ANY PAYMENT, **EVERY POSSIBILITY.**®

ANNUAL REPORT **2019**

ACI UNIVERSAL PAYMENTS℠

LEADING THE TRANSFORMATION TO REAL-TIME PAYMENTS

As the world's most recognized and preferred real-time payments solution provider, ACI continues to lead the transformation of payments to real-time. We're driving growth for banks, intermediaries, merchants and billers by allowing their customers to pay on their terms, with any currency, through any channel and on any network — today, tomorrow and beyond.

FINANCIAL HIGHLIGHTS

REVENUE

↑25%

Revenue increased 25% vs. 2018.

RECURRING REVENUE

↑6 points

Recurring revenue was 71% of total revenue vs. 65% in 2018.

ACI ON DEMAND™ MARGIN

↑14 points

ACI On Demand net adjusted EBITDA margin rose from 5% in 2018 to 19% in 2019.

THE TRANSACTION OPPORTUNITY

ACI is well positioned to seize an increasing share of payment transactions globally.

2019

3.4T transactions

→

2024

5.8T* transactions

* Includes 2.9T transactions addressable with current ACI solution/segment focus and 2.9T white space opportunity

FELLOW SHAREHOLDERS

ACI Worldwide continued to advance our business in 2019, building on our unique value proposition serving the real-time, any-to-any payment needs of banks, intermediaries, merchants and billers in the fast-growing digital payments industry. We made key investments, strengthened our portfolio and secured global strategic wins across all of our solutions, all of which validate our leadership position. As the industry continues to advance, we are well positioned to seize an increasing share of this exciting and evolving market. Highlights of 2019 include:

CEO SUCCESSION

In November, Phil Heasley announced his intention to retire at year end after 15 years leading ACI. Following a thorough search, in February the Board appointed Odilon Almeida as President and Chief Executive Officer. Odilon is a seasoned executive with senior leadership experience spanning multiple industries and countries and brings a strong record of growth acceleration and value creation. He has a deep understanding of digital innovation and the rapidly evolving challenges and opportunities within the payments space. He brings a proven record of driving organic and inorganic growth, and the Board believes he is the right leader to further ACI's growth strategy, continue our positive momentum and deliver long-term value for our stakeholders.

ACQUISITION OF SPEEDPAY

With the completion of our Speedpay acquisition, ACI is now the leading provider of U.S. biller direct payments, supporting millions of transactions and driving digital bill payment forward. With Speedpay, we have expanded our reach into existing and complementary segments such as consumer finance, insurance, healthcare, higher education, utilities, government and mortgage. The acquisition has also brought substantial scale and profitability to our ACI On Demand business, which now represents more than half of our consolidated revenues. Our combined ACI-Speedpay solution provides further opportunities to accelerate revenue growth in our bill pay business through the fast-growing areas of real-time payments and subscription billing.

MICROSOFT COLLABORATION

A key priority in 2019 was advancing our global strategic partnerships. One of our most notable ventures was our collaboration with Microsoft to support payments in the public cloud, extending the reach of ACI's market-leading portfolio through Microsoft Azure. Three leading banks selected ACI's Retail Payments solution running on Microsoft Azure to power their global payments platform, including one of the largest acquirers in Brazil and a global top 30 bank. We expect this momentum to continue as the Microsoft collaboration helps ACI's customers reduce total cost of ownership, increase scalability and improve speed to market.

We made key investments, strengthened our portfolio and secured global strategic wins across all of our solutions, all of which validate our market leadership.

EMERGING MARKET OPPORTUNITIES

ACI continued to be the payments provider of choice for leading banks and intermediaries investing in digital transformation globally. We saw strong momentum in emerging markets throughout 2019, winning strategic deals for our Retail Payments, Real-Time Payments and Payments Intelligence solutions in Latin America, Middle East and Asia. Our investment in Mumbai-based digital payments solution provider

Mindgate Solutions helped to accelerate growth of real-time payments in India and beyond. In a global survey of payments technology decision makers, ACI was the most recognized and most preferred brand for real-time payments among banks and intermediaries for the second year in a row, reinforcing our business strategy.

CUSTOMER-FOCUSED MERCHANT STRATEGY

We secured many wins for our award-winning merchant solutions in 2019, supporting the growing omni-channel, eCommerce and fraud prevention needs of merchants across targeted verticals, including retail, hospitality, telecommunications, entertainment, fuel and convenience stores, and travel and transportation. We announced an international relationship with Worldpay to utilize our solution to accelerate the rollout of digital payments to its global merchant network. Our eCommerce platform continues to win new business, supporting some of the world's largest merchant brands.

FINANCIAL GROWTH

With the exception of a delayed contract that impacted our financial results, 2019 was a positive year for ACI. In addition to material improved profitability in our ACI On Demand business as a result of the Speedpay acquisition, we delivered strong growth in our Real-Time and eCommerce Payments solutions. ACI's full year revenue was $1.26 billion, up 25 percent from $1.0 billion in 2018. Our year-end 12-month and 60-month backlog provided solid growth expectations, at $1.1 billion and $5.8 billion, respectively. We also repurchased 1.2 million shares of ACI's common stock in 2019.

ADVANCING OUR CULTURE

During the year, we continued to evolve our 1ACI culture to be more agile, collaborative, empowered and customer-centric. While corporate social responsibility and environmental, social and governance initiatives have long been part of our business and corporate culture, this year we released our first Sustainability Report, designed to formalize and report on these important initiatives. The priorities, indicators and information shared within this report were influenced by environmental, social and governance frameworks such as the Sustainability Accounting Standards Board and by ACI's Sustainability Working Group, which consists of internal resources and external advisors. ACI is also proud to champion and support a diverse organization. A number of our leaders were recognized by industry groups for their work and achievements, as well as their record of promoting and advocating diversity and inclusion in the payments industry.

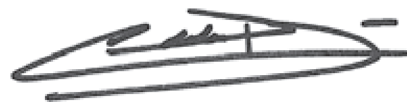
OUR VIEW OF 2020

We have begun 2020 during a time of volatility due to the global coronavirus (COVID-19) pandemic. ACI has a robust business continuity plan in place, and our systems, processes and people continue to meet the needs of our customers in a time when digital payments have taken on greater importance. We remain confident in ACI's long-term growth prospects and view 2020 as an important year of transformation as we advance our position as the global real-time, any-to-any payments leader.

On behalf of everyone at ACI, we thank our customers, our suppliers and you, our shareholders, for your support in 2019 and in the years ahead.

Sincerely,

David A. Poe
Chairman of the Board of Directors



Odilon Almeida
President and Chief Executive Officer

NOTABLE AWARDS

IDC MARKETSCAPE

Worldwide Integrated Payment Platforms 2019-2020 Vendor Assessment names ACI a Leader

PAYTECH AWARDS 2019

Ovum Innovation Awards
UP® Real-Time Payments™ solution

FROST & SULLIVAN

Innovation Excellence Award
UP Payments Risk Management™ solution for merchants

FROST & SULLIVAN 2019

Global Product Leadership Award
UP Real-Time Payments solution

MEFTECH INNOVATION AWARDS

Best Use of Emerging or Innovative Technology
UP Real-Time Payments solution

2019 MERCHANT PAYMENTS ECOSYSTEM AWARDS

Best International/Cross-Border Payments Solution
ACI Worldwide

FINANCE MONTHLY

Fraud Innovation Firm of the Year
ACI Worldwide

FORRESTER RESEARCH, INC.

The Forrester Wave™ Global Merchant Payment Providers, Q4 2018 names ACI's UP Merchant Payments™ solution a Leader in global merchant payments

AITE GROUP — AIM EVALUATION

The Leading Providers of U.S. Cash Management, 2018
ACI Universal Online Banker™ receives "Best-in-Class" status

NATIONAL TECHNOLOGY AWARDS

Security Innovation of the Year
UP Payments Risk Management solution

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

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

For the fiscal year ended December 31, 2019

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 0-25346

ACI WORLDWIDE, INC.
(Exact name of registrant as specified in its charter)

Delaware	**47-0772104**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
3520 Kraft Rd, Suite 300 Naples, Florida	**34105**
(Address of principal executive offices)	**(Zip code)**

(239) 403-4660
(Registrant's telephone number, including area code)

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, $0.005 par value	**ACIW**	**Nasdaq Global Select Market**

Securities registered pursuant to Section 12(g) of the Act: None

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

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

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

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T 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 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 Act. (Check one):

Large accelerated filer	☒	Accelerated filer	☐
Non-accelerated filer	☐	Smaller 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 Act). Yes ☐ No ☒

The aggregate market value of the Company's voting common stock held by non-affiliates on June 28, 2019 (the last business day of the registrant's most recently completed second fiscal quarter), based upon the last sale price of the common stock on that date of $34.34 was $3,506,264,959. For purposes of this calculation, executive officers, directors, and holders of 10% or more of the outstanding shares of the registrant's common stock are deemed to be affiliates of the registrant and are excluded from the calculation.

As of February 24, 2020, there were 116,130,399 shares of the registrant's common stock outstanding.

Documents Incorporated by Reference – Portions of the registrant's definitive Proxy Statement for the Annual Meeting of Shareholders to be held on June 9, 2020, are incorporated by reference in Part III of this report. This registrant's Proxy Statement will be filed with the Securities and Exchange Commission pursuant to Regulation 14A.

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Forward-Looking Statements

This report contains forward-looking statements based on current expectations that involve a number of risks and uncertainties. Generally, forward-looking statements do not relate strictly to historical or current facts and may include words or phrases such as “believes,” “will,” “expects,” “anticipates,” “intends,” and words and phrases of similar impact. The forward-looking statements are made pursuant to safe harbor provisions of the Private Securities Litigation Reform Act of 1995, as amended.

Forward-looking statements in this report include, but are not limited to, statements regarding future operations, business strategy, business environment, key trends, and, in each case, statements related to expected financial and other benefits. Many of these factors will be important in determining our actual future results. Any or all of the forward-looking statements in this report may turn out to be incorrect. They may be based on inaccurate assumptions or may not account for known or unknown risks and uncertainties. Consequently, no forward-looking statement can be guaranteed. Actual future results may vary materially from those expressed or implied in any forward-looking statements, and our business, financial condition and results of operations could be materially and adversely affected. In addition, we disclaim any obligation to update any forward-looking statements after the date of this report, except as required by law.

All forward-looking statements in this report are expressly qualified by the risk factors discussed in our filings with the Securities and Exchange Commission (“SEC”). The cautionary statements in this report expressly qualify all of our forward-looking statements. Factors that could cause actual results to differ from those expressed or implied in the forward-looking statements include, but are not limited to, those discussed in our *Risk Factors* in Part I, Item 1A of this Form 10-K.

Trademarks and Service Marks

ACI, ACI Worldwide, the ACI logo, ACI Universal Payments, UP, the UP logo and all ACI product/solution names are trademarks or registered trademarks of ACI Worldwide, Inc., or one of its subsidiaries, in the United States, other countries or both. Other parties' trademarks referenced are the property of their respective owners.

PART I

ITEM 1. BUSINESS

General

ACI Worldwide, Inc. ("ACI", "ACI Worldwide", the "Company," "we," "us," or "our") is a Delaware corporation incorporated in November 1993 under the name ACI Holding, Inc. ACI is largely the successor to Applied Communications, Inc. and Applied Communications Inc. Limited, which we acquired from Tandem Computers Incorporated on December 31, 1993. On July 24, 2007, we changed our corporate name from "Transaction Systems Architects, Inc." to "ACI Worldwide, Inc." We have been marketing our products and services under the ACI Worldwide brand since 1993 and have gained significant market recognition under this brand name.

We develop, market, install, and support a broad line of software products and solutions primarily focused on facilitating real-time electronic payments. Our payment capabilities, technologies, and solutions are marketed under the brand name Universal Payments®, or "UP®," which describes the breadth and depth of ACI's product offerings. UP defines ACI's enterprise or "universal" payments capabilities targeting any channel, any network, and any payment type. ACI's UP solutions empower customers to regain control, choice, and flexibility in today's complex payments environment, get to market more quickly, and reduce operational costs.

These products and services are used globally by banks, financial intermediaries, merchants and billers, such as third-party electronic payment processors, payment associations, switch interchanges and a wide range of transaction-generating endpoints, including automated teller machines ("ATM"), merchant point-of-sale ("POS") terminals, bank branches, mobile phones, tablets, corporations, and internet commerce sites. The authentication, authorization, switching, settlement, fraud-checking, and reconciliation of electronic payments is a complex activity due to the large number of locations and variety of sources from which transactions can be generated, the large number of participants in the market, high transaction volumes, geographically dispersed networks, differing types of authorization, and varied reporting requirements. These activities are typically performed online and are conducted 24 hours a day, seven days a week.

ACI combines a global perspective with local presence to tailor electronic payment solutions for our customers. We believe that we have one of the most diverse and robust electronic payment product portfolios in the industry with application software spanning the entire payments value chain. We also believe that our financial performance has been attributable to our ability to design and deliver quality products and solutions coupled with our ability to identify and successfully consummate and integrate strategic acquisitions.

Fiscal 2019 Acquisition

Speedpay

On May 9, 2019, we acquired E Commerce Group Products, Inc. ("ECG"), a subsidiary of The Western Union Company ("Western Union"), along with ECG's subsidiary, Speedpay, Inc. (collectively referred to as "Speedpay"). The combination of the Company and Speedpay bill pay solutions serves more than 4,000 customers across the U.S., bringing expanded reach in existing and complementary market segments such as consumer finance, insurance, healthcare, higher education, utilities, government, and mortgage. The acquisition of Speedpay increases the scale of our ACI On Demand ("AOD") platform business and allows the acceleration of platform innovation.

Target Markets

ACI's comprehensive electronic payment solutions serve four key markets:

Banks

ACI provides payment solutions to large and mid-size banks globally for both retail banking, digital, and other payment services. Our solutions transform banks' complex payment environments to speed time to market, reduce costs, and deliver a consistent experience to customers across channels while enabling them to prevent and rapidly react to fraudulent activity. In addition, we enable banks to meet the requirements of different real-time payments schemes and to quickly create differentiated products to meet consumer, business, and merchant demands.

Financial intermediaries

ACI's payment solutions support financial intermediaries, such as processors, networks, payment service providers ("PSPs"), and new financial technology entrants. We offer these customers scalable solutions that strategically position them to innovate and achieve growth and cost efficiency, while protecting them against fraud. Our solutions also allow new entrants in the digital marketplace to access innovative payment schemes, such as the U.K. Faster Payments New Access Model, Singapore FAST, India Unified Payments Interface (UPI), the Payments Network Malaysia (PayNet), Real-time Retail Payments Platform (RPP), and others.

Merchants

ACI's support of merchants globally includes Tier 1 and Tier 2 merchants, online-only merchants and the PSPs, independent selling organizations ("ISOs"), value-added resellers ("VARs"), and acquirers who service them. These customers operate in a variety of verticals, including general merchandise, grocery, hospitality, dining, transportation, and others. Our solutions provide merchants with a secure, omni-channel payments platform that gives them independence from third-party payment providers. We also offer secure solutions to online-only merchants that provide consumers with a convenient and seamless way to shop.

Billers

Within the biller segment, ACI provides electronic bill presentment and payment ("EBPP") services to companies operating in the consumer finance, insurance, healthcare, higher education, utility, government, and mortgage categories. Our solutions enable these customers to support a wide range of payment options and provide a convenient consumer payments experience that drives consumer loyalty and increases revenue.

Solutions

ACI's UP® solutions span the payments ecosystem to support the electronic payment needs of banks, intermediaries, merchants and billers. Our six strategic solution areas include the following:

Retail Payments

ACI offers comprehensive consumer payment solutions ranging from core payment engines to back-office support that enable banks and financial intermediaries to compete effectively in today's real-time, open payments ecosystem.

UP Retail Payments™ solution enables banks and financial intermediaries to accept, authorize, route and secure payment transactions. Using the orchestration capabilities of UP Framework™, this solution combines legacy technology with the modern, service-oriented architecture (SOA)-enabled UP BASE24-eps®, protecting customers' existing investment while enabling them to move to a real-time, open environment. Customers have the flexibility to operate this solution on a range of hardware options, including x86/Linux, IBM System z, IBM System p, HP NonStop and Oracle Solaris servers. This solution drives innovation and increases customer loyalty by delivering choice and consistency across channels.

ACI Card and Merchant Management™ includes comprehensive credit, debit, smart card and prepaid card issuance and management; end-to-end merchant account management and settlement; and operation of complex settlement environments through a flexible system designed to support changing business models. With proven scalability and interoperability with ACI's other payment offerings, this suite allows banks to introduce new products to their consumer segments quickly, across different markets, domestically and internationally.

Real-Time Payments

ACI supports both low and high-value, real-time payment processing for banks and financial intermediaries globally, ensuring multi-bank, multi-currency and 24x7 payment processing capabilities, as well as complete and ongoing regulatory compliance.

UP Real-Time Payments™ solution is the only global solution that allows banks to address their RTGS (Real-Time Gross Settlement), SWIFT messaging, automated clearing house ("ACH") and real-time faster payments needs with a single, universal offering. The solution delivers accelerated time to market with improved management of cash flow; payments security and fraud detection capabilities; simplified connectivity to new payment types and transparency for customers in tracking their payments. It supports several major schemes globally, including but not limited to EBA and ECB in Europe; U.K. Faster; Equens in the Netherlands, Germany, and Italy; GIRO in Hungary; UPI in India; FAST in Singapore; ITMX in Thailand; RPP in Malaysia; NPP in Australia; and Zelle and TCH in the U.S.

UP Immediate Payments™ solution enables banks and PSPs to meet multiple real-time payment scheme requirements globally and to quickly create differentiated products to address consumer, business, and merchant demands. The solution provides gateway connectivity to any live, real-time payments scheme around the world and can serve as a modern, real-time hub. The cloud solution speeds time to market through pre-packaged offerings available for major schemes globally,

including U.K. Faster Payments, The Clearing House Real-Time Payments System, Early Warning Services Zelle Network, ECB TIPS, and EBA RT1.

Merchant Payments

ACI provides real-time, any-to-any payment capabilities globally in both card-present and card-not-present environments.

UP Merchant Payments™ solution provides merchants with a vendor-agnostic, flexible and secure omni-channel payments environment through an integration of Postilion®, ACI ReD Shield®, and ACI PAY.ON® Payments Gateway™. Postilion facilitates transactions generated at the POS, as well as back-office functions, including prepaid, debit and credit card processing, ACH processing, electronic benefits transfer, card issuance and management, check authorization, customer loyalty programs, and returned check collection. ACI ReD Shield offers real-time fraud prevention to detect and manage domestic and cross-border payments fraud across all payment types, as well as an interactive, self-service business intelligence portal for deep insight into merchant fraud activity. Lastly, the ACI PAY.ON Payments Gateway delivers global payments connectivity through eCommerce and mCommerce channels, including a network of hundreds of local and cross-border card acquirers and alternative payment methods almost anywhere in the world.

UP eCommerce Payments™ solution is designed for PSPs, ISOs, VARs, acquirers and others that offer payment services to their merchant customer base. The cloud-based solution integrates ACI PAY.ON Payments Gateway and ACI ReD Shield, and is available as a white-label product.

Payments Intelligence

ACI's big data engine uses powerful analytics to deliver robust fraud prevention and detection capabilities to bank, financial intermediary, and merchant customers.

