3

Ceridian may be required to make additional payments on the 2018 Term Debt from various sources, including proceeds of certain indebtedness which may be incurred from time to time, certain asset sales and a certain percentage of cash flow. There is an excess cash flow calculation associated with the 2018 Term Debt commencing with the year ending December 31, 2019.

Fair Value of Debt

Our debt does not trade in active markets. Based on the borrowing rates currently available to us for bank loans with similar terms and average maturities and the limited trades of our debt, the fair value of our indebtedness was estimated to be $649.5 and $1,154.1 as of December 31, 2018, and 2017, respectively.

Other Debt Financing

Ceridian Canada had available at December 31, 2018, and 2017, a committed bank credit facility that provides up to CDN $7.0, for issuance of letters of credit, and it is a discretionary line at the option of the bank. The amounts of letters of credit outstanding under this facility were CDN $7.0 (USD $5.1) and CDN $7.0 (USD $5.6) at December 31, 2018, and 2017, respectively.

Employee Benefit Plans

Employee Benefit Plans	12 Months Ended
	Dec. 31, 2018
Compensation And Retirement Disclosure [Abstract]	
Employee Benefit Plans	

10. Employee Benefit Plans

Ceridian maintains numerous benefit plans for current and former employees. As of December 31, 2018, our current active benefit plans include defined contributions plans for substantially all employees. All defined benefit plans have been frozen.

Defined Contribution Plans

Ceridian maintains defined contribution plans that provide retirement benefits to substantially all of our employees. Contributions are based upon the contractual obligations of each respective plan. We recognized expense of $8.4, $7.5, and $7.0 for the years ended December 31, 2018, 2017, and 2016, respectively, with regard to employer contributions to these plans.

Defined Benefit Plans

Ceridian maintains defined benefit pension plans covering certain of our current and former U.S. employees (the U.S. defined benefit plan and nonqualified defined benefit plan, collectively referred to as our “defined benefit plans”), as well as other postretirement benefit plans for certain U.S. retired employees that include heath care and life insurance benefits.

Pension Benefits

The largest defined benefit pension plan (the “U.S. defined benefit plan”) is a defined benefit plan for certain current and former U.S. employees that closed to new participants on January 2, 1995. In 2007, the U.S. defined benefit plan was amended (1) to exclude from further participation any participant or former participant who was not employed by the Parent or another participating employer on January 1, 2008, (2) to discontinue participant contributions, and (3) to freeze the accrual of additional benefits as of December 31, 2007. The measurement date for pension benefit plans is December 31.

Assets of the U.S. defined benefit plan are held in an irrevocable trust and do not include any Ceridian securities. Benefits under this plan are generally calculated on final or career average earnings and years of participation in the plan. Most participating employees were required to permit salary reduction contributions to the plan on their behalf by the employer as a condition of active participation. Retirees and other former employees are inactive participants in this plan and constitute approximately 99% of the plan participants. This plan is funded in accordance with funding requirements under the Employee Retirement Income Security Act of 1974, based on determinations of a third-party consulting actuary. Investment of the U.S. defined benefit plan assets in Ceridian securities is prohibited by the investment policy. We made contributions amounting to $18.5 in 2018 to the U.S. defined benefit plan. The required minimum contributions to the U.S. benefit plan are expected to be $6.4 during 2019.

Ceridian also sponsors a nonqualified supplemental defined benefit plan (the “nonqualified defined benefit plan”), which is unfunded and provides benefits to selected U.S. employees in addition to the U.S. defined benefit plan. We made contributions to the nonqualified defined benefit plan amounting to $1.9 in 2018 and expect to make contributions of $1.7 during 2019.

We account for our defined benefit plans using actuarial models. These models use an attribution approach that generally spreads the effect of individual events over the estimated life expectancy of the employees in such plans. These events include plan amendments and changes in actuarial assumptions such as the expected long-term rate of return on plan assets, discount rate related to the benefit obligation, and mortality rates.

One of the principal components of the net periodic pension calculation is the expected long-term rate of return on plan assets. The required use of expected long-term rate of return on plan assets may result in recognized pension income that is greater or less than the actual returns of those plan assets in any given year. Over time, however, the expected long-term returns are designed to approximate the actual long-term returns that contribute to the settlement of the liability. Differences between actual and expected returns are recognized in the net periodic pension calculation over three years. We use long-term historical actual return information, the mix of investments that comprise plan assets, and future estimates of long-

term investment returns by reference to external sources to develop our expected return on plan assets.

The discount rate assumption is used to determine the benefit obligation and the interest portion of the net periodic pension cost (credit) for the following year. We utilize a full yield curve approach for our discount rate assumption by applying the specific spot rates along the yield curve used in the determination of the benefit obligation to the relevant projected cash flows. As of December 31, 2018, a 25 basis point decrease in the discount rate would result in a $0.1 decrease to expense for all pension plans.

At December 31, 2017, we updated our mortality assumptions utilizing an improvement scale issued by the Society of Actuaries in October 2017, which resulted in a $6.0 reduction in the projected benefit obligation. At December 31, 2018, we updated our mortality assumptions utilizing an improvement scale issued by the Society of Actuaries in October 2018, which resulted in a $1.5 reduction in the projected benefit obligation.

The funded status of defined benefit plans represents the difference between the projected benefit obligation and the plan assets at fair value. The projected benefit obligation of defined benefit plans exceeded the fair value of plan assets by $145.8 and $154.4 at December 31, 2018 and 2017, respectively. We are required to record the unfunded status as a liability in our consolidated balance sheets and recognize the change in the funded status in comprehensive income, net of deferred income taxes.

The projected future payments to participants from defined benefit plans are included in the table below.

Years Ending December 31,	Amount
2019	$ 46.0
2020	45.0
2021	44.0
2022	42.7
2023	41.5
Next five years	$ 183.5

The accompanying tables reflect the combined funded status and net periodic pension cost and combined supporting assumptions for the defined benefit elements of our defined benefit plans.

	Year Ended December 31,	
	2018	2017
Funded Status of Defined Benefit Retirement Plans at Measurement Date		
Change in Projected Benefit Obligation During the Year:		
Projected benefit obligation at beginning of year	$ 593.0	$ 605.9
Service cost	—	—
Interest cost	16.3	17.2
Actuarial (gain) loss	(31.6)	20.3
Benefits paid and plan expenses	(50.3)	(50.4)
Projected benefit obligation at end of year	$ 527.4	$ 593.0
Change in Fair Value of Plan Assets During the Year:		
Plan assets at fair value at beginning of year	438.6	416.4
Actual return on plan assets	(27.1)	49.6
Employer contributions	20.4	23.0
Benefits paid and plan expenses	(50.3)	(50.4)
Plan assets at fair value at end of year	381.6	438.6
Funded status of plans	$ (145.8)	$ (154.4)

	December 31,	
	2018	2017
Amounts recognized in Consolidated Balance Sheets		
Current liability	$ 8.1	$ 20.3
Noncurrent liability	137.7	134.1
Amounts recognized in Accumulated Other Comprehensive Loss		

Accumulated other comprehensive loss, net of tax of $91.5 and $91.5, respectively	$ 158.6	$ 151.4

The other comprehensive (income) loss related to pension benefit plans is as follows:

	Year Ended December 31,		
	2018	2017	2016
Net actuarial loss (gain)	$ 21.4	$ (3.0)	$ 9.5
Amortization of net actuarial loss	(14.2)	(12.8)	(12.5)
Tax expense	—	—	0.1
Other comprehensive income, net of tax	$ 7.2	$ (15.8)	$ (2.9)

	Year Ended December 31,		
	2018	2017	2016
Assumptions Used in Calculations			
Discount rate used to determine net benefit cost	3.25%	3.63%	3.76%
Expected return on plan assets	6.30%	6.30%	6.30%
Discount rate used to determine benefit obligations%	3.92%	3.25%	3.63%

	Year Ended December 31,		
	2018	2017	2016
Net Periodic Pension Cost			
Interest cost	$ 16.3	$ 17.2	$ 18.2
Actuarial loss amortization	14.2	12.8	12.5
Less: Expected return on plan assets	(25.8)	(26.3)	(25.7)
Net periodic pension cost	$ 4.7	$ 3.7	$ 5.0

The accumulated benefit obligation of defined benefit plans was $527.4 and $593.0 as of December 31, 2018 and 2017, respectively.

The amount in accumulated other comprehensive loss that is expected to be recognized as a component of net periodic pension cost during 2019 is a net actuarial loss of $12.7.

Our overall investment strategy for the U.S. defined benefit plan is to achieve a mix of approximately 70% of investments for long term growth, 28% for liability hedging purposes and 2% for near-term benefit payments. Target asset allocations are based upon actuarial and capital market studies performed by experienced outside consultants. The target allocations for the growth assets are 41% fixed income, 26% international equities, 23% domestic equities and 10% hedge funds. Specifically, the target allocation is managed through investments in fixed income securities, equity funds, collective investment funds, partnerships and other investment types. The underlying domestic equity securities include exposure to large/mid-cap companies and small-cap companies. Fixed income securities include corporate debt, mortgage-backed securities, U.S. Treasury and U.S. agency debt, emerging market debt and high yield debt securities. The alternative investment strategy is allocated to investments in hedge funds. The liability hedging portfolio fair value is intended to move in a direction that partially offsets the increase or decrease in the liabilities resulting from changes in interest rates. To achieve this objective, the portfolio will invest in U.S. Treasury strips and various interest rate derivatives contracts. We hire outside managers to manage all assets of the U.S. defined benefit plan.

In determining the fair values of the defined benefit plan’s assets, we calculate the fair value of certain investments using net asset value ("NAV") per share. Collective investment funds are valued at the NAV, which is based on the readily determinable fair value of the underlying securities owned by the fund. The NAV unit price is quoted on a private market or one that is not active. Partnerships consist primarily of a bond fund partnership valued at the NAV as reported by the fund manager and an investment in a venture capital fund valued by an independent appraisal. The NAV represents the value at which the defined benefit plan initiates a transaction. These investments do not have any significant unfunded commitments, conditions or restrictions on redemption, or any other significant restriction on their sale. The hedge fund of funds investment has a quarterly redemption restriction with a 65 day notice period. Plan investments with estimated fair value using NAV were $212.6 and $280.6 as of December 31, 2018 and 2017, respectively.

The fair values of the defined benefit plan’s assets at December 31, 2018, by asset category are as follows:

	Total	Level 1	Level 2	Level 3
Investments, at fair value:				
Short-term investments	$ 57.9	$ 57.9	$ —	$ —
Derivatives (a)	—	—	—	—
Government securities	92.4	—	92.4	—
Corporate debt securities	18.7	—	18.7	—
Collective investment funds:				
Domestic equity (b)	80.1	—	80.1	—
Foreign equity (b)	48.5	—	48.5	—
Foreign bond (c)	23.8	—	23.8	—
Partnerships (d)	32.1	—	32.1	—
Hedge fund of funds (e)	28.1	—	28.1	—
Total investments, at fair value	$ 381.6	$ 57.9	$ 323.7	$ —

The fair values of our defined benefit plan's assets at December 31, 2017, by asset category are as follows:

	Total	Level 1	Level 2	Level 3
Investments, at fair value:				
Short-term investments	$ 36.8	$ 36.8	$ —	$ —
Derivatives (a)	14.8	—	14.8	—
Government securities	88.1	—	88.1	—
Corporate debt securities	18.3	—	18.3	—
Collective investment funds:				
Domestic equity (b)	144.4	—	144.4	—
Foreign equity (b)	57.5	—	57.5	—
Foreign bond (c)	41.8	—	41.8	—
Partnerships (d)	35.3	—	35.3	—
Hedge fund of funds (e)	1.6	—	1.6	—
Total investments, at fair value	$ 438.6	$ 36.8	$ 401.8	$ —

(a) Funds in this category invest in futures (2018) and interest rate swaps (2017) to reduce exposure to long-term interest rate risk and to achieve overall investment portfolio objectives. The future derivatives are marked to market and settled in cash on a daily basis.
(b) Funds in this category invest in a diversified portfolio of domestic and/or foreign stocks to achieve a long-term rate of return.
(c) Funds in this category invest in various types of domestic and/or foreign debt securities to achieve a long-term rate of return while preserving capital.
(d) Funds within this category invest in a bond fund partnership which holds various types of domestic debt securities to achieve a long-term rate of return while preserving capital.
(e) Funds within this category invest in various underlying hedge funds and are designed to provide superior risk adjusted returns as well as portfolio diversification relative to traditional asset classes.

Postretirement Benefits

Ceridian provides health care and life insurance benefits for eligible retired employees, including individuals who retired from operations we subsequently sold or discontinued. Ceridian sponsors several health care plans in the United States for both pre- and post-age 65 retirees. The contributions to these plans differ for various groups of retirees and future retirees. Most retirees outside of the United States are covered by governmental health care programs, and our cost is not significant. The measurement date for postretirement benefit plans is December 31.

The discount rate assumption is used to determine the benefit obligation and the interest portion of the net periodic postretirement cost (credit) for the following year. We utilize a full yield curve approach for our discount rate assumption by applying the specific spot rates along the yield curve used in the determination of the benefit obligation to the relevant projected cash flows. As of December 31, 2018, a 25 basis point decrease in the discount rate would result in an immaterial impact on expense for the postretirement plan.

The accompanying tables present the amounts and changes in the aggregate benefit obligation and the components of net periodic postretirement benefit cost for U.S. plans. We fund these costs as they become due.

	Year Ended December 31,	
	2018	2017

Funded Status of Postretirement Health Care and Life Insurance Plans		
Change in Benefit Obligation:		
At beginning of year	$ 19.6	$ 21.0
Interest cost	0.5	0.5
Participant contributions	0.5	1.1
Actuarial gain	(2.1)	(0.7)
Benefits paid	(1.7)	(2.3)
At end of year	$ 16.8	$ 19.6
Change in Plan Assets:		
At beginning of year	$ —	$ —
Company contributions	1.2	1.2
Participant contributions	0.5	1.1
Benefits paid	(1.7)	(2.3)
At end of year	—	—
Funded Status	$ (16.8)	$ (19.6)

	December 31,	
	2018	2017
Amounts recognized in Consolidated Balance Sheets		
Current liability	$ 2.2	$ 2.4
Noncurrent liability	14.6	17.2
Amounts recognized in Accumulated Other Comprehensive Loss		
Accumulated other comprehensive income, net of tax of $(9.9) and $(9.9), respectively	$ (8.5)	$ (8.9)

The other comprehensive (income) loss related to postretirement benefits is as follows:

	Year Ended December 31,		
	2018	2017	2016
Net actuarial gain	$ (2.1)	$ (0.7)	$ (1.4)
Amortization of net actuarial gain	2.5	2.7	2.6
Tax expense	—	—	—
Other comprehensive loss (income), net of tax	$ 0.4	$ 2.0	$ 1.2

	Year Ended December 31,		
	2018	2017	2016
Net Periodic Postretirement Benefit			
Service cost	$ —	$ —	$ —
Interest cost	0.5	0.5	0.6
Actuarial gain amortization	(2.2)	(2.4)	(2.3)
Prior service credit amortization	(0.3)	(0.3)	(0.3)
Net periodic postretirement benefit gain	$ (2.0)	$ (2.2)	$ (2.0)

The amount in accumulated other comprehensive loss that is expected to be recognized as a component of net periodic postretirement benefit cost during 2019 is a $2.6 gain, comprised of $2.3 of actuarial gain and $0.3 of prior service credit.

The assumed health care cost trend rate represents the rate at which health care costs are assumed to increase. The assumed health care cost trend rate used in measuring the benefit obligation in 2018 is 6.90% for pre-age 65 retirees and 7.70% for post-age 65 retirees. These rates are assumed to decrease gradually to the ultimate health care cost trend rate of 4.5% in 2028 for both groups. A one percent increase in this rate would increase the benefit obligation at December 31, 2018, by $0.7 and would have an immaterial impact on the interest cost for 2018. A one percent decrease in this rate would decrease the benefit obligation at December 31, 2018, by $0.6 and would have an immaterial impact on the interest cost for 2018.

	Year Ended December 31,		
	2018	2017	2016
Assumptions Used in Calculations			
Weighted average discount rate used to determine net			

periodic postretirement cost (credit)	3.01%	3.26%	3.38%
Weighted average discount rate used to determine benefit obligation at measurement date	3.70%	3.01%	3.26%

The projected future postretirement benefit payments and future receipts from the federal subsidy for each of the next five years and the five-year period following are included in the table below.

Years Ending December 31,	Payments	Receipts
2019	$ 2.2	$ 0.1
2020	1.9	0.1
2021	1.9	—
2022	1.8	—
2023	1.6	0.1
Next five years	$ 6.2	$ 0.1

Share-Based Compensation

Share-Based Compensation	12 Months Ended
	Dec. 31, 2018
Disclosure Of Compensation Related Costs Sharebased Payments [Abstract]	
Share-Based Compensation	

11. Share-Based Compensation

Prior to November 1, 2013, Ceridian employees participated in a share-based compensation plan of the ultimate parent of Ceridian. The 2007 Stock Incentive Plan ("2007 SIP") authorized the issuance of up to 10,540,540 shares of common stock of Parent to eligible participants through stock options and stock awards. Eligible participants in the 2007 SIP included the Parent's directors, employees and consultants.

Effective November 1, 2013, most participants who held stock options under the 2007 SIP converted their options to a newly created option plan, the 2013 Ceridian HCM Holding Inc. Stock Incentive Plan ("2013 SIP"). A small number of participants maintained their stock options in the 2007 SIP. As of December 31, 2018, there were 5,000 stock options outstanding under the 2007 SIP.

The 2013 SIP authorized the issuance of up to 12,500,000 shares of common stock of Ceridian to eligible participants through stock options and other stock awards, which was increased to 15,000,000 on March 20, 2017, by the Board of Directors. Eligible participants in the 2013 HCM SIP include Ceridian's directors, employees, and consultants.

As part of the 2013 SIP, the Board of Directors approved a stock appreciation rights program that authorized the issuance of up to 600,000 stock appreciation rights. The performance criteria for all stock appreciation rights was met on April 30, 2018, resulting in the vesting and cash settlement of all outstanding stock appreciation rights. We recognized $1.5 of share-based compensation expense related to the vesting of these stock appreciation rights during the year ended December 31, 2018. As of December 31, 2018, there were no remaining outstanding stock appreciation rights.

Stock options awarded under the 2013 SIP vest either annually on a pro rata basis over a four- or five-year period or on a specific date if certain performance criteria are satisfied and certain equity values are attained. In addition, upon termination of service, all vested options must be exercised generally within 90 days after termination, or these awards will be forfeited. The stock option awards have a 10-year contractual term and have an exercise price that is not less than the fair market value of the underlying stock on the date of grant. As of December 31, 2018, there were 9,356,904 stock options and restricted stock units outstanding under the 2013 SIP. We do not intend to grant any additional awards under the 2007 SIP or the 2013 SIP following our IPO.

On April 24, 2018, in connection with the IPO, the Board of Directors approved the Ceridian HCM Holding Inc. 2018 Equity Incentive Plan ("2018 EIP"), which authorizes the issuance of up to 13,500,000 shares of common stock to eligible participants through equity awards. Equity awards under the 2018 EIP vest annually on a pro rata basis, generally over a four-year period. In addition, upon termination of service, all vested awards must be exercised within 90 days after termination, or these awards will be forfeited. The equity awards have a 10-year contractual term and have an exercise price that is not less than the fair market value of the underlying stock on the date of the grant. As of December 31, 2018, there were 5,218,315 stock options and restricted stock units outstanding and 8,281,685 shares available for future grants of equity awards under the 2018 EIP.

On November 9, 2018, the Compensation Committee of the Board of Directors approved the Ceridian HCM Holding Inc. Global Employee Stock Purchase Plan (the "GESPP"), which authorizes the issuance of up to 2,500,000 shares of common stock to eligible participants through purchases via payroll deductions at a discount to the fair market value of our common stock. The GESPP has a 10-year contractual term, and purchases will commence in 2019, subject to approval by the Company's stockholders.

Share-based compensation expense was $24.7, $16.1, and $12.5 for the years ended December 31, 2018, 2017, and 2016, respectively.

Performance-Based Stock Options

Performance-based option activity under the 2007 SIP and the 2013 SIP for the periods presented was as follows:

	Weighted	Weighted

	Shares	Average Exercise Price (per share)	Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value (in millions)
Options outstanding at December 31, 2015	1,283,368	$ 13.46	5.2	$ —
Granted	—	—	—	—
Exercised	—	—	—	—
Forfeited or expired	(52,942)	(13.46)	—	—
Options outstanding at December 31, 2016	1,230,426	$ 13.46	4.2	$ —
Granted	—	—	—	—
Exercised	(167,202)(a)	(13.46)	—	—
Forfeited or expired	(25,077)	(13.46)	—	—
Options outstanding at December 31, 2017	1,038,147	$ 13.46	3.5	$ —
Granted	—	—	—	—
Exercised	(663,412)	(13.46)	—	—
Forfeited or expired	(8,358)	(13.46)	—	—
Options outstanding at December 31, 2018	366,377	$ 13.50	3.1	$ 7.7
Options exercisable at December 31, 2018	366,377	$ 13.50	3.1	$ 7.7

(a) During the year ended December 31, 2017, certain performance-based options were modified and exercised.

The performance criteria for all outstanding performance-based stock options was met on June 7, 2018, resulting in the vesting of all outstanding performance-based stock options on this date. We recognized $4.8 of share-based compensation expense related to the vesting of these performance-based stock options during the year ended December 31, 2018. As of December 31, 2018, there was no share-based compensation expense related to unvested performance-based stock options not yet recognized.

Term-Based Stock Options

Term-based option activity, including stock options under the 2007 SIP, the 2013 SIP and the 2018 EIP, for the periods presented was as follows:

	Shares	Weighted Average Exercise Price (per share)	Weighted Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value (in millions)
Options outstanding at December 31, 2015	7,609,658	$ 16.02	7.3	$ 14.1
Granted	2,339,238	16.80	—	—
Exercised	—	—	—	—
Forfeited or expired	(176,626)	(16.54)	—	—
Options outstanding at December 31, 2016	9,772,270	$ 16.20	7.1	$ 9.9
Granted	2,285,981	17.46	—	—
Exercised	(595,464)	(15.14)	—	—
Forfeited or expired	(468,606)	(16.10)	—	—
Options outstanding at December 31, 2017	10,994,181	$ 16.52	6.9	$ 48.8
Granted	5,236,037	23.07	—	—
Exercised	(2,501,983)	(15.26)	—	—
Forfeited or expired	(178,466)	(17.30)	—	—
Options outstanding at December 31, 2018	13,549,769	$ 19.28	7.5	$ 206.8
Options exercisable at December 31, 2018	5,731,295	$ 16.75	5.7	$ 101.7

Other information pertaining to term-based options is as follows:

	Year Ended December 31,		
	2018	2017	2016
Weighted average grant date fair value per share	$ 7.80	$ 5.88	$ 5.74

The fair value of the term-based stock options was estimated at the date of grant using the Black-Scholes option pricing model with the following weighted-average assumptions:

	Year Ended December 31,		
	2018	2017	2016

Expected volatility	25.0%	30.0%	30.0%
Expected dividend rate	—	—	—
Risk-free interest rate	2.9%	2.3%	1.9%

For stock options granted under the 2007 SIP, we used the simplified method to estimate the expected term of the stock options. For stock options granted under the 2013 SIP and 2018 EIP, we estimated an expected term of 7.0 years, based on the vesting period and contractual life. As of December 31, 2018, there was $46.6 of share-based compensation expense related to unvested term-based awards not yet recognized, which is expected to be recognized over a weighted average period of 1.8 years. As of December 31, 2018, there were 5,731,295 vested term-based stock options.

Restricted Stock Units

Restricted stock units ("RSUs") activity, including RSUs under the 2013 SIP and the 2018 EIP, for the periods presented was as follows:

	Shares
RSUs outstanding at December 31, 2015	228,572
Granted	29,800
Shares issued upon vesting of RSUs	(76,192)
Forfeited or canceled	—
RSUs outstanding at December 31, 2016	182,180
Granted	500,000
Shares issued upon vesting of RSUs	(76,190)
Forfeited or canceled	—
RSUs outstanding at December 31, 2017	605,990
Granted	164,073
Shares issued upon vesting of RSUs	(105,990)
Forfeited or canceled	—
RSUs outstanding at December 31, 2018	664,073
RSUs releasable at December 31, 2018	125,000

Other information pertaining to restricted stock units is as follows:

	Year Ended December 31,		
	2018	2017	2016
Weighted average grant date fair value per share	$ 35.55	$ 17.26	$ 17.40

During the year ended December 31, 2018, 230,990 RSUs vested, of which 105,990 shares of common stock were issued, and 125,000 RSUs remained vested and releasable. Restricted stock units generally vest annually over a three- or four-year period. As of December 31, 2018, there was $9.9 of share-based compensation expense related to unvested restricted stock units not yet recognized, which is expected to be recognized over a weighted average period of 2.9 years.

Supplementary Data to Statements of Operations

Supplementary Data to Statements of Operations	12 Months Ended
	Dec. 31, 2018
Organization Consolidation And Presentation Of Financial Statements [Abstract]	
Supplementary Data to Statements of Operations	

12. Supplementary Data to Statements of Operations

	Year Ended December 31,		
	2018	2017	2016
Other (Income) Expense, Net			
Asset impairment	$ —	$ —	$ 10.4
Environmental reserve	—	—	5.9
Foreign currency translation (income) expense	(2.9)	7.3	(3.4)
Total other (income) expense, net	$ (2.9)	$ 7.3	$ 12.9

Asset Impairment

The sale of the UK Business in 2016 was considered a triggering event to test the trade name intangible asset for impairment. Given the reduction in future revenues of the UK Business previously included in the relief from royalty models used to support the trade name value, we recorded an impairment charge during the year ended December 31, 2016, of $10.2 to the trade name intangible asset. The remaining impairment amount is related to immaterial asset write-offs.

Environmental Reserve

In September 1989, Parent's predecessor entered into an Environmental Matters Agreement ("EMA") with Seagate Technology plc ("Seagate") related to groundwater contamination on a parcel of real estate sold by Parent's predecessor to Seagate. Ceridian is now responsible for the EMA. The EMA requires expense sharing between Ceridian and Seagate for the remediation of groundwater contamination up to a certain limit. Based on additional information obtained with respect to more stringent remediation requirements, we updated our estimate of the potential liability related to the EMA, resulting in an increase to the environmental reserve of $5.9 during the year ended December 31, 2016, which represented the limit under the EMA. Please refer to Note 15, "Commitments and Contingencies," for further discussion of our environmental liabilities.

Foreign Currency Translation (Income) Expense

We had foreign currency translation income of $2.9 for the year ended December 31, 2018. The foreign currency translation income for the year ended December 31, 2018, was primarily related to foreign currency remeasurement gains resulting from an intercompany payable of a U.S. operating subsidiary which is repaid in Canadian dollars. This intercompany payable was repaid in the second quarter of 2018.

We incurred foreign currency translation expense of $7.3 for the year ended December 31, 2017. The foreign currency translation expense for the year ended December 31, 2017, was primarily related to foreign currency remeasurement losses resulting from an intercompany payable of a U.S. operating subsidiary which is repaid in Canadian dollars.

We had foreign currency translation income of $3.4 for the year ended December 31, 2016. The foreign currency translation income for the year ended December 31, 2016, was primarily related to foreign currency remeasurement gains on intercompany receivables and payables between international subsidiaries that were settled in early 2017.

Accumulated Other Comprehensive Income (Loss)

Accumulated Other Comprehensive Income (Loss)	12 Months Ended
	Dec. 31, 2018
Equity [Abstract]	
Accumulated Other Comprehensive Income (Loss)	

13. Accumulated Other Comprehensive Income (Loss)

The components of accumulated other comprehensive income (loss) were as follows:

	Foreign Currency Translation Adjustment	Unrealized Gain (Loss) from Invested Customer Trust Funds	Pension Liability Adjustment	Total
Balance as of December 31, 2016	$ (199.9)	$ 4.7	$ (156.3)	$(351.5)
Other comprehensive income (loss) before income taxes and reclassifications	39.3	(17.3)	3.7	25.7
Income tax benefit	—	3.6	—	3.6
Reclassifications to earnings	—	—	10.1	10.1
Other comprehensive income (loss) attributable to Ceridian	39.3	(13.7)	13.8	39.4
Balance as of December 31, 2017	(160.6)	(9.0)	(142.5)	(312.1)
Other comprehensive loss before income taxes and reclassifications	(47.4)	(10.5)	(19.3)	(77.2)
Income tax benefit	—	1.2	—	1.2
Reclassifications to earnings	—	—	11.7	11.7
Other comprehensive (loss) income attributable to Ceridian	(47.4)	(9.3)	(7.6)	(64.3)
LifeWorks Disposition	0.7	—	—	0.7
Balance as of December 31, 2018	$ (207.3)	$ (18.3)	$ (150.1)	$(375.7)

Income Taxes

Income Taxes	12 Months Ended
	Dec. 31, 2018
Income Tax Disclosure [Abstract]	
Income Taxes	

14. Income Taxes

	Year Ended December 31,		
	2018	2017	2016
Components of Earnings and Taxes from Operations			
(Loss) Income Before Income Taxes:			
U.S.	$ (73.2)	$ (83.4)	$ (163.4)
International	42.8	29.3	64.8
Total	$ (30.4)	$ (54.1)	$ (98.6)
Income Tax Expense (Benefit):			
Current:			
U.S.	$ 3.8	$ (0.3)	$ (0.4)
State and local	0.3	0.1	0.2
International	20.4	12.9	15.2
Total current income tax expense	24.5	12.7	15.0
Deferred:			
U.S.	(14.4)	(60.3)	(15.7)
State and local	(2.2)	0.8	(0.1)
International	(0.2)	(2.8)	7.5
Total deferred income tax (benefit) expense	(16.8)	(62.3)	(8.3)
Total income tax expense (benefit)	$ 7.7	$ (49.6)	$ 6.7

	Year Ended December 31,		
	2018	2017	2016
Effective Rate Reconciliation			
U.S. statutory rate%	(21.0)%	(35.0)%	(35.0)%
Change in valuation allowance	10.5	(116.9)	(5.4)
State income taxes, net of federal benefit	(27.9)	(5.2)	(1.2)
Share-based compensation	(8.8)	8.3	2.6
International tax rate differential	11.5	(6.7)	(6.4)
Foreign dividend income	17.8	48.1	1.0
Foreign capital gain income	6.3	—	—
Unremitted foreign earnings	3.6	(35.6)	22.0
Global intangible low-taxed income	20.4	—	—
Base erosion tax	12.5	—	—
Reserve for tax contingencies	0.3	—	(0.2)
Expiration of un-utilized tax credits	—	1.5	—
Unrealized gain on investments	—	—	30.7
Change in tax rate	(5.2)	52.4	—
Other	5.3	(2.6)	(1.5)
Income tax provision%	25.3%	(91.7)%	6.6%

Our income tax provision represents federal, state, and international taxes on our income recognized for financial statement purposes and includes the effects of temporary differences between financial statement income and income recognized for tax return purposes. Deferred tax assets and liabilities are recorded for temporary differences between the financial reporting basis and the tax basis of assets and liabilities as adjusted for the expected benefits of utilizing net operating loss carryforwards. We record a valuation allowance to reduce our deferred tax assets to reflect the net deferred tax assets that we believe will be realized. In assessing the likelihood that we will be able to recover our deferred tax assets and the need for a valuation allowance, we consider all available evidence, both positive and negative, including historical levels of pre-tax book income, expiration of net operating losses, expectations and risks associated with estimates of future taxable income and ongoing prudent and feasible tax planning strategies, as well as current tax laws. As of December 31, 2018, and December 31, 2017, we continue to record a full valuation allowance against our domestic deferred tax assets that are not offset by the reversal of deferred tax liabilities. In the future, if it is determined that we no longer have a requirement to

record a valuation allowance against all or a portion of our deferred tax assets, the release of the valuation allowance would have a positive impact on our income tax provision.

On December 22, 2017, the Tax Cut and Jobs Act legislation (the "Tax Act") was signed into law. The Tax Act made broad and complex changes to the U.S. tax code including: (a) lower U.S. federal corporate income tax rate from 35% to 21% effective January 1, 2018, (b) accelerated expensing of qualified capital investments for a specific period, and (c) a transition from a worldwide tax system to a territorial tax system.

ASC 740, Income Taxes, requires a company to record the effects of a tax law change in the period of enactment; however, shortly after enactment of the Tax Act, the SEC staff issued Staff Accounting Bulletin ("SAB") 118, which allows a company to record a provisional amount when it does not have the necessary information available to complete its accounting for the change in the tax law. The FASB subsequently issued ASU No. 2018-05 to codify SAB 118 by amending ASC 740. ASU No. 2018-05 continues to allow a company to record a provisional amount when it does not have the necessary information available, prepared, or analyzed in reasonable detail to complete its accounting for the change in the tax law. The measurement period ends when the company has obtained, prepared, and analyzed the information necessary to finalize its accounting, but cannot extend beyond one year.

We have completed our analysis of the income tax effects of the Tax Act. In January and April of 2018, the Internal Revenue Service (the "IRS") issued guidance that provided additional clarification on certain aspects of the transition tax calculation. The application of the additional IRS guidance resulted in a $16.2 increase in includible untaxed foreign earnings, which resulted in a $5.7 increase in tax expense. This increase was offset by the tax benefit of the utilization of $16.2 of net operating loss carryover. The overall impact to tax expense in the year ended December 31, 2018, was zero.

Other provisions introduced by the Tax Act that had a significant impact on our current year tax provision were the provisions introducing the Global Intangible Low-Taxed Income ("GILTI") and the Base Erosion and Anti-Abuse Tax ("BEAT"). The GILTI resulted in an increase of $29.7 in taxable income, which resulted in a $6.6 increase in tax expense. This tax increase was offset by the tax benefit of the utilization of $29.7 of net operating loss carryover. The BEAT resulted in an increase of $3.8 in tax expense in the year ended December 31, 2018.

	December 31,	
	2018	2017
Tax Effect of Items That Comprise a Significant Portion of the Net Deferred Tax Asset and Deferred Tax Liability		
Deferred Tax Asset:		
Employment related accruals	$ 51.2	$ 51.0
Foreign tax credit carryover and other credit carryovers	0.3	0.2
Net operating loss carryforwards	78.2	100.3
Total gross deferred tax asset	129.7	151.5
Valuation allowance	(93.3)	(90.7)
Total deferred tax asset	$ 36.4	$ 60.8
Deferred Tax Liability:		
Intangibles	$ (62.1)	$ (65.7)
Unremitted foreign earnings	—	—
Unrealized gain on investment	—	(22.2)
Other	(5.8)	(5.0)
Total deferred tax liability	(67.9)	(92.9)
Net deferred tax liability	$ (31.5)	$ (32.1)

	December 31,	
	2018	2017
Net Deferred Tax by Geography		
U.S.	$ (19.8)	$ (18.4)
International	(11.7)	(13.7)
Total	$ (31.5)	$ (32.1)

As of December 31, 2018, we had federal, state, and foreign net operating loss carryovers, which will reduce future taxable income when utilized. Approximately $47.2 in net federal tax benefit is available from the loss carryovers and an additional $0.3 is available in federal tax credit carryovers. The state loss

carryovers will result in state tax benefit of approximately $31.0 when utilized. The federal net operating loss tax benefit will begin to expire in 2031, and state net operating loss carryovers will begin to expire in 2019. The federal credit carryovers are composed of foreign tax credits, which will begin to expire in 2019; research credits, which will begin to expire in 2027; and alternative minimum tax credits, which have no expiration date.

As of December 31, 2018, we carried a full valuation allowance against our domestic net deferred tax asset ("DTA") position after excluding a portion of the deferred tax liability for long-lived, non-amortizable taxable temporary differences. We periodically re-assess the likelihood that DTA reported in the accompanying consolidated financial statements will be recovered from future taxable income.

We have re-evaluated the likelihood of recovering our net DTA, and we have determined that it is still more likely than not that the tax benefit associated with a portion of the DTA will not be realized. We assessed the available positive and negative evidence to estimate if sufficient future taxable income will be generated to use the existing net DTAs not already identified as requiring a valuation allowance. The cumulative loss incurred over the three-year period ended December 31, 2018, is a significant piece of objective negative evidence. Such objective evidence limits the ability to consider other subjective evidence, such as our projections for positive future growth. As of December 31, 2018, we had a total valuation allowance of $93.3. The amount of the DTA considered realizable could be adjusted in the future if objective negative evidence in the form of cumulative losses is no longer present, and additional weight may be given to subjective evidence, such as our projections for growth.

We file income tax returns in the U.S. federal jurisdiction, and various states and foreign jurisdictions. With a few exceptions, we are no longer subject to U.S. federal, state and local, or non-U.S. income tax examinations by tax authorities for years before 2014.

The following table summarizes the activity for unrecognized tax benefits:

	Year Ended December 31,	
	2018	2017
Federal, State and Foreign Tax		
Beginning unrecognized tax balance	$ 1.5	$ 1.4
Increase prior period positions	0.1	0.2
Increase current period positions	0.2	0.1
Decrease prior period positions	(0.1)	—
Decrease current period positions	(0.3)	—
Statutes expiring	(0.1)	(0.2)
Ending unrecognized tax benefits	$ 1.3	$ 1.5

The total amount of unrecognized tax benefits as of December 31, 2018, was $1.3 including $0.2 of accrued interest and penalty. Of the total amount of unrecognized tax benefits, $1.3 represents the amount that, if recognized, would impact our effective income tax rate as of December 31, 2018. It is expected that the amount of unrecognized tax benefits will change in the next 12 months; however, we cannot reasonably estimate the amount of the change. We do not expect the change to have a significant impact on our results of operations or financial condition.

The Tax Act imposed a mandatory transition tax on the unremitted earnings of our international subsidiaries and generally eliminated US taxes on foreign subsidiary distributions for years beginning after December 31, 2017. As of December 31, 2018, we have $298.5 of unremitted foreign earnings. We consider $174.6 of the unremitted earnings to be indefinitely reinvested. For the portion of the unremitted earnings not considered indefinitely reinvested, $123.9, we have provided a deferred tax liability of $6.2, which represents the expected withholding tax cost of repatriating such earnings. In the event the portion of the unremitted earnings considered to be indefinitely reinvested were repatriated, we would incur a withholding tax expense of approximately $8.7.

Commitments and Contingencies

Commitments and Contingencies	12 Months Ended
	Dec. 31, 2018
Commitments And Contingencies Disclosure [Abstract]	
Commitments and Contingencies	

15. Commitments and Contingencies

Leasing

We conduct substantially all of our operations in leased facilities. Most of our leases contain renewal options and require payments for taxes, insurance and maintenance. We recognize rent holidays, including the time period during which we have access to the property for construction of improvements, construction allowances and escalating rent provisions on a straight-line basis over the term of the lease.

Substantially all of our leasing arrangements for equipment and facilities are operating leases and the rental payments under these leases are charged to operations as incurred. The amounts in the accompanying tables do not include capital lease obligations recorded as liabilities.

Our rental expense and sublease income were as follows:

	Year Ended December 31,		
	2018	2017	2016
Rental Expense, Net			
Rental expense	$ 17.6	$ 17.0	$ 16.8
Sublease rental income	(4.9)	(4.2)	(3.5)
Net rental expense	$ 12.7	$ 12.8	$ 13.3

Our future minimum noncancellable lease payments on existing operating leases at December 31, 2018, which have an initial term of more than one year, are as follows:

Years Ending December 31,	Amount
2019	$ 13.6
2020	11.8
2021	7.7
2022	7.4
2023	6.2
Thereafter	9.4
Total (a)	$ 56.1

(a) Minimum payments have not been reduced by minimum sublease rentals of $13.1 due in the future under noncancellable subleases.

Environmental Matters

We accrue for losses associated with environmental remediation obligations when such losses are probable and reasonably estimable. Accruals for estimated losses from environmental remediation obligations generally are recognized no later than completion of the remedial feasibility study. Such accruals are adjusted as further information develops or circumstances change. Costs of future expenditures for environmental remediation obligations are not discounted to their present value.

In February 1988, Parent’s predecessor entered into an arrangement with Northern Engraving Corporation (“NEC”) and the Minnesota Pollution Control Agency (“MPCA”) in relation to groundwater contamination on a parcel of real estate sold by Parent’s predecessor to NEC. Ceridian is now responsible for the arrangement with NEC and the MPCA. The arrangement requires expense sharing between Ceridian and NEC for the remediation of groundwater contamination.

In September 1989, Parent’s predecessor entered into an EMA with Seagate related to groundwater contamination on a parcel of real estate sold by Parent’s predecessor to Seagate. Ceridian is now responsible for the EMA. The EMA requires expense sharing between Ceridian and Seagate for the remediation of groundwater contamination up to a certain limit. Based on additional information obtained with respect to more stringent remediation requirements, we updated our estimate of the potential liability

related to the EMA, resulting in an increase to the environmental reserve of $5.9 for the year ended December 31, 2016, which represented the limit under the EMA.

We have recognized an undiscounted liability of approximately $5.2 and $5.4 as of December 31, 2018 and 2017, respectively, in our consolidated balance sheets to comply with the NEC arrangement and EMA described above. The ultimate cost, however, will depend on the extent of continued monitoring activities as these projects progress. Please refer to Note 12, “Supplementary Data to Statements of Operations,” for further discussion of changes in the liability during the year ended December 31, 2016.

Legal Matters

We are subject to claims and a number of judicial and administrative proceedings considered normal in the course of our current and past operations, including employment-related disputes, contract disputes, disputes with our competitors, intellectual property disputes, government audits and proceedings, customer disputes, and tort claims. In some proceedings, the claimant seeks damages as well as other relief, which, if granted, would require substantial expenditures on our part.

Our general terms and conditions in customer contracts frequently include a provision indicating we will indemnify and hold our customers harmless from and against any and all claims alleging that the services and materials furnished by us violate any third party’s patent, trade secret, copyright or other intellectual property right. We are not aware of any material pending litigation concerning these indemnifications.

Some of these matters raise difficult and complex factual and legal issues and are subject to many uncertainties, including the facts and circumstances of each particular action, and the jurisdiction, forum, and law under which each action is proceeding. Because of these complexities, final disposition of some of these proceedings may not occur for several years. As such, we are not always able to estimate the amount of our possible future liabilities, if any.

There can be no certainty that we may not ultimately incur charges in excess of presently established or future financial accruals or insurance coverage. Although occasional adverse decisions or settlements may occur, it is management’s opinion that the final disposition of these proceedings will not, considering the merits of the claims and available resources or reserves and insurance, and based upon the facts and circumstances currently known, have a material adverse effect on our financial position or results of operations.

Related Party Transactions

Related Party Transactions	12 Months Ended
	Dec. 31, 2018
Related Party Transactions [Abstract]	
Related Party Transactions	

16. Related Party Transactions

Management Agreements

Prior to our IPO, Ceridian was party to management agreements with affiliates of our Sponsors, Fidelity National Financial, Inc. (“FNF”) and THL Managers VI, LLC (“THLM”). FNF assigned its management agreement to Cannae in November 2017. Pursuant to these management agreements, Cannae and THLM each, respectively, agreed to provide the Company with financial advisory, strategic, and general oversight services. These management agreements provided that we pay annual management fees to each of Cannae and THLM in an amount equal to the greater of (a) $0.9, or (b) 0.5 percent of Adjusted EBITDA. Adjusted EBITDA, for purposes of the management agreements, is EBITDA as defined in the 2014 Senior Secured Credit Facility, further adjusted to exclude the payments made pursuant to the management agreements and certain stock options or other equity compensation.

In April 2018, the management agreements terminated upon consummation of our IPO. Upon termination, the management agreements provided that we pay a termination fee equal to the net present value of the management fee for a seven-year period, which was $11.3.

We recorded a management fee expense in selling, general, and administrative expense of $12.0, $1.9, and $5.0 for the years ended December 31, 2018, 2017, and 2016, respectively, related to these management agreements. The expense for the year ended December 31, 2016, included transaction advisory fees of $3.0 related to the issuance of the senior convertible participating preferred stock. Please refer to Note 18, “Capital Stock,” for further discussion of this transaction.

Indebtedness

Prior to its split-off from FNF, Cannae was an affiliate of FNF. FNF and its subsidiaries owned $24.0 of the Senior Notes as of December 31, 2017, and 2016, respectively. Based on this ownership, $1.3, $3.2, and $3.2 in interest payments were made to affiliates of Cannae during the years ended December 31, 2018, 2017, and 2016, respectively. The affiliates of Cannae conducted the debt transactions through third parties in the ordinary course of their business and not directly with us. Following Cannae’s split-off from FNF, FNF retained ownership of the Senior Notes.

Service and Vendor Related Agreements

Ceridian is a party to a service agreement with CompuCom Systems, Inc. (“CompuCom”), an investment portfolio company of THL Partners. Pursuant to the service agreement, CompuCom agrees to provide us with service desk and desk side support services. Pursuant to this arrangement, we made payments to CompuCom totaling $1.8, $3.1, and $5.0 during the years ended December 31, 2018, 2017, and 2016, respectively.

Other Transactions

On July 23, 2018, Ronald F. Clarke was appointed to our Board of Directors. Mr. Clarke has been the chief executive officer of FleetCor Technologies Inc. (“FleetCor Technologies”) since August 2000 and its chairman of the board of directors since March 2003. We provide services to FleetCor Technologies or one of its wholly owned affiliates through certain commercial arrangements entered into in the ordinary course of business, which include provision of Dayforce HCM services, reseller or referral arrangements whereby we resell or refer FleetCor Technologies services to its customers, and other administrative services. For these services, we have recorded revenue of $2.3 and $2.9 for the years ended December 31, 2018, and 2017, respectively. We are also a corporate charge card customer of FleetCor Technologies. FleetCor Technologies receives a fee from the merchants from whom purchases are made on the FleetCor Technologies corporate charge card by us. In connection with charge card purchases made by us, FleetCor Technologies has provided us with rebates of approximately $0.2 for year ended December 31, 2017.

We provide Dayforce and related services to The Stronach Group, for which we recorded revenue of $0.3 and $0.2 for the years ended December 31, 2018, and 2016, respectively. Alon Ossip, the brother of

David Ossip, was the chief executive officer, and is currently a minority shareholder, of The Stronach Group.

We provide payroll-related tax filing services to FNF for which we recorded revenue of $0.4, $0.5, and $0.3 for the years ended December 31, 2018, 2017, and 2016, respectively.

We provide Dayforce and related services to certain investment portfolio companies of THLM and Cannae. We recorded revenue of $1.8 million from American Blue Ribbon Holdings, LLC; $0.5 million from Essex Bargain Hunt Superstores; $0.5 million from Guaranteed Rate; $0.3 million from Phillips Feed Services; and $0.3 million from System One Holdings LLC for the year ended December 31, 2018.

Segments and Financial Data by Solution and Geographic Area

Segments and Financial Data by Solution and Geographic Area	12 Months Ended
	Dec. 31, 2018
Segment Reporting [Abstract]	
Segments and Financial Data by Solution and Geographic Area	

17. Segments and Financial Data by Solution and Geographic Area

Segments

After consideration of the LifeWorks Disposition, management has concluded that we have one operating and reportable segment. This conclusion aligns with how management monitors operating performance, allocates resources, and deploys capital. Please refer to Note 3, “Discontinued Operations,” for further discussion of the LifeWorks Disposition.

Our Solutions

We categorize our solutions into two categories: Cloud and Bureau offerings.

- Cloud revenue is generated from HCM solutions that are delivered via two cloud offerings: Dayforce and Powerpay. The Dayforce offering is differentiated from our market competition as being a single application that offers a comprehensive range of functionality, including global HR, payroll, benefits, workforce management, and talent management on web and native iOS and Android platforms. Dayforce provides continuous real-time calculations across all modules to enable, for example, payroll administrators access to data through the entire pay period, and managers access to real-time data to optimize work schedules. Dayforce revenue is primarily generated from monthly recurring fees charged on a PEPM basis, generally one-month in advance of service. We also provide outsourced human resource solutions to certain of our Dayforce customers, which are tailored to meet their individual needs, and entail performing the duties of a customer’s human resources department, including payroll processing, time and labor management, performance management, and recruiting, as needed. Also included within Dayforce revenue is implementation, staging, and other professional services revenue; revenues from the sale, rental, and maintenance of time clocks; and billable travel expenses. The Powerpay offering is our solution designed primarily for small market Canadian customers. The typical Powerpay customer has fewer than 20 employees, and the majority of the revenue is generated from recurring fees charged on a per-employee, per-process basis. Typical processes include the customer’s payroll runs, year-end tax packages, and delivery of customers’ remittance advices or checks. In addition to the direct revenue earned from the Dayforce and Powerpay offerings, Cloud revenue also includes investment income generated from holding Cloud customer funds in trust before funds are remitted to taxing authorities, Cloud customer employees, or other third parties; and revenue from the sale of third party services.
- Bureau revenue is generated primarily from HCM solutions delivered via a service-bureau model. These solutions are delivered via three primary service lines: payroll, payroll-related tax filing services, and outsourced human resource solutions. Revenue from payroll services is generated from recurring fees charged on a per-process basis. Typical processes include the customer’s payroll runs, year-end tax packages, and delivery of customers’ remittance advices or checks. In addition to customers who use our payroll services, certain customers use our tax filing services on a stand-alone basis. Our outsourced human resource solutions are tailored to meet the needs of individual customers, and entail our contracting to perform many of the duties of a customer’s human resources department, including payroll processing, time and labor management, performance management, and recruiting. We also perform individual services for customers, such as check printing, wage attachment and disbursement, and Affordable Care Act (“ACA”) management. Additional items included in Bureau revenue are custom professional services revenue; investment income generated from holding Bureau customer funds in trust before funds are remitted to taxing authorities, Bureau customer employees, or other third parties; consulting services related to Bureau offerings; and revenue from the sale of third party services.

Revenue by solution is as follows:

	Year Ended December 31,		
	2018	2017	2016
Cloud	$ 534.3	$ 404.3	$ 297.8
Bureau	212.1	266.5	325.6
Total revenue	$ 746.4	$ 670.8	$ 623.4

Geographic and Customer Information

No single customer accounts for 1% or more of our consolidated revenue for any of the periods presented.

Revenue by country is as follows. The country in which the revenue is recorded is determined by the legal entity with which the customer has contracted.

	Year Ended December 31,		
	2018	2017	2016
United States	$ 518.5	$ 465.2	$ 432.7
Canada	224.7	203.4	189.0
Other	3.2	2.2	1.7
Total revenue	$ 746.4	$ 670.8	$ 623.4

Long-lived assets by country is as follows:

	December 31,	
	2018	2017
United States	$ 1,778.7	$ 1,786.1
Canada	438.1	480.6
Other	2.5	2.8
Total long-lived assets	$ 2,219.3	$ 2,269.5

Capital Stock

Capital Stock	12 Months Ended
	Dec. 31, 2018
Text Block [Abstract]	
Capital Stock	

18. Capital Stock

As of October 1, 2013, Ceridian was authorized to issue 100,000,000 shares of common stock with a par value of $0.01 per share and 70,000,000 shares of junior convertible participating preferred stock (“Junior Preferred Stock”) with a par value of $0.01 per share. On March 30, 2016, the Board of Directors increased the number of authorized shares of common stock to 150,000,000 and authorized 70,000,000 shares of senior convertible participating preferred stock (“Senior Preferred Stock”) with a par value of $0.01 per share. In April 2018, the Board of Directors increased the number of authorized shares of common stock to 500,000,000 and decreased the number of authorized shares of preferred stock to 10,000,000.