UP Payments Risk Management™ solution uses a 360-degree approach to enterprise fraud management. The solution is designed to combat existing and emerging fraud threats using a combination of machine learning, fraud and payments data, advanced analytics, flexible rules, and agile decision strategies. For banks and financial intermediaries, the ACI® Proactive Risk Manager™ component gives customers real-time visibility into threats across their enterprise, including issuer card fraud, check/deposit fraud, wire fraud, merchant acquirer fraud, internal fraud and money laundering schemes at multiple perspectives, ranging from an account or customer level. It is available to financial institutions on premise or in the cloud. For merchants, ACI ReD Shield provides real-time fraud prevention for eCommerce and mCommerce transactions. It is available in the cloud.

Digital Channels

ACI offers banks advanced cash management capabilities in a multi-tenant, cloud-based platform.

ACI Universal Online Banker™ is a comprehensive digital banking platform designed to meet the needs of small businesses up to large corporations. It enables banks to generate new revenues through an extensive library of APIs and payment services while delivering a compelling customer experience with a highly-intuitive user interface. Customers can use digital tools to easily manage daily collections, disbursements, information reporting, and numerous other corporate cash management services.

Bill Payments

ACI meets the bill payment needs of corporate customers across myriad industries through a range of electronic bill payment solutions that help companies raise consumer satisfaction while reducing costs.

ACI Speedpay® solutions enable corporate customers to electronically present bills and collect payments from consumers through a single, integrated platform that powers the entire bill payments operation. The solution overcomes internal application silos, providing a seamless consumer experience across all payment channels, payment types, and methods. Customers can use ACI Speedpay solutions to power one-time payments, recurring payments, service-fee payments, disbursement services, remittance services, and eBilling. The solution also simplifies treasury management operations through a broad array of reconciliation, reporting, and payment servicing tools. ACI Speedpay solutions include industry-leading security, full payment card industry (PCI) compliance, and privacy practices.

On Premise or On Demand Software Delivery Options

Our software solutions are offered to our customers through either a traditional term software license arrangement where the software is installed and operated on the customer premises or in a third-party public cloud environment (ACI On Premise™), through an on-demand arrangement where the solution is maintained and delivered through the cloud via our global data centers (ACI On Demand™), or a combination of the two. Solutions delivered through ACI's on-demand cloud are available in either a

single-tenant environment, known as a software as a service (“SaaS”) offering, or in a multi-tenant environment, known as a platform as a service (“PaaS”) offering. Pricing and payment terms depend on which solutions the customer requires and their transaction volumes. Generally, customers are required to commit to a minimum contract of five years, or three years in the case of certain acquired SaaS and PaaS contracts.

Partnerships and Industry Participation

We have two major types of third-party product partners: 1) technology partners, or industry leaders with whom we work closely that drive key industry trends and mandates, and 2) business partners, with whom we embed the partners’ technology in ACI products, host the partners’ software in ACI’s cloud as a part of our AOD offering, or jointly market solutions that include the products of the other company.

Technology partners help us add value to our solutions, stay abreast of current market conditions and industry developments such as standards. Technology partner organizations include Diebold, Inc. (“Diebold”), NCR Corporation (“NCR”), Wincor-Nixdorf, VISA, Mastercard, and SWIFT. In addition, ACI has membership in or participates in the relevant committees of several industry associations, such as the International Organization for Standardization (“ISO”), Accredited Standards Committee ("ASC") X9, ATM Industry Association, Financial Services, Interactive Financial eXchange Forum (“IFX”), Nexo Standards, International Payments Framework Association (“IPFA”), U.K. Cards Association, Smart Card Alliance, and the PCI Security Standards Council. These partnerships provide direction as it relates to the specifications that are used by the card schemes, and in some cases, manufacturers. These organizations typically look to ACI as a source of knowledge and experience to be shared in conjunction with creating and enhancing their standards. The benefit to ACI is in having the opportunity to influence these standards with concepts and ideas that will benefit the market, our customers, and ACI.

Business partner relationships extend our product portfolio, improve our ability to get our solutions to market, and enhance our ability to deliver market-leading solutions. We share revenues with these business partners based on several factors related to overall value contribution in the delivery of the joint solution or payment type. The agreements with business partners include referral, resale, traditional original equipment manufacturer (“OEM”) relationships, and transaction fee-based payment-enablement partnerships. These agreements generally grant ACI the right to create an integrated solution that we host or distribute, or provide ACI access to established payment networks or capabilities. The agreements are generally worldwide in scope and have a term of several years.

We have alliances with our technology partners HP, IBM, Microsoft Corporation, Amazon, and Oracle USA, Inc. (“Oracle”), whose industry-leading hardware, software, and cloud-based infrastructure services are utilized by and in delivery of ACI’s products. These partnerships allow us to understand developments in the partners’ technology and to utilize their expertise in topics like sizing, scalability, and performance testing.

The following is a list of key product business partners:

- Accuity, Inc.
- Amazon
- Apple Inc.
- Aptean
- Arvato Financial solutions
- Bank of America – Cashpro Online
- Biocatch
- Black Knight Financial Services
- Cardinal Commerce
- Chase Paymentech
- Clickatel
- Computershare Inc.
- DataOceans, LLC
- Diamond Communications Solutions
- Elavon Inc.

- Epic Systems Corporation
- FairCom Corporation
- Fifth Third Bank
- Fraudforce
- FutureX
- Guidewire
- Heirloom Computing
- Hewlett-Packard Company (HP)
- iData Incorporated
- Ingenico Group
- Integrated Research Limited
- International Business Machines Corporation (IBM)
- Intuit, Inc.
- iSight Case Management
- Jack Henry & Associates, Inc.
- Kiosk
- Lean Software Services, Inc.
- Limontech
- MAGTEK Inc.
- Mastercard
- Mi-Pay Limited
- Micro Focus, Inc.
- Microsoft Corporation
- Monex Financial Services Limited
- MTFX
- N2N
- Neustar, Inc.
- Noggintech
- Nordis Technologies
- Opentext
- Oracle USA, Inc. (Oracle)
- Paragon Application Systems, Inc.
- Pavreto
- Pax Technologies
- PayPal
- Payworks GmbH
- IATA—Perseuss
- Pronexus Inc.
- Rambus Company

- Reliant Solutions
- RSA Security LLC, the Security Division of Dell EMC Corporation
- Safetrust pcProxPlus BLE
- SAP America, Inc.
- Semafone—Card Protect
- ShopSite
- Solutions by Text, LLC
- Spectrum Message Services Pty Ltd
- Stiftung SIC
- SWIFT
- Symantec Corporation
- ThreatMetrix, Inc.
- TIBCO Software, Inc.
- TSYS Acquiring Solutions
- VISA
- Vocalink Limited, a Mastercard company
- Worldpay Inc.

Services

We offer our customers a wide range of professional services, including analysis, design, development, implementation, integration, and training. Our service professionals generally perform the majority of the work associated with installing and integrating our software products. In addition, we work with a limited number of systems integration and services partners such as Accenture, LLC, Cognizant Technology Solutions Corporation, and Stanchion Payments Solution for staff augmentation and coordinated co-prime delivery where appropriate.

We offer the following types of services for our customers:

- **Implementation Services.** We utilize a standard methodology to deliver customer project implementations across all product lines and delivery options. Within the process, we provide customers with a variety of services, including solution scoping reviews, project planning, training, site preparation, installation, product configuration, product customization, testing and go-live support, and project management throughout the project lifecycle. Implementation services are typically priced according to the level of technical expertise required.
- **Product Support Services.** These product-support-funded services are available to customers after a solution has been installed and are based on the relevant product support category. An extensive team of support analysts are available to assist customers.
- **Technical Services.** Our technical services are provided to customers who have licensed one or more of our software products. Services offered include programming and programming support, day-to-day systems operations, network operations, help desk staffing, quality assurance testing, problem resolution, system design, and performance planning and review. Technical services are typically priced according to the level of technical expertise required.
- **Education Services**. ACI courses include both theory and practical sessions to allow students to work though real business scenarios and put their newly learned skills to use. This hands-on approach ensures that the knowledge is retained, and the student is more productive upon their return to the workplace. ACI's education courses provide students with knowledge at all levels, to enhance and improve their understanding of ACI products. ACI also provides further, more in-depth technical courses that allow students to use practical labs to enhance what they have learned in the classroom. The ACI trainers' ability to understand customers' systems means ACI can also provide tailored course materials for individual customers. Depending upon products purchased, training may be conducted at a dedicated education facility at one of ACI's offices, online, on demand or at the customer site.

Customer Support

ACI provides our customers with product support that is available 24 hours a day, seven days a week. When requested by a customer, the product support group can remotely access that customer's systems on a real-time basis which allows us to help diagnose and correct problems and enhance the continuous availability of a customer's business-critical systems. We offer our customers three support options.

Standard Customer Support. After software installation and project completion, we provide maintenance services to customers for a monthly product support fee. Maintenance services include:

- New product releases (major, minor and patches)
- 24-hour hotline for priority one ("P1") problem resolution
- Online support portal (eSupport)
- Vendor-required mandates and updates
- Product documentation
- Hardware operating system compatibility
- User group membership

Enhanced Customer Support. This includes all features of Standard Customer Support plus the following:

- Named technical account manager
- Accelerated service levels
- Consulting support

Premium Customer Support. Under the premium customer support option, referred to as the Premium Customer Support Program, each customer is assigned an experienced technician(s) to work with its system. The technician(s) typically performs functions such as:

- Configuration and testing software fixes
- Retrofitting custom software modifications ("CSMs") into new software releases
- Answering questions and resolving problems related to the customer's implementation
- Maintaining a detailed CSM history
- Monitoring customer problems on ACI's HELP24™ hotline database on a priority basis
- Supplying onsite support, available upon demand
- Performing an annual system review/health check and capacity planning exercise

We provide new releases of our products on a periodic basis. New releases of our products, which often contain minor product enhancements, are typically provided at no additional fee for customers under standard customer support agreements. Agreements with our customers permit us to charge for substantial product enhancements that are not provided as part of the standard, enhanced, or premium customer support agreement.

Competition

The electronic payments market is highly competitive and subject to rapid change. Competitive factors affecting the market for our products and services include product features, price, availability of customer support, ease of implementation, product and company reputation, and a commitment to continued investment in research and development.

Our competitors vary by solution, geography, and market segment. Generally, our most significant competition comes from in-house information technology departments of existing and potential customers, as well as third-party electronic payment processors (some of whom are our customers). Many of these companies are significantly larger than us and have significantly greater financial, technical, and marketing resources.

Key competitors by solution include the following:

Retail Payments and Real-Time Payments

The third-party software competitors for ACI's Retail Payments and Real-Time Payments solutions areas are Fidelity National Information Service, Inc. ("FIS"), Fiserv, Inc. ("Fiserv"), Finastra, Computer Sciences Corporation, NCR, OpenWay Group, and Total System Services, Inc. (Global Payments), as well as small, regionally-focused companies such as BPC Banking Technologies, PayEx Solutions AS, Financial Software and Systems, CR2, Lusis Payments Ltd., and Opus Software Solutions Private Limited. Primary electronic payment processing competitors in this area include global entities such as Atos Origin S.A., Fiserv, SiNSYS, VISA and Mastercard, as well as regional or country-specific processors.

Merchant Payments

Competitors in the Merchant Payments solution area come from both third-party software and service providers as well as service organizations run by major banks. Third-party software and service competitors include NCR, Ingenico Group, Adyen, Worldpay Inc. (FIS), GlobalCollect, Cybersource (VISA), Square, Inc., Tender Retail Inc., First Data (Fiserv), and VeriFone Systems, Inc.

Payments Intelligence

Principal competitors for our Payments Intelligence solution area are NICE LTD, Fair Isaac Corporation, NCR, BAE Systems, FIS, Fiserv, SAS Institute, Inc., Kount, Feedzai, Featurespace, Forter, Accertify (American Express), and Cybersource (VISA), as well as dozens of smaller companies focused on niches of this segment such as anti-money laundering.

Digital Channels

Principal competitors for our Digital Channels solution area are NCR, Bottomline Technologies, Q2 Software, Inc., Jack Henry & Associates, Inc., FIS, Fiserv, and Finastra.

Bill Payments

The principal competitors for Bill Payment solutions are Fiserv, FIS, Jack Henry & Associates, Inc., TouchNet Information Systems, Inc., Kubra Customer Interaction Management, Worldpay Inc. (FIS), CSG Systems International, Inc., Nelnet, Inc. and Affiliates, Higher One, Inc. (Blackboard), Paymentus Corp., NIC, Repay, PayNearMe, Aliaswire Inc., and Invoice Cloud, Inc., as well as smaller vertical-specific providers.

Research and Development

Our product development efforts focus on new products and improved versions of existing products. We facilitate user group meetings to help us determine our product strategy, development plans, and aspects of customer support. The user groups are generally organized geographically or by product lines. We believe that the timely development of new applications and enhancements is essential to maintain our competitive position in the market.

During the development of new products, we work closely with our customers and industry leaders to determine requirements. We work with device manufacturers, such as Diebold, NCR, and Wincor-Nixdorf, to ensure compatibility with the latest ATM technology. We work with network vendors, such as Mastercard, VISA, and SWIFT, to ensure compliance with new regulations or processing mandates. We work with computer hardware and software manufacturers, such as HPE, IBM, Microsoft Corporation, and Oracle to ensure compatibility with new operating system releases and generations of hardware. Customers often provide additional information on requirements and serve as beta-test partners.

We have a continuous process to encourage and capture innovative product ideas. Such ideas include features, as well as entirely new products or service offerings. A proof of concept ("POC") may be conducted to validate the idea. If determined to be viable, the innovation is scheduled into a product roadmap for development and release.

Customers

We provide software products and solutions to customers in a range of industries worldwide with billers, banks, intermediaries, and merchants comprising our largest industry segments. As of December 31, 2019, we serve more than 5,100 customers, including 18 of the top 20 banks worldwide, as measured by asset size, and thousands of leading merchants globally, as measured by revenue, in over 90 countries on six continents. No single customer accounted for more than 10% of our consolidated revenues for the years ended December 31, 2019, 2018, and 2017. No customer accounted for more than 10% of our consolidated receivables balance as of December 31, 2019 and 2018.

Selling and Implementation

Our primary method of distribution is direct sales by employees assigned to specific target segments. Headquartered in Naples, Florida, we have principal United States sales offices in East Brunswick, Norcross, Omaha, and Waltham. In addition, we have sales offices located outside the United States in Auckland, Bahrain, Bangkok, Beijing, Bogota, Brussels, Buenos Aires, Cape Town, Dubai, Gouda, Johannesburg, Kuala Lumpur, Limerick, Madrid, Manila, Melbourne, Mexico City, Milan, Montevideo, Mumbai, Munich, Naples (Italy), Paris, Quito, Santiago, Sao Paulo, Shanghai, Singapore, Sulzbach, Sydney, Tokyo, Toronto, and Watford.

We use distributors and referral partners to supplement our direct sales force in countries where it is more efficient and economical to do so. We generate a majority of our sales leads through existing relationships with vendors, direct marketing programs, customers and prospects, or through referrals. ACI's distributors, resellers and system integration partners are enabled to provide supplemental or complete product implementation and customization services directly to our customers or in a joint delivery model.

Current international distributors, resellers, referral partners, and implementation partners (collectively, "Channel Partners") for us during the year ended December 31, 2019, included:

- AGS Technology Inc. (India)
- ASI International (Colombia/Venezuela/Caribbean)
- Bayshore (China)
- CAPSYS Technologies, LLC (Russia/Eastern Europe)
- Channel Solutions Inc. (Philippines)
- DataOne Asia Co., Ltd. (Thailand)
- DDWay (Italy)
- EFT Corporation (Sub-Saharan Africa)
- Interswitch Ltd. (Sub-Saharan Africa)
- JRI Inc. (Japan)
- Korea Computer Inc (Korea)
- Kuvaz (Chile)
- Pactera (China)
- P.T. Abhimata Persada (Indonesia)
- Stanchion (South Africa)
- STJ-CA, Inc. (United States)
- STET (EU)
- Stream IT Consulting Ltd. (Thailand)
- Syscom Computer Co., Ltd. (Shenzhen) (China)
- Syscom Computer Engineering Co. (Taiwan)
- TIS Inc. (Japan)
- Transaction Payment Solutions - Liquid Telecom (Sub-Saharan Africa)
- Worldline (China)

ACI ReD Shield channel partners during the year ended December 31, 2019, included:

- Altapay (Denmark)
- Amadeus (Spain)
- Barclaycard (U.K.)
- Computop (Germany)
- Easynollo (Italy)

- Evo Payments (United States)
- Ingenico Group (Netherlands)
- Mastercard/Datacash (U.K.)
- Metrics Global (United States)
- MNP Media Ltd. (U.K.)
- Paysafe Group Plc (United States)
- PayU South Africa (South Africa)
- Planet Payments (United States)
- Secure Trading (U.K.)
- Simplepay (Australia)
- VeriFone Systems, Inc. (United States and European Union)
- Worldline Sweden AB (Sweden)

Biller channel partners during the year ended December 31, 2019, included:

- 3 Point Alliance
- ACH Payment Solutions
- Adirondack Solutions
- API Outsourcing
- Clearwater Payments
- County Information Resources Agency
- Creative Micro – CMI
- Discover
- Donald R. Frey & Co.
- ECHO Health
- Ellucian
- Epic
- Guidewire
- MoneyGram
- Nordis Technologies
- Nortridge Software Company
- Ontario Systems
- Radiant 44
- RRD
- Salepoint
- Semafone
- Shaw
- Solutions by Text
- SourceHOV
- Thompson Reuters
- Transactis (Mastercard)

- TriZetto (Cognizant)
- The Western Union Company

We distribute the products of other vendors where they complement our existing product lines. We are typically responsible for the sales and marketing of the vendor's products, and agreements with these vendors generally provide for revenue sharing based on relative responsibilities.

Proprietary Rights and Licenses

We rely on a combination of trade secret and copyright laws, license agreements, contractual provisions, and confidentiality agreements to protect our proprietary rights. We distribute our software products under software license agreements that typically grant customers nonexclusive licenses to use our products. Use of our software products is usually restricted to designated computers, specified locations and/or specified capacity, and is subject to terms and conditions prohibiting unauthorized reproduction or transfer of our software products. We also seek to protect the source code of our software as a trade secret and as a copyrighted work. Despite these precautions, there can be no assurance that misappropriation of our software products and technology will not occur.

In addition to our own products, we distribute, or act as a sales agent for, software developed by third parties. However, we typically are not involved in the development process used by these third parties. Our rights to those third-party products and the associated intellectual property rights are limited by the terms of the contractual agreement between us and the respective third party.
Although we believe that our owned and licensed intellectual property rights do not infringe upon the proprietary rights of third parties, there can be no assurance that third parties will not assert infringement claims against us. Further, there can be no assurance that intellectual property protection will be available for our products in all foreign countries.

Like many companies in the electronic commerce and other high-tech industries, third parties have in the past and may in the future assert claims or initiate litigation related to patent, copyright, trademark, or other intellectual property rights to business processes, technologies, and related standards that are relevant to us and our customers. These assertions have increased over time as a result of the general increase in patent claims assertions, particularly in the United States. Third parties may also claim that the third-party's intellectual property rights are being infringed by our customers' use of a business process method that utilizes products in conjunction with other products, which could result in indemnification claims against us by our customers. Any claim against us, with or without merit, could be time-consuming, result in costly litigation, cause product delivery delays, require us to enter into royalty or licensing agreements or pay amounts in settlement, or require us to develop alternative non-infringing technology. We could also be required to defend or indemnify our customers against such claims. A successful claim by a third party of intellectual property infringement or one of our customers could compel us to enter into costly royalty or license agreements, pay significant damages or even stop selling certain products and incur additional costs to develop alternative non-infringing technology.

Government Regulation

Certain of our solutions are subject to federal, state, and foreign regulations and requirements.