On March 30, 2016, we entered into an equity financing transaction with Ceridian Holding II. Ceridian Holding II raised $150.2 from our Sponsors, certain of their co-investors, and certain other existing stockholders of Ceridian Holding. Of such amount, $75.0 was contributed by Ceridian Holding II to Ceridian on March 30, 2016. The remaining $75.2 was committed to be funded to Ceridian HCM Holding Inc. within the following three years, and was recorded within equity as a receivable from stockholder. During the second quarter of 2017, the board of directors of Ceridian Holding II approved the funding of the remaining $75.2, which was transferred to Ceridian HCM Holding Inc. on June 28, 2017.

In connection therewith, Ceridian issued $150.2 of the Senior Preferred Stock to Ceridian Holding II. The Senior Preferred Stock was senior in priority to all outstanding equity securities of Ceridian and had the rights to be converted to common stock at the option of the stockholder for a number of shares based on the conversion price. The initial conversion price was equal to the original issuance price and was subject to adjustment for certain events of dilution, including common stock dividends, stock splits, mergers and reorganizations, and the initial public offering price upon such event. In the event of an initial public offering, the Senior Preferred Stock would be automatically converted to common stock. The Senior Preferred Stock received a 12.5% annual dividend (not cash paying). In the event of liquidation, the Senior Preferred Stock had a liquidation preference equal to 1.5 times the initial face amount plus any accrued but unpaid dividends.

The Junior Preferred Stock provided holders with the equivalent number of votes on an “as converted” basis. The Junior Preferred Stock had the rights to be converted to common stock at the option of the holder for a number of shares based on the conversion price. The initial conversion price was equal to the original issuance price adjusted for certain events of dilution other than shares issued to employees and directors pursuant to the 2013 SIP and certain other instances of issuances of shares of common stock. In the event of an initial public offering, the Junior Preferred Stock would be automatically converted to common stock. In the event of liquidation, Junior Preferred Stock received the greater of up to $13.50 per share of preferred stock (adjusted for dividend, stock split, combination or other similar recapitalization with respect to the convertible participating preferred stock) or a pro rata price per share of all common stock if converted in a liquidation event, subject to the total amount of net assets available in liquidation.

On April 30, 2018, we completed our IPO, in which we issued a total of 24,150,000 shares of common stock at a public offering price of $22.00. Concurrently with our IPO, we issued an additional 4,545,455 shares of our common stock in a private placement at $22.00 per share. Concurrent with the IPO and private placement, all outstanding Junior and Senior Preferred Stock were automatically converted into common shares pursuant to their terms.

As of December 31, 2018, there were 139,453,710 shares of common stock issued and outstanding. As of December 31, 2017, there were 65,285,962 shares of common stock issued and outstanding, 16,802,144 shares of Senior Preferred Stock issued and outstanding, and 58,244,308 shares of Junior Preferred Stock issued and outstanding.

Holders of our common stock are entitled to the rights set forth as follows. Directors are elected by a plurality of the votes entitled to be cast except as set forth below with respect to directors to be elected by the holders of common stock. Our stockholders do not have cumulative voting rights. Except as otherwise provided in our third amended and restated certificate of incorporation or as required by law, all matters to be voted on by our stockholders other than matters relating to the elections and removal of directors must be approved by a majority of the shares present in person or by proxy at the meeting and entitled to vote on the subject matter or by a written resolution of the stockholders representing the number of affirmative

votes required for such matter at a meeting.

Our stockholders have no preemptive or other rights to subscribe for additional shares. All holders of our common stock are entitled to share equally on a share-for-share basis in any assets available for distribution to common stockholders upon our liquidation, dissolution or winding up. All outstanding shares are validly issued, fully paid and nonassessable.

Net Loss per Share

Net Loss per Share	12 Months Ended
	Dec. 31, 2018
Earnings Per Share [Abstract]	
Net Loss per Share	

19. Net Loss per Share

We compute net loss per share of common stock using the treasury stock method.

Basic net loss per share is computed by dividing net loss attributable to Ceridian available to common stockholders by the weighted-average number of shares of common stock outstanding during the period.

For the calculation of diluted net loss per share, net loss per share is adjusted by the effect of dilutive securities, including awards under our share-based compensation plans. Diluted net loss per share is computed by dividing the resulting net loss attributable to Ceridian available to common stockholders by the weighted-average number of fully diluted common shares outstanding. In the years ended December 31, 2018, 2017, and 2016, our potential dilutive shares, such as stock options, RSUs, and shares of senior and junior convertible preferred stock were not included in the computation of diluted net loss per share as the effect of including these shares in the calculation would have been anti-dilutive.

The numerators and denominators of the basic and diluted net loss per share computations are calculated as follows:

	Year Ended December 31,		
	2018	2017	2016
Numerator:			
Net loss attributable to Ceridian	$ (63.4)	$ (9.2)	$ (92.9)
Less: (Loss) income from discontinued operations	(25.8)	(6.0)	12.5
Net loss from continuing operations attributable to Ceridian	(37.6)	(3.2)	(105.4)
Less: Senior Preferred Stock dividends declared	7.7	20.5	14.1
Net loss from continuing operations attributable to Ceridian available to common stockholders	$ (45.3)	$ (23.7)	$ (119.5)
Denominator:			
Weighted-average shares outstanding—basic	114,049,682	65,204,960	64,988,338
Weighted-average shares outstanding—diluted	114,049,682	65,204,960	64,988,338
Net loss per share from continuing operations attributable to Ceridian—basic and diluted	$ (0.40)	$ (0.36)	$ (1.84)
Net (loss) income per share from discontinued operations—basic and diluted	$ (0.22)	$ (0.10)	$ 0.19
Net loss per share attributable to Ceridian—basic and diluted	$ (0.62)	$ (0.46)	$ (1.65)

The following potentially dilutive shares were excluded from the calculation of diluted net loss per share because their effect would have been anti-dilutive:

	Year Ended December 31,		
	2018	2017	2016
Senior convertible preferred stock	5,523,993	16,802,144	12,601,608
Junior convertible preferred stock	19,148,814	58,244,308	58,244,308
Stock options	14,227,487	10,201,105	8,423,124
RSUs	587,283	451,190	155,692

Summary of Significant Accounting Policies (Policies)

Summary of Significant Accounting Policies (Policies)	12 Months Ended
	Dec. 31, 2018
Accounting Policies [Abstract]	
Basis of Presentation	***Basis of Presentation*** The accompanying consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States (“GAAP”). The accompanying consolidated financial statements include the operations and accounts of Ceridian and all subsidiaries, as well as any variable interest entity (“VIE”) in which we have controlling financial interest. All intercompany balances and transactions have been eliminated from our consolidated financial statements. We consolidate the grantor trusts that hold funds provided by our payroll and tax filing customers pending remittance to employees of those customers or tax authorities in the United States and Canada, although Ceridian does not own the grantor trusts. Under consolidation accounting, the enterprise with a controlling financial interest consolidates a VIE. A controlling financial interest in an entity is determined through analysis that identifies the primary beneficiary which has (1) the power to direct the activities of a VIE that most significantly impact the entity’s economic performance and (2) the obligation to absorb losses of the entity that could potentially be significant to the VIE or the right to receive benefits from the entity that could potentially be significant to the VIE. In addition, ongoing reassessments must be performed to confirm whether an enterprise is the primary beneficiary of a VIE. The grantor trusts are VIEs, and we are deemed to have a controlling financial interest as the primary beneficiary. Please refer to Note 5, “Customer Trust Funds,” for further information on our accounting for these funds.
Reverse Stock Split	***Reverse Stock Split*** On April 10, 2018, we effected a 1-for-2 reverse stock split of our common stock. All of the common share and per share information referenced throughout the consolidated financial statements and accompanying notes thereto have been retroactively adjusted to reflect this reverse stock split.
Use of Estimates	***Use of Estimates*** The preparation of consolidated financial statements in conformity with GAAP requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of our financial statements and our reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates. Estimates that could significantly affect our results of operations or financial condition include the assignment of fair values to goodwill and other intangible assets and testing for impairment; the testing of impairment of long-lived assets; the determination of our liability for pensions and postretirement benefits; the determination of fair value of stock options granted; and the resolution of tax matters and legal contingencies. Further discussion on these estimates can be found in related disclosures elsewhere in our notes to the consolidated financial statements.
Cash and Equivalents	***Cash and Equivalents*** As of December 31, 2018, and 2017, cash and equivalents were comprised of cash held in bank accounts and investments with an original maturity of three months or less.
Concentrations	***Concentrations*** Cash deposits of client and corporate funds are maintained primarily in large credit-worthy financial institutions in the countries in which we operate. These deposits may exceed the amount of any deposit insurance that may be available through government agencies. All deliverable securities are held in custody with large credit-worthy financial institutions, which bear the risk of custodial loss. Non-deliverable securities, primarily money market securities, are held in custody by large, credit-worthy broker-dealers and financial institutions.
Trade and Other Receivables, Net	***Trade and Other Receivables, Net*** Trade and other receivables balances are presented on the consolidated balance sheets net of the allowance for doubtful accounts of $1.3 and $1.3 and the reserve for sales adjustments of $3.8 and $4.7 as of December 31, 2018 and 2017, respectively. We experience credit losses on accounts receivable and,

accordingly, must make estimates related to the ultimate collection of the receivables. Specifically, management analyzes accounts receivable, historical bad debt experience, customer concentrations, customer creditworthiness, and current economic trends when evaluating the adequacy of the allowance for doubtful accounts. We estimate the reserve for sales adjustment based on historical sales adjustment experience. We write off accounts receivable when we determine that the accounts are uncollectible, generally upon customer bankruptcy or the customer's nonresponse to continued collection efforts.

Property, Plant, and Equipment

Property, Plant, and Equipment

Our property, plant, and equipment assets are stated at cost less depreciation. Depreciation is calculated on a straight-line basis over the shorter of the remaining lease term or estimated useful life of the related assets, which are generally as follows:

Buildings	40 years
Building improvements	5 years
Machinery and equipment	4-6 years
Computer equipment	3-4 years

Repairs and maintenance costs are expensed as incurred. We capitalized interest of $0.5 and $0.6 in property, plant, and equipment during the years ended December 31, 2018 and 2017, respectively. Property, plant, and equipment assets are assessed for impairment as described under the heading "Impairment of Long-Lived Assets" below.

Assignment of Fair Values Upon Acquisition of Goodwill and Other Intangible Assets

Assignment of Fair Values Upon Acquisition of Goodwill and Other Intangible Assets

In the event of a business combination where we are the acquiring party, we are required to assign fair values to all identifiable assets and liabilities acquired, including intangible assets, such as customer lists, identifiable intangible trademarks, technology and non-compete agreement. We are also required to determine the useful life for definite-lived identifiable intangible assets acquired. These determinations require significant judgments, estimates, and assumptions; and, when material amounts are involved, we generally utilize the assistance of third-party valuation consultants. The remainder of the purchase price of the acquired business not assigned to identifiable assets or liabilities is then recorded as goodwill.

In conjunction with the 2007 Merger, affiliates of the Sponsors completed the acquisition of all outstanding equity of the Ceridian entities. Although Parent continued as the same legal entity after the 2007 Merger, the application of push down accounting representing the termination of the old accounting entity and the creation of a new one resulted in the adjustment of all net assets to their respective fair values as of the 2007 Merger. Net assets of the Parent were adjusted to their respective fair values, which included goodwill, trademarks, customer lists, and other intangible assets.

Goodwill and Intangible Assets

Goodwill and Intangible Assets

Goodwill, which represents the excess purchase price over the fair value of net assets of businesses acquired, is assigned to reporting units based on the benefits derived from the acquisition. Goodwill and indefinite-lived intangibles are not amortized against earnings, but instead are subject to impairment review on at least an annual basis. We perform our annual assessment of goodwill and indefinite-lived intangible balances as of October 1 of each year. There was no indication of impairment at October 1, 2018.

We assess goodwill impairment risk by first performing a qualitative review of entity-specific, industry, market, and general economic factors for each reporting unit. If significant potential goodwill impairment risk exists for a specific reporting unit, we apply a quantitative test. The quantitative test compares the reporting unit's estimated fair value with its carrying amount. In estimating fair value of our reporting units, we use a combination of the income approach and the market-based approach. A number of significant assumptions and estimates are involved in determining the current fair value of the reporting units, including operating cash flows, markets and market share, sales volumes and prices, and working capital changes. We consider historical experience and all available information at the time the fair values of our reporting units are estimated. However, fair values that could be realized in an actual transaction may differ from those used to evaluate the goodwill for impairment. The evaluation of impairment involves comparing the current fair value of the reporting unit to the carrying amount. To the extent that the carrying amount of goodwill of the reporting unit exceeds the fair value of the reporting unit, an impairment loss is recognized.

Intangible assets represent amounts assigned to specifically identifiable intangible assets at the time of an acquisition. Definite-lived assets are amortized on a straight-line basis generally over the following periods:

Customer lists and relationships	5-15 years
Technology	3-4 years

Indefinite-lived intangible assets, which consist of trade names, are tested for impairment on an annual basis, or more frequently if certain events or circumstances occur that could indicate impairment. When evaluating whether the indefinite-lived intangible assets are impaired, the carrying amount is compared to its estimated fair value. The estimate of fair value is based on a relief from royalty method which calculates the cost savings associated with owning rather than licensing the trademark. An estimated royalty rate is applied to forecasted revenue and the resulting cash flows are discounted. Definite-lived assets are assessed for impairment as described under the heading "Impairment of Long-Lived Assets" below.

Internally Developed Software Costs

Internally Developed Software Costs

In accordance with Accounting Standards Codification ("ASC") Topic 350, we capitalize costs associated with software developed or obtained for internal use when both the preliminary project stage is completed and our management has authorized further funding for the project, which it deems probable of completion. Capitalized software costs include only: (1) external direct costs of materials and services consumed in developing or obtaining the software; (2) payroll and payroll-related costs for employees who are directly associated with and who devote time to the project; and (3) interest costs incurred while developing the software. Capitalization of these costs ceases no later than the point at which the project is substantially complete and ready for its intended purpose. We do not include general and administrative costs and overhead costs in capitalizable costs. We charge research and development costs, product management, and other software maintenance costs related to software development to earnings as incurred.

We had capitalized software costs, net of accumulated amortization, of $61.9 and $56.4 as of December 31, 2018 and 2017, respectively, included in property, plant, and equipment in the accompanying consolidated balance sheets. We amortize software costs on a straight-line basis over the expected life of the software, generally a range of two to seven years. Amortization of software costs totaled $26.2, $23.6, and $20.9 for the years ended December 31, 2018, 2017, and 2016, respectively.

Impairment of Long-Lived Assets

Impairment of Long-Lived Assets

Long-lived assets, such as property, plant, and equipment, capitalized software, and definite-lived intangible assets are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset group may not be recoverable. Recoverability of asset groups to be held and used is measured by a comparison of the carrying amount of an asset group to the estimated undiscounted future cash flows expected to be generated by the asset group. If the carrying amount of an asset group exceeds its estimated future cash flows, an impairment charge is recognized for the amount by which the carrying amount of the asset group exceeds the fair value of the asset group.

Revenue Recognition

Revenue Recognition

We recognize revenue from the sale of our services, net of applicable sales taxes, when the following criteria are met: (1) persuasive evidence of an arrangement exists; (2) delivery has occurred or services have been rendered; (3) the seller's price to the buyer is fixed or determinable; and (4) collectability is reasonably assured. We rely on a signed contract with the customer as the persuasive evidence of a sales arrangement.

We enter into revenue arrangements that may consist of multiple deliverables based on the needs of our customers. For example, our services address a broad range of employment process needs, such as payroll, payroll-related tax filing, human resource information, employee self-service capabilities, time and labor management, and recruitment and applicant screening. A customer arrangement may contain any of these elements with different elements delivered across multiple reporting periods.

We have a single unit of accounting for each deliverable in a contract based on the use of estimated selling price ("ESP") in those cases where vendor-specific objective evidence of selling price ("VSOE") or third party evidence ("TPE") cannot be established. Our determination of ESP involves the consideration of several factors based on the specific facts and circumstances of each contract. Specifically, we consider the cost to produce or to provide the deliverable, the anticipated margin on that deliverable, the selling price and profit margin for similar services, the value of any enhancements that have been built into the deliverable and the characteristics of the varying markets in which the deliverable will be sold.

When we are unable to establish a selling price using VSOE or TPE, we use ESP in the allocation of arrangement consideration. The objective of ESP is to determine the price at which we would transact a sale if the service were sold on a stand-alone basis.

We regularly review VSOE, TPE, and ESP and maintain internal controls over the establishment and updates of these estimates. There were no material impacts during the period nor do we currently expect a material impact in the near term from changes in VSOE, TPE, or ESP.

Deferred revenue primarily consists of customer billings in advance of revenues being recognized from our contracts. Deferred revenue also includes certain deferred professional services fees that are accounted for as a single unit of accounting with subscription fees and are recognized as revenues over the same period as the related customer contract. Deferred revenue that is anticipated to be recognized during the succeeding twelve-month period is recorded as current deferred revenue and the remaining portion is recorded as noncurrent.

Recurring Services Revenues

Recurring Services Revenues

Revenues are presented within the consolidated statements of operations in two categories: recurring services, and professional services and other. Recurring services revenues consist of monthly fees that we charge for our Cloud and Bureau solutions. For our Dayforce solutions, we primarily charge monthly recurring fees on a per employee, per month ("PEPM") basis, generally one-month in advance of service, based on the number and type of solutions provided to the customer and the number of employees at the customer. We charge Powerpay customers monthly recurring fees on a per-employee, per-process basis. For our Bureau solutions, we typically charge monthly recurring fees on a per-process basis. The typical recurring services customer contract has an initial term of three years. The initial recurring services contracts have general acceptance criteria that consist of the completion of user acceptance testing. Any credits related to service level commitments are recognized as incurred, as service level failures are not anticipated at contract signing. Should a customer cancel the initial contract, an early termination fee may be applicable, and revenue is recognized upon collection. We also generate recurring services revenue from investment income on our Cloud and Bureau customer funds held in trust before such funds are remitted to taxing authorities, customer employees, or other third parties. We refer to this investment income as float revenue. Please refer to Note 17, "Financial Data by Segment and Geographic Area," for a full description of our sources of revenue.

Professional Services and Other Revenues

Professional Services and Other Revenues

Professional services and other revenues consist primarily of charges relating to the work performed to assist customers with the planning, design, implementation, and staging of their solutions. Also included in professional services are any related training services, post-implementation professional services, and purchased time clocks. We also generate professional services and other revenues from custom professional services and consulting services that we provide and for certain third-party services that we arrange for our Bureau customers. Professional services revenue is primarily recognized as hours are incurred.

Cost of Revenue

Cost of Revenue

Cost of revenue consists of costs to deliver our revenue-producing services. Most of these costs are recognized as incurred, that is, as we become obligated to pay for them. Some costs of revenue are recognized in the period that a service is sold and delivered. Other costs of revenue are recognized over the period of use or in proportion to the related revenue.

The costs recognized as incurred consist primarily of customer service staff costs, customer technical support costs, implementation personnel costs, costs of hosting applications, consulting and purchased services, delivery services, and royalties. The costs of revenue recognized over the period of use are depreciation and amortization, rentals of facilities and equipment, and direct and incremental costs associated with deferred implementation service revenue.

Cost of recurring services revenues primarily consists of costs to provide maintenance and technical support to our customers, and the costs of hosting our applications. The cost of recurring services revenues includes compensation and other employee-related expenses for data center staff, payments to outside service providers, data center, and networking expenses.

Cost of professional services and other revenues primarily consists of costs to provide implementation consulting services and training to our customers, as well as the cost of time clocks. Costs to provide implementation consulting services include compensation and other employee-related expenses for professional services staff, costs of subcontractors, and travel.

Product development and management expense includes costs related to software development activities that do not qualify for capitalization, such as development, quality assurance, testing of new technologies, and enhancements to our existing solutions that do not result in additional functionality. Product development and management expense also includes costs related to the management of our service offerings. Research and development expense, which is included within product development and

	management expense, was $29.6, $19.0, and $13.0 for the years ended December 31, 2018, 2017, and 2016, respectively. Depreciation and amortization related to cost of revenue primarily consists of amortization of capitalized software.
Selling, General, and Administrative Expense	**Selling, General, and Administrative Expense** Selling expense includes costs related to maintaining a direct marketing infrastructure and sales force and other direct marketing efforts, such as marketing events, advertising, telemarketing, direct mail, and trade shows. Advertising costs are expensed as incurred. Advertising expense was $5.8, $5.6, and $5.9 for the years ended December 31, 2018, 2017, and 2016, respectively. General and administrative expense includes costs that are not directly related to delivery of services, selling efforts, or product development, primarily consisting of corporate-level costs, such as administration, finance, legal and human resources. Also included in this category are depreciation, and amortization of other intangible assets not reflected in cost of revenue, the provision for doubtful accounts receivable, and net periodic pension costs.
Other (Income) Expense, Net	**Other (Income) Expense, Net** Other (income) expense, net includes the results of transactions that are not appropriately classified in another category. These items are primarily foreign currency translation gains and losses resulting mainly from intercompany receivables and payables denominated in currencies other than the subsidiary's functional currency, environmental reserve charges, and charges related to the impairment of asset values.
Income Taxes	***Income Taxes*** Income taxes have been provided for using the asset and liability method. The asset and liability method requires an asset and liability based approach in accounting for income taxes. Deferred tax assets and liabilities are recorded for temporary differences between the financial reporting basis and the tax basis of assets and liabilities as adjusted for the expected benefits of utilizing net operating loss carryforwards. The impact on deferred taxes of changes in tax rates and laws, if any, applied to the years during which temporary differences are expected to be settled, is reflected in the consolidated financial statements in the period of enactment. We classify interest and penalties related to income taxes as a component of the income tax provision.
Fair Value of Financial Instruments	***Fair Value of Financial Instruments*** The carrying amounts of cash and equivalents, trade and other receivables, net, customer trust funds, customer trust funds obligations, customer advance payments, and accounts payable approximate fair value because of the short-term nature of these items.
Share-Based Compensation	***Share-Based Compensation*** Our employees participate in share-based compensation plans. Under the fair value recognition provisions of share-based compensation accounting, we measure share-based compensation cost at the grant date based on the fair value of the award and recognize the compensation expense over the requisite service period, which is the period during which an employee is required to provide services in exchange for the award. We use the Black-Scholes standard option pricing model ("Black-Scholes model") to determine the fair value of stock options with term-based vesting conditions. The determination of the fair value of the awards on the date of grant using the Black-Scholes model is affected by the value of our common stock as well as other inputs and assumptions described below. Prior to our IPO, the value of our common stock was determined by the Board of Directors with assistance from a third-party valuation expert. If factors change and we employ different assumptions for estimating share-based compensation expense in future periods or if we adopt a different valuation model, the future periods may differ significantly from what we have recorded in the current period and could materially affect our operating results. To determine the fair value of both term- and performance-based stock options, the risk-free interest rate used was based on the implied yield currently available on U.S. Treasury zero coupon issues with remaining term equal to the contractual term of the performance-based options and the expected term of

the term-based options. Given our limited history as a public company, the estimated volatility of our common stock is based on volatility data for selected comparable public companies over the expected term of our stock options. Because we do not anticipate paying any cash dividends in the foreseeable future, we use an expected dividend yield of zero. The amount of share-based compensation expense we recognize during a period is based on the portion of the awards that are ultimately expected to vest.

We estimate option forfeitures at the time of grant and revise those estimates in subsequent periods if actual forfeitures differ from those estimates. We analyze historical data to estimate pre-vesting forfeitures and record share-based compensation expense for those awards expected to vest. We recognize term-based stock compensation expense using the straight-line method.

Pension and Other Postretirement Benefits Liability

Pension and Other Postretirement Benefits Liability

We present information about our pension and postretirement benefit plans in Note 10 to our consolidated financial statements, “Employee Benefit Plans.” Liabilities and expenses for pensions and other postretirement benefits are determined with the assistance of third-party actuaries, using actuarial methodologies and incorporating significant assumptions, including the rate used to discount the future estimated liability, the long-term rate of return on plan assets, and several assumptions relating to the employee workforce (medical costs, retirement age and mortality). The discount rate assumption utilizes a full yield curve approach by applying the specific spot rates along the yield curve used in the determination of the benefit obligation to the relevant projected cash flows. The impact of a change in the discount rate of 25 basis points would be approximately $12 million on the liabilities and $0.1 million on pre-tax earnings in the following year. The long-term rate of return is estimated by considering historical returns and expected returns on current and projected asset allocations and is generally applied to a five-year average market value of assets. A change in the assumption for the long-term rate of return on plan assets of 25 basis points would impact pre-tax earnings by approximately $1 million. At December 31, 2017, we updated our mortality assumptions utilizing an improvement scale issued by the Society of Actuaries in October 2017, which resulted in a $6.0 million reduction in the projected benefit obligation. At December 31, 2018, we updated our mortality assumptions utilizing an improvement scale issued by the Society of Actuaries in October 2018, which resulted in a $1.5 million reduction in the projected benefit obligation.