Oversight by Banking Regulators. As a provider of payment services to banks and financial intermediaries, we are subject to regulatory oversight and examination by the Federal Financial Institutions Examination Council ("FFIEC"), an interagency body of the Federal Deposit Insurance Corporation, the Office of the Comptroller of the Currency, the Board of Governors of the Federal Reserve System, the National Credit Union Administration and various state regulatory authorities as part of the Multi-Region Data Processing Servicer Program ("MDPS"). The MDPS program includes technology suppliers who provide mission critical applications for a large number of financial institutions that are regulated by multiple regulatory agencies. Periodic information technology examination assessments are performed using FFIEC interagency guidelines to identify potential risks that could adversely affect serviced financial institutions, determine compliance with applicable laws and regulations that affect the services provided to financial institutions and ensure the services we provide to financial institutions do not create systemic risk to the banking system or impact the safe and sound operation of the financial institutions we serve. In addition, independent auditors annually review several of our operations to provide reports on internal controls for our clients' auditors and regulators. We are also subject to review under state and foreign laws and rules that regulate many of the same activities that are described above, including electronic data processing and back-office services for financial institutions and the use of consumer information.

Money Transfer. Official Payments Corporation, our EBPP affiliate, is registered as a Money Services Business. Accordingly, we are subject to the USA Patriot Act and reporting requirements of the Bank Secrecy Act and U.S. Treasury Regulations. These businesses may also be subject to certain state and local licensing requirements. The Financial Crimes Enforcement Network ("FinCEN"), state attorneys general, and other agencies have enforcement responsibility over laws relating to money laundering, currency transmission, and licensing. In addition, most states have enacted statutes that require entities engaged in money transmission to

register as a money transmitter with that jurisdiction's banking department. We have implemented policies, procedures, and internal controls that are designed to comply with all applicable anti-money laundering laws and regulations. ACI has also implemented policies, procedures, and internal controls that are designed to comply with the regulations and economic sanctions programs administered by the U.S. Treasury's Office of Foreign Assets Control ("OFAC"), which enforces economic and trade sanctions against targeted foreign countries, entities and individuals based on external threats to the U.S. foreign policy, national security, or economy; by other governments; or by global or regional multilateral organizations, such as the United Nations Security Council and the European Union as applicable.

Employees

As of December 31, 2019, we had a total of 4,018 employees.

None of our employees are subject to a collective bargaining agreement. We believe that relations with our employees are good.

Available Information

Our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934 (the "Exchange Act"), are available free of charge on our website at www.aciworldwide.com as soon as reasonably practicable after we file such information electronically with the SEC. The information found on our website is not part of this or any other report we file with or furnish to the SEC. The public may read and copy any materials that we file with the SEC at the SEC's Public Reference Room at 100 F Street, Room 1580, NW, Washington DC 20549. The public may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. The SEC maintains an Internet site that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC at www.sec.gov.

Executive Officers of the Registrant

As of February 27, 2020, our executive officers, their ages, and their positions were as follows:

Name	Age	Position
Craig S. Saks	49	Interim President, Interim Chief Executive Officer, and Chief Operating Officer
Scott W. Behrens	48	Executive Vice President, Chief Financial Officer
Evanthia (Eve) C. Aretakis	60	Executive Vice President, Group President, ACI On Demand
Jeremy M. Wilmot	51	Executive Vice President, Group President, ACI On Premise
Carolyn B. Homberger	39	Executive Vice President, Chief Risk Officer
Michael D. Braatz	51	Executive Vice President, Chief Product Officer
Dennis P. Byrnes	56	Executive Vice President, Chief Administrative Officer, General Counsel, and Secretary

Mr. Saks was appointed Interim President and Chief Executive Officer in December 2019, effective January 1, 2020. Mr. Saks continues to serve as the Chief Operating Officer, with more than twenty years of payments and banking expertise. Previously, Mr. Saks led ACI's Strategic Products division. Prior to joining ACI in February 2012, Mr. Saks was Senior Vice President of Shared Services at S1 Corporation, which was subsequently acquired by ACI. From 1999 to 2007, Mr. Saks served as the Chief Operating Officer at Fundamo. Mr. Saks holds a Master of Commerce in IT Management from the University of Cape Town and a Bachelor of Commerce in Computer Science from the University of Port Elizabeth.

Mr. Behrens serves as Executive Vice President and Chief Financial Officer. Mr. Behrens joined ACI in June 2007 as our Corporate Controller and was appointed as Chief Accounting Officer in October 2007. Mr. Behrens was appointed Chief Financial Officer in December 2009. Mr. Behrens ceased serving as our Corporate Controller in December 2010. Mr. Behrens was appointed Executive Vice President in March 2011. Prior to joining ACI, Mr. Behrens served as Senior Vice President, Corporate Controller and Chief Accounting Officer at SITEL Corporation from January 2005 to June 2007. He also served as Vice President of Financial Reporting at SITEL Corporation from April 2003 to January 2005. From 1993 to 2003, Mr. Behrens was with Deloitte & Touche, LLP, including two years as a Senior Audit Manager. Mr. Behrens holds a Bachelor of Science from the University of Nebraska – Lincoln.

Ms. Aretakis serves as Executive Vice President and Group President of ACI On Demand. Previously, Ms. Aretakis led ACI's Product Development group. Prior to joining ACI in 2016, Ms. Aretakis was Executive Vice President at Unify/Siemens Enterprise Communications. Her responsibilities included P&L management and accountability for software development, product management and manufacturing of the global product portfolio. She previously served as President of IP Network Solutions at Siemens, Unit President of the company's U.S. carrier division and as Executive Vice President at Unisphere Networks. Ms. Aretakis began her career as a Software Engineer for Texas Instruments and Raytheon. She transitioned to Product Management as she progressed into management roles of various business units. Ms. Aretakis holds a bachelor's degree in Computer Science and Economics from Union College.

Mr. Wilmot serves as Executive Vice President and Group President of ACI On Premise. Prior to his current role, Mr. Wilmot held a number of senior leadership roles at ACI, including Executive Vice President, Chief Marketing and Revenue Officer, Senior Vice President and Managing Director for the Americas, President for the Asia-Pacific and Regional Director for Western Europe and Africa. Prior to joining ACI in 1999, Mr. Wilmot worked for ICL (now Fujitsu) in several capacities, including as International Sales Manager for Financial Services. Mr. Wilmot holds a Bachelor of Arts in Business Studies from Oxford Brookes University in the United Kingdom and has completed the Advanced Management Program at INSEAD in France.

Ms. Homberger serves as Executive Vice President and Chief Risk Officer. Previously, Ms. Homberger held a number of senior and operational leadership positions at ACI, including leading global sales, ACI On Demand, and customer management and maintenance. Prior to joining ACI Worldwide in 2006, Ms. Homberger worked at GE Healthcare, where she held finance leadership roles and completed the Financial Management Program (FMP). Ms. Homberger is a board member of the American Transaction Processors Coalition (ATPC) and Women in Payments. She is Six Sigma Green Belt Certified and holds a Master of Business Administration from Fordham University and a Bachelor of Science from Miami University.

Mr. Braatz serves as Executive Vice President and Chief Product Officer. Prior to his current role, Mr. Braatz most recently served as the Chief Marketing and Solutions Officer, Senior Vice President and P&L lead for ACI On Demand's Software as a Service solutions, and Senior Vice President and Product Line Manager for ACI On Demand and for ACI's Payments Risk Management solution. Prior to joining ACI in 2012, Mr. Braatz served as Senior Vice President of Marketing and Product Management at Memento Inc., a provider of enterprise fraud management solutions that was acquired by Fidelity National Information Services Inc. in 2012. Earlier in his career, Mr. Braatz was a consultant for Bain & Company, working with clients in the software and financial services industries. Mr. Braatz began his professional career as an officer in the United States Air Force, where he attained the rank of Captain. Mr. Braatz holds a Bachelor of Arts in Mathematics from Northwestern University and a Master of Business Administration from Northwestern's Kellogg School of Management.

Mr. Byrnes serves as Executive Vice President, Chief Administrative Officer, General Counsel, and Secretary. He has served in that capacity since March 2011 and as General Counsel and Secretary since joining the Company in June 2003. Prior to joining ACI, Mr. Byrnes served as an attorney with Bank One Corporation's technology group from 2002 to 2003; with Sterling Commerce from 1996 to 2002; and with Baker Hostetler from 1991 to 1996. Mr. Byrnes holds a JD from The Ohio State University College of Law, a Master of Business Administration from Xavier University, and a Bachelor of Science in Engineering from Case Western Reserve University.

ITEM 1A. RISK FACTORS

Factors That May Affect Our Future Results or the Market Price of Our Common Stock

We operate in a rapidly changing technological and economic environment that presents numerous risks. Many of these risks are beyond our control and are driven by factors that often cannot be predicted. The following discussion highlights some of these risks.

The markets in which we compete are rapidly changing and highly competitive, and we may not be able to compete effectively.

The markets in which we compete are characterized by rapid change, evolving technologies and industry standards and intense competition. There is no assurance that we will be able to maintain our current market share or customer base. We face intense competition in our businesses and we expect competition to remain intense in the future. We have many competitors that are significantly larger than us and have significantly greater financial, technical and marketing resources, have well-established relationships with our current or potential customers, advertise aggressively or beat us to the market with new products and services. In addition, we expect that the markets in which we compete will continue to attract new competitors and new technologies. Increased competition in our markets could lead to price reductions, reduced profits, or loss of market share.

To compete successfully, we need to maintain a successful research and development effort. If we fail to enhance our current products and develop new products in response to changes in technology and industry standards, bring product enhancements or new product developments to market quickly enough, or accurately predict future changes in our customers' needs and our competitors develop new technologies or products, our products could become less competitive or obsolete.

Our Universal Payments strategy could prove to be unsuccessful in the market.

Our UP solutions, including our UP Retail Payments and Real-Time Payments solutions, are strategic for us, in that they are designated to help us win new accounts, replace legacy payments systems on multiple hardware platforms, and help us transition our existing customers to a new, real-time, and open-systems product architecture. Our business, financial condition, cash flows and/or results of operations could be materially adversely affected if we are unable to generate adequate sales of Universal Payments solutions or if we are unable to successfully deploy them in production environments.

Our future profitability depends on demand for our products.

Our revenue and profitability depend on the overall demand for our products and services. A significant portion of our total revenues result from licensing our UP Retail Payments solution, including our BASE24 product line and providing related services and maintenance. Any reduction in demand for, or increase in competition with respect to, our UP Retail Payments solution could have a material adverse effect on our financial condition, cash flows and/or results of operations.

Consolidations and failures in the financial services industry may adversely impact the number of customers and our revenues in the future.

Mergers, acquisitions, and personnel changes at key financial services organizations have the potential to adversely affect our business, financial condition, cash flows, and results of operations. Our business is concentrated in the financial services industry, making us susceptible to consolidation in, or contraction of, the number of participating institutions within that industry. Consolidation activity among financial institutions and financial intermediaries has increased in recent years. Changes in financial conditions have also historically resulted in consolidation and contraction as financial institutions have failed or have been acquired by or merged with other financial institutions. There are several potential negative effects of increased consolidation activity. Continuing consolidation could cause us to lose existing and potential customers for our products and services. For instance, consolidation of two of our customers could result in reduced revenues if the combined entity were to negotiate greater volume discounts or discontinue use of certain of our products. Additionally, if a non-customer and a customer combine and the combined entity in turn decided to forego future use of our products, our revenues would decline.

Potential customers may be reluctant to switch to a new vendor, which may adversely affect our growth, both in the United States and internationally.

For banks, financial intermediaries, and other potential customers of our products, switching from one vendor of core financial services software (or from an internally-developed legacy system) to a new vendor is a significant endeavor. Many potential customers believe switching vendors involves too many potential disadvantages such as disruption of business operations, loss of accustomed functionality, and increased costs (including conversion and transition costs). As a result, potential customers may resist change. We seek to overcome this resistance through value enhancing strategies such as a defined conversion/migration process, continued investment in the enhanced functionality of our software and system integration expertise. However, there can be no assurance that our strategies for overcoming potential customers' reluctance to change vendors will be successful, and this resistance may adversely affect our growth, both in the United States and internationally.

Failure to obtain renewals of customer contracts or obtain such renewals on favorable terms could adversely affect our results of operations and financial condition.

Failure to achieve favorable renewals of customer contracts could negatively impact our business. Our contracts with our customers generally run for a period of five years, or three years in the case of certain acquired SaaS and PaaS contracts. At the end of the contract term, customers have the opportunity to renegotiate their contracts with us and to consider whether to engage one of our competitors to provide products and services. Failure to achieve high renewal rates on commercially favorable terms could adversely affect our results of operations and financial condition.

The delay or cancellation of a customer project or inaccurate project completion estimates may adversely affect our operating results and financial performance.

Any unanticipated delays in a customer project, changes in customer requirements or priorities during the project implementation period, or a customer's decision to cancel a project, may adversely impact our operating results and financial performance. In addition, during the project implementation period, we perform ongoing estimates of the progress being made on complex and difficult projects and documenting this progress is subject to potential inaccuracies. Changes in project completion estimates are

heavily dependent on the accuracy of our initial project completion estimates and our ability to evaluate project profits and losses. Any inaccuracies or changes in estimates resulting from changes in customer requirements, delays or inaccurate initial project completion estimates may result in increased project costs and adversely impact our operating results and financial performance.

Our software products may contain undetected errors or other defects, which could damage our reputation with customers, decrease profitability, and expose us to liability.

Our software products are complex. Software may contain bugs or errors that can unexpectedly interfere with the operation of the software products. Our software products may contain undetected errors or flaws when first introduced or as new versions are released. These undetected errors may result in loss of, or delay in, market acceptance of our products and a corresponding loss of sales or revenues. Customers depend upon our products for mission-critical applications, and these errors may hurt our reputation with customers. In addition, software product errors or failures could subject us to product liability, as well as performance and warranty claims, which could materially adversely affect our business, financial condition, cash flows and/or results of operations.

If our products and services fail to comply with legislation, government regulations, and industry standards to which our customers are subject, it could result in a loss of customers and decreased revenue.

Legislation, governmental regulation, and industry standards affect how our business is conducted, and in some cases, could subject us to the possibility of future lawsuits arising from our products and services. Globally, legislation, governmental regulation and industry standards may directly or indirectly impact our current and prospective customers' activities, as well as their expectations and needs in relation to our products and services. For example, our products are affected by VISA, Mastercard and other major payment brand electronic payment standards that are generally updated twice annually. Beyond this, our products are affected by PCI Security Standards. As a provider of electronic data processing to financial institutions, we must comply with FFIEC regulations and are subject to FFIEC examinations.

In addition, action by government and regulatory authorities such as the Dodd-Frank Wall Street Reform and the Consumer Protection Act relating to financial regulatory reform, the European Union-wide General Data Protection Regulation ("GDPR") (which imposes strict data privacy requirements and regulatory fines of up to 4% of "worldwide turnover") and the California Consumer Privacy Act ("CCPA"), as well as legislation and regulation related to credit availability, data usage, privacy, or other related regulatory developments could have an adverse effect on our customers and therefore could have a material adverse effect on our business, financial condition, cash flows and results of operations. The regulatory focus on privacy issues also continues to increase and worldwide laws and regulations concerning the handling of personal information are expanding and becoming more complex. Our failure, or perceived failure, to comply with laws and regulations concerning the handling of personal information could result in lost or restricted business, proceedings, actions or fines brought against us or levied by governmental entities or others, or could adversely affect our business and harm our reputation.

If we fail to comply with the complex regulations applicable to our payments business, we could be subject to liability or our revenues may be reduced.

Official Payments Corporation is licensed as a money transmitter in those states where such licensure is required. These licenses require us to demonstrate and maintain certain levels of net worth and liquidity, require us to file periodic reports and subject us to inspections by state regulatory agencies. In addition, our payment business is generally subject to federal regulation in the United States, including anti-money laundering regulations and certain restrictions on transactions to or from certain individuals or entities. The complexity of these regulations will continue to increase our cost of doing business. Any violations of these laws may also result in civil or criminal penalties against us and our officers or the prohibition against us providing money transmitter services in particular jurisdictions. We could also be forced to change our business practices or be required to obtain additional licenses or regulatory approvals that could cause us to incur substantial costs.

In addition, our customers must ensure that our services comply with the government regulations, including the EU GDPR, and industry standards that apply to their businesses. Federal, state, foreign or industry authorities could adopt laws, rules, or regulations affecting our customers' businesses that could lead to increased operating costs that may lead to reduced market acceptance. In addition, action by regulatory authorities relating to credit availability, data usage, privacy, or other related regulatory developments could have an adverse effect on our customers and, therefore, could have a material adverse effect on our business, financial condition, and results of operations.

If we fail to comply with privacy regulations imposed on providers of services to financial institutions, our business could be harmed.

As a provider of services to financial institutions, we may be bound by the same limitations on disclosure of the information we receive from our customers as apply to the financial institutions themselves. If we are subject to these limitations and we fail to comply with applicable regulations, including the EU GDPR, we could be exposed to suits for breach of contract or to governmental

proceedings, our customer relationships and reputation could be harmed, and we could be inhibited in our ability to obtain new customers. In addition, if more restrictive privacy laws or rules are adopted in the future on the federal or state level, or, with respect to our international operations, by authorities in foreign jurisdictions on the national, provincial, state, or other level, that could have an adverse impact on our business.

Our risk management and information security programs are the subject of oversight and periodic reviews by the federal agencies that regulate our business. In the event an examination of our information security and risk management functions results in adverse findings, such findings could be made public or communicated to our regulated financial institution customers, which could have a material adverse effect on our business.

If our security measures are breached or become infected with a computer virus, or if our services are subject to attacks that degrade or deny the ability of users to access our products or services, our business will be harmed by disrupting delivery of services and damaging our reputation.

As part of our business, we electronically receive, process, store, and transmit sensitive business information of our customers. Unauthorized access to our computer systems or databases could result in the theft or publication of confidential information or the deletion or modification of records or could otherwise cause interruptions in our operations. These concerns about security are increased when we transmit information over the Internet. Security breaches in connection with the delivery of our products and services, including products and services utilizing the Internet, or well-publicized security breaches, and the trend toward broad consumer and general public notification of such incidents, could significantly harm our business, financial condition, cash flows and/or results of operations. We cannot be certain that advances in criminal capabilities, discovery of new vulnerabilities, attempts to exploit vulnerabilities in our systems, data thefts, physical system or network break-ins or inappropriate access, or other developments will not compromise or breach the technology protecting our networks and confidential information. Computer viruses have also been distributed and have rapidly spread over the Internet. Computer viruses could infiltrate our systems, disrupting our delivery of services and making our applications unavailable. Any inability to prevent security breaches or computer viruses could also cause existing customers to lose confidence in our systems and terminate their agreements with us, and could inhibit our ability to attract new customers.

We may be unable to protect our intellectual property and technology.

To protect our proprietary rights in our intellectual property, we rely on a combination of contractual provisions, including customer licenses that restrict use of our products, confidentiality agreements and procedures, and trade secret and copyright laws. Despite such efforts, we may not be able to adequately protect our proprietary rights, or our competitors may independently develop similar technology, duplicate products, or design around any rights we believe to be proprietary. This may be particularly true in countries other than the United States because some foreign laws do not protect proprietary rights to the same extent as certain laws of the United States. Any failure or inability to protect our proprietary rights could materially adversely affect our business.

We also use a limited amount of software licensed by its authors or other third parties under so-called “open source” licenses and may continue to use such software in the future. Some of these licenses contain requirements that we make available source code for modifications or derivative works we create based upon the open source software, and that we license such modifications or derivative works under the terms of a particular open source license or other license granting third parties certain rights of further use. By the terms of certain open source licenses, we could be required to release the source code of our proprietary software if we combine our proprietary software with open source software in a certain manner. Additionally, the terms of many open source licenses have not been interpreted by United States or other courts, and there is a risk that these licenses could be construed in a manner that could impose unanticipated conditions or restrictions on our ability to commercialize our solutions. 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 origin of the software.

Our exposure to risks associated with the use of intellectual property may be increased for third-party products distributed by us or as a result of acquisitions since we have a lower level of visibility, if any, into the development process with respect to such third-party products and acquired technology or the care taken to safeguard against infringement risks.

We may be subject to increasing litigation over our intellectual property rights.

There has been a substantial amount of litigation in the software industry regarding intellectual property rights. Third parties have in the past, and may in the future, assert claims or initiate litigation related to exclusive patent, copyright, trademark or other intellectual property rights to business processes, technologies and related standards that are relevant to us and our customers. These assertions have increased over time as a result of the general increase in patent claims assertions, particularly in the United States. Because of the existence of a large number of patents in the electronic commerce field, the secrecy of some pending patents and the rapid issuance of new patents, it is not economical or even possible to determine in advance whether a product or any of its

components infringes or will infringe on the patent rights of others. Any claim against us, with or without merit, could be time-consuming, result in costly litigation, cause product delivery delays, require us to enter into royalty or licensing agreements or pay amounts in settlement, or require us to develop alternative non-infringing technology.

We anticipate that software product developers and providers of electronic commerce solutions could increasingly be subject to infringement claims, and third parties may claim that our present and future products infringe upon their intellectual property rights. Third parties may also claim, and we are aware that at least two parties have claimed on several occasions, that our customers' use of a business process method which utilizes our products in conjunction with other products infringe on the third-party's intellectual property rights. These third-party claims could lead to indemnification claims against us by our customers. Claims against our customers related to our products, whether or not meritorious, could harm our reputation and reduce demand for our products. Where indemnification claims are made by customers, resistance even to unmeritorious claims could damage the customer relationship. A successful claim by a third-party of intellectual property infringement by us or one of our customers could compel us to enter into costly royalty or license agreements, pay significant damages, or stop selling certain products and incur additional costs to develop alternative non-infringing technology. Royalty or licensing agreements, if required, may not be available on terms acceptable to us or at all, which could adversely affect our business.

Certain payment funding methods expose us to the credit and/or operating risk of our clients.

When we process an automated clearing house or ATM network payment transaction for certain clients, we occasionally transfer funds from our settlement account to the intended destination account before we receive funds from a client's source account. The vast majority of these occurrences are resolved quickly through normal processes. However, if they are not resolved and we are then unable to reverse the transaction that sent funds to the intended destination, a shortfall in our settlement account will be created. Although we have legal recourse against our clients for the amount of the shortfall, timing of recovery may be delayed by litigation or the amount of any recovery may be less than the shortfall. In either case, we would have to fund the shortfall in our settlement account from our corporate funds.

If we experience business interruptions or failure of our information technology and communication systems, the availability of our products and services could be interrupted which could adversely affect our reputation, business and financial condition.

Our ability to provide reliable service in a number of our businesses depends on the efficient and uninterrupted operation of our data centers, information technology and communication systems, and those of our external service providers. As we continue to grow our ACI On Demand business, our dependency on the continuing operation and availability of these systems increases. Our systems and data centers, and those of our external service providers, could be exposed to damage or interruption from fire, natural disasters, power loss, telecommunications failure, unauthorized entry and computer viruses. Although we have taken steps to prevent system failures and we have installed back-up systems and procedures to prevent or reduce disruption, such steps may not be sufficient to prevent an interruption of services and our disaster recovery planning may not account for all eventualities. Further, our property and business interruption insurance may not be adequate to compensate us for all losses or failures that may occur.

An operational failure or outage in any of these systems, or damage to or destruction of these systems, which causes disruptions in our services, could result in loss of customers, damage to customer relationships, reduced revenues and profits, refunds of customer charges and damage to our brand and reputation and may require us to incur substantial additional expense to repair or replace damaged equipment and recover data loss caused by the interruption. Any one or more of the foregoing occurrences could have a material adverse effect on our reputation, business, financial condition, cash flows and results of operations.

We are engaged in offshore software development activities, which may not be successful and which may put our intellectual property at risk.

As part of our globalization strategy and to optimize available research and development resources, we utilize our Irish subsidiary to serve as the focal point for certain international product development and commercialization efforts. This subsidiary oversees remote software development operations in Romania and elsewhere, as well as manages certain of our intellectual property rights. In addition, we manage certain offshore development activities in India. While our experience to date with our offshore development centers has been positive, there is no assurance that this will continue. Specifically, there are a number of risks associated with this activity, including but not limited to the following:

- communications and information flow may be less efficient and accurate as a consequence of the time, distance and language differences between our primary development organization and the foreign based activities, resulting in delays in development or errors in the software developed;
- in addition to the risk of misappropriation of intellectual property from departing personnel, there is a general risk of the potential for misappropriation of our intellectual property that might not be readily discoverable;

- the quality of the development efforts undertaken offshore may not meet our requirements because of language, cultural and experiential differences, resulting in potential product errors and/or delays;
- potential disruption from the involvement of the United States in political and military conflicts around the world; and
- currency exchange rates could fluctuate and adversely impact the cost advantages intended from maintaining these facilities.

There are a number of risks associated with our international operations that could have a material impact on our operations and financial condition.

We derive a significant portion of our revenues from international operations and anticipate continuing to do so. As a result, we are subject to risks of conducting international operations. One of the principal risks associated with international operations is potentially adverse movements of foreign currency exchange rates. Our exposures resulting from fluctuations in foreign currency exchange rates may change over time as our business evolves and could have an adverse impact on our financial condition, cash flows and/or results of operations. We have not entered into any derivative instruments or hedging contracts to reduce exposure to adverse foreign currency changes.

Other potential risks include difficulties associated with staffing and management, reliance on independent distributors, longer payment cycles, potentially unfavorable changes to foreign tax rules, compliance with foreign regulatory requirements, effects of a variety of foreign laws and regulations, including restrictions on access to personal information, reduced protection of intellectual property rights, variability of foreign economic conditions, governmental currency controls, difficulties in enforcing our contracts in foreign jurisdictions, and general economic and political conditions in the countries where we sell our products and services. Some of our products may contain encrypted technology, the export of which is regulated by the United States government. Changes in U.S. and other applicable export laws and regulations restricting the export of software or encryption technology could result in delays or reductions in our shipments of products internationally. There can be no assurance that we will be able to successfully address these challenges.

In addition, the implementation of the United Kingdom's withdrawal from the European Union (referred to as Brexit) could, among other outcomes, disrupt the free movement of goods, services, and people between the U.K. and the E.U., undermine bilateral cooperation in key policy areas, and significantly disrupt trade between the U.K. and the E.U. The uncertainties related to Brexit have cross-border operational, financial and tax implications, among others, and any economic volatility that may arise in the U.K., the E.U., or elsewhere may adversely affect our business.

Global economic conditions could reduce the demand for our products and services or otherwise adversely impact our cash flows, operating results and financial condition.

For the foreseeable future, we expect to derive most of our revenue from products and services we provide to the banking and financial services industries. The global electronic payments industry and the banking and financial services industries depend heavily upon the overall levels of consumer, business and government spending. Adverse economic conditions and the potential for disruptions in these industries as well as the general software sector could result in a decrease in consumers' use of banking services and financial service providers resulting in significant decreases in the demand for our products and services which could adversely affect our business and operating results. A lessening demand in either the overall economy, the banking and financial services industry or the software sector could also result in the implementation by banks and related financial service providers of cost reduction measures or reduced capital spending resulting in longer sales cycles, deferral or delay of purchase commitments for our products and increased price competition which could lead to a material decrease in our future revenues and earnings.

Our business and operating results could be adversely affected by events outside of our control, including natural disasters, wars and outbreaks of disease or other adverse public health developments.

We may be impacted by natural disasters, wars, and outbreaks of disease or other adverse public health developments such as the recent COVID-19 coronavirus outbreak. These events could cause disruptions or restrictions on us, our partners and customers, including restrictions on travel, temporary closure of facilities, and other restrictions. Such disruptions or restrictions may result in delays or losses of sales and delays in the development or implementation of our products. These events could also result in a decrease in consumers' use of our customers' services, further adversely affecting our business and operating results.

Failure to attract and retain senior management personnel and skilled technical employees could harm our ability to grow.

Our senior management team has significant experience in the financial services industry. The loss of this leadership could have an adverse effect on our business, operating results and financial condition. Further, the loss of this leadership may have an adverse

impact on senior management's ability to provide effective oversight and strategic direction for all key functions within the Company, which could impact our future business, operating results and financial condition.

Our future success also depends upon our ability to attract and retain highly-skilled technical personnel. Because the development of our solutions and services requires knowledge of computer hardware, operating system software, system management software, and application software, our technical personnel must be proficient in a number of disciplines. Competition for such technical personnel is intense, and our failure to hire and retain talented personnel could have a material adverse effect on our business, operating results and financial condition.

Our future growth will also require sales and marketing, financial and administrative personnel to develop and support new solutions and services, to enhance and support current solutions and services and to expand operational and financial systems. There can be no assurance that we will be able to attract and retain the necessary personnel to accomplish our growth strategies and we may experience constraints that could adversely affect our ability to satisfy client demand in a timely fashion.

Our ability to maintain compliance with applicable laws, rules and regulations and to manage and monitor the risks facing our business relies upon the ability to maintain skilled compliance, security, risk and audit professionals. Competition for such skillsets is intense, and our failure to hire and retain talented personnel could have an adverse effect on our internal control environment and impact our operating results.

We may become involved in litigation that could materially adversely affect our business financial condition, cash flows and/or results of operations.

From time to time, we are involved in litigation relating to claims arising out of our operations. Any claims, with or without merit, could be time-consuming and result in costly litigation. Failure to successfully defend against these claims could result in a material adverse effect on our business, financial condition, results of operations and/or cash flows.

If we engage in acquisitions, strategic partnerships or significant investments in new business, we will be exposed to risks which could materially adversely affect our business.

As part of our business strategy, we anticipate that we may acquire new products and services or enhance existing products and services through acquisitions of other companies, product lines, technologies and personnel, or through investments in, or strategic partnerships with, other companies. Any acquisition, investment or partnership, is subject to a number of risks. Such risks include the diversion of management time and resources, disruption of our ongoing business, potential overpayment for the acquired company or assets, dilution to existing stockholders if our common stock is issued in consideration for an acquisition or investment, incurring or assuming indebtedness or other liabilities in connection with an acquisition which may increase our interest expense and leverage significantly, lack of familiarity with new markets, and difficulties in supporting new product lines.

Further, even if we successfully complete acquisitions, we may encounter issues not discovered during our due diligence process, including product or service quality issues, intellectual property issues and legal contingencies, the internal control environment of the acquired entity may not be consistent with our standards and may require significant time and resources to improve and we may impair relationships with employees and customers as a result of migrating a business or product line to a new owner. We will also face challenges in integrating any acquired business. These challenges include eliminating redundant operations, facilities and systems, coordinating management and personnel, retaining key employees, customers and business partners, managing different corporate cultures, and achieving cost reductions and cross-selling opportunities. There can be no assurance that we will be able to fully integrate all aspects of acquired businesses successfully, realize synergies expected to result from the acquisition, advance our business strategy or fully realize the potential benefits of bringing the businesses together, and the process of integrating these acquisitions may further disrupt our business and divert our resources.

See *Critical Accounting Policies and Estimates* in Part II, Item 7 of this Form 10-K for additional information related to Accounting Standards Codification ("ASC") 805, *Business Combinations*.

Our failure to successfully manage acquisitions or investments, or successfully integrate acquisitions could have a material adverse effect on our business, financial condition, cash flows and/or results of operations. Correspondingly, our expectations related to the benefits related to our recent acquisitions, prior acquisitions or any other future acquisition or investment could be inaccurate.

We may experience difficulties integrating Speedpay, which could cause us to fail to realize the anticipated benefits of the acquisition.

Achieving the anticipated benefits of our acquisition of Speedpay will depend in part upon whether we are able to integrate the business in an effective and efficient manner. There can be no assurance that we will be able to fully integrate all aspects of

Speedpay successfully, advance our business strategy, or fully realize the potential benefits of bringing the businesses together, and the process of integrating Speedpay may disrupt our business and divert our resources. Any delay or inability of management to successfully integrate the operations of Speedpay could compromise our potential to achieve the anticipated long-term strategic benefits of the acquisitions and could have a material adverse effect on the business, financial condition, cash flows, and results of operations.

Our balance sheet includes significant amounts of goodwill and intangible assets. The impairment of a significant portion of these assets could negatively affect our financial results.

Our balance sheet includes goodwill and intangible assets that represent a significant portion of our total assets at December 31, 2019. On at least an annual basis, we assess whether there have been impairments in the carrying value of goodwill and intangible assets. If the carrying value of the asset is determined to be impaired, then it is written down to fair value by a charge to operating earnings. An impairment of a significant portion of goodwill or intangible assets could materially negatively affect our results of operations.

Our outstanding debt contains restrictions and other financial covenants that limit our flexibility in operating our business.

Our credit facility and the indenture governing our 5.750% Senior Notes due 2026 ("2026 Notes") contain customary affirmative and negative covenants for debt of these types that limit our ability to engage in specified types of transactions. If an event of default occurs, the lenders, trustee, or holders of the 2026 Notes will be entitled to take various actions, including, but not limited to, demanding payment for all amounts outstanding. If adverse global economic conditions persist or worsen, we could experience decreased revenues from our operations attributable to reduced demand for our products and services and as a result, we could fail to satisfy the financial and other restrictive covenants to which we are subject under our existing debt, resulting in an event of default. If we are unable to cure the default or obtain a waiver, we will not be able to access our credit facility and there can be no assurance that we would be able to obtain alternative financing. See Note 5, *Debt*, to our Notes to Consolidated Financial Statements in Part IV, Item 15 of this Form 10-K for additional information.

Our existing levels of debt and debt service requirements may adversely affect our financial condition or operational flexibility and prevent us from fulfilling our obligations under our outstanding indebtedness.

Our level of debt could have adverse consequences for our business, financial condition, operating results and operational flexibility, including the following: (i) the debt level may cause us to have difficulty borrowing money in the future for working capital, capital expenditures, acquisitions or other purposes; (ii) our debt level may limit operational flexibility and our ability to pursue business opportunities and implement certain business strategies; (iii) we use a large portion of our operating cash flow to pay principal and interest on our credit facility and the 2026 Notes, which reduces the amount of money available to finance operations, acquisitions and other business activities; (iv) we have a higher level of debt than some of our competitors or potential competitors, which may cause a competitive disadvantage and may reduce flexibility in responding to changing business and economic conditions, including increased competition and vulnerability to general adverse economic and industry conditions; (v) some of our debt has a variable rate of interest, which exposes us to the risk of increased interest rates; (vi) there are significant maturities on our debt that we may not be able to fulfill or that may be refinanced at higher rates; and (vii) if we fail to satisfy our obligations under our outstanding debt or fail to comply with the financial or other restrictive covenants required under our credit facility and the 2026 Notes, an event of default could result that could cause all of our debt to become due and payable and could permit the lenders under our credit facility to foreclose on the assets securing such debt.

Replacement of the LIBOR benchmark interest rate could adversely affect our business, financial condition, and results of operations.

In July 2017, the United Kingdom's Financial Conduct Authority, which regulates the London Interbank Offered Rate ("LIBOR"), announced it will no longer compel banks to submit rates for the calculation of LIBOR after 2021. The Alternative Reference Rates Committee has proposed the Secured Overnight Financing Rate ("SOFR") as its recommended alternative to LIBOR.

The Company's Credit Agreement is currently indexed to LIBOR, and the maturity date of the Credit Agreement extends beyond 2021. The Credit Agreement contemplates the discontinuation of LIBOR and provides options for the Company in such an event. It is uncertain at this time, however, what the potential impact of the transition from LIBOR as an interest rate benchmark to other potential alternative reference rates, including SOFR, may be on our business, financial condition, and/or results of operations.

Management's backlog estimate may not be accurate and may not generate the predicted revenues.

Estimates of future financial results are inherently unreliable. Our backlog estimates require substantial judgment and are based on a number of assumptions, including management's current assessment of customer and third-party contracts that exist as of the date the estimates are made, as well as revenues from assumed contract renewals, to the extent that we believe that recognition of the

related revenue will occur within the corresponding backlog period. A number of factors could result in actual revenues being less than the amounts reflected in backlog. Our customers or third-party partners may attempt to renegotiate or terminate their contracts for a number of reasons, including mergers, changes in their financial condition, or general changes in economic conditions within their industries or geographic locations, or we may experience delays in the development or delivery of products or services specified in customer contracts. Actual renewal rates and amounts may differ from historical experience used to estimate backlog amounts. Changes in foreign currency exchange rates may also impact the amount of revenue actually recognized in future periods. Accordingly, there can be no assurance that contracts included in backlog will actually generate the specified revenues or that the actual revenues will be generated within a 12-month or 60-month period. Additionally, because backlog estimates are operating metrics, the estimates are not required to be subject to the same level of internal review or controls as a U.S. generally accepted accounting principles ("GAAP") financial measure.

We may face exposure to unknown tax liabilities, which could adversely affect our financial condition, cash flows and/or results of operations.

We are subject to income and non-income based taxes in the United States and in various foreign jurisdictions. Significant judgment is required in determining our worldwide income tax liabilities and other tax liabilities. In addition, we expect to continue to benefit from implemented tax-saving strategies. We believe that these tax-saving strategies comply with applicable tax law. If the governing tax authorities have a different interpretation of the applicable law and successfully challenge any of our tax positions, our financial condition, cash flows and/or results of operations could be adversely affected.

Our U.S. companies are the subject of an examination by several state tax departments. Some of our foreign subsidiaries are currently the subject of a tax examination by the local taxing authorities. Other foreign subsidiaries could face challenges from various foreign tax authorities. It is not certain that the local authorities will accept our tax positions. We believe our tax positions comply with applicable tax law and intend to vigorously defend our positions. However, differing positions on certain issues could be upheld by foreign tax authorities, which could adversely affect our financial condition and/or results of operations.

Our revenue and earnings are highly cyclical, our quarterly results fluctuate significantly, and we have revenue-generating transactions concentrated in the final weeks of a quarter which may prevent accurate forecasting of our financial results and cause our stock price to decline.

Our revenue and earnings are highly cyclical causing significant quarterly fluctuations in our financial results. Revenue and operating results are usually strongest during the third and fourth fiscal quarters ending September 30 and December 31, primarily due to the sales and budgetary cycles of our customers. We experience lower revenues, and possible operating losses, in the first and second quarters ending March 31 and June 30. Our financial results may also fluctuate from quarter to quarter and year to year due to a variety of factors, including changes in product sales mix that affect average selling prices, and the timing of customer renewals (any of which may impact the pattern of revenue recognition).

In addition, large portions of our customer contracts are consummated in the final weeks of each quarter. Before these contracts are consummated, we create and rely on forecasted revenues for planning, modeling and earnings guidance. Forecasts, however, are only estimates and actual results may vary for a particular quarter or longer periods of time. Consequently, significant discrepancies between actual and forecasted results could limit our ability to plan, budget or provide accurate guidance, which could adversely affect our stock price. Any publicly-stated revenue or earnings projections are subject to this risk.

Due to the industry we operate in, our stock price may be volatile.