Foreign Currency Translation

Foreign Currency Translation

We have international operations whereby the local currencies serve as functional currencies. We translate foreign currency denominated assets and liabilities at the end-of-period exchange rates and foreign currency denominated statements of operations at the weighted-average exchange rates for each period. We report the effect of changes in the U.S. dollar carrying values of assets and liabilities of our international subsidiaries that are due to changes in exchange rates between the U.S. dollar and the subsidiaries’ functional currency as foreign currency translation within accumulated other comprehensive income (loss) in the accompanying consolidated statements of stockholders’ equity and comprehensive income (loss). Gains and losses from transactions and translation of assets and liabilities denominated in currencies other than the functional currency of the subsidiaries are recorded in the consolidated statements of operations within other (income) expense, net.

Recently Issued and Adopted Accounting Pronouncements

Recently Issued and Adopted Accounting Pronouncements

In May 2014, the Financial Accounting Standards Board (“FASB”) issued Accounting Standards Update (“ASU”) No. 2014-09, “Revenue from Contracts with Customers,” which replaced all existing revenue guidance created by ASC Topic 605, including prescriptive industry-specific guidance, and created ASC Topic 606 for revenue and ASC Subtopic 340-40 for incremental costs of obtaining a contract with customers. This standard’s core principle is that an entity will recognize revenue when it transfers 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. Entities will need to apply more judgment and make more estimates than under the previous guidance. In July 2015 the FASB deferred the effective date for all entities by one year, making the guidance for non-public companies effective for annual reporting periods beginning after December 15, 2018. As an emerging growth company, we have elected to follow the non-public company timeline for adopting this guidance. The standard permits the use of either the retrospective transition method or modified retrospective approach with a cumulative effect recognized at the date of initial application. Management has decided to adopt the new standard effective in the first quarter of 2019, using the retrospective transition method for adoption.

In preparation for this adoption, we have evaluated the impact of the new standard to our financial statements and accompanying disclosures in the notes to our consolidated financial statements. Our assessment of the impact included an evaluation of the five-step process set forth in the new standard along with the enhancement of disclosures that will be required. We executed a plan for implementing the standard, which included identifying customer contracts within the scope of the new standard, identifying performance obligations within those customer contracts, and evaluating the impact of incremental variable consideration paid to obtain those customer contracts. We also undertook a comprehensive

review of all contracts that fall under the scope of the new standard; and, as of the date of this report, we have completed our review of in-scope contracts.

Based on our analysis, the adoption of the new standard will result in changes to the classification and timing of our revenue recognition. Specifically, revenue classified as professional services and other revenue will increase and revenue classified as recurring services revenue will be reduced under the new standard, compared to current GAAP. Further, the new standard will result in changes to the timing of our revenue recognition compared to current GAAP. In compliance with the new standard, a contract asset will be reflected on the consolidated balance sheets and will be amortized over the contract period, which is generally three years. We also will have changes to the timing of certain selling, general, and administrative expenses, as the new standard requires capitalizing and amortizing certain selling expenses, such as commissions and bonuses paid to the sales force. These sales expenses will be amortized over the period of benefit, generally five years. Additionally, the adoption of the new standard will have an immaterial impact on cost of revenue for the year ended December 31, 2017, as a small number of customer contracts had previously been recognized under revenue guidance prior to ASC Topic 605.

In periods of revenue growth, the changes above will result in higher overall earnings before income taxes and net income when compared to current GAAP.

The following tables present the impacts that the adoption of ASC 606 would have on the years ended December 31, 2018 and 2017:

	Year Ended December 31, 2018		
	As Reported	Under ASC 606	Impact
Revenue:			
Recurring services	$ 652.5	$ 625.0	$ (27.5)
Professional services and other	93.9	115.7	21.8
Total revenue	$ 746.4	$ 740.7	$ (5.7)
Operating profit	$ 52.8	$ 56.3	$ 3.5

	Year Ended December 31, 2017		
	As Reported	Under ASC 606	Impact
Revenue:			
Recurring services	$ 598.5	$ 573.9	$ (24.6)
Professional services and other	72.3	102.3	30.0
Total revenue	$ 670.8	$ 676.2	$ 5.4
Operating profit	$ 33.0	$ 46.6	$ 13.6

In February 2016, the FASB issued ASU No. 2016-02, “Leases,” which created ASC Topic 842 and is intended to increase transparency and comparability among organizations by recognizing lease assets and lease liabilities on the balance sheet and by disclosing key information about leasing arrangements. This standard requires balance sheet recognition for both finance leases and operating leases. This guidance is effective for public companies for fiscal years beginning after December 15, 2018, including interim periods within those fiscal years. An entity will, in effect, continue to account for leases that commence before the effective date in accordance with previous GAAP unless the lease is modified, except that lessees are required to recognize a right-of-use asset and a lease liability for all operating leases at each reporting date based on the present value of the remaining minimum rental payments that were tracked and disclosed under previous GAAP. Management will adopt this guidance beginning in the first quarter of 2019, and has chosen to take advantage of the additional transition method in ASU No. 2018-11 discussed below, in which a cumulative-effect adjustment will be made to the opening balance of retained earnings in the period of adoption. Currently, based on management’s implementation efforts, we will recognize a right-of-use asset and a lease liability on the consolidated balance sheets as of January 1, 2019, in the range of $35.0 to $45.0.

In August 2016, the FASB issued ASU No. 2016-15, “Statement of Cash Flows—Classification of Certain Cash Receipts and Cash Payments,” which addresses eight specific cash flow issues with the objective of reducing the existing diversity in practice of certain cash receipts and cash payments. This guidance is effective for non-public companies for fiscal years beginning after December 15, 2018, and interim periods within fiscal years beginning after December 15, 2019. We have chosen to early adopt this guidance as of January 1, 2018, and have applied this guidance to the presentation of our debt refinancing transactions that occurred during 2018.

In February 2018, the FASB issued ASU No. 2018-02, “Income Statement—Reporting Comprehensive Income,” which is in response to a narrow-scope financial reporting issue that arose because of the Tax Cuts and Jobs Act. The amendment in this update allows a reclassification from accumulated other comprehensive income to retained earnings for stranded tax effects resulting from the Tax Cuts and Jobs Act. This amendment is intended to improve the usefulness of information reported to financial statement

users by requiring certain disclosures about stranded tax effects. The amendment in this update is effective for all entities for fiscal years beginning after December 15, 2018, and interim periods within those fiscal years. Management will adopt this guidance beginning in the first quarter of 2019. We anticipate the adoption of this guidance will not have a significant impact on our consolidated balance sheets.

In July 2018, the FASB issued ASU No. 2018-10, “Codification Improvements to Topic 842, Leases” and 2018-11, “Leases (Topic 842): Targeted Improvements.” The amendments in ASU No. 2018-10 affect narrow aspects of the guidance issued in ASU No. 2016-02. For non-early adopters, this amendment is effective under the same timelines as ASU No. 2016-02. The amendments in ASU No. 2018-11 provide entities with an additional (and optional) transition method to adopt the new lease requirements. Under the additional transition method, entities may initially apply the requirements by recognizing a cumulative-effect adjustment to the opening balance of retained earnings in the period of adoption. The amendments in this update also provide lessors with a practical alternative to separate non-lease components from the associated lease component. Under this alternative, lessors may account for those components as a single component if the non-lease components otherwise would be accounted for under the new revenue guidance (Topic 606) and certain other criteria are met. For entities that have not adopted Topic 842 before the issuance of this update, the effective date and transition requirements are the same as the effective date and transition requirements in ASU No. 2016-02. As discussed above, management has chosen to take advantage of the additional transition method created by this guidance and will record a cumulative-effect adjustment to the opening balance of retained earnings in the period of adoption, which will be the first quarter of 2019.

Organization (Tables)

Organization (Tables)	12 Months Ended
	Dec. 31, 2018
Organization Consolidation And Presentation Of Financial Statements [Abstract]	
Use of the Proceeds from the IPO	

The use of the proceeds from the IPO were as follows:

Gross proceeds	$631.3
Less:	
Underwriters' discount and commissions	29.2
IPO-related expenses	11.8
Redemption of 11% Senior Notes due 2021 (Note 9)	475.0
Call premium on redemption of 11% Senior Notes due 2021	13.1
Interest on redemption of 11% Senior Notes due 2021	10.9
Sponsor management fee	11.3
Debt refinancing expenses	11.4
Cash to balance sheet	$ 68.6

Summary of Significant Accounting Policies (Tables)

Summary of Significant Accounting Policies (Tables)	12 Months Ended
	Dec. 31, 2018
Estimated useful life of Property, Plant, and Equipment	***Property, Plant, and Equipment*** Our property, plant, and equipment assets are stated at cost less depreciation. Depreciation is calculated on a straight-line basis over the shorter of the remaining lease term or estimated useful life of the related assets, which are generally as follows: Buildings: 40 years Building improvements: 5 years Machinery and equipment: 4-6 years Computer equipment: 3-4 years
Definite lived Intangible Assets Amortization Expense	Definite-lived assets are amortized on a straight-line basis generally over the following periods: Customer lists and relationships: 5-15 years Technology: 3-4 years
Accounting Standards Update 2014-09 [Member]	
Impact of Adoption of ASC 606 on Revenue	The following tables present the impacts that the adoption of ASC 606 would have on the years ended December 31, 2018 and 2017:

	Year Ended December 31, 2018		
	As Reported	Under ASC 606	Impact
Revenue:			
Recurring services	$ 652.5	$ 625.0	$ (27.5)
Professional services and other	93.9	115.7	21.8
Total revenue	$ 746.4	$ 740.7	$ (5.7)
Operating profit	$ 52.8	$ 56.3	$ 3.5

	Year Ended December 31, 2017		
	As Reported	Under ASC 606	Impact
Revenue:			
Recurring services	$ 598.5	$ 573.9	$ (24.6)
Professional services and other	72.3	102.3	30.0
Total revenue	$ 670.8	$ 676.2	$ 5.4
Operating profit	$ 33.0	$ 46.6	$ 13.6

Discontinued Operations (Tables)

Discontinued Operations (Tables)	12 Months Ended Dec. 31, 2018
Schedule of Operating Results of Discontinued Operations	The amounts in the table below reflect the operating results and gain on sale of the Divested Benefits Continuation Businesses reported as discontinued operations, as well as supplemental disclosures of the discontinued operations:

	Year Ended December 31, 2017	Year Ended December 31, 2016
Net revenues	$ —	$ 4.8
Loss from operations before income taxes	—	(0.8)
Gain on sale of businesses	0.5	21.0
Income tax expense	(0.2)	(10.3)
Income from discontinued operations, net of income taxes	$ 0.3	$ 9.9
Depreciation and amortization	$ —	$ —
Capital expenditures	$ —	$ —

LifeWorks [Member]

Schedule of Operating Results of Discontinued Operations

The amounts in the table below reflect the operating results of LifeWorks reported as discontinued operations, as well as supplemental disclosures of the discontinued operations:

	Year Ended December 31, 2018	Year Ended December 31, 2017	Year Ended December 31, 2016
Net revenues	$ 28.3	$ 79.9	$ 80.8
(Loss) income from operations before income taxes	(0.9)	(0.4)	7.1
Income tax expense	(24.9)	(4.9)	(11.1)
Loss from discontinued operations, net of income taxes	$ (25.8)	$ (5.3)	$ (4.0)
Depreciation and amortization	$ 1.4	$ 4.1	$ 4.1
Capital expenditures	$ —	$ 0.2	$ 0.3

The amounts in the table below reflect the assets and liabilities reported as discontinued operations for LifeWorks:

	December 31, 2017
Assets:	
Cash and equivalents	$ 5.4
Trade and other receivables, net	13.3
Prepaid expenses	1.5
Property, plant, and equipment, net	1.8
Other intangible assets, net	5.9
Goodwill	126.3
Other assets	2.0
Assets of discontinued operations	$ 156.2
Liabilities:	
Accounts payable	$ 4.4
Deferred revenue	2.8
Employee compensation and benefits	1.2
Other liabilities	10.9
Liabilities of discontinued operations	$ 19.3

UK Business [Member]

Schedule of Operating Results of Discontinued Operations

The amounts in the table below reflect the operating results of the UK Business reported as discontinued operations, as well as supplemental disclosures of the discontinued operations:

	Year Ended December 31,

	2017	2016
Net revenues	$ —	$ 37.0
Income from operations before income taxes	—	0.5
(Loss) gain on sale of businesses	(1.0)	5.9
Income tax benefit	—	0.2
(Loss) income from discontinued operations, net of income taxes	$ (1.0)	$ 6.6
Depreciation and amortization	$ —	$ 1.3
Capital expenditures	$ —	$ 0.7

Fair Value Measurements (Tables)

Fair Value Measurements (Tables)	12 Months Ended
	Dec. 31, 2018
Fair Value Disclosures [Abstract]	
Financial Assets and Liabilities Measured at Fair Value on Recurring Basis	As of December 31, 2018, our financial assets and liabilities measured at fair value on a recurring basis were categorized as follows:

	Total	Level 1	Level 2	Level 3
Assets				
Available for sale customer trust funds assets	$ 1,719.6	$ —	$ 1,719.6 (a)	$ —
Total assets measured at fair value	$ 1,719.6	$ —	$ 1,719.6	$ —

As of December 31, 2017, our financial assets and liabilities measured at fair value on a recurring basis were categorized as follows:

	Total	Level 1	Level 2	Level 3
Assets				
Available for sale customer trust funds assets	$ 1,782.1	$ —	$ 1,782.1 (a)	$ —
Total assets measured at fair value	$ 1,782.1	$ —	$ 1,782.1	$ —

(a) Fair value is based on inputs that are observable for the asset or liability, other than quoted prices.

Customer Trust Funds (Tables)

Customer Trust Funds (Tables)	12 Months Ended
	Dec. 31, 2018
Investments Debt And Equity Securities [Abstract]	
Schedule of Amortized Cost and Fair Values of Investments of Customer Trust Funds Available for Sale	

Investments of Customer Trust Funds at December 31, 2018

	Amortized Cost	Gross Unrealized Gain	Gross Unrealized Loss	Fair Value
Money market securities, investments carried at cost and other cash equivalents	$ 872.3	$ —	$ —	$ 872.3
Available for sale investments:				
U.S. government and agency securities	573.4	0.2	(11.4)	562.2
Canadian and provincial government securities	392.5	3.4	(1.4)	394.5
Corporate debt securities	499.5	0.5	(4.7)	495.3
Asset-backed securities	247.1	0.2	(2.7)	244.6
Mortgage-backed securities	8.5	—	(0.2)	8.3
Other securities	14.8	—	(0.1)	14.7
Total available for sale investments	1,735.8	4.3	(20.5)	1,719.6
Invested customer trust funds	2,608.1	$ 4.3	$ (20.5)	2,591.9
Trust receivables	11.6			11.6
Total customer trust funds	$ 2,619.7			$ 2,603.5

Investments of Customer Trust Funds at December 31, 2017

	Amortized Cost	Gross Unrealized Gain	Gross Unrealized Loss	Fair Value
Money market securities, investments carried at cost and other cash equivalents	$ 2,309.3	$ —	$ —	$ 2,309.3
Available for sale investments:				
U.S. government and agency securities	584.6	0.1	(7.1)	577.6
Canadian and provincial government securities	418.2	6.6	(1.5)	423.3
Corporate debt securities	472.3	0.8	(2.5)	470.6
Asset-backed securities	280.8	—	(1.8)	279.0
Mortgage-backed securities	15.0	—	(0.2)	14.8
Other securities	17.0	—	(0.2)	16.8
Total available for sale investments	1,787.9	7.5	(13.3)	1,782.1
Invested customer trust funds	4,097.2	$ 7.5	$ (13.3)	4,091.4
Trust receivables	8.3			8.3
Total customer trust funds	$ 4,105.5			$ 4,099.7

Schedule of Unrealized Losses and Fair Value

The following represents the gross unrealized losses and the related fair value of the investments of customer trust funds available for sale, aggregated by investment category and length of time that individual securities have been in a continuous unrealized loss position at December 31, 2018.

	Less than 12 months		12 months or more		Total	
	Unrealized Losses	Fair Value	Unrealized Losses	Fair Value	Unrealized Losses	Fair Value
U.S. government and agency securities	$ (1.0)	$100.1	$ (10.4)	$419.1	$ (11.4)	$ 519.2
Canadian and provincial government securities	(0.1)	14.5	(1.3)	130.5	(1.4)	145.0
Corporate debt securities	(1.1)	136.6	(3.6)	204.6	(4.7)	341.2
Asset-backed securities	(0.2)	40.7	(2.5)	169.1	(2.7)	209.8
Mortgage-backed securities	—	—	(0.2)	8.2	(0.2)	8.2
Other securities	(a)	1.7	(0.1)	12.8	(0.1)	14.5

Total available for sale investments	$ (2.4)	$293.6	$ (18.1)	$944.3	$ (20.5)	$1,237.9

(a) These investments have been in an unrealized loss position; however, the amount of unrealized loss is less than $0.05.

Schedule of Amortized Cost and Fair Value of Investment Securities Available for Sale by Contractual Maturity

The amortized cost and fair value of investment securities available for sale at December 31, 2018, by contractual maturity are shown below. Expected maturities will differ from contractual maturities because borrowers may have the right to call or to prepay obligations with or without call or prepayment penalties.

	December 31, 2018	
	Cost	Fair Value
Due in one year or less	$ 1,139.4	$ 1,139.4
Due in one to three years	599.9	593.8
Due in three to five years	651.3	646.9
Due after five years	217.5	211.8
Invested customer trust funds	$ 2,608.1	$ 2,591.9

Trade and Other Receivables, Net (Tables)

Trade and Other Receivables, Net (Tables)	12 Months Ended
	Dec. 31, 2018
Receivables [Abstract]	
Schedule of Trade and Other Receivables, Net	The balance in trade and other receivables, net, is comprised of the following:

	December 31,	
	2018	2017
Trade receivables from customers	$ 68.6	$ 67.2
Interest receivable from invested customer trust funds	0.9	1.7
Other	5.5	3.7
Total gross receivables	75.0	72.6
Less: reserve for sales adjustments	(3.8)	(4.7)
Less: allowance for doubtful accounts	(1.3)	(1.3)
Trade and other receivables, net	$ 69.9	$ 66.6

Activity Related to Allowance for Doubtful Accounts

The activity related to the allowance for doubtful accounts is as follows for each of the periods:

	Year Ended December 31,		
	2018	2017	2016
Balance at beginning of year	$ 1.3	$ 1.8	$ 1.1
Provision for doubtful accounts	0.7	0.2	1.1
Charge-offs, net of recoveries	(0.7)	(0.7)	(0.4)
Balance at end of year	$ 1.3	$ 1.3	$ 1.8

Property, Plant, and Equipment (Tables)

Property, Plant, and Equipment (Tables)	12 Months Ended
	Dec. 31, 2018
Property Plant And Equipment [Abstract]	
Schedule of Property, Plant, and Equipment	Property, plant, and equipment consist of the following:

	December 31,	
	2018	2017
Land	$ 7.5	$ 7.5
Software	225.0	197.4
Machinery and equipment	117.5	120.3
Buildings and improvements	40.5	36.3
Total property, plant and equipment	390.5	361.5
Accumulated depreciation	(286.1)	(259.5)
Property, plant and equipment, net	$ 104.4	$ 102.0

Goodwill and Intangible Assets (Tables)

Goodwill and Intangible Assets (Tables)	12 Months Ended
	Dec. 31, 2018
Goodwill And Intangible Assets Disclosure [Abstract]	
Schedule of Changes in Goodwill	Goodwill and changes therein were as follows for the years ended December 31, 2018, and 2017:

Balance at December 31, 2016	$ 1,933.1
Translation	27.9
Balance at December 31, 2017	1,961.0
Translation	(33.6)
Balance at December 31, 2018	$ 1,927.4
Tax-deductible goodwill at December 31, 2018	$ 10.6

Schedule of Other Intangible Assets

Other intangible assets consist of the following as of December 31, 2018:

	Gross Carrying Amount	Accumulated Amortization	Net	Estimated Life Range (Years)
Customer lists and relationships	$ 205.4	$ (190.2)	$ 15.2	5-15
Tradename	173.5	(1.9)	171.6	—
Technology	152.2	(151.5)	0.7	3-4
Total other intangible assets	$ 531.1	$ (343.6)	$187.5	

Other intangible assets consist of the following as of December 31, 2017:

	Gross Carrying Amount	Accumulated Amortization	Net	Estimated Life Range (Years)
Customer lists and relationships	$ 210.1	$ (177.0)	$ 33.1	5-15
Tradename	174.1	(2.1)	172.0	—
Technology	155.6	(154.2)	1.4	2-7
Total other intangible assets	$ 539.8	$ (333.3)	$206.5	

Estimated Future Amortization of Other Intangible Assets

We estimate the future amortization of other intangible assets held at December 31, 2018, will be:

Years Ending December 31,	Amount
2019	$ 15.2
2020	0.2
2021	0.2
2022	0.2
2023	$ 0.1

Debt (Tables)

Debt (Tables)	12 Months Ended Dec. 31, 2018
Debt Disclosure [Abstract]	
Schedule of Debt Obligations	Our debt obligations consist of the following:

	December 31, 2018	December 31, 2017
Term Debt, interest rate of 5.8% and 5.1% as of December 31, 2018 and 2017, respectively	$ 678.3	$ 657.3
Senior Notes, interest rate of 11.0% as of December 31, 2017	—	475.0
Revolving Credit Facility ($300.0 available capacity less amounts reserved for letters of credit, which were $2.7 as of December 31, 2018, and $130.0 available capacity less amounts reserved for letters of credit, which were $2.9 as of December 31, 2017)	—	—
Canada Line of Credit (CDN $7.0 available capacity as of December 31, 2018 and 2017; USD $5.1 as of December 31, 2018 and USD $5.6 as of December 31, 2017)	—	—
Total debt	678.3	1,132.3
Less unamortized discount on Term Debt	1.7	0.9
Less unamortized debt issuance costs on Senior Notes and Term Debt	6.3	11.6
Less current portion of long-term debt	6.8	—
Long-term debt, less current portion	$ 663.5	$ 1,119.8

Schedule of Future Principal Payments and Maturities of Indebtedness

The future principal payments and maturities of our indebtedness are as follows:

Years Ending December 31,	Amount
2019	$ 6.8
2020	6.8
2021	6.8
2022	6.8
2023	6.8
Thereafter	644.3
	$ 678.3

Employee Benefit Plans (Tables)

Employee Benefit Plans (Tables)	12 Months Ended Dec. 31, 2018

Schedule of Future Payments to Participants from Defined Benefit Plans

The projected future payments to participants from defined benefit plans are included in the table below.

Years Ending December 31,	Amount
2019	$ 46.0
2020	45.0
2021	44.0
2022	42.7
2023	41.5
Next five years	$ 183.5

Schedule of Combined Funded Status and Net Periodic Pension Cost and Postretirement Benefits

The accompanying tables reflect the combined funded status and net periodic pension cost and combined supporting assumptions for the defined benefit elements of our defined benefit plans.

	Year Ended December 31,	
	2018	2017
Funded Status of Defined Benefit Retirement Plans at Measurement Date		
Change in Projected Benefit Obligation During the Year:		
Projected benefit obligation at beginning of year	$ 593.0	$ 605.9
Service cost	—	—
Interest cost	16.3	17.2
Actuarial (gain) loss	(31.6)	20.3
Benefits paid and plan expenses	(50.3)	(50.4)
Projected benefit obligation at end of year	$ 527.4	$ 593.0
Change in Fair Value of Plan Assets During the Year:		
Plan assets at fair value at beginning of year	438.6	416.4
Actual return on plan assets	(27.1)	49.6
Employer contributions	20.4	23.0
Benefits paid and plan expenses	(50.3)	(50.4)
Plan assets at fair value at end of year	381.6	438.6
Funded status of plans	$ (145.8)	$ (154.4)

	December 31,	
	2018	2017
Amounts recognized in Consolidated Balance Sheets		
Current liability	$ 8.1	$ 20.3
Noncurrent liability	137.7	134.1
Amounts recognized in Accumulated Other Comprehensive Loss		
Accumulated other comprehensive loss, net of tax of $91.5 and $91.5, respectively	$ 158.6	$ 151.4

Schedule of Other Comprehensive (Income) Loss Related to Pension Benefit Plans and Postretirement Benefits

The other comprehensive (income) loss related to postretirement benefits is as follows:

	Year Ended December 31,		
	2018	2017	2016
Net actuarial gain	$ (2.1)	$ (0.7)	$ (1.4)
Amortization of net actuarial gain	2.5	2.7	2.6
Tax expense	—	—	—
Other comprehensive loss (income), net of tax	$ 0.4	$ 2.0	$ 1.2

	Year Ended December 31,		
	2018	2017	2016
Net Periodic Postretirement Benefit			
Service cost	$ —	$ —	$ —
Interest cost	0.5	0.5	0.6
Actuarial gain amortization	(2.2)	(2.4)	(2.3)
Prior service credit amortization	(0.3)	(0.3)	(0.3)
Net periodic postretirement benefit gain	$ (2.0)	$ (2.2)	$ (2.0)

The amount in accumulated other comprehensive loss that is expected to be recognized as a component of net periodic postretirement benefit cost during 2019 is a $2.6 gain, comprised of $2.3 of actuarial gain and $0.3 of prior service creditThe assumed health care cost trend rate represents the rate at which health care costs are assumed to increase. The assumed health care cost trend rate used in measuring the benefit obligation in 2018 is 6.90% for pre-age 65 retirees and 7.70% for post-age 65 retirees. These rates are assumed to decrease gradually to the ultimate health care cost trend rate of 4.5% in 2028 for both groups. A one percent increase in this rate would increase the benefit obligation at December 31, 2018, by $0.7 and would have an immaterial impact on the interest cost for 2018. A one percent decrease in this rate would decrease the benefit obligation at December 31, 2018, by $0.6 and would have an immaterial impact on the interest cost for 2018

	Year Ended December 31,		
	2018	2017	2016
Assumptions Used in Calculations			
Weighted average discount rate used to determine net periodic postretirement cost (credit)	3.01%	3.26%	3.38%
Weighted average discount rate used to determine benefit obligation at measurement date	3.70%	3.01%	3.26%

Schedule of Fair Value of Defined Benefit Plan Assets

The fair values of the defined benefit plan's assets at December 31, 2018, by asset category are as follows:

	Total	Level 1	Level 2	Level 3
Investments, at fair value:				
Short-term investments	$ 57.9	$ 57.9	$ —	$ —
Derivatives (a)	—	—	—	—
Government securities	92.4	—	92.4	—
Corporate debt securities	18.7	—	18.7	—
Collective investment funds:				
Domestic equity (b)	80.1	—	80.1	—
Foreign equity (b)	48.5	—	48.5	—
Foreign bond (c)	23.8	—	23.8	—
Partnerships (d)	32.1	—	32.1	—
Hedge fund of funds (e)	28.1	—	28.1	—
Total investments, at fair value	$ 381.6	$ 57.9	$ 323.7	$ —

The fair values of our defined benefit plan's assets at December 31, 2017, by asset category are as follows:

	Total	Level 1	Level 2	Level 3
Investments, at fair value:				
Short-term investments	$ 36.8	$ 36.8	$ —	$ —
Derivatives (a)	14.8	—	14.8	—
Government securities	88.1	—	88.1	—
Corporate debt securities	18.3	—	18.3	—
Collective investment funds:				
Domestic equity (b)	144.4	—	144.4	—
Foreign equity (b)	57.5	—	57.5	—
Foreign bond (c)	41.8	—	41.8	—
Partnerships (d)	35.3	—	35.3	—
Hedge fund of funds (e)	1.6	—	1.6	—
Total investments, at fair value	$ 438.6	$ 36.8	$ 401.8	$ —

(a) Funds in this category invest in futures (2018) and interest rate swaps (2017) to reduce exposure to long-term interest rate risk and to achieve overall investment portfolio objectives. The future derivatives are marked to market and settled in cash on a daily basis.