No assurance can be given that operating results will not vary from quarter to quarter, and past performance may not accurately predict future performance. Any fluctuations in quarterly operating results may result in volatility in our stock price. Our stock price may also be volatile, in part, due to external factors such as announcements by third parties or competitors, inherent volatility in the technology sector, variability in demand from our existing customers, failure to meet the expectations of market analysts, the level of our operating expenses and changing market conditions in the software industry. In addition, the financial markets have experienced significant price and volume fluctuations that have particularly affected the stock prices of many technology companies and financial services companies, and these fluctuations sometimes are unrelated to the operating performance of these companies. Broad market fluctuations, as well as industry-specific and general economic conditions may adversely affect the market price of our common stock.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

We lease office space in Naples, Florida, for our principal executive headquarters. As of the end of 2019, we also owned and leased a total of approximately 572,000 square feet of office and data center space in the U.S. and leased approximately 450,000 square feet of office and data center space outside the U.S., primarily in the United Kingdom, Ireland, and Singapore.

We believe our current facilities are adequate for our present and short-term foreseeable needs and that additional suitable space will be available as required. We also believe we will be able to renew leases as they expire or secure alternate suitable space.
See Note 14, *Leases*, to our Notes to Consolidated Financial Statements in Part IV, Item 15 of this Form 10-K for additional information regarding our obligations under our facilities leases.

ITEM 3. LEGAL PROCEEDINGS

From time to time, we are involved in various litigation matters arising in the ordinary course of our business. We are not currently a party to any legal proceedings, the adverse outcome of which, individually or in the aggregate, we believe would be likely to have a material effect on our financial condition or results of operations.

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

Our common stock trades on The NASDAQ Global Select Market under the symbol ACIW.

As of February 24, 2020, there were 272 holders of record of our common stock. A substantially greater number of shareholders hold our common stock in "street name", or as beneficial holders whose shares are held in the name of banks, brokers, or other financial institutions.

Dividends

We have never declared nor paid cash dividends on our common stock. We do not presently anticipate paying cash dividends. However, any future determination relating to our dividend policy will be made at the discretion of our board of directors (the "board") and will depend upon our financial condition, capital requirements, and earnings, as well as other factors the board may deem relevant. The terms of our current Credit Facility may restrict the payment of dividends subject to us meeting certain financial metrics and being in compliance with the events of default provisions of the agreement.

Issuer Purchases of Equity Securities

The following table provides information regarding our repurchases of common stock during the three months ended December 31, 2019:

Period	Total Number of Shares Purchased	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Program	Approximate Dollar Value of Shares that May Yet Be Purchased Under the Program
October 1, 2019 through October 31, 2019	—	$ —	—	$ 140,969,000
November 1, 2019 through November 30, 2019	—	—	—	140,969,000
December 1, 2019 through December 31, 2019 (1)	45,993	36.18	—	140,969,000
Total	45,993	$ 36.18	—	

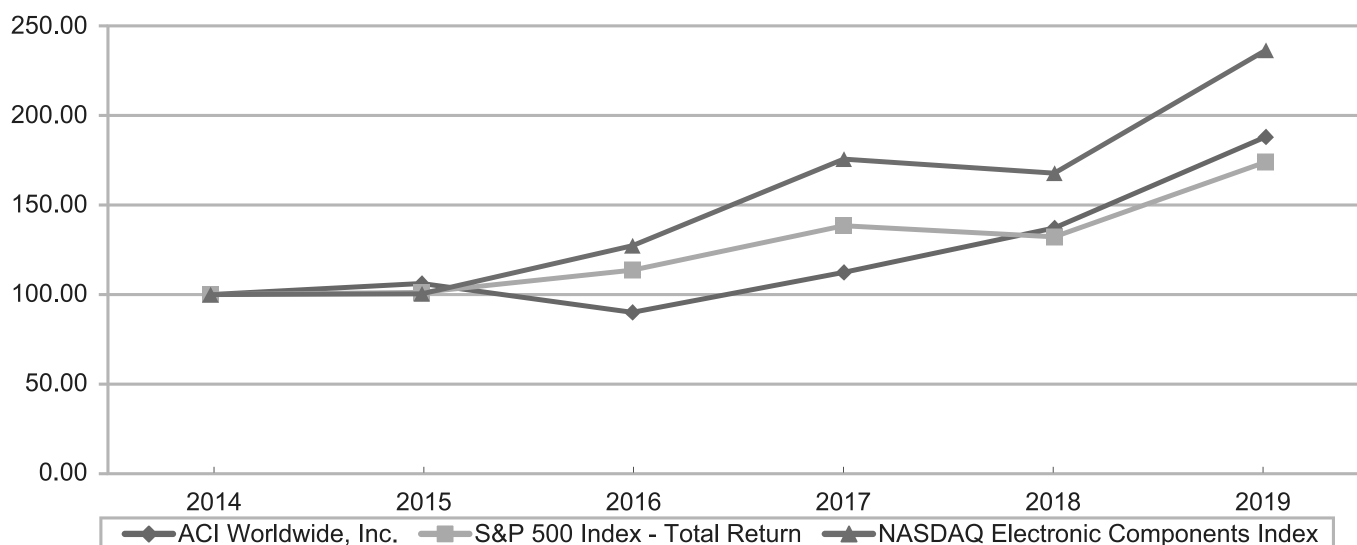
(1) Pursuant to our 2005 Equity and Performance Incentive Plan, as amended (the "2005 Incentive Plan"), we granted stock options. These awards have a term that may not exceed ten years and vesting is determined by the administrator of the plan. During the three months ended December 31, 2019, 90,750 stock options were exercised by means of net settlement. We withheld 45,993 of these stock options to pay the employees' portion of the applicable minimum payroll withholding taxes and cover the respective exercise price.

In 2005, our board approved a stock repurchase program authorizing us, as market and business conditions warrant, to acquire our common stock and periodically authorize additional funds for the program, with the intention of using existing cash and cash equivalents to fund these repurchases. In February 2018, the board approved the repurchase of the Company's common stock for up to $200.0 million, in place of the remaining purchase amounts previously authorized. As of December 31, 2019, the maximum remaining amount authorized for purchase under the stock repurchase program was approximately $141.0 million.

There is no guarantee as to the exact number of shares we will repurchase. Repurchased shares are returned to the status of authorized but unissued shares of common stock. In March 2005, our board approved a plan under Rule 10b5-1 of the Securities Exchange Act of 1934 to facilitate the repurchase of shares of common stock under the existing stock repurchase program. Under our Rule 10b5-1 plan, we have delegated authority over the timing and amount of repurchases to an independent broker who does not have access to inside information about the Company. Rule 10b5-1 allows us, through the independent broker, to purchase shares at times when we ordinarily would not be in the market because of self-imposed trading blackout periods, such as the time immediately preceding the end of the fiscal quarter through a period of three business days following our quarterly earnings release.

Stock Performance Graph and Cumulative Total Return

The following table shows a line-graph presentation comparing cumulative stockholder return on an indexed basis with a broad equity market index and either a nationally-recognized industry standard or an index of peer companies selected by us. We selected the S&P 500 Index and the NASDAQ Electronic Components Index for comparison.



The graph above assumes a $100 investment was made in our common stock and each index on December 31, 2014, and all dividends were reinvested. Also included are respective investment returns based on the stock and index values as of the end of each year during the five-year period. This information was provided by Zacks Investment Research, Inc. of Chicago, Illinois.

The stock performance graph disclosure above is not considered "filed" with the SEC under the Securities and Exchange Act of 1934, as amended, and is not incorporated by reference in any past or future filing by us under the Securities Exchange Act of 1934, as amended, or the Securities Act of 1933, as amended, unless specifically referenced.

ITEM 6. SELECTED FINANCIAL DATA

The following selected financial data has been derived from our consolidated financial statements (in thousands, except per share data). This data should be read together with Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations", and the consolidated financial statements and related notes included elsewhere in this annual report. The financial information below is not necessarily indicative of the results of future operations. Future results could differ materially from historical results due to many factors, including those discussed in Item 1A, *Risk Factors*.

	Years Ended December 31,				
	2019 (1)(2)	2018 (3)	2017 (4)	2016 (5)	2015
Income Statement Data:					
Total revenues	$ 1,258,294	$ 1,009,780	$ 1,024,191	$ 1,005,701	$ 1,045,977
Net income	67,062	68,921	5,135	129,535	85,436
Earnings per share:					
Basic	$ 0.58	$ 0.59	$ 0.04	$ 1.10	$ 0.73
Diluted	$ 0.57	$ 0.59	$ 0.04	$ 1.09	$ 0.72
Weighted average common shares outstanding:					
Basic	116,175	116,057	118,059	117,533	117,465
Diluted	118,571	117,632	119,444	118,847	118,919

	December 31,				
	2019 (1)(2)	2018 (3)	2017	2016 (5)	2015
Balance Sheet Data:					
Working capital	$ 308,426	$ 269,857	$ 100,039	$ 31,625	$ (2,360)
Total assets	3,257,534	2,122,455	1,861,639	1,902,295	1,975,788
Current portion of debt (6)	34,148	20,767	17,786	90,323	89,710
Debt (long-term portion) (6)	1,350,592	658,602	668,356	656,063	845,639
Stockholders' equity	1,129,968	1,048,231	764,597	754,917	654,400

(1) The consolidated balance sheet and statement of operations for the year ended December 31, 2019, includes the acquisition of Speedpay as discussed in Note 3, *Acquisition*, to our Notes to Consolidated Financial Statements in Part IV, Item 15 of this Form 10-K.

(2) The consolidated balance sheet and statement of operations for the year ended December 31, 2019, reflects the application of Accounting Standards Update ("ASU") 2016-02, *Leases* (codified as "ASC 842") as discussed in Note 14, *Leases*, to our Notes to Consolidated Financial Statements.

(3) The consolidated balance sheet and statement of operations for the year ended December 31, 2018, reflects the adoption of ASU 2014-09, *Revenue from Contracts with Customers* (codified as "ASC 606"), as discussed in Note 2, *Revenue*, to our Notes to Consolidated Financial Statements, including a cumulative adjustment of $244.0 million to retained earnings.

(4) The consolidated statement of operations for the year ended December 31, 2017, reflects the Baldwin Hackett & Meeks, Inc. ("BHMI") judgment. We recorded $46.7 million in general and administrative expense and $1.4 million in interest expense, as discussed in Note 15**,** *Commitments and Contingencies*, to our Notes to Consolidated Financial Statements.

(5) The consolidated balance sheet and statement of operations for the year ended December 31, 2016, reflects the sale of Community Financial Services assets and liabilities.

(6) During the year ended December 31, 2019, we borrowed $500.0 million in the form of a new senior secured term loan and drew $250.0 million on the available Revolving Credit Facility to fund the acquisition of Speedpay. During the year ended December 31, 2018, we issued $400.0 million in senior notes due August 15, 2026. We used the net proceeds of these senior notes to redeem our outstanding $300.0 million senior notes due 2020, which we originally entered in to during the year ended December 31, 2013. See Note 5**,** *Debt*, to our Notes to Consolidated Financial Statements for additional information.

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

Overview

ACI Worldwide, the Universal Payments ("UP") company, powers electronic payments for more than 5,100 organizations around the world. More than 1,000 of the largest financial institutions and intermediaries, as well as thousands of leading global merchants, rely on ACI to execute $14 trillion each day in payments and securities. In addition, myriad organizations utilize our electronic bill presentment and payment services. Through our comprehensive suite of software solutions delivered on customers' premises, through a third-party public cloud environment or through ACI's private cloud, we provide real-time, immediate payments capabilities and enable the industry's most complete omni-channel payments experience.

Our products are sold and supported through distribution networks covering three geographic regions – the Americas, EMEA, and Asia/Pacific. Each distribution network has its own globally coordinated sales force that it supplements with independent reseller and/or distributor networks. Our products and solutions are used globally by banks, financial intermediaries, merchants, and billers, such as third-party electronic payment processors, payment associations, switch interchanges and a wide range of transaction-generating endpoints, including ATMs, merchant POS terminals, bank branches, mobile phones, tablets, corporations, and Internet commerce sites. Accordingly, our business and operating results are influenced by trends such as information technology spending levels, the growth rate of electronic payments, mandated regulatory changes, and changes in the number and type of customers in the financial services industry. Our products are marketed under the ACI brand.

We derive a majority of our revenues from domestic operations and believe we have large opportunities for growth in international markets as well as continued expansion domestically in the United States. Refining our global infrastructure is a critical component of driving our growth. We have launched a globalization strategy which includes elements intended to streamline our supply chain

and concentrate expertise in several geographic locations to support a growing international customer base and competitive needs. We utilize our Irish subsidiaries to manage certain of our intellectual property rights and to oversee and manage certain international product development and commercialization efforts. We increased our SaaS and PaaS capabilities with a data center in Ireland allowing our SaaS and PaaS solutions to be more-broadly offered in the European market. We also continue to grow centers of expertise in Timisoara, Romania and Pune and Bangalore in India, as well as key operational centers such as Cape Town, South Africa and in multiple locations in the United States.

Key trends that currently impact our strategies and operations include:

Increasing electronic payment transaction volumes. Electronic payment volumes continue to increase around the world, taking market share from traditional cash and check transactions. In their World Payments Report, Capgemini predicts that non-cash transaction volumes will grow in volume at an annual rate of 14.2%, from 538.6 billion in 2017 to 1,045.5 billion in 2022, with varying growth rates based on the type of payment and part of the world. We leverage the growth in transaction volumes through the licensing of new systems to customers whose older systems cannot handle increased volume and through the sale of capacity upgrades to existing customers.

Adoption of real-time payments. Customer expectations, from both consumers and billers, are driving the payments world to more real-time delivery. In the U.K., payments sent through the traditional ACH multi-day batch service can now be sent through the Faster Payments service giving almost immediate access to the funds, and this is being considered and implemented in several countries including Malaysia, Thailand, Singapore, Australia, the United States, and various countries in Europe. In Europe, the ECB TIPS and EBA RT1 schemes are driving real-time payments adoption, while in the U.S. market, Zelle and TCH Real-Time Payments are now driving the adoption. Corporate customers expect real-time information on the status of their payments instead of waiting for an end-of-day report. Regulators expect banks to be monitoring key measures like liquidity in real time. ACI's focus has always been on the real-time execution of transactions and delivery of information through real-time tools, such as dashboards, so our experience will be valuable in addressing this trend.

Increasing competition. The electronic payments market is highly competitive and subject to rapid change. Our competition comes from in-house information technology departments, third-party electronic payment processors, and third-party software companies located both within and outside of the United States. Many of these companies are significantly larger than us and have significantly greater financial, technical, and marketing resources. As electronic payment transaction volumes increase, third-party processors tend to provide competition to our solutions, particularly among customers that do not seek to differentiate their electronic payment offerings or are eliminating banks from the payments service, reducing the need for our solutions. As consolidation in the financial services and financial technology industries continues, we anticipate that competition for those customers will intensify.

Adoption of cloud technology. To leverage lower-cost computing technologies, some banks, financial intermediaries, merchants, and billers are seeking to transition their systems to make use of cloud technology. Our investments and partnerships provide us the grounding to deliver cloud capabilities now and in the future. Market sizing data from Ovum indicates that spend on SaaS and PaaS payment systems is growing faster than spend on installed applications.

Electronic payments fraud and compliance. As electronic payment transaction volumes increase, organized criminal organizations continue to find ways to commit a growing volume of fraudulent transactions using a wide range of techniques. Banks, financial intermediaries, merchants, and billers continue to seek ways to leverage new technologies to identify and prevent fraudulent transactions and other attacks such as denial of service attacks. Due to concerns with international terrorism and money laundering, banks and financial intermediaries in particular are being faced with increasing scrutiny and regulatory pressures. We continue to see opportunity to offer our fraud detection solutions to help customers manage the growing levels of electronic payments fraud and compliance activity.

Adoption of smartcard technology. In many markets, card issuers are being required to issue new cards with embedded chip technology, with the liability shift having gone into effect in 2015 in the United States. Chip-based cards are more secure, harder to copy, and offer the opportunity for multiple functions on one card (e.g., debit, credit, electronic purse, identification, health records, etc.). This results in greater card-not-present fraud (e.g., fraud at eCommerce sites).

Single Euro Payments Area (SEPA). The SEPA, primarily focused on the European economic community and the U.K., is designed to facilitate lower costs for cross-border payments and reduce timeframes for settling electronic payment transactions. The transition to SEPA payment mechanisms will drive more volume to these systems with the potential to cause banks to review the capabilities of the systems supporting these payments. Our retail payments and real-time payments solutions facilitate key functions that help banks and financial intermediaries address these mandated regulations.

European Payment Service Directive (PSD2). PSD2, which was ratified by the European Parliament in 2015, required member states to implement new payment regulations in 2018. The XS2A provision effectively creates a new market opportunity where banks in European Union member countries must provide open API standards to customer data, thus allowing authorized third-party providers to enter the market.

Financial institution consolidation. Consolidation continues on a national and international basis, as financial institutions seek to add market share and increase overall efficiency. Such consolidations have increased, and may continue to increase, in their number, size, and market impact as a result of recent economic conditions affecting the banking and financial industries. There are several potential negative effects of increased consolidation activity. Continuing consolidation of financial institutions may result in a smaller number of existing and potential customers for our products and services. Consolidation of two of our customers could result in reduced revenues if the combined entity were to negotiate greater volume discounts or discontinue use of certain of our products. Additionally, if a non-customer and a customer combine and the combined entity decides to forego future use of our products, our revenue would decline. Conversely, we could benefit from the combination of a non-customer and a customer when the combined entity continues use of our products and, as a larger combined entity, increases its demand for our products and services. We tend to focus on larger financial institutions as customers, often resulting in our solutions being the solutions that survive in the consolidated entity.

Global vendor sourcing. Global and regional banks, financial intermediaries, merchants, and billers are aiming to reduce the costs in supplier management by picking suppliers who can service them across all their geographies instead of allowing each country operation to choose suppliers independently. Our global footprint from both a customer and a delivery perspective enable us to be successful in this globally sourced market. However, projects in these environments tend to be more complex and therefore of higher risk.

Electronic payments convergence. As electronic payment volumes grow and pressures to lower overall cost per transaction increase, banks and financial intermediaries are seeking methods to consolidate their payment processing across the enterprise. We believe that the strategy of using SOA to allow for re-use of common electronic payment functions, such as authentication, authorization, routing and settlement, will become more common. Using these techniques, banks and financial intermediaries will be able to reduce costs, increase overall service levels, enable one-to-one marketing in multiple bank channels, leverage volumes for improved pricing and liquidity, and manage enterprise risk. Our product strategy is, in part, focused on this trend, by creating integrated payment functions that can be re-used by multiple bank channels, across both the consumer and wholesale bank. While this trend presents an opportunity for us, it may also expand the competition from third-party electronic payment technology and service providers specializing in other forms of electronic payments. Many of these providers are larger than us and have significantly greater financial, technical and marketing resources.

Mobile banking and payments. There is a growing demand for the ability to carry out banking services or make payments using a mobile phone. According to analysis from the Deloitte Center for Financial Services in 2018, 84% of global consumers use online banking and 72% use mobile banking applications. Additionally, digital channels are used more frequently than bank branches and ATMs across all generations and in all countries. Our customers have been making use of existing products to deploy mobile banking, mobile payments, and mobile commerce solutions for their customers in many countries. In addition, ACI has invested in mobile products of our own and via partnerships to support mobile functionality in the marketplace.

Electronic bill payment and presentment. EBPP encompasses all facets of bill payment, including biller direct, where customers initiate payments on biller websites, the consolidator model, where customers initiate payments on a financial institution's website, and walk-in bill payment, as one might find in a convenience store. The EBPP market continues to grow as consumers move away from traditional forms of paper-based payments. Nearly three out of four (73%) online payments are made at the billers' sites rather than through banking websites. The biller-direct solutions are seeing strong growth as billers migrate these services to outsourcers, such as ACI, from legacy systems built in house. We believe that EBPP remains ripe for outsourcing, as a significant amount of biller-direct transactions are still processed in house. As billers seek to manage costs and improve efficiency, we believe that they will continue to look to third-party EBPP vendors that can offer a complete solution for their billing needs.