(b) Funds in this category invest in a diversified portfolio of domestic and/or foreign stocks to achieve a long-term rate of return.

(c) Funds in this category invest in various types of domestic and/or foreign debt securities to achieve a long-term rate of return while preserving capital.

(d) Funds within this category invest in a bond fund partnership which holds various types of domestic debt securities to achieve a long-term rate of return while preserving capital.
(e) Funds within this category invest in various underlying hedge funds and are designed to provide superior risk adjusted returns as well as portfolio diversification relative to traditional asset classes.

Schedule Of Expected Benefit Payments And Receipts Table Text Block

The projected future postretirement benefit payments and future receipts from the federal subsidy for each of the next five years and the five-year period following are included in the table below.

Years Ending December 31,	Payments	Receipts
2019	$ 2.2	$ 0.1
2020	1.9	0.1
2021	1.9	—
2022	1.8	—
2023	1.6	0.1
Next five years	$ 6.2	$ 0.1

Defined Benefit Pension Plan [Member]

Schedule of Other Comprehensive (Income) Loss Related to Pension Benefit Plans and Postretirement Benefits

The other comprehensive (income) loss related to pension benefit plans is as follows:

	Year Ended December 31,		
	2018	2017	2016
Net actuarial loss (gain)	$ 21.4	$ (3.0)	$ 9.5
Amortization of net actuarial loss	(14.2)	(12.8)	(12.5)
Tax expense	—	—	0.1
Other comprehensive income, net of tax	$ 7.2	$ (15.8)	$ (2.9)

	Year Ended December 31,		
	2018	2017	2016
Assumptions Used in Calculations			
Discount rate used to determine net benefit cost	3.25%	3.63%	3.76%
Expected return on plan assets	6.30%	6.30%	6.30%
Discount rate used to determine benefit obligations%	3.92%	3.25%	3.63%

	Year Ended December 31,		
	2018	2017	2016
Net Periodic Pension Cost			
Interest cost	$ 16.3	$ 17.2	$ 18.2
Actuarial loss amortization	14.2	12.8	12.5
Less: Expected return on plan assets	(25.8)	(26.3)	(25.7)
Net periodic pension cost	$ 4.7	$ 3.7	$ 5.0

Other Postretirement Benefits Plan [Member]

Schedule of Combined Funded Status and Net Periodic Pension Cost and Postretirement Benefits

The accompanying tables present the amounts and changes in the aggregate benefit obligation and the components of net periodic postretirement benefit cost for U.S. plans. We fund these costs as they become due.

	Year Ended December 31,	
	2018	2017
Funded Status of Postretirement Health Care and Life Insurance Plans		
Change in Benefit Obligation:		
At beginning of year	$ 19.6	$ 21.0
Interest cost	0.5	0.5
Participant contributions	0.5	1.1
Actuarial gain	(2.1)	(0.7)
Benefits paid	(1.7)	(2.3)
At end of year	$ 16.8	$ 19.6
Change in Plan Assets:		
At beginning of year	$ —	$ —
Company contributions	1.2	1.2

Participant contributions	0.5	1.1
Benefits paid	(1.7)	(2.3)
At end of year	—	—
Funded Status	$ (16.8)	$ (19.6)

	December 31,	
	2018	2017
Amounts recognized in Consolidated Balance Sheets		
Current liability	$ 2.2	$ 2.4
Noncurrent liability	14.6	17.2
Amounts recognized in Accumulated Other Comprehensive Loss		
Accumulated other comprehensive income, net of tax of $(9.9) and $(9.9), respectively	$ (8.5)	$ (8.9)

Share-Based Compensation (Tables)

Share-Based Compensation (Tables)	12 Months Ended Dec. 31, 2018
Disclosure Of Compensation Related Costs Sharebased Payments [Abstract]	
Summary of Performance-Based Option Activity	Performance-based option activity under the 2007 SIP and the 2013 SIP for the periods presented was as follows:

	Shares	Weighted Average Exercise Price (per share)	Weighted Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value (in millions)
Options outstanding at December 31, 2015	1,283,368	$ 13.46	5.2	$ —
Granted	—	—	—	—
Exercised	—	—	—	—
Forfeited or expired	(52,942)	(13.46)	—	—
Options outstanding at December 31, 2016	1,230,426	$ 13.46	4.2	$ —
Granted	—	—	—	—
Exercised	(167,202)(a)	(13.46)	—	—
Forfeited or expired	(25,077)	(13.46)	—	—
Options outstanding at December 31, 2017	1,038,147	$ 13.46	3.5	$ —
Granted	—	—	—	—
Exercised	(663,412)	(13.46)	—	—
Forfeited or expired	(8,358)	(13.46)	—	—
Options outstanding at December 31, 2018	366,377	$ 13.50	3.1	$ 7.7
Options exercisable at December 31, 2018	366,377	$ 13.50	3.1	$ 7.7

(a) During the year ended December 31, 2017, certain performance-based options were modified and exercised.

Summary of Term-Based Option Activity

Term-based option activity, including stock options under the 2007 SIP, the 2013 SIP and the 2018 EIP, for the periods presented was as follows:

	Shares	Weighted Average Exercise Price (per share)	Weighted Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value (in millions)
Options outstanding at December 31, 2015	7,609,658	$ 16.02	7.3	$ 14.1
Granted	2,339,238	16.80	—	—
Exercised	—	—	—	—
Forfeited or expired	(176,626)	(16.54)	—	—
Options outstanding at December 31, 2016	9,772,270	$ 16.20	7.1	$ 9.9
Granted	2,285,981	17.46	—	—
Exercised	(595,464)	(15.14)	—	—
Forfeited or expired	(468,606)	(16.10)	—	—
Options outstanding at December 31, 2017	10,994,181	$ 16.52	6.9	$ 48.8
Granted	5,236,037	23.07	—	—
Exercised	(2,501,983)	(15.26)	—	—
Forfeited or expired	(178,466)	(17.30)	—	—
Options outstanding at December 31, 2018	13,549,769	$ 19.28	7.5	$ 206.8
Options exercisable at December 31, 2018	5,731,295	$ 16.75	5.7	$ 101.7

Schedule of Other Term-Based Option Activity

Other information pertaining to term-based options is as follows:

	Year Ended December 31,		
	2018	2017	2016
Weighted average grant date fair value per share	$ 7.80	$ 5.88	$ 5.74

Schedule of Fair Value of Stock Option

The fair value of the term-based stock options was estimated at the date of grant using the Black-

Estimated Using Black-Scholes Option Pricing Model

Scholes option pricing model with the following weighted-average assumptions:

	Year Ended December 31,		
	2018	2017	2016
Expected volatility	25.0%	30.0%	30.0%
Expected dividend rate	—	—	—
Risk-free interest rate	2.9%	2.3%	1.9%

Summary of Restricted Stock Units Activity

Restricted stock units ("RSUs") activity, including RSUs under the 2013 SIP and the 2018 EIP, for the periods presented was as follows:

	Shares
RSUs outstanding at December 31, 2015	228,572
Granted	29,800
Shares issued upon vesting of RSUs	(76,192)
Forfeited or canceled	—
RSUs outstanding at December 31, 2016	182,180
Granted	500,000
Shares issued upon vesting of RSUs	(76,190)
Forfeited or canceled	—
RSUs outstanding at December 31, 2017	605,990
Granted	164,073
Shares issued upon vesting of RSUs	(105,990)
Forfeited or canceled	—
RSUs outstanding at December 31, 2018	664,073
RSUs releasable at December 31, 2018	125,000

Schedule of Other Information Pertaining to Restricted Stock Units

Other information pertaining to restricted stock units is as follows:

	Year Ended December 31,		
	2018	2017	2016
Weighted average grant date fair value per share	$ 35.55	$ 17.26	$ 17.40

Supplementary Data to Statements of Operations (Tables)

Supplementary Data to Statements of Operations (Tables)	12 Months Ended
	Dec. 31, 2018
Organization Consolidation And Presentation Of Financial Statements [Abstract]	
Summary of Supplementary Data to Statements of Operations	

	Year Ended December 31,		
	2018	2017	2016
Other (Income) Expense, Net			
Asset impairment	$ —	$ —	$ 10.4
Environmental reserve	—	—	5.9
Foreign currency translation (income) expense	(2.9)	7.3	(3.4)
Total other (income) expense, net	$ (2.9)	$ 7.3	$ 12.9

Accumulated Other Comprehensive Income (Loss) (Tables)

Accumulated Other Comprehensive Income (Loss) (Tables)	12 Months Ended
	Dec. 31, 2018
Equity [Abstract]	
Components of Accumulated Other Comprehensive Income (Loss)	The components of accumulated other comprehensive income (loss) were as follows:

	Foreign Currency Translation Adjustment	Unrealized Gain (Loss) from Invested Customer Trust Funds	Pension Liability Adjustment	Total
Balance as of December 31, 2016	$ (199.9)	$ 4.7	$ (156.3)	$(351.5)
Other comprehensive income (loss) before income taxes and reclassifications	39.3	(17.3)	3.7	25.7
Income tax benefit	—	3.6	—	3.6
Reclassifications to earnings	—	—	10.1	10.1
Other comprehensive income (loss) attributable to Ceridian	39.3	(13.7)	13.8	39.4
Balance as of December 31, 2017	(160.6)	(9.0)	(142.5)	(312.1)
Other comprehensive loss before income taxes and reclassifications	(47.4)	(10.5)	(19.3)	(77.2)
Income tax benefit	—	1.2	—	1.2
Reclassifications to earnings	—	—	11.7	11.7
Other comprehensive (loss) income attributable to Ceridian	(47.4)	(9.3)	(7.6)	(64.3)
LifeWorks Disposition	0.7	—	—	0.7
Balance as of December 31, 2018	$ (207.3)	$ (18.3)	$ (150.1)	$(375.7)

Income Taxes (Tables)

Income Taxes (Tables)	12 Months Ended Dec. 31, 2018
Income Tax Disclosure [Abstract]	

Summary of Provision for Income Taxes

	Year Ended December 31, 2018	2017	2016
Components of Earnings and Taxes from Operations			
(Loss) Income Before Income Taxes:			
U.S.	$ (73.2)	$ (83.4)	$(163.4)
International	42.8	29.3	64.8
Total	$ (30.4)	$ (54.1)	$ (98.6)
Income Tax Expense (Benefit):			
Current:			
U.S.	$ 3.8	$ (0.3)	$ (0.4)
State and local	0.3	0.1	0.2
International	20.4	12.9	15.2
Total current income tax expense	24.5	12.7	15.0
Deferred:			
U.S.	(14.4)	(60.3)	(15.7)
State and local	(2.2)	0.8	(0.1)
International	(0.2)	(2.8)	7.5
Total deferred income tax (benefit) expense	(16.8)	(62.3)	(8.3)
Total income tax expense (benefit)	$ 7.7	$ (49.6)	$ 6.7

Reconciliation of U.S. Federal Statutory Rate

	Year Ended December 31, 2018	2017	2016
Effective Rate Reconciliation			
U.S. statutory rate%	(21.0)%	(35.0)%	(35.0)%
Change in valuation allowance	10.5	(116.9)	(5.4)
State income taxes, net of federal benefit	(27.9)	(5.2)	(1.2)
Share-based compensation	(8.8)	8.3	2.6
International tax rate differential	11.5	(6.7)	(6.4)
Foreign dividend income	17.8	48.1	1.0
Foreign capital gain income	6.3	—	—
Unremitted foreign earnings	3.6	(35.6)	22.0
Global intangible low-taxed income	20.4	—	—
Base erosion tax	12.5	—	—
Reserve for tax contingencies	0.3	—	(0.2)
Expiration of un-utilized tax credits	—	1.5	—
Unrealized gain on investments	—	—	30.7
Change in tax rate	(5.2)	52.4	—
Other	5.3	(2.6)	(1.5)
Income tax provision%	25.3%	(91.7)%	6.6%

Schedule of Deferred Tax Assets and Liabilities

	December 31, 2018	2017
Tax Effect of Items That Comprise a Significant Portion of the Net Deferred Tax Asset and Deferred Tax Liability		
Deferred Tax Asset:		

Employment related accruals	$ 51.2	$ 51.0
Foreign tax credit carryover and other credit carryovers	0.3	0.2
Net operating loss carryforwards	78.2	100.3
Total gross deferred tax asset	129.7	151.5
Valuation allowance	(93.3)	(90.7)
Total deferred tax asset	$ 36.4	$ 60.8
Deferred Tax Liability:		
Intangibles	$ (62.1)	$ (65.7)
Unremitted foreign earnings	—	—
Unrealized gain on investment	—	(22.2)
Other	(5.8)	(5.0)
Total deferred tax liability	(67.9)	(92.9)
Net deferred tax liability	$ (31.5)	$ (32.1)

	December 31,	
	2018	2017
Net Deferred Tax by Geography		
U.S.	$ (19.8)	$ (18.4)
International	(11.7)	(13.7)
Total	$ (31.5)	$ (32.1)

Summary of Activity Related to Unrecognized Tax Benefits

The following table summarizes the activity for unrecognized tax benefits:

	Year Ended December 31,	
	2018	2017
Federal, State and Foreign Tax		
Beginning unrecognized tax balance	$ 1.5	$ 1.4
Increase prior period positions	0.1	0.2
Increase current period positions	0.2	0.1
Decrease prior period positions	(0.1)	—
Decrease current period positions	(0.3)	—
Statutes expiring	(0.1)	(0.2)
Ending unrecognized tax benefits	$ 1.3	$ 1.5

Commitments and Contingencies (Tables)

Commitments and Contingencies (Tables)	12 Months Ended
	Dec. 31, 2018
Commitments And Contingencies Disclosure [Abstract]	
Schedule of Rental Expense and Sublease Income	Our rental expense and sublease income were as follows:

	Year Ended December 31,		
	2018	2017	2016
Rental Expense, Net			
Rental expense	$ 17.6	$ 17.0	$ 16.8
Sublease rental income	(4.9)	(4.2)	(3.5)
Net rental expense	$ 12.7	$ 12.8	$ 13.3

Schedule of Future Minimum Noncancellable Lease Payments

Our future minimum noncancellable lease payments on existing operating leases at December 31, 2018, which have an initial term of more than one year, are as follows:

Years Ending December 31,	Amount
2019	$ 13.6
2020	11.8
2021	7.7
2022	7.4
2023	6.2
Thereafter	9.4
Total (a)	$ 56.1

(a) Minimum payments have not been reduced by minimum sublease rentals of $13.1 due in the future under noncancellable subleases.

Segments and Financial Data by Solution and Geographic Area (Tables)

Segments and Financial Data by Solution and Geographic Area (Tables)	12 Months Ended
	Dec. 31, 2018
Segment Reporting [Abstract]	
Schedule of Revenue by Solution	

Revenue by solution is as follows:

	Year Ended December 31,		
	2018	2017	2016
Cloud	$ 534.3	$ 404.3	$ 297.8
Bureau	212.1	266.5	325.6
Total revenue	$ 746.4	$ 670.8	$ 623.4

Schedule of Revenue by country

Revenue by country is as follows. The country in which the revenue is recorded is determined by the legal entity with which the customer has contracted.

	Year Ended December 31,		
	2018	2017	2016
United States	$ 518.5	$ 465.2	$ 432.7
Canada	224.7	203.4	189.0
Other	3.2	2.2	1.7
Total revenue	$ 746.4	$ 670.8	$ 623.4

Schedule of Long-Lived Assets

Long-lived assets by country is as follows:

	December 31,	
	2018	2017
United States	$ 1,778.7	$ 1,786.1
Canada	438.1	480.6
Other	2.5	2.8
Total long-lived assets	$ 2,219.3	$ 2,269.5

Net Loss per Share (Tables)

Net Loss per Share (Tables)	12 Months Ended
	Dec. 31, 2018
Earnings Per Share [Abstract]	
Schedule of Numerators and Denominators of Basic and Diluted Net Loss per Share Computations	The numerators and denominators of the basic and diluted net loss per share computations are calculated as follows:

	Year Ended December 31,		
	2018	2017	2016
Numerator:			
Net loss attributable to Ceridian	$ (63.4)	$ (9.2)	$ (92.9)
Less: (Loss) income from discontinued operations	(25.8)	(6.0)	12.5
Net loss from continuing operations attributable to Ceridian	(37.6)	(3.2)	(105.4)
Less: Senior Preferred Stock dividends declared	7.7	20.5	14.1
Net loss from continuing operations attributable to Ceridian available to common stockholders	$ (45.3)	$ (23.7)	$ (119.5)
Denominator:			
Weighted-average shares outstanding—basic	114,049,682	65,204,960	64,988,338
Weighted-average shares outstanding—diluted	114,049,682	65,204,960	64,988,338
Net loss per share from continuing operations attributable to Ceridian—basic and diluted	$ (0.40)	$ (0.36)	$ (1.84)
Net (loss) income per share from discontinued operations—basic and diluted	$ (0.22)	$ (0.10)	$ 0.19
Net loss per share attributable to Ceridian—basic and diluted	$ (0.62)	$ (0.46)	$ (1.65)

Schedule of Potentially Dilutive Shares Excluded from Calculation of Diluted Net Loss per Share

The following potentially dilutive shares were excluded from the calculation of diluted net loss per share because their effect would have been anti-dilutive:

	Year Ended December 31,		
	2018	2017	2016
Senior convertible preferred stock	5,523,993	16,802,144	12,601,608
Junior convertible preferred stock	19,148,814	58,244,308	58,244,308
Stock options	14,227,487	10,201,105	8,423,124
RSUs	587,283	451,190	155,692

Organization - Additional Information (Detail)

Organization - Additional Information (Detail) - USD ($) $ / shares in Units, $ in Millions			12 Months Ended		
	Nov. 16, 2018	Apr. 30, 2018	Dec. 31, 2018	Apr. 29, 2018	Dec. 31, 2017
Common stock shares issued	12,650,000	24,150,000	139,453,710		65,285,962
Proceeds from issuance of IPO and private placement		$ 631.3			
Foundation Holding LLC [Member]					
Ownership Percentage By Parent				100.00%	
Ceridian Holding and Ceridian Holding II [Member] | Sponsors [Member]					
Ownership percentage by sponsors				96.00%	
Ceridian Holding and Ceridian Holding II [Member] | Other Individuals [Member]					
Minority interest ownership percentage by other				4.00%	
IPO [Member]					
Shares issued		21,000,000			
Shares issued, price per share		$ 22.00			
Private Placement [Member]					
Shares issued		4,545,455			
Shares issued, price per share		$ 22.00			
Underwriter [Member]					
Stock option exercised	1,650,000	3,150,000			
Secondary Offering [Member]					
Shares issued	11,000,000				
Shares issued, price per share	$ 36.00				
Secondary Offering [Member] | Selling, General and Administrative Expense [Member]					
Offering costs			$ 1.3		

Organization - Use of the Proceeds from the IPO (Detail)

Organization - Use of the Proceeds from the IPO (Detail) - USD ($) $ in Millions	12 Months Ended		
	Dec. 31, 2018	Dec. 31, 2017	Dec. 31, 2016
Consolidation, Wholly Owned Subsidiary, Parent Ownership Interest, Effects of Changes, Net [Line Items]			
Gross proceeds	$ 631.3		
Underwriters' discount and commissions	29.2		
IPO-related expenses	11.8		
Redemption of 11% Senior Notes due 2021 (Note 9)	1,134.0	$ 25.9	$ 11.8
Sponsor management fee	11.3		
Debt refinancing expenses	11.4		
Cash to balance sheet	68.6		
Senior Notes [Member] | 11% Senior Note [Member]			
Consolidation, Wholly Owned Subsidiary, Parent Ownership Interest, Effects of Changes, Net [Line Items]			
Redemption of 11% Senior Notes due 2021 (Note 9)	475.0		
Call premium on redemption of 11% Senior Notes due 2021	13.1		
Interest on redemption of 11% Senior Notes due 2021	$ 10.9		

Organization - Use of the Proceeds from the IPO (Parenthetical) (Detail)

Organization - Use of the Proceeds from the IPO (Parenthetical) (Detail) - Senior Notes [Member]	12 Months Ended	
	Dec. 31, 2018	Dec. 31, 2017
Consolidation, Wholly Owned Subsidiary, Parent Ownership Interest, Effects of Changes, Net [Line Items]		
Interest rate on debt	11.00%	11.00%
Debt instrument maturity year	2021	

Summary of Significant Accounting Policies - Additional Information (Detail)

Summary of Significant Accounting Policies - Additional Information (Detail) $ in Millions				1 Months Ended		12 Months Ended				
	Oct. 31, 2018 USD ($)	Apr. 10, 2018	Oct. 31, 2017 USD ($)	Oct. 31, 2018 USD ($)	Oct. 31, 2017 USD ($)	Dec. 31, 2018 USD ($)	Dec. 31, 2017 USD ($)	Dec. 31, 2016 USD ($)	Jan. 01, 2019 USD ($)	Dec. 31, 2015 USD ($)
Significant Accounting Policies [Line Items]										
Stockholders' Equity, Reverse Stock Split		0.5								
Allowance for Doubtful Accounts						$ 1.3	$ 1.3	$ 1.8		$ 1.1
Reserve for sale						3.8	4.7			
Interest on property plant and equipment						0.5	0.6			
Net of accumulated amortization						61.9	56.4			
Amortization of software cost						18.5	18.5	18.4		
Research and Development Expense						29.6	19.0	13.0		
Advertising Expense						$ 5.8	5.6	5.9		
Defined benefit plan expected long-term rate-of-return, description						The long-term rate of return is estimated by considering historical returns and expected returns on current and projected asset allocations and is generally applied to a five-year average market value of assets.				
Defined Benefit Pension Plan [Member]										
Significant Accounting Policies [Line Items]										
Impact of change in discount rate of basis points						0.25%				
Impact of change in discount rate defined benefit plan liability						$ 12.0				
Defined benefit plan pre-tax earnings						$ 0.1				
Change in the assumption for the long-term rate of return on plan assets basis points						0.25%				
Change in the assumption for the long-term rate of return on plan assets before tax						$ 1.0				
Reduction in projected benefit obligation, mortality assumptions	$ (1.5)		$ (6.0)	$ (1.5)	$ (6.0)					
Minimum [Member] | Subsequent Event [Member]										
Significant Accounting Policies [Line Items]										
Right-of-use asset and lease liability to be recognized									$ 35.0	
Maximum [Member] | Subsequent Event [Member]										
Significant Accounting Policies [Line Items]										
Right-of-use asset and lease liability to be recognized									$ 45.0	
Computer Software, Intangible Asset [Member]										
Significant Accounting Policies [Line Items]										

Amortization of software cost						$ 26.2	$ 23.6	$ 20.9		
Computer Software, Intangible Asset [Member] | Minimum [Member]										
Significant Accounting Policies [Line Items]										
Finite-lived intangible asset, useful life						2 years				
Computer Software, Intangible Asset [Member] | Maximum [Member]										
Significant Accounting Policies [Line Items]										
Finite-lived intangible asset, useful life						7 years				

Summary of Significant Accounting Policies - Estimated useful life of Property, Plant, and Equipment (Detail)

Summary of Significant Accounting Policies - Estimated useful life of Property, Plant, and Equipment (Detail)	12 Months Ended
	Dec. 31, 2018
Building [Member]	
Property, Plant and Equipment [Line Items]	
Property, plant and equipment, estimated useful life	40 years
Minimum [Member] | Building Improvements [Member]	
Property, Plant and Equipment [Line Items]	
Property, plant and equipment, estimated useful life	5 years
Minimum [Member] | Machinery and Equipment [Member]	
Property, Plant and Equipment [Line Items]	
Property, plant and equipment, estimated useful life	4 years
Minimum [Member] | Computer Equipment [Member]	
Property, Plant and Equipment [Line Items]	
Property, plant and equipment, estimated useful life	3 years
Maximum [Member] | Machinery and Equipment [Member]	
Property, Plant and Equipment [Line Items]	
Property, plant and equipment, estimated useful life	6 years
Maximum [Member] | Computer Equipment [Member]	
Property, Plant and Equipment [Line Items]	
Property, plant and equipment, estimated useful life	4 years