Several other factors related to our business may have a significant impact on our operating results from year to year. For example, the accounting rules governing the timing of revenue recognition are complex and it can be difficult to estimate when we will recognize revenue generated by a given transaction. Factors such as creditworthiness of the customer and timing of transfer of control or acceptance of our products may cause revenues related to sales generated in one period to be deferred and recognized in later periods. For arrangements in which services revenue is deferred, related direct and incremental costs may also be deferred. Additionally, while the majority of our contracts are denominated in the U.S. dollar, a substantial portion of our sales are made, and some of our expenses are incurred, in the local currency of countries other than the United States. Fluctuations in currency exchange rates in a given period may result in the recognition of gains or losses for that period.

We continue to seek ways to grow through organic sources, partnerships, alliances, and acquisitions. We continually look for potential acquisitions designed to improve our solutions' breadth or provide access to new markets. As part of our acquisition strategy, we seek acquisition candidates that are strategic, capable of being integrated into our operating environment, and accretive to our financial performance.

Chief Executive Officer

On February 18, 2020, we announced the appointment of Odilon Almeida as the Company's new President and Chief Executive Officer, effective March 9, 2020. Mr. Almeida will also be appointed to serve as a member of ACI's board of directors.

Acquisition

Speedpay

On May 9, 2019, we acquired Speedpay for $754.1 million in cash, including working capital adjustments, pursuant to a Stock Purchase Agreement, among the Company, Western Union, and ACI Worldwide Corp., our wholly owned subsidiary.

To fund the acquisition, we amended our existing Credit Agreement, dated February 24, 2017, for an additional $500.0 million senior secured term loan, in addition to drawing $250.0 million on the available Revolving Credit Facility. See Note 5, *Debt*, to our Notes to Consolidated Financial Statements in Part IV, Item 15 of this Form 10-K for terms of the Credit Agreement. The remaining acquisition consideration was funded with cash on hand.

Backlog

Backlog is comprised of:

- Committed Backlog, which includes (1) contracted revenue that will be recognized in future periods (contracted but not recognized) from software license fees, maintenance fees, services fees, and SaaS and PaaS fees specified in executed contracts (including estimates of variable consideration if required under ASC 606) and included in the transaction price for those contracts, which includes deferred revenue and amounts that will be invoiced and recognized as revenue in future periods and (2) estimated future revenues from software license fees, maintenance fees, services fees, and SaaS and PaaS fees specified in executed contracts.
- Renewal Backlog, which includes estimated future revenues from assumed contract renewals to the extent we believe recognition of the related revenue will occur within the corresponding backlog period.

We have historically included assumed renewals in backlog estimates based upon automatic renewal provisions in the executed contract and our historic experience with customer renewal rates.

Our 60-month backlog estimates are derived using the following key assumptions:

- License arrangements are assumed to renew at the end of their committed term or under the renewal option stated in the contract at a rate consistent with historical experience. If the license arrangement includes extended payment terms, the renewal estimate is adjusted for the effects of a significant financing component.
- Maintenance fees are assumed to exist for the duration of the license term for those contracts in which the committed maintenance term is less than the committed license term.
- SaaS and PaaS arrangements are assumed to renew at the end of their committed term at a rate consistent with our historical experiences.
- Foreign currency exchange rates are assumed to remain constant over the 60-month backlog period for those contracts stated in currencies other than the U.S. dollar.
- Our pricing policies and practices are assumed to remain constant over the 60-month backlog period.

In computing our 60-month backlog estimate, the following items are specifically not taken into account:

- Anticipated increases in transaction, account, or processing volumes by our customers.
- Optional annual uplifts or inflationary increases in recurring fees.
- Services engagements, other than SaaS and PaaS arrangements, are not assumed to renew over the 60-month backlog period.
- The potential impact of consolidation activity within our markets and/or customers.

We review our customer renewal experience on an annual basis. The impact of this review and subsequent updates may result in a revision to the renewal assumptions used in computing the 60-month backlog estimates. In the event a significant revision to renewal assumptions is determined to be necessary, prior periods will be adjusted for comparability purposes.

The following table sets forth our 60-month backlog estimate, by reportable segment, as of December 31, 2019; September 30, 2019; June 30, 2019; March 31, 2019; and December 31, 2018 (in millions). The 60-month backlog estimate includes approximately $1.5 billion as a result of the acquisition of Speedpay, which occurred on May 9, 2019. Dollar amounts reflect foreign currency exchange rates as of each period end. This is a non-GAAP financial measure being presented to provide comparability across accounting periods. We believe this measure provides useful information to investors and others in understanding and evaluating our financial performance.

	December 31, 2019	September 30, 2019	June 30, 2019	March 31, 2019	December 31, 2018
ACI On Premise	$ 1,977	$ 1,925	$ 1,880	$ 1,861	$ 1,875
ACI On Demand	3,855	3,756	3,813	2,290	2,299
Total	$ 5,832	$ 5,681	$ 5,693	$ 4,151	$ 4,174

	December 31, 2019	September 30, 2019	June 30, 2019	March 31, 2019	December 31, 2018
Committed	$ 2,168	$ 2,003	$ 2,105	$ 1,734	$ 1,832
Renewal	3,664	3,678	3,588	2,417	2,342
Total	$ 5,832	$ 5,681	$ 5,693	$ 4,151	$ 4,174

Estimates of future financial results require substantial judgment and are based on several assumptions, as described above. These assumptions may turn out to be inaccurate or wrong for reasons outside of management's control. For example, our customers may attempt to renegotiate or terminate their contracts for many reasons, including mergers, changes in their financial condition, or general changes in economic conditions in the customer's industry or geographic location. We may also experience delays in the development or delivery of products or services specified in customer contracts, which may cause the actual renewal rates and amounts to differ from historical experiences. Changes in foreign currency exchange rates may also impact the amount of revenue recognized in future periods. Accordingly, there can be no assurance that amounts included in backlog estimates will generate the specified revenues or that the actual revenues will be generated within the corresponding 60-month period. Additionally, because certain components of Committed Backlog and all of Renewal Backlog estimates are operating metrics, the estimates are not required to be subject to the same level of internal review or controls as contracted but not recognized Committed Backlog.

Results of Operations

The following tables present the consolidated statements of operations, as well as the percentage relationship to total revenues of items included in our consolidated statements of operations (in thousands):

Year Ended December 31, 2019, Compared to Year Ended December 31, 2018

	2019				2018	
	Amount	**% of Total Revenue**	**$ Change vs 2018**	**% Change vs 2018**	**Amount**	**% of Total Revenue**
Revenues:						
Software as a service and platform as a service	$ 677,669	54 %	$ 244,644	56 %	$ 433,025	43 %
License	288,261	23 %	7,705	3 %	280,556	28 %
Maintenance	213,409	17 %	(5,736)	(3)%	219,145	22 %
Services	78,955	6 %	1,901	2 %	77,054	7 %
Total revenues	1,258,294	100 %	248,514	25 %	1,009,780	100 %
Operating expenses:						
Cost of revenue	617,453	49 %	187,102	43 %	430,351	43 %
Research and development	146,573	12 %	2,943	2 %	143,630	14 %
Selling and marketing	123,684	10 %	5,803	5 %	117,881	12 %
General and administrative	135,296	11 %	27,874	26 %	107,422	11 %
Depreciation and amortization	111,532	9 %	26,947	32 %	84,585	8 %
Total operating expenses	1,134,538	91 %	250,669	28 %	883,869	88 %
Operating income	123,756	9 %	(2,155)	(2)%	125,911	12 %
Other income (expense):						
Interest expense	(64,033)	(5)%	(22,503)	54 %	(41,530)	(4)%
Interest income	11,967	1 %	825	7 %	11,142	1 %
Other, net	520	— %	4,244	(114)%	(3,724)	— %
Total other income (expense)	(51,546)	(4)%	(17,434)	51 %	(34,112)	(3)%
Income before income taxes	72,210	5 %	(19,589)	(21)%	91,799	9 %
Income tax expense	5,148	— %	(17,730)	(77)%	22,878	2 %
Net income	$ 67,062	5 %	$ (1,859)	(3)%	$ 68,921	7 %

Revenues

Total revenue for the year ended December 31, 2019, increased $248.5 million, or 25%, as compared to the same period in 2018, of which $227.7 million, or 23%, was due to the acquisition of Speedpay.

Total revenue was $13.1 million lower for the year ended December 31, 2019, compared to the same period in 2018, due to the impact of foreign currencies weakening against the U.S. dollar. Excluding the impact of the acquisition of Speedpay and foreign currency, total revenue for the year ended December 31, 2019, increased $33.9 million, or 3%, compared to the same period in 2018.

Software as a Service ("SaaS") and Platform as a Service ("PaaS") Revenue

The Company's SaaS arrangements allow customers to use certain software solutions (without taking possession of the software) in a single-tenant cloud environment on a subscription basis. The Company's PaaS arrangements allow customers to use certain software solutions (without taking possession of the software) in a multi-tenant cloud environment on a subscription or consumption basis. Included in SaaS and PaaS revenue are fees paid by our customers for use of our Biller solutions. Biller-related fees may be paid by our clients or directly by their customers and may be a percentage of the underlying transaction amount, a fixed fee per executed transaction or a monthly fee for each customer enrolled. SaaS and PaaS costs include payment card interchange fees, the amounts payable to banks and payment card processing fees, which are included in cost of revenue in the accompanying consolidated statements of operations. All revenue from SaaS and PaaS arrangements that does not qualify for treatment as a distinct performance obligation, which includes set-up fees, implementation or customization services, and product support services, are included in SaaS and PaaS revenue.

SaaS and PaaS revenue increased $244.6 million, or 56%, during the year ended December 31, 2019, as compared to the same period in 2018, of which $227.7 million, or 53%, was due to the acquisition of Speedpay. SaaS and PaaS revenue was $2.4 million lower for the year ended December 31, 2019, compared to the same period in 2018, due to the impact of foreign currencies weakening against the U.S. dollar. Excluding the impact of the acquisition of Speedpay and foreign currency, SaaS and PaaS revenue for the year ended December 31, 2019, increased $19.4 million, or 4%, compared to the same period in 2018, of which $11.7 million is related to new customers adopting our SaaS and PaaS offerings and existing customers adding new functionality or increasing transaction volumes and $7.7 million is attributable to acceleration of recurring revenue associated with customer-related consolidation activity.

License Revenue

Customers purchase the right to license ACI software under multi-year, time-based software license arrangements that vary in length but are generally five years. Under these arrangements the software is installed at the customer's location or in a third-party cloud environment through a provider that is managed by the customer (i.e. on-premise). Within these agreements are specified capacity limits typically based on customer transaction volume. ACI employs measurement tools that monitor the number of transactions processed by customers and if contractually specified limits are exceeded, additional fees are charged for the overage. Capacity overages may occur at varying times throughout the term of the agreement depending on the product, the size of the customer, and the significance of customer transaction volume growth. Depending on specific circumstances, multiple overages or no overages may occur during the term of the agreement.

Included in license revenue are license and capacity fees that are payable at the inception of the agreement or annually (initial license fees). License revenue also includes license and capacity fees payable quarterly or monthly due to negotiated customer payment terms (monthly license fees). The Company recognizes revenue in advance of billings for software license arrangements with extended payment terms and adjusts for the effects of the financing component, if significant.

License revenue increased $7.7 million, or 3%, during the year ended December 31, 2019, as compared to the same period in 2018. License revenue was $5.3 million lower for the year ended December 31, 2019, compared to the same period in 2018, due to the impact of foreign currencies weakening against the U.S. dollar. Excluding the impact of foreign currency, license revenue for the year ended December 31, 2019, increased $13.0 million, or 5%, compared to the same period in 2018.

The increase in license revenue was primarily driven by the timing and relative size of license and capacity events during the year ended December 31, 2019, as compared to the same period in 2018.

Maintenance Revenue

Maintenance revenue includes standard, enhanced, and premium customer support and any post contract support fees received from customers for the provision of product support services.

Maintenance revenue decreased $5.7 million, or 3%, during the year ended December 31, 2019, as compared to the same period in 2018. Maintenance revenue was $3.9 million lower for the year ended December 31, 2019, as compared to the same period in 2018, due to the impact of foreign currencies weakening against the U.S. dollar. Excluding the impact of foreign currency, maintenance revenue for the year ended December 31, 2019, decreased $1.9 million, or 1%, compared to the same period in 2018.

Services Revenue

Services revenue includes fees earned through implementation services and other professional services. Implementation services include product installations, product configurations, and custom software modifications ("CSMs"). Other professional services include business consultancy, technical consultancy, on-site support services, product education, and testing services. These services include new customer implementations as well as existing customer migrations to new products or new releases of existing products.

Services revenue increased $1.9 million, or 2%, during the year ended December 31, 2019, as compared to the same period in 2018. Services revenue was $1.5 million lower for the year ended December 31, 2019, as compared to the same period in 2018, due to the impact of certain foreign currencies weakening against the U.S. dollar. Excluding the impact of foreign currency, services revenue for the year ended December 31, 2019, increased $3.4 million, or 4%, compared to the same period in 2018.

Operating Expenses

Total operating expenses for the year ended December 31, 2019, increased $250.7 million, or 28%, as compared to the same period in 2018, of which $202.8 million, or 23%, was due to the acquisition of Speedpay and $24.9 million, or 3%, was due to significant transaction and integration-related expenses associated with the acquisition of Speedpay. Total operating expenses for the year ended December 31, 2018, included $7.4 million of significant integration and divestiture-related expenses. Total operating expenses were $11.9 million lower for the year ended December 31, 2019, compared to the same period in 2018, due to the impact of foreign currencies weakening against the U.S. dollar. Excluding the impact of the acquisition of Speedpay, significant acquisition and integration-related expenses, and foreign currency, total operating expenses for the year ended December 31, 2019, increased $42.2 million, or 5%, compared to the same period in 2018, primarily due to higher payment card interchange and processing fees of $18.0 million, stock-based compensation expense of $16.4 million, and depreciation and amortization expense of $7.2 million.

Cost of Revenue

Cost of revenue includes costs to provide SaaS and PaaS services, third-party royalties, amortization of purchased and developed software for resale, the costs of maintaining our software products, as well as the costs required to deliver, install, and support software at customer sites. SaaS and PaaS service costs include payment card interchange fees, amounts payable to banks, and payment card processing fees. Maintenance costs include the efforts associated with providing the customer with upgrades, 24-hour help desk, post go-live (remote) support, and production-type support for software that was previously installed at a customer location. Service costs include human resource costs and other incidental costs such as travel and training required for both pre go-live and post go-live support. Such efforts include project management, delivery, product customization and implementation, installation support, consulting, configuration, and on-site support.

Cost of revenue increased $187.1 million, or 43%, during the year ended December 31, 2019, compared to the same period in 2018, of which $165.6 million, or 38%, was due to the acquisition of Speedpay. Cost of revenue was $4.4 million lower for the year ended December 31, 2019, as compared to the same period in 2018, due to the impact of foreign currencies weakening against the U.S. dollar. Excluding the impact of the acquisition of Speedpay and foreign currency, cost of revenue increased $25.8 million, or 6%, for the year ended December 31, 2019, as compared to the same period in 2018, primarily due to an $18.0 million increase in payment card interchange and processing fees.

Research and Development

Research and development ("R&D") expenses are primarily human resource costs related to the creation of new products, improvements made to existing products as well as compatibility with new operating system releases and generations of hardware.

R&D expense increased $2.9 million, or 2%, during the year ended December 31, 2019, as compared to the same period in 2018. The acquisition of Speedpay contributed $7.6 million to R&D expense during the year ended December 31, 2019. R&D expense was $3.1 million lower for the year ended December 31, 2019, as compared to the same period in 2018, due to the impact of foreign currencies weakening against the U.S. dollar. Excluding the impact of the acquisition of Speedpay and foreign currency, R&D expense decreased $1.5 million, or 1%, for the year ended December 31, 2019, as compared to the same period in 2018.

Selling and Marketing

Selling and marketing includes both the costs related to selling our products to current and prospective customers as well as the costs related to promoting the Company, its products and the research efforts required to measure customers' future needs and satisfaction levels. Selling costs are primarily the human resource and travel costs related to the effort expended to license our products and services to current and potential clients within defined territories and/or industries as well as the management of the overall relationship with customer accounts. Selling costs also include the costs associated with assisting distributors in their efforts to sell our products and services in their respective local markets. Marketing costs include costs incurred to promote the Company and its products, perform or acquire market research to help the Company better understand impending changes in customer demand for and of our products, and the costs associated with measuring customers' opinions toward the Company, our products and personnel.

Selling and marketing expense increased $5.8 million, or 5%, during the year ended December 31, 2019, as compared to the same period in 2018. The acquisition of Speedpay contributed $7.2 million to selling and marketing expense for the year ended December 31, 2019. Selling and marketing expense was $2.4 million lower for the year ended December 31, 2019, as compared to the same period in 2018, due to the impact of foreign currencies weakening against the U.S. dollar. Excluding the impact of the acquisition of Speedpay and foreign currency, selling and marketing expense increased $1.0 million, or 1%, for the year ended December 31, 2019, as compared to the same period in 2018.

General and Administrative

General and administrative expenses are primarily human resource costs including executive salaries and benefits, personnel administration costs, and the costs of corporate support functions such as legal, administrative, human resources, and finance and accounting.

General and administrative expense increased $27.9 million, or 26%, during the year ended December 31, 2019, as compared to the same period in 2018, of which $1.6 million, or 2%, and $24.4 million, or 23%, was due to the acquisition of Speedpay and significant transaction and integration-related expenses associated with the acquisition of Speedpay, respectively. General and administrative expense for the year ended December 31, 2018, included $6.4 million of significant transaction and divestiture-related expenses. General and administrative expense was $1.0 million lower for the year ended December 31, 2019, as compared to the same period in 2018, due to the impact of foreign currencies weakening against the U.S. dollar. Excluding the impact of the acquisition of Speedpay, significant transaction and integration-related expense, and foreign currency, general and administrative expense increased $9.3 million, or 9%, for the year ended December 31, 2019, as compared to the same period in 2018, primarily due to an increase in stock-based compensation expense.

Depreciation and Amortization

Depreciation and amortization increased $26.9 million, or 32%, during the year ended December 31, 2019, as compared to the same period in 2018, of which $20.8 million, or 25%, was due to the acquisition of Speedpay. Depreciation and amortization was $1.0 million lower for the year ended December 31, 2019, as compared to the same period in 2018, due to the impact of foreign currencies weakening against the U.S. dollar. Excluding the impact of the acquisition of Speedpay and foreign currency, depreciation and amortization increased $7.2 million, or 9%, for the year ended December 31, 2019, as compared to the same period in 2018, due to higher amortization of acquired intangible assets and internal-use software.

Other Income and Expense

Interest expense for the year ended December 31, 2019, increased $22.5 million, or 54%, as compared to the same period in 2018, primarily due to higher comparative debt balances.

Interest income includes the portion of software license fees paid by customers under extended payment terms that is attributed to the significant financing component. Interest income for the year ended December 31, 2019, increased $0.8 million, or 7%, as compared to the same period in 2018.

Other, net consists of foreign currency gain or loss. Foreign currency gain for the year ended December 31, 2019, was $0.5 million and foreign currency loss for the year ended December 31, 2018, was $3.7 million.

Income Taxes

The effective tax rates for the years ended December 31, 2019 and 2018, were approximately 7% and 25%, respectively. Our effective tax rates vary from our federal statutory rates due to operating in multiple foreign countries where we apply foreign tax laws and rates which differ from those we apply to the income generated from our domestic operations. Of the foreign jurisdictions

in which we operate, our December 31, 2019, effective rate was most impacted by our operations in Ireland, Luxembourg, and the United Kingdom, and our December 31, 2018, effective tax rate was most impacted by our operations in Ireland and Luxembourg.

Refer to Note 13, *Income Taxes*, to our Notes to Consolidated Financial Statements in Part IV, Item 15 of this Form 10-K for additional information.

Prior Year Results

For discussion of the year ended December 31, 2018, compared to the year ended December 31, 2017, see *Results of Operations* in Part II, Item 7 of our annual report on Form 10-K for the year ended December 31, 2018.

Segment Results

We report financial performance based on our segments, ACI On Premise and ACI On Demand, and analyze Segment Adjusted EBITDA as a measure of segment profitability.

Our interim Chief Executive Officer is also our chief operating decision maker ("CODM"). The CODM, together with other senior management personnel, focus their review on consolidated financial information and the allocation of resources based on operating results, including revenues and Segment Adjusted EBITDA, for each segment, separate from corporate operations.

ACI On Premise serves customers who manage their software on site or through a third-party cloud service provider. These on-premise customers use the Company's software to develop sophisticated solutions, which are often part of a larger system located and managed at the customer specified site. These customers require a level of control and flexibility that ACI On Premise solutions can offer, and they have the resources and expertise to take a lead role in managing these solutions.

ACI On Demand serves the needs of banks, merchants, and billers who use payments to facilitate their core business. These on-demand solutions are maintained and delivered through the cloud via our global data centers and are available in either a single-tenant environment for SaaS offerings, or in a multi-tenant environment for PaaS offerings.

Revenue is attributed to the reportable segments based upon the product sold and mechanism for delivery to the customer. Expenses are attributed to the reportable segments in one of three methods, (1) direct costs of the segment, (2) labor costs that can be attributed based upon time tracking for individual products, or (3) costs that are allocated. Allocated costs are generally marketing and sales related activities as well as information technology and facilities related expense for which multiple segments benefit. We also allocate certain depreciation costs to the segments.

Segment Adjusted EBITDA is the measure reported to the CODM for purposes of making decisions on allocating resources and assessing the performance of our segments and, therefore, Segment Adjusted EBITDA is presented in conformity with ASC 280, *Segment Reporting*. Segment Adjusted EBITDA is defined as earnings (loss) from operations before interest, income tax expense (benefit), depreciation and amortization ("EBITDA") adjusted to exclude stock-based compensation, and net other income (expense).

Corporate and unallocated expenses consist of the corporate overhead costs that are not allocated to reportable segments. These overhead costs relate to human resources, finance, legal, accounting, merger and acquisition activity, and other costs that are not considered when management evaluates segment performance.

The following is selected financial data for our reportable segments (in thousands):

	Years Ended December 31,	
	2019	2018
Revenues		
ACI On Premise	$ 579,334	$ 576,755
ACI On Demand	678,960	433,025
Total revenue	$ 1,258,294	$ 1,009,780
Segment Adjusted EBITDA		
ACI On Premise	$ 321,305	$ 323,902
ACI On Demand	66,501	12,015
Depreciation and amortization	(122,569)	(97,350)
Stock-based compensation expense	(36,763)	(20,360)
Corporate and unallocated expenses	(104,718)	(92,296)
Interest, net	(52,066)	(30,388)
Other, net	520	(3,724)
Income before income taxes	$ 72,210	$ 91,799
Depreciation and amortization		
ACI On Premise	$ 11,992	$ 11,634
ACI On Demand	34,395	31,541
Corporate	76,182	54,175
Total depreciation and amortization	$ 122,569	$ 97,350
Stock-based compensation expense		
ACI On Premise	$ 7,651	$ 4,348
ACI On Demand	7,995	4,338
Corporate and other	21,117	11,674
Total stock-based compensation expense	$ 36,763	$ 20,360

ACI On Premise Segment Adjusted EBITDA decreased $2.6 million for the year ended December 31, 2019, compared to the same period in 2018, primarily due to a $5.2 million increase in cash operating expense, partially offset by a $2.6 million increase in revenue.

ACI On Demand Segment Adjusted EBITDA increased $54.5 million for the year ended December 31, 2019, compared to the same period in 2018, of which $46.4 million was due to the acquisition of Speedpay. Excluding the impact of the acquisition of Speedpay, ACI On Demand Segment Adjusted EBITDA increased $8.1 million, primarily due to a $18.3 million increase in revenue, partially offset by a $10.2 million increase in cash operating expense.

Prior Year Results

For discussion of 2018 compared to 2017, see *Segment Results* in Part II, Item 7 of our annual report on Form 10-K for the year ended December 31, 2018.

Liquidity and Capital Resources

General

Our primary liquidity needs are: (i) to fund normal operating expenses; (ii) to meet the interest and principal requirements of our outstanding indebtedness; and (iii) to fund acquisitions, capital expenditures, and lease payments. We believe these needs will be satisfied using cash flow generated by our operations, cash and cash equivalents, and available borrowings under our revolving credit facility.

Available Liquidity

The following table sets forth our available liquidity for the periods indicated (in thousands):

	December 31,	
	2019	2018
Cash and cash equivalents	$ 121,398	$ 148,502
Availability under revolving credit facility	261,000	500,000
Total liquidity	$ 382,398	$ 648,502

The decrease in total liquidity is primarily attributable to $239.0 million of outstanding revolving credit facility borrowings and $48.0 million of payments to purchase property and equipment and software and distribution rights, partially offset by positive operating cash flows.

The Company and Official Payments Corporation, a wholly owned subsidiary, maintain a $140.0 million uncommitted overdraft facility with Bank of America, N.A. The overdraft facility acts as a secured loan under the terms of the Credit Agreement to provide an additional funding mechanism for timing differences that can occur in the bill payment settlement process. As of December 31, 2019, $138.5 million was available.

Cash and cash equivalents consist of highly liquid investments with original maturities of three months or less. As of December 31, 2019, we had $121.4 million in cash and cash equivalents, of which $49.2 million was held by our foreign subsidiaries. If these funds were needed for our operations in the U.S., we may potentially be required to pay foreign and U.S. state income taxes to repatriate these funds. As of December 31, 2019, only the earnings in our Indian foreign subsidiaries are indefinitely reinvested. The earnings of all other foreign entities are no longer indefinitely reinvested. We are also permanently reinvested for outside book/tax basis differences related to foreign subsidiaries. These outside basis differences could reverse through sales of the foreign subsidiaries, as well as various other events, none of which are considered probable as of December 31, 2019.

Cash Flows

The following table sets forth summary cash flow data for the periods indicated (in thousands).

	Years Ended December 31,	
	2019	2018
Net cash provided by (used in):		
Operating activities	$ 137,649	$ 183,932
Investing activities	(830,481)	(45,360)
Financing activities	667,223	(57,704)

Cash Flow from Operating Activities

Net cash flows provided by operating activities for the year ended December 31, 2019, were $137.6 million as compared to $183.9 million during the same period in 2018. Net cash provided by operating activities primarily consists of net income adjusted to add back depreciation, amortization, and stock-based compensation. Cash flows provided by operating activities were $46.3 million lower for the year ended December 31, 2019, compared to the same period in 2018, due to the timing of working capital. Our current policy is to use our operating cash flow primarily for funding capital expenditures, lease payments, stock repurchases, and acquisitions.

Cash Flow from Investing Activities

During the year ended December 31, 2019, we paid $753.9 million, net of $0.1 million in cash acquired, to acquire Speedpay. We also used cash of $18.5 million to invest in a payment technology and services company in India and $7.0 million to acquire the technology assets of RevChip, LLC and TranSend Integrated Technologies Inc. In addition, we used cash of $48.0 million to purchase software, property and equipment, as compared to $43.9 million during the same period in 2018.

Cash Flow from Financing Activities

Net cash flows provided by financing activities for the year ended December 31, 2019, were $667.2 million, as compared to net cash flows used by financing activities of $57.7 million during the same period in 2018. During 2019, we received proceeds of $500.0 million from our Delayed Draw Term Loan and $280.0 million from our Revolving Credit Facility to fund our purchase of Speedpay and stock repurchases, and we repaid $28.9 million on the Initial Term Loan and $41.0 million on the Revolving Credit Facility. In

addition, we received proceeds of $16.6 million from the exercise of stock options and the issuance of common stock under our 2017 Employee Stock Purchase Plan, as amended, and used $4.0 million for the repurchase of stock-based compensation awards for tax withholdings. During 2019, we also used $35.6 million to repurchase common stock. During 2018, we received proceeds of $400.0 million from the issuance of the 2026 Notes. We used $300.0 million of the proceeds to redeem, in full, our outstanding 6.375% Senior Notes due 2020 and repaid $109.3 million on the Initial Term Loan. In addition, during 2018, we received proceeds of $22.8 million from the exercise of stock options and the issuance of common stock under our 2017 Employee Stock Purchase Plan, as amended, and used $2.6 million for the repurchase of restricted share awards ("RSAs") for tax withholdings. During 2018, we also used $54.5 million to repurchase common stock.

Prior Year Results

For discussion of 2018 compared to 2017, see *Liquidity and Capital Resources* in Part II, Item 7 of our annual report on Form 10-K for the year ended December 31, 2018.

Debt

On April 5, 2019, we entered into the Second Amended and Restated Credit Agreement (the "Credit Agreement") to amend and restate our existing agreement, dated February 24, 2017. The Credit Agreement consists of (a) a five-year $500.0 million senior secured revolving credit facility (the "Revolving Credit Facility"), (b) a five-year $279.0 million senior secured term loan facility (the "Initial Term Loan") and (c) a five-year $500.0 million senior secured term loan facility (the "Delayed Draw Term Loan", together with the Initial Term Loan, the "Term Loans", and together with the Initial Term Loan and the Revolving Credit Facility, the "Credit Facility").

As of December 31, 2019, we had $239.0 million and $756.1 million outstanding under our Revolving Credit Facility and Term Loans, respectively, with up to $261.0 million of unused borrowings under the Revolving Credit Facility. As of December 31, 2019, and at all times during the year, we were in compliance with our debt covenants. The interest rate in effect for the Credit Facility was 4.04% as of December 31, 2019.

We also had $400.0 million outstanding of the 2026 Notes as of December 31, 2019. See Note 5, *Debt*, to our Notes to Consolidated Financial Statements in Part IV, Item 15 of this Form 10-K for additional information.

Stock Repurchase Program

We repurchased 1,228,102 shares for $35.6 million under our stock repurchase program during the year ended December 31, 2019. Under the program to date, we have repurchased 45,357,495 shares for approximately $583.4 million. As of December 31, 2019, the maximum remaining amount authorized for purchase under the stock repurchase program was approximately $141.0 million. See Note 7, *Common Stock and Treasury Stock*, to our Notes to Consolidated Financial Statements in Part IV, Item 15 of this Form 10-K for additional information.

Contractual Obligations and Commercial Commitments

We lease office space and equipment under operating leases that run through October 2028. Additionally, we have entered into a Credit Agreement that matures in April 2024 and have issued Senior Notes that mature in August 2026.

Contractual obligations as of December 31, 2019, are as follows (in thousands):

	Payments Due by Period				
	Total	**Less than 1 year**	**1-3 years**	**3-5 years**	**More than 5 years**
Operating lease obligations	$ 70,284	$ 17,180	$ 23,116	$ 12,738	$ 17,250
Term loans	756,060	38,950	89,381	627,729	—
Term loans interest (1)	117,168	30,025	55,232	31,911	—
Revolving credit facility	239,000	—	—	239,000	—
Revolving credit facility interest (2)	40,528	9,536	19,072	11,920	—
Senior notes	400,000	—	—	—	400,000
Senior notes interest (3)	149,500	23,000	46,000	46,000	34,500
Financed internal-use software (4)	13,822	5,974	7,848	—	—
Total	$ 1,786,362	$ 124,665	$ 240,649	$ 969,298	$ 451,750

(1) Based on the Term Loans debt outstanding and interest rate in effect at December 31, 2019, of 4.05%.

(2) Based on Revolving Credit Facility debt outstanding and interest rate in effect at December 31, 2019, of 3.99%.

(3) Based on 2026 Notes issued of $400.0 million with an annual interest rate of 5.750%.

(4) During the year ended December 31, 2019, we financed certain multi-year license agreements for internal-use software for $10.4 million with annual payments through April 1, 2022. As of December 31, 2019, $13.8 million is outstanding under these and other agreements previously entered into, of which $6.0 million and $7.8 million is included in other current liabilities and other noncurrent liabilities, respectively, in our Consolidated Balance Sheet in Part IV, Item 15 of this Form 10-K as of December 31, 2019.

We are unable to reasonably estimate the ultimate amount or timing of settlement of our reserves for income taxes under ASC 740, *Income Taxes*. The liability for unrecognized tax benefits at December 31, 2019, is $29.0 million.

Off-Balance Sheet Arrangements

Settlement Accounts

We enter into agreements with certain Biller clients to process payment funds on their behalf. When an ACH or ATM network payment transaction is processed, a transaction is initiated to withdraw funds from the designated source account and deposit them into a settlement account. This settlement account is a trust account maintained for the benefit of our clients. A simultaneous transaction is initiated to transfer funds from the settlement account to the intended destination account. These “back to back” transactions are designed to settle at the same time, usually overnight, so we receive the funds from the source at the same time it sends the funds to their destination. However, due to the transactions being with various financial institutions, there may be timing differences that result in float balances. These funds are maintained in accounts for the benefit of our clients, which are separate from our corporate assets. As we do not take ownership of the funds, the settlement accounts are not included in our balance sheet. We are entitled to interest earned on the fund balances. The collection of interest on these settlement accounts is considered in our determination of fee structures for clients and represents a portion of the payment for services performed by us. The amount of settlement funds as of December 31, 2019 and 2018, were $274.0 million and $256.5 million, respectively.

We do not have any other obligations that meet the definition of an off-balance sheet arrangement and that have or are reasonably likely to have a material effect on our consolidated financial statements.

Critical Accounting Policies and Estimates

The preparation of the consolidated financial statements requires that we make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues and expenses, and related disclosure of contingent assets and liabilities. We base our estimates on historical experience and other assumptions that we believe to be proper and reasonable under the circumstances. We continually evaluate the appropriateness of estimates and assumptions used in the preparation of our consolidated financial statements. Actual results could differ from those estimates.

The following key accounting policies are impacted significantly by judgments, assumptions and estimates used in the preparation of the consolidated financial statements. See Note 1, *Nature of Business and Summary of Significant Accounting Policies,* and Note 2, *Revenue*, to our Notes to Consolidated Financial Statements in Part IV, Item 15 of this Form 10-K for a further discussion of significant accounting policies and revenue recognition.

Revenue Recognition

In accordance with ASC 606, revenue is recognized upon transfer of control of promised products and/or services to customers in an amount that reflects the consideration the Company expects to receive in exchange for those products and services.

The Company’s software license arrangements provide the customer with the right to use functional intellectual property for the duration of the contract term. Implementation, support, and other services are typically considered distinct performance obligations when sold with a software license unless these services are determined to significantly modify the software. Significant judgment is required to determine the stand-alone selling price (“SSP”) for each performance obligation, the amount allocated to each performance obligation and whether it depicts the amount that the Company expects to receive in exchange for the related product and/or service. As the selling prices of the Company’s software licenses are highly variable, the Company estimates SSP of its software licenses using the residual approach when the software license is sold with other services and observable SSPs exist for the other services. The Company uses a range of amounts to estimate SSP for maintenance and services. These ranges are based on

stand-alone sales and vary based on the type of service and geographic region. If the SSP of a performance obligation is not directly observable, the Company will maximize observable inputs to determine its SSP.

When a software license arrangement contains payment terms that are extended beyond one year, a significant financing component may exist. The significant financing component is calculated as the difference between the stated value and present value of the software license fees and is recognized as interest income over the extended payment period. Judgment is used in determining: (1) whether the financing component in a software license agreement is significant and, if so, (2) the discount rate used in calculating the significant financing component.

The Company assesses the significance of the financing component based on the ratio of license fees paid over time to total license fees. If determined to be significant, the financing component is calculated using a rate that discounts the license fees to the cash selling price.

The Company's SaaS-based and PaaS-based arrangements represent a single promise to provide continuous access to its software solutions and their processing capabilities in the form of a service through one of the Company's data centers. These arrangements may include fixed and/or variable consideration. Fixed consideration is recognized over the term of the arrangement and variable consideration, which is a function of transaction volume or another usage-based measure, generally meets the direct allocation method and revenue is recognized as the usage occurs.

The Company applies judgment in determining the customer's ability and intention to pay, which is based on a variety of factors including the creditworthiness of the customer, economic conditions in the customer's industry and geographic location, and general economic conditions.

Certain of our arrangements are through unrelated distributors or sales agents. For software license arrangements in which the Company acts as a distributor of another company's product, and in certain circumstances, modifies or enhances the product, revenues are recorded on a gross basis. These include arrangements in which the Company takes control of the products and is responsible for providing the product or service. For software license arrangements in which the Company acts as a sales agent for another company's product, revenues are recorded on a net basis. Judgment is required in evaluating the facts and circumstances of our relationship with the distributor or sales agent as well as our operating history and practices that can impact the timing of revenue recognition related to these arrangements. For software license arrangements in which the Company utilizes a third-party distributor or sales agent, the Company recognizes revenue upon transfer of control of the software license(s) to the third-party distributor or sales agent.

We may execute more than one contract or agreement with a single customer. The separate contracts or agreements may be viewed as one combined arrangement or separate agreements for revenue recognition purposes. We evaluate whether the agreements were negotiated as a package with a single commercial objective, whether the products or services promised in the agreements represent a single performance obligation, or whether the amount of consideration to be paid in one agreement depends on the price and/or performance of another agreement to reach appropriate conclusions regarding whether such arrangements are related or separate. The conclusions reached can impact the allocation of the transaction price to each performance obligation and the timing of revenue recognition related to those arrangements.

Intangible Assets and Goodwill

Our business acquisitions typically result in the recording of intangible assets. As of December 31, 2019 and 2018, our intangible assets, excluding goodwill, net of accumulated amortization, were $357.0 million and $168.1 million, respectively. The determination of the value of such intangible assets requires management to make estimates and assumptions that affect the consolidated financial statements. We assess potential impairments to intangible assets when there is evidence that events or changes in circumstances indicate the carrying amount of an asset may not be recovered. Judgments regarding the existence of impairment indicators and future cash flows related to intangible assets are based on operational performance of our businesses, market conditions, and other factors. Although there are inherent uncertainties in this assessment process, the estimates and assumptions used, including estimates of future cash flows, volumes, market penetration and discount rates, are consistent with our internal planning. If these estimates or their related assumptions change in the future, we may be required to record an impairment charge on all or a portion of our intangible assets. Furthermore, we cannot predict the occurrence of future impairment-triggering events nor the impact such events might have on our reported asset values. Future events could cause us to conclude that impairment indicators exist and that intangible assets associated with acquired businesses are impaired. Any resulting impairment loss could have an impact on our results of operations.

Other intangible assets are amortized using the straight-line method over periods ranging from three years to 20 years.

As of December 31, 2019 and 2018, our goodwill was $1.3 billion and $0.9 billion, respectively. In accordance with ASC 350, *Intangibles – Goodwill and Other,* we assess goodwill for impairment annually during the fourth quarter of our fiscal year using October 1 balances, or when there is evidence that events or changes in circumstances indicate that the carrying amount of the asset may not be recovered. We evaluate goodwill at the reporting unit level and have identified our reportable segments, ACI On Premise and ACI On Demand, as our reporting units. Recoverability of goodwill is measured using a discounted cash flow model incorporating discount rates commensurate with the risks involved. Use of a discounted cash flow model is common practice in impairment testing in the absence of available transactional market evidence to determine the fair value.