Summary of Significant Accounting Policies - Definite lived Intangible Assets Amortization Expense (Detail)

Summary of Significant Accounting Policies - Definite lived Intangible Assets Amortization Expense (Detail)	12 Months Ended	
	Dec. 31, 2018	Dec. 31, 2017
Minimum [Member] | Customer Lists and Relationships [Member]		
Finite-Lived Intangible Assets [Line Items]		
Finite-lived intangible asset, useful life	5 years	5 years
Minimum [Member] | Technology [Member]		
Finite-Lived Intangible Assets [Line Items]		
Finite-lived intangible asset, useful life	3 years	2 years
Maximum [Member] | Customer Lists and Relationships [Member]		
Finite-Lived Intangible Assets [Line Items]		
Finite-lived intangible asset, useful life	15 years	15 years
Maximum [Member] | Technology [Member]		
Finite-Lived Intangible Assets [Line Items]		
Finite-lived intangible asset, useful life	4 years	7 years

Summary of Significant Accounting Policies - Impact of Adoption of ASC 606 on Revenue (Detail)

Summary of Significant Accounting Policies - Impact of Adoption of ASC 606 on Revenue (Detail) - USD ($) $ in Millions	12 Months Ended		
	Dec. 31, 2018	Dec. 31, 2017	Dec. 31, 2016
Significant Accounting Policies [Line Items]			
Recurring services	$ 652.5	$ 598.5	$ 558.5
Professional services and other	93.9	72.3	64.9
Total revenue	746.4	670.8	623.4
Operating profit	52.8	33.0	$ (11.2)
Accounting Standards Update 2014-09 [Member]			
Significant Accounting Policies [Line Items]			
Recurring services	625.0	573.9	
Professional services and other	115.7	102.3	
Total revenue	740.7	676.2	
Operating profit	56.3	46.6	
Accounting Standards Update 2014-09 [Member] | Difference between Revenue Guidance in Effect before and after Topic 606 [Member]			
Significant Accounting Policies [Line Items]			
Recurring services	(27.5)	(24.6)	
Professional services and other	21.8	30.0	
Total revenue	(5.7)	5.4	
Operating profit	$ 3.5	$ 13.6	

Discontinued Operations - Additional Information (Detail)

Discontinued Operations - Additional Information (Detail) - USD ($) $ in Millions		12 Months Ended			
	Jun. 15, 2016	Dec. 31, 2018	Dec. 31, 2017	Dec. 31, 2016	Jun. 30, 2018
Net (loss) income attributable to noncontrolling interest		$ (0.5)	$ (1.3)	$ 0.1	
Additional paid in capital		2,325.6	1,565.4		
Goodwill		1,927.4	1,961.0	1,933.1	
Other accrued expenses		23.6	15.0		
Discontinued Operations [Member]					
Proceeds from divesture of business		0.3	25.9		
Discontinued Operations [Member] | UNITED KINGDOM					
Proceeds from discontinued business	$ 93.2				
Goodwill			23.8		
LifeWorks [Member]					
Additional paid in capital					$ 95.7
Divested Benefits Continuation Businesses [Member]					
Proceeds from divesture of business				$ 21.0	
Other accrued expenses		$ 0.2	$ 0.3		

Discontinued Operations - Supplemental Disclosure of Discontinued Operation (Detail)

Discontinued Operations - Supplemental Disclosure of Discontinued Operation (Detail) - USD ($) $ in Millions	12 Months Ended		
	Dec. 31, 2018	Dec. 31, 2017	Dec. 31, 2016
Income Statement, Balance Sheet and Additional Disclosures by Disposal Groups, Including Discontinued Operations [Line Items]			
Loss from discontinued operations, net of income taxes	$ (25.8)	$ (6.0)	$ 12.5
LifeWorks [Member]			
Income Statement, Balance Sheet and Additional Disclosures by Disposal Groups, Including Discontinued Operations [Line Items]			
Net revenues	28.3	79.9	80.8
(Loss) income from operations before income taxes	(0.9)	(0.4)	7.1
Income tax (expense) benefit	(24.9)	(4.9)	(11.1)
Loss from discontinued operations, net of income taxes	(25.8)	(5.3)	(4.0)
Depreciation and amortization	$ 1.4	4.1	4.1
Capital expenditures		0.2	0.3
UK Business [Member]			
Income Statement, Balance Sheet and Additional Disclosures by Disposal Groups, Including Discontinued Operations [Line Items]			
Net revenues			37.0
(Loss) income from operations before income taxes			0.5
(Loss) gain on sale of businesses		(1.0)	5.9
Income tax (expense) benefit			0.2
Loss from discontinued operations, net of income taxes		(1.0)	6.6
Depreciation and amortization			1.3
Capital expenditures			0.7
Divested Benefits Continuation Businesses [Member]			
Income Statement, Balance Sheet and Additional Disclosures by Disposal Groups, Including Discontinued Operations [Line Items]			
Net revenues			4.8
(Loss) income from operations before income taxes			(0.8)
(Loss) gain on sale of businesses		0.5	21.0
Income tax (expense) benefit		(0.2)	(10.3)
Loss from discontinued operations, net of income taxes		$ 0.3	$ 9.9

Discontinued Operations - Summary of Assets and Liabilities of Discontinued Operations (Detail)

Discontinued Operations - Summary of Assets and Liabilities of Discontinued Operations (Detail) - LifeWorks [Member] $ in Millions	Dec. 31, 2017 USD ($)
Assets:	
Cash and equivalents	$ 5.4
Trade and other receivables, net	13.3
Prepaid expenses	1.5
Property, plant, and equipment, net	1.8
Other intangible assets, net	5.9
Goodwill	126.3
Other assets	2.0
Assets of discontinued operations	156.2
Liabilities:	
Accounts payable	4.4
Deferred revenue	2.8
Employee compensation and benefits	1.2
Other liabilities	10.9
Liabilities of discontinued operations	$ 19.3

Fair Value Measurements - Asset and Liability Measured at Fair Value Measured on Recurring Basis (Detail)

Fair Value Measurements - Asset and Liability Measured at Fair Value Measured on Recurring Basis (Detail) - USD ($) $ in Millions		Dec. 31, 2018	Dec. 31, 2017
Assets			
Available for sale customer trust funds assets		$ 1,719.6	$ 1,782.1
Total assets measured at fair value		1,719.6	1,782.1
Fair Value, Inputs, Level 2 [Member]			
Assets			
Available for sale customer trust funds assets	*[1]*	1,719.6	1,782.1
Total assets measured at fair value		$ 1,719.6	$ 1,782.1

[1] Fair value is based on inputs that are observable for the asset or liability, other than quoted prices.

Customer Trust Fund - Additional Information (Detail)

Customer Trust Fund - Additional Information (Detail) - USD ($) $ in Millions	12 Months Ended		
	Dec. 31, 2018	Dec. 31, 2017	Dec. 31, 2016
Investment income from invested customer trust fund included in revenue	$ 67.0	$ 46.5	$ 39.1
Maturities ranging from one to 120 days [Member]			
Average customer trust funds held in liquidity portfolios, Percentage	46.00%		
Maturities ranging from 120 days to 10 years [Member]			
Average customer trust funds held in fixed income portfolios, Percentage	54.00%		

Customer Trust Fund - Investment of Customer Trust Fund (Detail)

Customer Trust Fund - Investment of Customer Trust Fund (Detail) - USD ($) $ in Millions	12 Months Ended	
	Dec. 31, 2018	Dec. 31, 2017
Debt Securities, Available-for-sale [Line Items]		
Money market securities, investments carried at cost and other cash equivalents, Fair Value	$ 872.3	$ 2,309.3
Invested customer trust funds, Fair Value	2,591.9	4,091.4
Trust receivables, Fair Value	11.6	8.3
Total customer trust funds, Fair Value	2,603.5	4,099.7
Money market securities, investments carried at cost and other cash equivalents, Amortized Cost	872.3	2,309.3
Invested customer trust funds, Amortized Cost	2,608.1	4,097.2
Trust receivables, Amortized Cost	11.6	8.3
Total customer trust funds, Amortized Cost	2,619.7	4,105.5
Amortized Cost	1,735.8	1,787.9
Gross Unrealized Gain	4.3	7.5
Gross Unrealized Loss	(20.5)	(13.3)
Fair value	1,719.6	1,782.1
U.S. Government and Agencies Securities [Member]		
Debt Securities, Available-for-sale [Line Items]		
Amortized Cost	573.4	584.6
Gross Unrealized Gain	0.2	0.1
Gross Unrealized Loss	(11.4)	(7.1)
Fair value	562.2	577.6
Canadian and Provincial Government Securities [Member]		
Debt Securities, Available-for-sale [Line Items]		
Amortized Cost	392.5	418.2
Gross Unrealized Gain	3.4	6.6
Gross Unrealized Loss	(1.4)	(1.5)
Fair value	394.5	423.3
Corporate Debt Securities [Member]		
Debt Securities, Available-for-sale [Line Items]		
Amortized Cost	499.5	472.3
Gross Unrealized Gain	0.5	0.8
Gross Unrealized Loss	(4.7)	(2.5)
Fair value	495.3	470.6
Asset-backed Securities [Member]		
Debt Securities, Available-for-sale [Line Items]		
Amortized Cost	247.1	280.8
Gross Unrealized Gain	0.2	
Gross Unrealized Loss	(2.7)	(1.8)
Fair value	244.6	279.0
Mortgage-backed Securities [Member]		
Debt Securities, Available-for-sale		

[Line Items]		
Amortized Cost	8.5	15.0
Gross Unrealized Loss	(0.2)	(0.2)
Fair value	8.3	14.8
Other Securities [Member]		
Debt Securities, Available-for-sale [Line Items]		
Amortized Cost	14.8	17.0
Gross Unrealized Loss	(0.1)	(0.2)
Fair value	$ 14.7	$ 16.8

Customer Trust Fund - Gross Unrealized Losses and Related Fair Value of Investment (Detail)

Customer Trust Fund - Gross Unrealized Losses and Related Fair Value of Investment (Detail) $ in Millions	Dec. 31, 2018 USD ($)
Debt Securities, Available-for-sale [Line Items]	
Less than 12 months, Unrealized Losses	$ (2.4)
Less than 12 months, Fair Value	293.6
12 months or more, Unrealized Losses	(18.1)
12 months or more, Fair Value	944.3
Total, Unrealized Losses	(20.5)
Total, Fair Value	1,237.9
U.S. Government and Agencies Securities [Member]	
Debt Securities, Available-for-sale [Line Items]	
Less than 12 months, Unrealized Losses	(1.0)
Less than 12 months, Fair Value	100.1
12 months or more, Unrealized Losses	(10.4)
12 months or more, Fair Value	419.1
Total, Unrealized Losses	(11.4)
Total, Fair Value	519.2
Canadian and Provincial Government Securities [Member]	
Debt Securities, Available-for-sale [Line Items]	
Less than 12 months, Unrealized Losses	(0.1)
Less than 12 months, Fair Value	14.5
12 months or more, Unrealized Losses	(1.3)
12 months or more, Fair Value	130.5
Total, Unrealized Losses	(1.4)
Total, Fair Value	145.0
Corporate Debt Securities [Member]	
Debt Securities, Available-for-sale [Line Items]	
Less than 12 months, Unrealized Losses	(1.1)
Less than 12 months, Fair Value	136.6
12 months or more, Unrealized Losses	(3.6)
12 months or more, Fair Value	204.6
Total, Unrealized Losses	(4.7)
Total, Fair Value	341.2
Asset-backed Securities [Member]	
Debt Securities, Available-for-sale [Line Items]	
Less than 12 months, Unrealized Losses	(0.2)
Less than 12 months, Fair Value	40.7
12 months or more, Unrealized Losses	(2.5)
12 months or more, Fair Value	169.1
Total, Unrealized Losses	(2.7)
Total, Fair Value	209.8
Mortgage-backed Securities [Member]	
Debt Securities, Available-for-sale [Line Items]	

12 months or more, Unrealized Losses	(0.2)
12 months or more, Fair Value	8.2
Total, Unrealized Losses	(0.2)
Total, Fair Value	8.2
Other Securities [Member]	
Debt Securities, Available-for-sale [Line Items]	
Less than 12 months, Fair Value	1.7
12 months or more, Unrealized Losses	(0.1)
12 months or more, Fair Value	12.8
Total, Unrealized Losses	(0.1)
Total, Fair Value	$ 14.5

Customer Trust Fund - Gross Unrealized Losses and Related Fair Value of Investment (Parenthetical) (Detail)

Customer Trust Fund - Gross Unrealized Losses and Related Fair Value of Investment (Parenthetical) (Detail) $ in Thousands	Dec. 31, 2018 USD ($)
Debt Securities, Available-for-sale [Line Items]	
Unrealized losses, less than 12 months	$ 2,400
Other Securities [Member] | Maximum [Member]	
Debt Securities, Available-for-sale [Line Items]	
Unrealized losses, less than 12 months	$ 50

Customer Trust Fund - Amortized Cost and Fair Value of Investment Security Available for Sale (Detail)

Customer Trust Fund - Amortized Cost and Fair Value of Investment Security Available for Sale (Detail) - USD ($) $ in Millions	Dec. 31, 2018	Dec. 31, 2017
Investments Debt And Equity Securities [Abstract]		
Due in one year or less, Cost	$ 1,139.4	
Due in one to three years, Cost	599.9	
Due in three to five years, Cost	651.3	
Due after five years, Cost	217.5	
Invested customer trust funds, Cost	2,608.1	$ 4,097.2
Due in one year or less, Fair Value	1,139.4	
Due in one to three years, Fair Value	593.8	
Due in three to five years, Fair Value	646.9	
Due after five years, Fair Value	211.8	
Invested customer trust funds, Fair Value	$ 2,591.9	$ 4,091.4

Trade and Other Receivables, Net - Schedule of Trade and Other Receivables, Net (Detail)

Trade and Other Receivables, Net - Schedule of Trade and Other Receivables, Net (Detail) - USD ($) $ in Millions	Dec. 31, 2018	Dec. 31, 2017
Receivables [Abstract]		
Trade receivables from customers	$ 68.6	$ 67.2
Interest receivable from invested customer trust funds	0.9	1.7
Other	5.5	3.7
Total gross receivables	75.0	72.6
Less: reserve for sales adjustments	(3.8)	(4.7)
Less: allowance for doubtful accounts	(1.3)	(1.3)
Trade and other receivables, net	$ 69.9	$ 66.6

Trade and Other Receivables, Net - Activity Related to Allowance for Doubtful Accounts (Detail)

Trade and Other Receivables, Net - Activity Related to Allowance for Doubtful Accounts (Detail) - USD ($) $ in Millions	12 Months Ended		
	Dec. 31, 2018	Dec. 31, 2017	Dec. 31, 2016
Receivables [Abstract]			
Balance at beginning of year	$ 1.3	$ 1.8	$ 1.1
Provision for doubtful accounts	0.7	0.2	1.1
Charge-offs, net of recoveries	(0.7)	(0.7)	(0.4)
Balance at end of year	$ 1.3	$ 1.3	$ 1.8

Property, Plant, and Equipment - Schedule of Property, Plant, and Equipment (Detail)

Property, Plant, and Equipment - Schedule of Property, Plant, and Equipment (Detail) - USD ($) $ in Millions	Dec. 31, 2018	Dec. 31, 2017
Property, Plant and Equipment [Line Items]		
Total property, plant and equipment	$ 390.5	$ 361.5
Accumulated depreciation	(286.1)	(259.5)
Property, plant and equipment, net	104.4	102.0
Land [Member]		
Property, Plant and Equipment [Line Items]		
Total property, plant and equipment	7.5	7.5
Software [Member]		
Property, Plant and Equipment [Line Items]		
Total property, plant and equipment	225.0	197.4
Machinery and Equipment [Member]		
Property, Plant and Equipment [Line Items]		
Total property, plant and equipment	117.5	120.3
Buildings and Improvements [Member]		
Property, Plant and Equipment [Line Items]		
Total property, plant and equipment	$ 40.5	$ 36.3

Property, Plant, and Equipment - Additional Information (Detail)

Property, Plant, and Equipment - Additional Information (Detail) - USD ($) $ in Millions	12 Months Ended		
	Dec. 31, 2018	Dec. 31, 2017	Dec. 31, 2016
Property Plant And Equipment [Abstract]			
Depreciation expense	$ 38.1	$ 35.3	$ 34.8

Goodwill and Intangible Assets - Schedule of Changes in Goodwill (Detail)

Goodwill and Intangible Assets - Schedule of Changes in Goodwill (Detail) - USD ($) $ in Millions	12 Months Ended	
	Dec. 31, 2018	Dec. 31, 2017
Goodwill And Intangible Assets Disclosure [Abstract]		
Balance	$ 1,961.0	$ 1,933.1
Translation	(33.6)	27.9
Balance	1,927.4	$ 1,961.0
Tax-deductible goodwill	$ 10.6	

Goodwill and Intangible Assets - Schedule of Other Intangible Asset (Detail)

Goodwill and Intangible Assets - Schedule of Other Intangible Asset (Detail) - USD ($) $ in Millions	12 Months Ended	
	Dec. 31, 2018	Dec. 31, 2017
Schedule of Finite and Indefinite Lived Intangible Assets [Line Items]		
Gross Carrying Amount	$ 531.1	$ 539.8
Accumulated Amortization	(343.6)	(333.3)
Net	187.5	206.5
Tradename [Member]		
Schedule of Finite and Indefinite Lived Intangible Assets [Line Items]		
Gross Carrying Amount	173.5	174.1
Accumulated Amortization	(1.9)	(2.1)
Net	171.6	172.0
Customer Lists and Relationships [Member]		
Schedule of Finite and Indefinite Lived Intangible Assets [Line Items]		
Gross Carrying Amount	205.4	210.1
Accumulated Amortization	(190.2)	(177.0)
Net	$ 15.2	$ 33.1
Customer Lists and Relationships [Member] | Minimum [Member]		
Schedule of Finite and Indefinite Lived Intangible Assets [Line Items]		
Estimated Life Range (Years)	5 years	5 years
Customer Lists and Relationships [Member] | Maximum [Member]		
Schedule of Finite and Indefinite Lived Intangible Assets [Line Items]		
Estimated Life Range (Years)	15 years	15 years
Technology [Member]		
Schedule of Finite and Indefinite Lived Intangible Assets [Line Items]		
Gross Carrying Amount	$ 152.2	$ 155.6
Accumulated Amortization	(151.5)	(154.2)
Net	$ 0.7	$ 1.4
Technology [Member] | Minimum [Member]		
Schedule of Finite and Indefinite Lived Intangible Assets [Line Items]		
Estimated Life Range (Years)	3 years	2 years
Technology [Member] | Maximum [Member]		
Schedule of Finite and Indefinite Lived Intangible Assets [Line Items]		
Estimated Life Range (Years)	4 years	7 years

Goodwill and Intangible Assets - Additional Information (Detail)

Goodwill and Intangible Assets - Additional Information (Detail) - USD ($) $ in Millions	12 Months Ended		
	Dec. 31, 2018	Dec. 31, 2017	Dec. 31, 2016
Goodwill And Intangible Assets Disclosure [Abstract]			
Amortization expense	$ 18.5	$ 18.5	$ 18.4

Goodwill and Intangible Assets - Estimated Future Amortization of Other Intangible Assets (Detail)

Goodwill and Intangible Assets - Estimated Future Amortization of Other Intangible Assets (Detail) $ in Millions	Dec. 31, 2018 USD ($)
Finite Lived Intangible Assets Future Amortization Expense [Abstract]	
2019	$ 15.2
2020	0.2
2021	0.2
2022	0.2
2023	$ 0.1

Debt - Schedule of Debt Obligations (Detail)

Debt - Schedule of Debt Obligations (Detail) - USD ($) $ in Millions	Dec. 31, 2018	Dec. 31, 2017
Debt Instrument [Line Items]		
Total debt	$ 678.3	$ 1,132.3
Less unamortized discount on Term Debt	1.7	0.9
Less unamortized debt issuance costs on Senior Notes and Term Debt	6.3	11.6
Less current portion of long-term debt	6.8	
Long-term debt, less current portion	663.5	1,119.8
Term Debt [Member]		
Debt Instrument [Line Items]		
Total debt	$ 678.3	657.3
Senior Notes [Member]		
Debt Instrument [Line Items]		
Total debt		$ 475.0

Debt - Schedule of Debt Obligations (Parenthetical) (Detail)

Debt - Schedule of Debt Obligations (Parenthetical) (Detail) CAD in Millions, $ in Millions	Dec. 31, 2018 USD ($)	Dec. 31, 2018 CAD	Dec. 31, 2017 USD ($)	Dec. 31, 2017 CAD	Nov. 14, 2014 USD ($)
Term Debt [Member]					
Debt Instrument [Line Items]					
Interest rate on debt	5.80%	5.80%	5.10%	5.10%	
Senior Notes [Member]					
Debt Instrument [Line Items]					
Interest rate on debt	11.00%	11.00%	11.00%	11.00%	
Revolving Credit Facility [Member]					
Debt Instrument [Line Items]					
Available capacity	$ 300.0		$ 130.0		$ 130.0
Revolving Credit Facility [Member] | Letter of Credit [Member]					
Debt Instrument [Line Items]					
Available capacity	2.7		2.9		
Canada Line of Credit [Member]					
Debt Instrument [Line Items]					
Available capacity	$ 5.1	CAD 7.0	$ 5.6	CAD 7.0	

Debt - Additional Information (Detail)

Debt - Additional Information (Detail) CAD in Millions, $ in Millions	May. 30, 2018 USD ($)	Apr. 30, 2018 USD ($)	12 Months Ended Dec. 31, 2018 USD ($)	Dec. 31, 2017 USD ($)	Dec. 31, 2018 CAD	Dec. 31, 2017 CAD	Nov. 14, 2014 USD ($)	Oct. 01, 2013 USD ($)
Debt Instrument [Line Items]								
Principal payments			0.25%		0.25%			
Loss on debt extinguishment			$ (25.7)					
Capitalization of financing costs			3.6					
Write off of unamortized deferred financing costs			$ 0.5					
Debt instrument, covenant description			The 2018 Senior Secured Credit Facility documents contain a requirement that Ceridian maintain a ratio of adjusted first lien debt to Credit Facility EBITDA below specified levels on a quarterly basis; however, such requirement is applicable only if more than 35% of the 2018 Revolving Credit Facility is drawn. As of December 31, 2018, no portion of the 2018 Revolving Credit Facility was drawn.					
Fair value of our indebtedness			$ 649.5	$ 1,154.1				
Canada [Member]								
Debt Instrument [Line Items]								
Issuance of letters of credit | CAD					CAD 7.0	CAD 7.0		
Letters of credit outstanding			5.1	5.6	CAD 7.0	CAD 7.0		
Previously Reported [Member]								
Debt Instrument [Line Items]								
Loss on debt extinguishment		$ (7.1)						
Discontinued Operations [Member]								
Debt Instrument [Line Items]								
Proceeds from divesture of business			0.3	25.9				
Revolving Credit Facility [Member]								
Debt Instrument [Line Items]								
Available capacity for letters of credit			$ 300.0	$ 130.0			$ 130.0	
Line of credit maturity period			2019-09					
2018 Revolving Credit Facility [Member]								
Debt Instrument [Line Items]								
Available capacity for letters of credit		300.0						
Term Debt [Member]								
Debt Instrument [Line Items]								
Debt instrument principal amount							$ 702.0	
Term loan debt maturity period			2020-09					
Debt instrument interest rate stated percentage			5.80%	5.10%	5.80%	5.10%		
Interest rate description			The 2014 Term Debt had an interest rate of LIBOR plus 3.5%, subject to a 1.0%					

			LIBOR floor.					
Term debt, unamortized deferred financing cost				$ 5.4				
Senior note, amortized interest rate				4.80%				
Term Debt [Member] | London Interbank Offered Rate (LIBOR) [Member]								
Debt Instrument [Line Items]								
Debt instrument, variable interest rate				3.50%				
LIBOR, floor rate				1.00%				
2018 Term Debt [Member]								
Debt Instrument [Line Items]								
Debt instrument principal amount		$ 680.0						
Debt instrument interest rate stated percentage			5.80%		5.80%			
Interest rate description			Interest rate is reduced to LIBOR plus 3.00%					
Term debt, unamortized deferred financing cost			$ 8.0					
Senior note, amortized interest rate			5.30%					
2018 Term Debt [Member] | London Interbank Offered Rate (LIBOR) [Member]								
Debt Instrument [Line Items]								
Debt instrument, variable interest rate			3.25%					
Senior Notes [Member]								
Debt Instrument [Line Items]								
Debt instrument principal amount								$ 475.0
Loss on debt extinguishment			$ (18.6)					
Debt instrument interest rate stated percentage			11.00%	11.00%	11.00%	11.00%		
Senior note, amortized interest rate	11.45%							
Write off of unamortized deferred financing costs	$ 5.5							
Senior note, unamortized deferred financing cost	$ 6.2							

Debt - Schedule of Future Principal Payments and Maturities of Indebtedness (Detail)

Debt - Schedule of Future Principal Payments and Maturities of Indebtedness (Detail) - USD ($) $ in Millions	Dec. 31, 2018	Dec. 31, 2017
Debt Disclosure [Abstract]		
2019	$ 6.8	
2020	6.8	
2021	6.8	
2022	6.8	
2023	6.8	
Thereafter	644.3	
Total debt	$ 678.3	$ 1,132.3

Employee Benefit Plans - Additional Information (Detail)

Employee Benefit Plans - Additional Information (Detail) - USD ($) $ in Millions			1 Months Ended		12 Months Ended			
	Oct. 31, 2018	Oct. 31, 2017	Oct. 31, 2018	Oct. 31, 2017	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2017	Dec. 31, 2016
Defined Benefit Plan Disclosure [Line Items]								
Defined contribution plan, expense recognized						$ 8.4	$ 7.5	$ 7.0
Inactive participants In defined benefit plan						99.00%		
Contributions to defined benefit plan assets						$ 18.5		
Benefit obligation, discount rate						25.00%		
Decrease in expense for all pension plans						$ (0.1)		
Estimated fair value using NAV						212.6	280.6	
Net periodic postretirement benefit cost						$ 2.7	1.5	$ 3.0
Hedge Funds [Member]								
Defined Benefit Plan Disclosure [Line Items]								
Quarterly redemption restriction notice period						65 days		
Minimum [Member] | Scenario, Forecast [Member]								
Defined Benefit Plan Disclosure [Line Items]								
Contributions to defined benefit plan assets					$ 6.4			
Nonqualified Defined Benefit Plan [Member]								
Defined Benefit Plan Disclosure [Line Items]								
Contributions to defined benefit plan assets						$ 1.9		
Nonqualified Defined Benefit Plan [Member] | Scenario, Forecast [Member]								
Defined Benefit Plan Disclosure [Line Items]								
Contributions to defined benefit plan assets					1.7			
Defined Benefit Pension Plan [Member]								
Defined Benefit Plan Disclosure [Line Items]								
Contributions to defined benefit plan assets						$ 20.4	$ 23.0	
Benefit obligation, discount rate						3.92%	3.25%	3.63%
Reduction in projected benefit obligation, mortality assumptions	$ (1.5)	$ (6.0)	$ (1.5)	$ (6.0)				
Projected benefit obligation of defined benefit plans exceeded the fair value of plan assets						$ 145.8	$ 154.4	
Accumulated benefit obligation of defined benefit plans						527.4	593.0	
Net periodic postretirement benefit cost						4.7	3.7	$ 5.0
Actuarial gain						$ (31.6)	20.3	
Defined Benefit Pension Plan [Member] | Long Term								

Investments [Member]								
Defined Benefit Plan Disclosure [Line Items]								
Defined benefit plan assets percentage of asset categories						70.00%		
Defined Benefit Pension Plan [Member] | Liability Hedging [Member]								
Defined Benefit Plan Disclosure [Line Items]								
Defined benefit plan assets percentage of asset categories						28.00%		
Defined Benefit Pension Plan [Member] | Short-term Investments [Member]								
Defined Benefit Plan Disclosure [Line Items]								
Defined benefit plan assets percentage of asset categories						2.00%		
Defined Benefit Pension Plan [Member] | Fixed Income [Member]								
Defined Benefit Plan Disclosure [Line Items]								
Defined benefit plan percentage of target allocation						41.00%		
Defined Benefit Pension Plan [Member] | Domestic Equities [Member]								
Defined Benefit Plan Disclosure [Line Items]								
Defined benefit plan percentage of target allocation						23.00%		
Defined Benefit Pension Plan [Member] | International Equities [Member]								
Defined Benefit Plan Disclosure [Line Items]								
Defined benefit plan percentage of target allocation						26.00%		
Defined Benefit Pension Plan [Member] | Hedge Funds [Member]								
Defined Benefit Plan Disclosure [Line Items]								
Defined benefit plan percentage of target allocation						10.00%		
Defined Benefit Pension Plan [Member] | Scenario, Forecast [Member]								
Defined Benefit Plan Disclosure [Line Items]								
Net actuarial loss					12.7			
Other Postretirement Benefits Plan [Member]								
Defined Benefit Plan Disclosure [Line Items]								
Contributions to defined benefit plan assets						$ 1.2	$ 1.2	
Benefit obligation, discount rate						3.70%	3.01%	3.26%
Net periodic postretirement benefit cost						$ (2.0)	$ (2.2)	$ (2.0)
Actuarial gain						$ (2.1)	$ (0.7)	
The year the health care cost reaches ultimate trend rate of 4.5%						2028		
Increase in the benefit obligation						$ 0.7		
Decrease in the benefit obligation						$ 0.6		
Assumed health care cost trend rate						The assumed health care cost trend rate		

used in measuring the benefit obligation						represents the rate at which health care costs are assumed to increase. The assumed health care cost trend rate used in measuring the benefit obligation in 2018 is 6.90% for pre-age 65 retirees and 7.70% for post-age 65 retirees. These rates are assumed to decrease gradually to the ultimate health care cost trend rate of 4.5% in 2028 for both groups.		
Other Postretirement Benefits Plan [Member] | Pre Age 65 [Member]								
Defined Benefit Plan Disclosure [Line Items]								
Assumed health care cost trend rate						6.90%		
Other Postretirement Benefits Plan [Member] | Post Age 65 [Member]								
Defined Benefit Plan Disclosure [Line Items]								
Assumed health care cost trend rate						7.70%		
Other Postretirement Benefits Plan [Member] | Scenario, Forecast [Member]								
Defined Benefit Plan Disclosure [Line Items]								
Net periodic postretirement benefit cost					2.6			
Actuarial gain					2.3			
Prior service credit					$ 0.3			

Employee Benefit Plans - Schedule of Future Payments to Participants from Defined Benefit Plans (Detail)

Employee Benefit Plans - Schedule of Future Payments to Participants from Defined Benefit Plans (Detail) - Defined Benefit Pension Plan [Member] $ in Millions	Dec. 31, 2018 USD ($)
Future payments of defined benefit plan	
2019	$ 46.0
2020	45.0
2021	44.0
2022	42.7
2023	41.5
Next five years	$ 183.5

Employee Benefit Plans - Schedule of Combined Funded Status and Net Periodic Pension Cost and Postretirement Benefit - Pension Benefits (Detail)

Employee Benefit Plans - Schedule of Combined Funded Status and Net Periodic Pension Cost and Postretirement Benefit - Pension Benefits (Detail) - USD ($) $ in Millions	12 Months Ended		
	Dec. 31, 2018	Dec. 31, 2017	Dec. 31, 2016
Change in Fair Value of Plan Assets During the Year:			
Employer contributions	$ 18.5		
Amounts recognized in Consolidated Balance Sheets			
Noncurrent liability	153.3	$ 152.4	
Defined Benefit Pension Plan [Member]			
Change in Projected Benefit Obligation During the Year:			
Beginning balance	593.0	605.9	
Service cost	0.0	0.0	
Interest cost	16.3	17.2	$ 18.2
Actuarial (gain) loss	(31.6)	20.3	
Benefits paid and plan expenses	(50.3)	(50.4)	
Ending balance	527.4	593.0	605.9
Change in Fair Value of Plan Assets During the Year:			
Beginning balance	438.6	416.4	
Actual return on plan assets	(27.1)	49.6	
Employer contributions	20.4	23.0	
Benefits paid and plan expenses	(50.3)	(50.4)	
Ending balance	381.6	438.6	$ 416.4
Funded status of plans	(145.8)	(154.4)	
Amounts recognized in Consolidated Balance Sheets			
Current liability	8.1	20.3	
Noncurrent liability	137.7	134.1	
Amounts recognized in Accumulated Other Comprehensive Loss			
Accumulated other comprehensive loss, net of tax of $91.5 and $91.5, respectively	$ 158.6	$ 151.4	

Employee Benefit Plans - Schedule of Combined Funded Status and Net Periodic Pension Cost and Postretirement Benefit - Pension Benefits (Parenthetical) (Detail)

Employee Benefit Plans - Schedule of Combined Funded Status and Net Periodic Pension Cost and Postretirement Benefit - Pension Benefits (Parenthetical) (Detail) - USD ($) $ in Millions	Dec. 31, 2018	Dec. 31, 2017
Defined Benefit Pension Plan [Member]		
Accumulated other comprehensive loss, tax	$ 91.5	$ 91.5

Employee Benefit Plans - Schedule of Other Comprehensive (Income) Loss Related to Pension Benefit Plans (Detail)

Employee Benefit Plans - Schedule of Other Comprehensive (Income) Loss Related to Pension Benefit Plans (Detail) - USD ($) $ in Millions		12 Months Ended		
		Dec. 31, 2018	Dec. 31, 2017	Dec. 31, 2016
Defined Benefit Plan Disclosure [Line Items]				
Net actuarial loss (gain)	[1]	$ 7.6	$ (13.8)	$ (13.6)
Tax expense		0.0	0.0	(0.1)
Defined Benefit Pension Plan [Member]				
Defined Benefit Plan Disclosure [Line Items]				
Net actuarial loss (gain)		21.4	(3.0)	9.5
Amortization of net actuarial (loss) gain		(14.2)	(12.8)	(12.5)
Tax expense				0.1
Other comprehensive income, net of tax		7.2	(15.8)	(2.9)
Other Postretirement Benefits Plan [Member]				
Defined Benefit Plan Disclosure [Line Items]				
Net actuarial loss (gain)		(2.1)	(0.7)	(1.4)
Amortization of net actuarial (loss) gain		2.5	2.7	2.6
Other comprehensive income, net of tax		$ 0.4	$ 2.0	$ 1.2

[1] The amount of the pension liability adjustment recognized in the Consolidated Statements of Operations within selling, general, and administrative expense was $11.7, $10.1 and $9.9 during the years ended December 31, 2018, 2017, and 2016, respectively.

Employee Benefit Plans - Schedule of Other Comprehensive (Income) Loss Related to Postretirement Benefit Plans (Detail)

Employee Benefit Plans - Schedule of Other Comprehensive (Income) Loss Related to Postretirement Benefit Plans (Detail)	12 Months Ended		
	Dec. 31, 2018	Dec. 31, 2017	Dec. 31, 2016
Defined Benefit Plan Disclosure [Line Items]			
Discount rate used to determine benefit obligations	25.00%		
Defined Benefit Pension Plan [Member]			
Defined Benefit Plan Disclosure [Line Items]			
Discount rate used to determine net benefit cost	3.25%	3.63%	3.76%
Expected return on plan assets	6.30%	6.30%	6.30%
Discount rate used to determine benefit obligations	3.92%	3.25%	3.63%
Other Postretirement Benefits Plan [Member]			
Defined Benefit Plan Disclosure [Line Items]			
Discount rate used to determine net benefit cost	3.01%	3.26%	3.38%
Discount rate used to determine benefit obligations	3.70%	3.01%	3.26%

Employee Benefit Plans - Components of Net Periodic Cost for Defined Benefit Pension Plan and Other Postretirement Benefit Plan (Detail)

Employee Benefit Plans - Components of Net Periodic Cost for Defined Benefit Pension Plan and Other Postretirement Benefit Plan (Detail) - USD ($) $ in Millions	12 Months Ended		
	Dec. 31, 2018	Dec. 31, 2017	Dec. 31, 2016
Defined Benefit Plans And Other Postretirement Benefit Plans Table Text Block [Line Items]			
Net periodic pension cost	$ 2.7	$ 1.5	$ 3.0
Defined Benefit Pension Plan [Member]			
Defined Benefit Plans And Other Postretirement Benefit Plans Table Text Block [Line Items]			
Service cost	0.0	0.0	
Interest cost	16.3	17.2	18.2
Actuarial loss (gain) amortization	14.2	12.8	12.5
Less: Expected return on plan assets	(25.8)	(26.3)	(25.7)
Net periodic pension cost	4.7	3.7	5.0
Other Postretirement Benefits Plan [Member]			
Defined Benefit Plans And Other Postretirement Benefit Plans Table Text Block [Line Items]			
Interest cost	0.5	0.5	0.6
Actuarial loss (gain) amortization	(2.2)	(2.4)	(2.3)
Prior service credit amortization	(0.3)	(0.3)	(0.3)
Net periodic pension cost	$ (2.0)	$ (2.2)	$ (2.0)

Employee Benefit Plans - Schedule of fair values of defined benefit plan's assets (Detail)

Employee Benefit Plans - Schedule of fair values of defined benefit plan's assets (Detail) - Defined Benefit Pension Plan [Member] - USD ($) $ in Millions	Dec. 31, 2018	Dec. 31, 2017	Dec. 31, 2016
Defined Benefit Plan Disclosure [Line Items]			
Fair value of defined benefit plan assets	$ 381.6	$ 438.6	$ 416.4
Fair Value, Inputs, Level 1 [Member]			
Defined Benefit Plan Disclosure [Line Items]			
Fair value of defined benefit plan assets	57.9	36.8	
Fair Value, Inputs, Level 2 [Member]			
Defined Benefit Plan Disclosure [Line Items]			
Fair value of defined benefit plan assets	323.7	401.8	
Short-term Investments [Member]			
Defined Benefit Plan Disclosure [Line Items]			
Fair value of defined benefit plan assets	57.9	36.8	
Short-term Investments [Member] | Fair Value, Inputs, Level 1 [Member]			
Defined Benefit Plan Disclosure [Line Items]			
Fair value of defined benefit plan assets	57.9	36.8	
Derivative [Member]			
Defined Benefit Plan Disclosure [Line Items]			
Fair value of defined benefit plan assets		14.8	
Derivative [Member] | Fair Value, Inputs, Level 2 [Member]			
Defined Benefit Plan Disclosure [Line Items]			
Fair value of defined benefit plan assets		14.8	
US Government Debt Securities [Member]			
Defined Benefit Plan Disclosure [Line Items]			
Fair value of defined benefit plan assets	92.4	88.1	
US Government Debt Securities [Member] | Fair Value, Inputs, Level 2 [Member]			
Defined Benefit Plan Disclosure [Line Items]			
Fair value of defined benefit plan assets	92.4	88.1	
Corporate Debt Securities [Member]			
Defined Benefit Plan Disclosure [Line Items]			
Fair value of defined benefit plan assets	18.7	18.3	
Corporate Debt Securities [Member] | Fair Value, Inputs, Level 2 [Member]			
Defined Benefit Plan Disclosure [Line Items]			
Fair value of defined benefit plan assets	18.7	18.3	

Domestic Equity [Member]			
Defined Benefit Plan Disclosure [Line Items]			
Fair value of defined benefit plan assets	80.1	144.4	
Domestic Equity [Member] | Fair Value, Inputs, Level 2 [Member]			
Defined Benefit Plan Disclosure [Line Items]			
Fair value of defined benefit plan assets	80.1	144.4	
Foreign Equity [Member]			
Defined Benefit Plan Disclosure [Line Items]			
Fair value of defined benefit plan assets	48.5	57.5	
Foreign Equity [Member] | Fair Value, Inputs, Level 2 [Member]			
Defined Benefit Plan Disclosure [Line Items]			
Fair value of defined benefit plan assets	48.5	57.5	
Foreign Bond [Member]			
Defined Benefit Plan Disclosure [Line Items]			
Fair value of defined benefit plan assets	23.8	41.8	
Foreign Bond [Member] | Fair Value, Inputs, Level 2 [Member]			
Defined Benefit Plan Disclosure [Line Items]			
Fair value of defined benefit plan assets	23.8	41.8	
Partnerships [Member]			
Defined Benefit Plan Disclosure [Line Items]			
Fair value of defined benefit plan assets	32.1	35.3	
Partnerships [Member] | Fair Value, Inputs, Level 2 [Member]			
Defined Benefit Plan Disclosure [Line Items]			
Fair value of defined benefit plan assets	32.1	35.3	
Hedge Funds [Member]			
Defined Benefit Plan Disclosure [Line Items]			
Fair value of defined benefit plan assets	28.1	1.6	
Hedge Funds [Member] | Fair Value, Inputs, Level 2 [Member]			
Defined Benefit Plan Disclosure [Line Items]			
Fair value of defined benefit plan assets	$ 28.1	$ 1.6	

Employee Benefit Plans - Schedule of Combined Funded Status and Net Periodic Pension Cost and Postretirement Benefit - Postretirement Benefits (Detail)

Employee Benefit Plans - Schedule of Combined Funded Status and Net Periodic Pension Cost and Postretirement Benefit - Postretirement Benefits (Detail) - USD ($) $ in Millions	12 Months Ended		
	Dec. 31, 2018	Dec. 31, 2017	Dec. 31, 2016
Change in Plan Assets:			
Company contributions	$ 18.5		
Amounts recognized in Consolidated Balance Sheets			
Noncurrent liability	153.3	$ 152.4	
Other Postretirement Benefits Plan [Member]			
Change in Benefit Obligation:			
Beginning balance	19.6	21.0	
Interest cost	0.5	0.5	$ 0.6
Participant contributions	0.5	1.1	
Actuarial gain	(2.1)	(0.7)	
Benefits paid	(1.7)	(2.3)	
Ending balance	16.8	19.6	21.0
Change in Plan Assets:			
Beginning balance	0.0	0.0	
Company contributions	1.2	1.2	
Participant contributions	0.5	1.1	
Benefits paid	(1.7)	(2.3)	
Ending balance	0.0	0.0	$ 0.0
Funded status of plans	(16.8)	(19.6)	
Amounts recognized in Consolidated Balance Sheets			
Current liability	2.2	2.4	
Noncurrent liability	14.6	17.2	
Amounts recognized in Accumulated Other Comprehensive Loss			
Accumulated other comprehensive income, net of tax of $(9.9) and $(9.9), respectively	$ (8.5)	$ (8.9)	

Employee Benefit Plans - Schedule of Combined Funded Status and Net Periodic Pension Cost and Postretirement Benefit - Postretirement Benefits (Parenthetical) (Detail)

Employee Benefit Plans - Schedule of Combined Funded Status and Net Periodic Pension Cost and Postretirement Benefit - Postretirement Benefits (Parenthetical) (Detail) - USD ($) $ in Millions	Dec. 31, 2018	Dec. 31, 2017
Other Postretirement Benefits Plan [Member]		
Accumulated other comprehensive loss, tax	$ 9.9	$ 9.9

Employee Benefit Plans - Projected future postretirement benefit payments and future receipts from the federal subsidy (Detail)

Employee Benefit Plans - Projected future postretirement benefit payments and future receipts from the federal subsidy (Detail) - Other Postretirement Benefits Plan [Member] $ in Millions	Dec. 31, 2018 USD ($)
Future payments of defined benefit plan	
2019	$ 2.2
2020	1.9
2021	1.9
2022	1.8
2023	1.6
Next five years	6.2
Defined benefit plan, expected future receipts from federal subsidy	
2019	0.1
2020	0.1
2023	0.1
Next five years	$ 0.1

Share-Based Compensation - Additional Information (Detail)

Share-Based Compensation - Additional Information (Detail) - USD ($) $ in Millions			12 Months Ended			
	Nov. 09, 2018	Apr. 24, 2018	Dec. 31, 2018	Dec. 31, 2017	Dec. 31, 2016	Mar. 20, 2017
Share-based Compensation Arrangement by Share-based Payment Award [Line Items]						
Share-based compensation expense			$ 24.7	$ 16.1	$ 12.5	
Performance Shares [Member]						
Share-based Compensation Arrangement by Share-based Payment Award [Line Items]						
Share-based compensation expense			4.8			
Share-based compensation expense related to unvested stock options not yet recognized			0.0			
Term Based Stock Options [Member]						
Share-based Compensation Arrangement by Share-based Payment Award [Line Items]						
Share-based compensation expense related to unvested stock options not yet recognized			$ 46.6			
Share-based compensation expense related to unvested awards expected to be recognized over a weighted average period			1 year 9 months 18 days			
Stock options, vested			5,731,295			
Restricted Stock Units (RSUs) [Member]						
Share-based Compensation Arrangement by Share-based Payment Award [Line Items]						
Share-based compensation expense related to unvested awards expected to be recognized over a weighted average period			2 years 10 months 24 days			
Stock options, vested			230,990			
Shares issued upon vesting of RSUs			105,990			
Remaining vested and releasable			125,000			
Share-based compensation expense related to unvested restricted stock units not yet recognized			$ 9.9			
Restricted Stock Units (RSUs) [Member] | Minimum [Member]						
Share-based Compensation Arrangement by Share-based Payment Award [Line Items]						
Restricted stock vesting period			3 years			
Restricted Stock Units (RSUs) [Member] | Maximum [Member]						
Share-based Compensation Arrangement by Share-based Payment Award [Line Items]						
Restricted stock vesting period			4 years			
HCM Stock Incentive Plan 2007 [Member]						
Share-based Compensation Arrangement by Share-based Payment Award [Line Items]						

Number of shares authorized			10,540,540			
Common shares outstanding			5,000			
HCM Stock Incentive Plan 2013 [Member]						
Share-based Compensation Arrangement by Share-based Payment Award [Line Items]						
Number of shares authorized			12,500,000			15,000,000
Common shares outstanding			9,356,904			
Share based compensation arrangement by share based payment award exercise period after employment termination			90 days			
Stock option awards, contractual term			10 years			
HCM Stock Incentive Plan 2013 [Member] | Minimum [Member]						
Share-based Compensation Arrangement by Share-based Payment Award [Line Items]						
Restricted stock vesting period			4 years			
HCM Stock Incentive Plan 2013 [Member] | Maximum [Member]						
Share-based Compensation Arrangement by Share-based Payment Award [Line Items]						
Restricted stock vesting period			5 years			
HCM Stock Incentive Plan 2013 [Member] | Stock Appreciation Rights (SARs) [Member]						
Share-based Compensation Arrangement by Share-based Payment Award [Line Items]						
Number of shares authorized			600,000			
Common shares outstanding			0			
Share-based compensation expense			$ 1.5			
HCM Stock Incentive Plan 2013 [Member] | Term Based Stock Options [Member]						
Share-based Compensation Arrangement by Share-based Payment Award [Line Items]						
Expected term of stock options granted			7 years			
HCM Equity Incentive Plan 2018 [Member]						
Share-based Compensation Arrangement by Share-based Payment Award [Line Items]						
Number of shares authorized		13,500,000				
Common shares outstanding			5,218,315			
Restricted stock vesting period		4 years				
Share based compensation arrangement by share based payment award exercise period after employment termination		90 days				
Stock option awards, contractual term		10 years				
Shares available for future grants of equity awards			8,281,685			
HCM Equity Incentive Plan 2018 [Member] | Term Based Stock Options [Member]						
Share-based Compensation Arrangement by Share-based Payment Award [Line Items]						
Expected term of stock options granted			7 years			
HCM Global Employee Stock						

Purchase Plan [Member]						
Share-based Compensation Arrangement by Share-based Payment Award [Line Items]						
Stock option awards, contractual term	10 years					
HCM Global Employee Stock Purchase Plan [Member] | Maximum [Member]						
Share-based Compensation Arrangement by Share-based Payment Award [Line Items]						
Number of shares authorized	2,500,000					

Share-Based Compensation - Summary of Performance-Based Option Activity (Detail)

Share-Based Compensation - Summary of Performance-Based Option Activity (Detail) - Performance Shares [Member] - Share Based Compensation Plans [Member] - USD ($) $ / shares in Units, $ in Millions	12 Months Ended			
	Dec. 31, 2018	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2015
Shares				
Options Outstanding at Beginning of Period	1,038,147	1,230,426	1,283,368	
Options, Granted	0	0	0	
Options, Exercised	(663,412)	(167,202)	0	
Options, Forfeited or expired	(8,358)	(25,077)	(52,942)	
Options Outstanding at End of Period	366,377	1,038,147	1,230,426	1,283,368
Options Exercisable at End of Period	366,377			
Weighted Average Exercise Price (per share)				
Weighted Average Exercise Price at Beginning of Period	$ 13.46	$ 13.46	$ 13.46	
Weighted Average Exercise Price, Granted	0	0	0	
Weighted Average Exercise Price, Exercised	(13.46)	(13.46)	0	
Weighted Average Exercise Price, Forfeited or expired	(13.46)	(13.46)	(13.46)	
Weighted Average Exercise Price at End of Period	13.50	$ 13.46	$ 13.46	$ 13.46
Weighted Average Exercise Price Exercisable at End of Period	$ 13.50			
Weighted Average Remaining Contractual Term (in years)				
Weighted Average Remaining Contractual Term (in years)	3 years 1 month 6 days	3 years 6 months	4 years 2 months 12 days	5 years 2 months 12 days
Weighted Average Remaining Contractual Term Exercisable (in years)	3 years 1 month 6 days			
Aggregate Intrinsic Value				
Aggregate Intrinsic Value, Options Outstanding	$ 7.7			
Aggregate Intrinsic Value, Options Exercisable	$ 7.7			

Share-Based Compensation - Summary of Term-Based Option Activity (Detail)

Share-Based Compensation - Summary of Term-Based Option Activity (Detail) - Term Based Stock Options [Member] - Share Based Compensation Plans [Member] - USD ($) $ / shares in Units, $ in Millions	12 Months Ended			
	Dec. 31, 2018	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2015
Shares				
Options Outstanding at Beginning of Period	10,994,181	9,772,270	7,609,658	
Options, Granted	5,236,037	2,285,981	2,339,238	
Options, Exercised	(2,501,983)	(595,464)	0	
Options, Forfeited or expired	(178,466)	(468,606)	(176,626)	
Options Outstanding at End of Period	13,549,769	10,994,181	9,772,270	7,609,658
Options Exercisable at End of Period	5,731,295			
Weighted Average Exercise Price (per share)				
Weighted Average Exercise Price at Beginning of Period	$ 16.52	$ 16.20	$ 16.02	
Weighted Average Exercise Price, Granted	23.07	17.46	16.80	
Weighted Average Exercise Price, Exercised	(15.26)	(15.14)	0	
Weighted Average Exercise Price, Forfeited or expired	(17.30)	(16.10)	(16.54)	
Weighted Average Exercise Price at End of Period	19.28	$ 16.52	$ 16.20	$ 16.02
Weighted Average Exercise Price Exercisable at End of Period	$ 16.75			
Weighted Average Remaining Contractual Term (in years)				
Weighted Average Remaining Contractual Term (in years)	7 years 6 months	6 years 10 months 24 days	7 years 1 month 6 days	7 years 3 months 18 days
Weighted Average Remaining Contractual Term Exercisable (in years)	5 years 8 months 12 days			
Aggregate Intrinsic Value				
Aggregate Intrinsic Value, Options Outstanding	$ 206.8	$ 48.8	$ 9.9	$ 14.1
Aggregate Intrinsic Value, Options Exercisable	$ 101.7			

Share-Based Compensation - Other Information Pertaining to Term-Based Options (Detail)

Share-Based Compensation - Other Information Pertaining to Term-Based Options (Detail) - $ / shares	12 Months Ended		
	Dec. 31, 2018	Dec. 31, 2017	Dec. 31, 2016
Term Based Stock Options [Member] | Share Based Compensation Plans [Member]			
Share-based Compensation Arrangement by Share-based Payment Award [Line Items]			
Weighted average grant date fair value per share	$ 7.80	$ 5.88	$ 5.74

Share-Based Compensation - Fair Value of Stock Option Estimated Using Black-Scholes Option Pricing Model (Detail)

Share-Based Compensation - Fair Value of Stock Option Estimated Using Black-Scholes Option Pricing Model (Detail) - Term Based Stock Options [Member] - Share Based Compensation Plans [Member]	12 Months Ended		
	Dec. 31, 2018	Dec. 31, 2017	Dec. 31, 2016
Share-based Compensation Arrangement by Share-based Payment Award [Line Items]			
Expected volatility	25.00%	30.00%	30.00%
Expected dividend rate	0.00%	0.00%	0.00%
Risk-free interest rate	2.90%	2.30%	1.90%

Share-Based Compensation - Summary of Restricted Stock Units Activity (Detail)

Share-Based Compensation - Summary of Restricted Stock Units Activity (Detail) - Restricted Stock Units (RSUs) [Member] - shares	12 Months Ended		
	Dec. 31, 2018	Dec. 31, 2017	Dec. 31, 2016
Restricted Stock Units			
RSUs, Shares issued upon vesting of RSUs	(230,990)		
RSUs releasable at End of Period	125,000		
Share Based Compensation Plans [Member]			
Restricted Stock Units			
RSUs outstanding at Beginning of Period	605,990	182,180	228,572
RSUs, Granted	164,073	500,000	29,800
RSUs, Shares issued upon vesting of RSUs	(105,990)	(76,190)	(76,192)
RSUs, Forfeited or canceled	0	0	0
RSUs outstanding at End of Period	664,073	605,990	182,180
RSUs releasable at End of Period	125,000		

Share-Based Compensation - Other Information Pertaining to Restricted Stock Units (Detail)

Share-Based Compensation - Other Information Pertaining to Restricted Stock Units (Detail) - $ / shares	12 Months Ended		
	Dec. 31, 2018	Dec. 31, 2017	Dec. 31, 2016
Restricted Stock Units (RSUs) [Member] | Share Based Compensation Plans [Member]			
Share-based Compensation Arrangement by Share-based Payment Award [Line Items]			
Weighted average grant date fair value per share	$ 35.55	$ 17.26	$ 17.40

Supplementary Data to Statement of Operations - Summary of Supplementary Data to Statements of Operations (Detail)

Supplementary Data to Statement of Operations - Summary of Supplementary Data to Statements of Operations (Detail) - USD ($) $ in Millions	12 Months Ended		
	Dec. 31, 2018	Dec. 31, 2017	Dec. 31, 2016
Other (Income) Expense, Net			
Asset impairment			$ 10.4
Environmental reserve			5.9
Foreign currency translation (income) expense	$ (2.9)	$ 7.3	(3.4)
Total other (income) expense, net	$ (2.9)	$ 7.3	$ 12.9

Supplementary Data to Statement of Operations - Additional Information (Detail)

Supplementary Data to Statement of Operations - Additional Information (Detail) - USD ($) $ in Millions	12 Months Ended		
	Dec. 31, 2018	Dec. 31, 2017	Dec. 31, 2016
Organization Consolidation And Presentation Of Financial Statements [Abstract]			
Increase in environmental reserve			$ 5.9
Foreign currency translation (income) expense	$ (2.9)	$ 7.3	(3.4)
UK Business [Member]			
Organization Consolidation And Presentation Of Financial Statements [Abstract]			
Impairment charge on trade name intangible asset			$ 10.2

Accumulated Other Comprehensive Income (Loss) - Components of Accumulated Other Comprehensive Income (Loss) (Detail)

Accumulated Other Comprehensive Income (Loss) - Components of Accumulated Other Comprehensive Income (Loss) (Detail) - USD ($) $ in Millions	12 Months Ended	
	Dec. 31, 2018	Dec. 31, 2017
Accumulated Other Comprehensive Income (Loss) [Line Items]		
Beginning balance	$ 1,091.2	
Other comprehensive income (loss) before income taxes and reclassifications	(77.2)	$ 25.7
Income tax benefit	1.2	3.6
Reclassifications to earnings	11.7	10.1
Other comprehensive income (loss) attributable to Ceridian	(64.3)	39.4
Ending balance	1,532.0	1,091.2
LifeWorks [Member]		
Accumulated Other Comprehensive Income (Loss) [Line Items]		
LifeWorks Disposition	0.7	
Foreign Currency Translation Adjustment [Member]		
Accumulated Other Comprehensive Income (Loss) [Line Items]		
Beginning balance	(160.6)	(199.9)
Other comprehensive income (loss) before income taxes and reclassifications	(47.4)	39.3
Other comprehensive income (loss) attributable to Ceridian	(47.4)	39.3
Ending balance	(207.3)	(160.6)
Foreign Currency Translation Adjustment [Member] | LifeWorks [Member]		
Accumulated Other Comprehensive Income (Loss) [Line Items]		
LifeWorks Disposition	0.7	
Unrealized Gain (Loss) from Invested Customer Trust Funds [Member]		
Accumulated Other Comprehensive Income (Loss) [Line Items]		
Beginning balance	(9.0)	4.7
Other comprehensive income (loss) before income taxes and reclassifications	(10.5)	(17.3)
Income tax benefit	1.2	3.6
Other comprehensive income (loss) attributable to Ceridian	(9.3)	(13.7)
Ending balance	(18.3)	(9.0)
Pension Liability Adjustment [Member]		
Accumulated Other Comprehensive Income (Loss)		

[Line Items]		
Beginning balance	(142.5)	(156.3)
Other comprehensive income (loss) before income taxes and reclassifications	(19.3)	3.7
Reclassifications to earnings	11.7	10.1
Other comprehensive income (loss) attributable to Ceridian	(7.6)	13.8
Ending balance	(150.1)	(142.5)
Accumulated Other Comprehensive Income (Loss) [Member]		
Accumulated Other Comprehensive Income (Loss) [Line Items]		
Beginning balance	(312.1)	(351.5)
Ending balance	$ (375.7)	$ (312.1)

Income Taxes - Provision for Income Taxes (Detail)

Income Taxes - Provision for Income Taxes (Detail) - USD ($) $ in Millions	12 Months Ended		
	Dec. 31, 2018	Dec. 31, 2017	Dec. 31, 2016
(Loss) Income Before Income Taxes:			
U.S.	$ (73.2)	$ (83.4)	$ (163.4)
International	42.8	29.3	64.8
Loss from continuing operations before income taxes	(30.4)	(54.1)	(98.6)
Current:			
U.S.	3.8	(0.3)	(0.4)
State and local	0.3	0.1	0.2
International	20.4	12.9	15.2
Total current income tax expense	24.5	12.7	15.0
Deferred:			
U.S.	(14.4)	(60.3)	(15.7)
State and local	(2.2)	0.8	(0.1)
International	(0.2)	(2.8)	7.5
Total deferred income tax (benefit) expense	(16.8)	(62.3)	(8.3)
Total income tax expense (benefit)	$ 7.7	$ (49.6)	$ 6.7

Income Taxes - Reconciliation of U.S. Federal Statutory Rate (Detail)

Income Taxes - Reconciliation of U.S. Federal Statutory Rate (Detail)	12 Months Ended		
	Dec. 31, 2018	Dec. 31, 2017	Dec. 31, 2016
Income Tax Disclosure [Abstract]			
U.S. statutory rate%	(21.00%)	(35.00%)	(35.00%)
Change in valuation allowance	10.50%	(116.90%)	(5.40%)
State income taxes, net of federal benefit	(27.90%)	(5.20%)	(1.20%)
Share-based compensation	(8.80%)	8.30%	2.60%
International tax rate differential	11.50%	(6.70%)	(6.40%)
Foreign dividend income	17.80%	48.10%	1.00%
Foreign capital gain income	6.30%		
Unremitted foreign earnings	3.60%	(35.60%)	22.00%
Global intangible low-taxed income	20.40%		
Base erosion tax	12.50%		
Reserve for tax contingencies	0.30%		(0.20%)
Expiration of un-utilized tax credits		1.50%	
Unrealized gain on investments			30.70%
Change in tax rate	(5.20%)	52.40%	
Other	5.30%	(2.60%)	(1.50%)
Income tax provision%	25.30%	(91.70%)	6.60%

Income Taxes - Additional Information (Detail)

Income Taxes - Additional Information (Detail) - USD ($) $ in Millions	12 Months Ended		
	Dec. 31, 2018	Dec. 31, 2017	Dec. 31, 2016
Income Taxes [Line Items]			
Effective income tax percentage	21.00%	35.00%	35.00%
Income tax expense (benefit)	$ 7.7	$ (49.6)	$ 6.7
Income (loss) before income taxes	(30.4)	(54.1)	(98.6)
Net federal tax benefit, available from the loss carryovers	47.2		
Federal tax credit carryovers	0.3		
State net operating loss tax benefit, amount	31.0		
Valuation allowance	93.3	90.7	
Unrecognized tax benefits	1.3	$ 1.5	$ 1.4
Accrued interest and penalty included in unrecognized tax benefits	0.2		
Unrecognized tax benefits if recognized would impact on effective income tax rate	1.3		
Unremitted foreign earnings	298.5		
Unremitted earnings consider to be indefinitely reinvested	174.6		
Unremitted earnings not considered indefinitely reinvested	123.9		
Deferred tax liability for the expected tax cost of repatriating earnings	6.2		
Withholding tax expense	$ 8.7		
Latest Tax Year [Member]			
Income Taxes [Line Items]			
Tax credit carryforward, expiration date	Dec. 31, 2031		
Tax Cutsand Jobs Actof 2017 [Member]			
Income Taxes [Line Items]			
Increase in includible untaxed foreign earnings	$ 16.2		
Tax benefit utilization	16.2		
Income tax expense (benefit)	0.0		
Tax Cutsand Jobs Actof 2017 [Member] | Global Intangible Low-Taxed Income (“GILTI”) [Member]			
Income Taxes [Line Items]			
Tax benefit utilization	29.7		
Income tax expense (benefit)	6.6		
Income (loss) before income taxes	29.7		
Tax Cutsand Jobs Actof 2017 [Member] | Base Erosion and Anti-Abuse Tax (“BEAT”) [member]			
Income Taxes [Line Items]			
Income tax expense (benefit)	3.8		
Foreign Income [Member] | Tax Cutsand Jobs Actof 2017 [Member]			
Income Taxes [Line Items]			
Income tax expense (benefit)	$ 5.7		
Research Tax Credit Carryforward [Member]			
Income Taxes [Line Items]			
Tax credit carryforward, expiration date	Dec. 31, 2027		

Income Taxes - Components of Deferred Tax Asset and Liability (Detail)

Income Taxes - Components of Deferred Tax Asset and Liability (Detail) - USD ($) $ in Millions	Dec. 31, 2018	Dec. 31, 2017
Deferred Tax Asset:		
Employment related accruals	$ 51.2	$ 51.0
Foreign tax credit carryover and other credit carryovers	0.3	0.2
Net operating loss carryforwards	78.2	100.3
Total gross deferred tax asset	129.7	151.5
Valuation allowance	(93.3)	(90.7)
Total deferred tax asset	36.4	60.8
Deferred Tax Liability:		
Intangibles	(62.1)	(65.7)
Unremitted foreign earnings	(298.5)	
Unrealized gain on investment		(22.2)
Other	(5.8)	(5.0)
Total deferred tax liability	(67.9)	(92.9)
Net deferred tax liability	(31.5)	(32.1)
U.S. [Member]		
Deferred Tax Liability:		
Net deferred tax liability	(19.8)	(18.4)
International [Member]		
Deferred Tax Liability:		
Net deferred tax liability	$ (11.7)	$ (13.7)

Income Taxes - Unrecognized Tax Benefits (Detail)

Income Taxes - Unrecognized Tax Benefits (Detail) - USD ($) $ in Millions	12 Months Ended	
	Dec. 31, 2018	Dec. 31, 2017
Federal, State and Foreign Tax		
Beginning unrecognized tax balance	$ 1.5	$ 1.4
Increase prior period positions	0.1	0.2
Increase current period positions	0.2	0.1
Decrease prior period positions	(0.1)	
Decrease current period positions	(0.3)	
Statutes expiring	(0.1)	(0.2)
Ending unrecognized tax benefits	$ 1.3	$ 1.5

Commitments and Contingencies - Schedule of Rental Expense and Sublease Income (Detail)

Commitments and Contingencies - Schedule of Rental Expense and Sublease Income (Detail) - USD ($) $ in Millions	12 Months Ended		
	Dec. 31, 2018	Dec. 31, 2017	Dec. 31, 2016
Rental Expense, Net			
Rental expense	$ 17.6	$ 17.0	$ 16.8
Sublease rental income	(4.9)	(4.2)	(3.5)
Net rental expense	$ 12.7	$ 12.8	$ 13.3

Commitments and Contingencies - Schedule of Future Minimum Noncancellable Lease Payments (Detail)

Commitments and Contingencies - Schedule of Future Minimum Noncancellable Lease Payments (Detail) $ in Millions	Dec. 31, 2018 USD ($)
Leases Operating [Abstract]	
2019	$ 13.6
2020	11.8
2021	7.7
2022	7.4
2023	6.2
Thereafter	9.4
Total	$ 56.1

Commitments and Contingencies - Schedule of Future Minimum Noncancellable Lease Payments (Parenthetical) (Detail)

Commitments and Contingencies - Schedule of Future Minimum Noncancellable Lease Payments (Parenthetical) (Detail) $ in Millions	Dec. 31, 2018 USD ($)
Commitments And Contingencies Disclosure [Abstract]	
Future minimum sublease rentals under noncancellable subleases	$ 13.1

Commitments and Contingencies - Additional Information (Detail)

Commitments and Contingencies - Additional Information (Detail) - USD ($) $ in Millions	12 Months Ended		
	Dec. 31, 2016	Dec. 31, 2018	Dec. 31, 2017
Commitments And Contingencies Disclosure [Abstract]			
Increase in environmental reserve	$ 5.9		
Recognized an undiscounted liability		$ 5.2	$ 5.4

Related Party Transactions - Additional Information (Detail)

Related Party Transactions - Additional Information (Detail) - USD ($) $ in Millions	1 Months Ended	12 Months Ended		
	Apr. 30, 2018	Dec. 31, 2018	Dec. 31, 2017	Dec. 31, 2016
Cannae and THLM [Member]				
Management fee under condition one		$ 0.9		
Management fee percentage of EBITDA under condition two		0.50%		
Management fees description		Amount equal to the greater of (a) $0.9, or (b) 0.5 percent of Adjusted EBITDA.		
Number of years for which present value of the management fee to be paid in case of agreement termination	7 years			
Management agreement termination fee	$ 11.3			
Management fee		$ 12.0	$ 1.9	$ 5.0
Cannae and THLM [Member] | Convertible Preferred Stock [Member] | Transaction Advisory Fee [Member]				
Transaction advisory fees				3.0
FNF [Member]				
Senior notes owned			24.0	24.0
Interest payments received		1.3	3.2	3.2
FNF [Member] | Payroll-Related Tax Filing Services [Member]				
Revenue from related parties		0.4	0.5	0.3
CompuCom Systems, Inc. [Member]				
Payment to service provider		1.8	3.1	5.0
Fleet Cor Technologies Or Wholly Owned Affiliates [Member] | Dayforce HCM Services, Reseller/Referral Arrangement [Member]				
Revenue from related parties		2.3	2.9	
Fleet Cor Technologies Inc [Member]				
Rebates on corporate charge card purchases			$ 0.2	
The Stronach Group [Member] | Dayforce [Member]				
Revenue from related parties		0.3		$ 0.2
American Blue Ribbon Holdings, LLC [Member] | Dayforce [Member]				
Revenue from related parties		1.8		
Essex Bargain Hunt Superstores [Member] | Dayforce [Member]				
Revenue from related parties		0.5		
Guaranteed Rate [Member] | Dayforce [Member]				
Revenue from related parties		0.5		
Phillips Feed Services [Member] | Dayforce [Member]				
Revenue from related parties		0.3		
System One Holdings LLC [Member] | Dayforce [Member]				
Revenue from related parties		$ 0.3		

Segments and Financial Data by Solution and Geographic Area - Additional Information (Detail)

Segments and Financial Data by Solution and Geographic Area - Additional Information (Detail)	12 Months Ended
	Dec. 31, 2018 Segment Cloudoffering Employee Service Customer
Segment Reporting Information [Line Items]	
Number of operating segments	1
Number of reportable segments	1
Number of customers | Customer	0
Status of customer accounts	No single customer accounts for 1% or more of our consolidated revenue for any of the periods presented.
Customer Concentration Risk [Member] | Sales Revenue, Net [Member]	
Segment Reporting Information [Line Items]	
Status of customer accounts, percentage	1.00%
Cloud Revenue [Member]	
Segment Reporting Information [Line Items]	
Number of cloud offering delivering solution | Cloudoffering	2
Powerpay [Member] | Maximum [Member]	
Segment Reporting Information [Line Items]	
Number of employees generating revenue from recurring fees | Employee	20
Bureau Revenue [Member]	
Segment Reporting Information [Line Items]	
Number of primary service lines delivering solutions | Service	3

Segments and Financial Data by Solution and Geographic Area - Schedule of Revenue by Solutions (Detail)

Segments and Financial Data by Solution and Geographic Area - Schedule of Revenue by Solutions (Detail) - USD ($) $ in Millions	12 Months Ended		
	Dec. 31, 2018	Dec. 31, 2017	Dec. 31, 2016
Segment Reporting, Revenue Reconciling Item [Line Items]			
Total revenue	$ 746.4	$ 670.8	$ 623.4
HCM [Member]			
Segment Reporting, Revenue Reconciling Item [Line Items]			
Total revenue	746.4	670.8	623.4
HCM [Member] | Cloud Revenue [Member]			
Segment Reporting, Revenue Reconciling Item [Line Items]			
Total revenue	534.3	404.3	297.8
HCM [Member] | Bureau Revenue [Member]			
Segment Reporting, Revenue Reconciling Item [Line Items]			
Total revenue	$ 212.1	$ 266.5	$ 325.6

Segments and Financial Data by Solution and Geographic Area - Schedule of Revenue by Country (Detail)

Segments and Financial Data by Solution and Geographic Area - Schedule of Revenue by Country (Detail) - USD ($) $ in Millions	12 Months Ended		
	Dec. 31, 2018	Dec. 31, 2017	Dec. 31, 2016
Segment Reporting, Revenue Reconciling Item [Line Items]			
Total revenue	$ 746.4	$ 670.8	$ 623.4
United States [Member]			
Segment Reporting, Revenue Reconciling Item [Line Items]			
Total revenue	518.5	465.2	432.7
Canada [Member]			
Segment Reporting, Revenue Reconciling Item [Line Items]			
Total revenue	224.7	203.4	189.0
Other Country [Member]			
Segment Reporting, Revenue Reconciling Item [Line Items]			
Total revenue	$ 3.2	$ 2.2	$ 1.7

Segments and Financial Data by Solution and Geographic Area - Schedule of Long Lived Assets by Country (Detail)

Segments and Financial Data by Solution and Geographic Area - Schedule of Long Lived Assets by Country (Detail) - USD ($) $ in Millions	Dec. 31, 2018	Dec. 31, 2017
Long Lived Assets Geographic [Line Items]		
Total long-lived assets	$ 2,219.3	$ 2,269.5
United States [Member]		
Long Lived Assets Geographic [Line Items]		
Total long-lived assets	1,778.7	1,786.1
Canada [Member]		
Long Lived Assets Geographic [Line Items]		
Total long-lived assets	438.1	480.6
Other Country [Member]		
Long Lived Assets Geographic [Line Items]		
Total long-lived assets	$ 2.5	$ 2.8

Capital Stock - Additional Information (Detail)

Capital Stock - Additional Information (Detail) - USD ($) $ / shares in Units, $ in Millions				12 Months Ended				
	Apr. 30, 2018	Jun. 28, 2017	Mar. 30, 2016	Dec. 31, 2018	Dec. 31, 2017	Dec. 31, 2016	Nov. 16, 2018	Oct. 01, 2013
Capital Unit [Line Items]								
Common Stock, authorized shares	500,000,000		150,000,000	500,000,000	150,000,000			100,000,000
Common Stock, par value				$ 0.01	$ 0.01			$ 0.01
Preferred Stock, shares authorized	10,000,000							
Stock issued in equity financing				$ 595.0	$ 3.2	$ 75.0		
Common Stock, shares issued	24,150,000			139,453,710	65,285,962		12,650,000	
Common Stock, shares outstanding				139,453,710	65,285,962			
IPO [Member]								
Capital Unit [Line Items]								
Shares issued, price per share	$ 22.00							
Shares issued	21,000,000							
Private Placement [Member]								
Capital Unit [Line Items]								
Shares issued, price per share	$ 22.00							
Shares issued	4,545,455							
Junior Preferred Stock [Member]								
Capital Unit [Line Items]								
Preferred Stock, shares authorized					70,000,000			70,000,000
Preferred Stock, par value					$ 0.01			$ 0.01
Preferred Stock, shares issued					58,244,308			
Preferred Stock, shares outstanding					58,244,308			
Junior Preferred Stock [Member] | Maximum [Member]								
Capital Unit [Line Items]								
Preferred stock liquidation preference				$ 13.50				
Senior Preferred Stock [Member]								
Capital Unit [Line Items]								
Preferred Stock, shares authorized			70,000,000		70,000,000			
Preferred Stock, par value			$ 0.01		$ 0.01			
Stock issued in equity financing			$ 150.2			$ 150.2		
Receivable from stockholders			75.2					
Preferred stock, dividend rate, percentage				12.50%				
Preferred stock, liquidation preference				In the event of liquidation, the Senior Preferred Stock had a liquidation preference equal to 1.5 times the initial face amount plus any accrued but unpaid dividends.				
Preferred Stock, shares issued					16,802,144			
Preferred Stock, shares outstanding					16,802,144			
Senior Preferred Stock [Member] | Ceridian Holding II [Member]								
Capital Unit [Line Items]								
Equity contributed by stockholders		$ 75.2	$ 75.0					

Net Loss per Share - Schedule of Numerators and Denominators of Basic and Diluted Net Loss per Share Computations (Detail)

Net Loss per Share - Schedule of Numerators and Denominators of Basic and Diluted Net Loss per Share Computations (Detail) - USD ($) $ / shares in Units, $ in Millions	12 Months Ended		
	Dec. 31, 2018	Dec. 31, 2017	Dec. 31, 2016
Numerator:			
Net loss attributable to Ceridian	$ (63.4)	$ (9.2)	$ (92.9)
Less: (Loss) income from discontinued operations	(25.8)	(6.0)	12.5
Net loss from continuing operations attributable to Ceridian	(37.6)	(3.2)	(105.4)
Less: Senior Preferred Stock dividends declared	7.7	20.5	14.1
Net loss from continuing operations attributable to Ceridian available to common stockholders	$ (45.3)	$ (23.7)	$ (119.5)
Denominator:			
Weighted-average shares outstanding—basic	114,049,682	65,204,960	64,988,338
Weighted-average shares outstanding—diluted	114,049,682	65,204,960	64,988,338
Net loss per share from continuing operations attributable to Ceridian—basic and diluted	$ (0.40)	$ (0.36)	$ (1.84)
Net (loss) income per share from discontinued operations—basic and diluted	(0.22)	(0.10)	0.19
Net loss per share attributable to Ceridian—basic and diluted	$ (0.62)	$ (0.46)	$ (1.65)

Net Loss per Share - Schedule of Potentially Dilutive Shares Excluded from Calculation of Diluted Net Loss per Share (Detail)

Net Loss per Share - Schedule of Potentially Dilutive Shares Excluded from Calculation of Diluted Net Loss per Share (Detail) - shares	12 Months Ended		
	Dec. 31, 2018	Dec. 31, 2017	Dec. 31, 2016
Senior Convertible Preferred Stock [Member]			
Antidilutive Securities Excluded from Computation of Earnings Per Share [Line Items]			
Antidilutive securities excluded from computation of earnings per share, amount	5,523,993	16,802,144	12,601,608
Junior Convertible Preferred Stock [Member]			
Antidilutive Securities Excluded from Computation of Earnings Per Share [Line Items]			
Antidilutive securities excluded from computation of earnings per share, amount	19,148,814	58,244,308	58,244,308
Stock Options [Member]			
Antidilutive Securities Excluded from Computation of Earnings Per Share [Line Items]			
Antidilutive securities excluded from computation of earnings per share, amount	14,227,487	10,201,105	8,423,124
Restricted Stock Units (RSUs) [Member]			
Antidilutive Securities Excluded from Computation of Earnings Per Share [Line Items]			
Antidilutive securities excluded from computation of earnings per share, amount	587,283	451,190	155,692