The key assumptions used in the discounted cash flow valuation model include discount rates, growth rates, cash flow projections, and terminal value rates. Discount rates, growth rates, and cash flow projections are the most sensitive and susceptible to change, as they require significant management judgment. Discount rates are determined by using a weighted average cost of capital ("WACC"). The WACC considers market and industry data, as well as Company-specific risk factors. Operational management, considering industry and Company-specific historical and projected data, develops growth rates and cash flow projections for each reporting unit. Terminal value rate determination follows common methodology of capturing the present value of perpetual cash flow estimates beyond the last projected period assuming a constant WACC and low long-term growth rates. If the calculated fair value is less than the current carrying value, impairment of the reporting unit may exist. The implied fair value of goodwill is determined in a manner similar to how goodwill is calculated in a business combination. If the implied fair value of goodwill exceeds the carrying value of goodwill assigned to the reporting unit, there is no impairment. If the carrying value of goodwill assigned to a reporting unit exceeds the implied fair value of the goodwill, an impairment charge is recorded to write down the carrying value. The calculated fair value substantially exceeds the current carrying value for all reporting units. No reporting units were deemed to be at risk of failing Step 1 of the goodwill impairment test under ASC 350.

Business Combinations

We apply the provisions of ASC 805, *Business Combinations*, in the accounting for our acquisitions. It requires us to recognize the assets acquired and the liabilities assumed at their acquisition date fair values, separately from goodwill. Goodwill as of the acquisition date is measured as the excess of consideration transferred and the net of the acquisition date fair values of the assets acquired and the liabilities assumed. While we use our best estimates and assumptions to accurately value assets acquired and liabilities assumed at the acquisition date, our estimates are inherently uncertain and subject to refinement. As a result, during the measurement period, which may be up to one year from the acquisition date, we record adjustments to the assets acquired and liabilities assumed with the corresponding offset to goodwill. Upon the conclusion of the measurement period or final determination of the values of assets acquired or liabilities assumed, whichever comes first, any subsequent adjustments are recorded to our consolidated statements of operations.

Critical estimates in valuing certain intangible assets include but are not limited to future expected cash flows from customer relationships, future customer attrition rates, covenants not to compete and acquired developed technologies; brand awareness and market position, as well as assumptions about the period of time the brand will continue to be used in our product portfolio; and discount rates. Management's estimates of fair value are based upon assumptions believed to be reasonable, but which are inherently uncertain and unpredictable and, as a result, actual results may differ from estimates.

Other estimates associated with the accounting for acquisitions may change as additional information becomes available regarding the assets acquired and liabilities assumed.

Stock-Based Compensation

On March 23, 2016, our board approved the 2016 Equity and Performance Incentive Plan (the "2016 Incentive Plan"). The 2016 Incentive Plan is intended to meet our objective of balancing stockholder concerns about dilution with the need to provide appropriate incentives to achieve Company performance objectives. The 2016 Incentive Plan was adopted by the stockholders on June 14, 2016. Following the adoption of the 2016 Incentive Plan, the 2005 Incentive Plan was terminated. Termination of the 2005 Incentive Plan did not affect any equity awards outstanding under the 2005 Incentive Plan.

In accordance with ASC 718, *Compensation – Stock Compensation*, stock-based compensation expense for stock option awards is estimated at the grant date based on the award's fair value, as calculated by the Black-Scholes option-pricing model and is recognized as expense ratably over the requisite service period. The Black-Scholes option-pricing model requires various highly judgmental assumptions, including volatility and expected option life. If any assumptions used in the Black-Scholes option-pricing model change significantly, stock-based compensation expense may differ materially for future awards from that recorded for existing awards.

Supplemental stock options granted pursuant to the 2005 Incentive Plan were granted at an exercise price not less than the market value per share of our common stock on the date of grant. These options vest, if at all, based upon (i) tranche one – any time after

the third anniversary date if the stock has traded at 133% of the exercise price for at least 20 consecutive trading days, (ii) tranche two – any time after the fourth anniversary date if the stock has traded at 167% of the exercise price for at least 20 consecutive trading days, and (iii) tranche three – any time after the fifth anniversary date if the stock has traded at 200% of the exercise price for at least 20 consecutive trading days. The employees must remain employed with us as of the anniversary date for supplemental stock options to vest. The exercise price of these options is the closing market price on the date the awards were granted. To determine the grant date fair value of the supplemental stock options, a Monte Carlo simulation model was used.

Long-term incentive program performance share awards ("LTIP performance shares") are earned, if at all, based on the achievement over a specified period of performance goals related to certain performance metrics. We estimate the fair value of LTIP performance shares based upon the market price of our stock on the date of grant. On a quarterly basis, management evaluates the probability that the threshold performance goals will be achieved, if at all, and the anticipated level of attainment to determine the amount of compensation expense to record in the consolidated financial statements.

Restricted share awards ("RSAs") generally have requisite service periods of three years and vest in increments of 33% on the anniversary of the grant dates. Under each arrangement, shares are issued without direct cost to the employee. We estimate the fair value of RSAs based upon the market price of our stock on the date of grant. The RSA grants provide for the payment of dividends on our common stock, if any, to the participant during the requisite service period, and the participant has voting rights for each share of common stock.

Total shareholder return awards ("TSRs") are performance shares that are earned, if at all, based upon our total shareholder return as compared to a group of peer companies over a three-year performance period. The award payout can range from 0% to 200%. To determine the grant date fair value of TSRs, a Monte Carlo simulation model is used. We recognize compensation expense for the TSRs over a three-year performance period based on the grant date fair value.

Restricted share unit awards ("RSUs") generally have requisite service periods of three years and vest in increments of 33% on the anniversary of the grant dates. Under each arrangement, RSUs are issued without direct cost to the employee on the vesting date. We estimate the fair value of RSUs based upon the market price of our stock on the date of grant. We recognize compensation expense for RSUs on a straight-line basis over the requisite service period.

The assumptions utilized in the Black-Scholes option-pricing and Monte Carlo simulation models, as well as the description of the plans the stock-based awards are granted under are described in further detail in Note 11, *Stock-Based Compensation Plans*, to our Notes to Consolidated Financial Statements in Part IV, Item 15 of this Form 10-K.

Accounting for Income Taxes

Accounting for income taxes requires significant judgments in the development of estimates used in income tax calculations. Such judgments include, but are not limited to, the likelihood we would realize the benefits of net operating loss carryforwards and/or foreign tax credit carryforwards, the adequacy of valuation allowances, and the rates used to measure transactions with foreign subsidiaries. As part of the process of preparing our consolidated financial statements, we are required to estimate our income taxes in each of the jurisdictions in which we operate. The judgments and estimates used are subject to challenge by domestic and foreign taxing authorities.

We account for income taxes in accordance with ASC 740, *Income Taxes*. As part of our process of determining current tax liability, we exercise judgment in evaluating positions we have taken in our tax returns. We periodically assess our tax exposures and establish, or adjust, estimated unrecognized benefits for probable assessments by taxing authorities, including the Internal Revenue Service, and various foreign and state authorities. Such unrecognized tax benefits represent the estimated provision for income taxes expected to ultimately be paid. It is possible that either domestic or foreign taxing authorities could challenge those judgments or positions and draw conclusions that would cause us to incur tax liabilities in excess of, or realize benefits less than, those currently recorded. In addition, changes in the geographical mix or estimated amount of annual pretax income could impact our overall effective tax rate.

To the extent recovery of deferred tax assets is not more likely than not, we record a valuation allowance to reduce our deferred tax assets to the amount that is more likely than not to be realized. Although we have considered future taxable income along with prudent and feasible tax planning strategies in assessing the need for a valuation allowance, if we should determine that we would not be able to realize all or part of our deferred tax assets in the future, an adjustment to deferred tax assets would be charged to income in the period any such determination was made. Likewise, in the event we are able to realize our deferred tax assets in the future in excess of the net recorded amount, an adjustment to deferred tax assets would increase income in the period any such determination was made.

New Accounting Standards Recently Adopted

For information related to recent accounting pronouncements and the impact of these pronouncements on our consolidated financial statements, see Note 1, *Nature of Business and Summary of Significant Accounting Policies*, to our Notes to Consolidated Financial Statements in Part IV, Item 15 of this Form 10-K.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Excluding the impact of changes in interest rates and the uncertainty in the global financial markets, there have been no material changes to our market risk for the year ended December 31, 2019. We conduct business in all parts of the world and are thereby exposed to market risks related to fluctuations in foreign currency exchange rates. The U.S. dollar is the single largest currency in which our revenue contracts are denominated. Any decline in the value of local foreign currencies against the U.S. dollar results in our products and services being more expensive to a potential foreign customer. In those instances where our goods and services have already been sold, receivables may be more difficult to collect. Additionally, in jurisdictions where the revenue contracts are denominated in U.S. dollars and operating expenses are incurred in the local currency, any decline in the value of the U.S. dollar will have an unfavorable impact to operating margins. At times, we enter into revenue contracts that are denominated in the country's local currency, primarily in Australia, Canada, the United Kingdom, other European countries, Brazil, India, and Singapore. This practice serves as a natural hedge to finance the local currency expenses incurred in those locations. We have not entered into any foreign currency hedging transactions. We do not purchase or hold any derivative financial instruments for speculation or arbitrage.

The primary objective of our cash investment policy is to preserve principal without significantly increasing risk. If we maintained similar cash investments for a period of one year based on our cash investments and interest rates at December 31, 2019, a hypothetical ten percent increase or decrease in effective interest rates would increase or decrease interest income by less than $0.1 million annually.

We had approximately $1.4 billion of debt outstanding at December 31, 2019, with $1.0 billion outstanding under our Credit Facility and $400.0 million in 2026 Notes. Our Credit Facility has a floating rate, which was 4.04% at December 31, 2019. Our 2026 Notes are fixed-rate long-term debt obligations with a 5.750% interest rate. A hypothetical ten percent increase or decrease in effective interest rates would increase or decrease interest expense related to the Credit Facility by approximately $4.0 million.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

The required consolidated financial statements and notes thereto are included in this annual report and are listed in Part IV, Item 15.

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

ITEM 9A. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

Our management, under the supervision and with the participation of the interim Chief Executive Officer and Chief Financial Officer, performed an evaluation of the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934 (the "Exchange Act")) as of the end of the period covered by this report, December 31, 2019.

In connection with our evaluation of disclosure controls and procedures, we have concluded that our disclosure controls and procedures are effective as of December 31, 2019.

Management's Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting to provide reasonable assurance regarding the reliability of our financial reporting and the preparation of our consolidated financial statements for external purposes in accordance with U.S. GAAP. Under the supervision of, and with the participation of our interim Chief Executive Officer and Chief Financial Officer, management assessed the effectiveness of internal control over financial reporting as of December 31, 2019.

Management based its assessment on criteria established in "Internal Control Integrated Framework (2013)" issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on this evaluation, management concluded that our internal control over financial reporting was effective as of December 31, 2019.

As permitted by applicable requirements, our evaluation of and conclusion on the effectiveness of internal control over financial reporting exclude Speedpay, which was acquired by us on May 9, 2019. Since the date of acquisition, Speedpay's financial results are included in the Company's consolidated financial statements and constituted approximately 18% of revenues and 16% of net income of the consolidated financial statement amounts as of and for the year ended December 31, 2019.

The effectiveness of our internal control over financial reporting as of December 31, 2019, has been audited by Deloitte & Touche, LLP, an independent registered public accounting firm, and Deloitte & Touche, LLP has issued an attestation report on our internal control over financial reporting.

Changes in Internal Control over Financial Reporting

On May 9, 2019, we completed our acquisition of Speedpay. We consider the transaction material to our results of operations, cash flows, and financial position from the date of the acquisition through December 31, 2019, and believe the internal controls and procedures of Speedpay have a material effect on our internal control over financial reporting. See Note 3, *Acquisition*, to our Notes to Consolidated Financial Statements in Part 1V, Item 15 of this Form 10-K for discussion of the acquisition and related financial data.

We are currently in the process of integrating Speedpay operations, and we anticipate a successful integration of operations and internal controls over financial reporting. Management will continue to evaluate its internal control over financial reporting as it executes integration activities.

There were no additional changes in our internal control over financial reporting (as defined in Rules 13a-15(f) under the Exchange Act) during the quarter ended December 31, 2019, that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Stockholders of
ACI Worldwide, Inc.

Opinion on Internal Control over Financial Reporting

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

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated financial statements as of and for the year ended December 31, 2019, of the Company and our report dated February 27, 2020, expressed an unqualified opinion on those financial statements and included an explanatory paragraph regarding the Company's adoption of FASB Accounting Standards Update 2016-02, *Leases*, effective January 1, 2019.

As described in Management's Report on Internal Control over Financial Reporting, management excluded from its assessment the internal control over financial reporting at Speedpay, Inc., which was acquired on May 9, 2019, and whose financial statements constitute 18% of revenues and 16% of net income of the consolidated financial statement amounts as of and for the year ended December 31, 2019. Accordingly, our audit did not include the internal control over financial reporting at Speedpay, Inc.

Basis for Opinion

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

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

Definition and Limitations of Internal Control over Financial Reporting

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

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

/s/ DELOITTE & TOUCHE LLP

Omaha, Nebraska
February 27, 2020

ITEM 9B. OTHER INFORMATION

None.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS, AND CORPORATE GOVERNANCE

The information under the heading "Executive Officers of the Registrant" in Part 1, Item 1 of this Form 10-K is incorporated herein by reference.

The other information required by this Item 10 is incorporated by reference from our Proxy Statement for the Annual Meeting of Stockholders to be held on June 9, 2020 (the "2020 Proxy Statement"), under the sections entitled "Proposal 1 – Election of Directors," "Information Regarding Security Ownership – Section 16(a) Beneficial Ownership Reporting Compliance," Corporate Governance – Code of Business Conduct and Ethics," and "Corporate Governance – Board Committees."

ITEM 11. EXECUTIVE COMPENSATION

Information included in the sections entitled "Director Compensation," "Compensation Discussion and Analysis," "Compensation Committee Report," "Executive Compensation," and "Compensation Committee Interlocks and Insider Participation" in our 2020 Proxy Statement is incorporated herein by reference.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

Information included in the sections entitled "Information Regarding Security Ownership" in our 2020 Proxy Statement is incorporated herein by reference.

Information included in the section entitled "Information Regarding Equity Compensation Plans" in our 2020 Proxy Statement is incorporated herein by reference.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS AND DIRECTOR INDEPENDENCE

Information included in the section entitled "Certain Relationships and Related Transactions" in our 2020 Proxy Statement is incorporated herein by reference.

Information included in the sections entitled "Director Independence" and "Board Committees and Committee Meetings" in the "Corporate Governance" section of our 2020 Proxy Statement is incorporated by reference.

ITEM 14. PRINCIPAL ACCOUNTING FEES AND SERVICES

Information included in the sections entitled "Independent Registered Public Accounting Firm Fees" and "Pre-Approval of Audit and Non-Audit Services" under "Proposal 2 – Ratification of Appointment of the Company's Independent Registered Public Accounting Firm" in our 2020 Proxy Statement is incorporated herein by reference.

PART IV

ITEM 15. EXHIBITS, FINANCIAL STATEMENT SCHEDULES

Documents filed as part of this annual report on Form 10-K:

(1) Financial Statements. The following index lists consolidated financial statements and notes thereto filed as part of this annual report on Form 10-K:

	Page
Report of Independent Registered Public Accounting Firm – Deloitte & Touche LLP	48
Consolidated Balance Sheets as of December 31, 2019 and 2018	51
Consolidated Statements of Operations for each of the three years in the period ended December 31, 2019	52
Consolidated Statements of Comprehensive Income for each of the three years in the period ended December 31, 2019	53
Consolidated Statements of Stockholders' Equity for each of the three years in the period ended December 31, 2019	54
Consolidated Statements of Cash Flows for each of the three years in the period ended December 31, 2019	55
Notes to Consolidated Financial Statements	56

(2) Financial Statement Schedules. All schedules have been omitted because they are not applicable, or the required information is included in the consolidated financial statements or notes thereto.

(3) Exhibits. A list of exhibits filed or furnished with this report on Form 10-K (or incorporated by reference to exhibits previously filed by ACI) is provided in the accompanying Exhibit Index.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Stockholders of
ACI Worldwide, Inc.

Opinion on the Financial Statements

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

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated February 27, 2020, expressed an unqualified opinion on the Company's internal control over financial reporting.

Change in Accounting Principle

As discussed in Note 1 to the financial statements, effective January 1, 2019, the Company adopted FASB Accounting Standards Update 2016-02, *Leases*, using the optional transition method.

Basis for Opinion

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

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

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current-period audit of the financial statements that were communicated or required to be communicated to the audit committee and that (1) relate to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Revenue Recognition-Refer to Note 2 to the Financial Statements

Critical Audit Matter Description

The Company recognizes revenue upon transfer of control of promised products and/or services to customers in an amount that reflects the consideration the Company expects to receive in exchange for those products or services. The Company's software license arrangements provide the customer with the right to use functional intellectual property for the duration of the contract term and are typically bundled with implementation, support, and other services.

Significant judgment is exercised by the Company in determining revenue recognition for these customer arrangements and includes the following:

- Determination of the term of a software license arrangement when early termination rights are provided to the customer.

- Determination of whether products and/or services are considered distinct performance obligations that should be accounted for separately.
- Determination of whether the financing component in a software licensing arrangement is significant and, if so, the discount rate used in calculating the significant financing component.
- Assessment of whether the extension of payment terms in a software licensing arrangement results in variable consideration and, if so, the amount to be included in the transaction price.
- Determination of the stand-alone selling price for each performance obligation and whether it depicts the amount that the Company expects to receive in exchange for the related product and/or service. As the selling prices of the Company's software licenses are highly variable, the Company estimates stand-alone selling price of its software licenses using the residual approach when the software license is sold with other services and observable stand-alone selling prices exist for the other services.

Given these factors, the related audit effort in evaluating management's judgments in determining revenue recognition for software license arrangements was extensive and required a high degree of auditor judgment.

How the Critical Audit Matter Was Addressed in the Audit

Our audit procedures related to the Company's accounting for software license arrangements included the following, among others:

- We tested the effectiveness of controls over the review of software license arrangements, including, among others, the determination of the contract term, identification of performance obligations, determination of significant financing component, estimation of variable consideration, and determination of stand-alone selling prices, including those controls over the determination that software license pricing is highly variable.
- We selected a sample of software license arrangements and performed the following, among others:
  - Obtained contract source documents for each selection, including separate contracts or agreements that should be combined with the selected arrangement, and other documents that were part of the arrangement.
  - Tested management's determination of the contract term, identification of performance obligations, determination of significant financing component, estimation of variable consideration, and determination of stand-alone selling prices.
  - Evaluated the reasonableness of the methodology and estimates used by management and the appropriateness of its revenue recognition conclusions for these key judgment areas.
  - Tested the mathematical accuracy of management's calculations of revenue and the associated timing of revenue recognized in the financial statements.
- We evaluated management's determination that software license pricing is highly variable by obtaining management's highly variable analysis and performing the following:
  - Testing the completeness of management's analysis by tracing a selection of known data points from an independent internal source into the highly variable analysis.
  - Testing the accuracy of management's analysis by selecting a sample of contracts from the highly variable analysis, obtaining the contract and price detail, and evaluating whether discounts were appropriately included in the analysis.
  - Testing the mathematical accuracy of management's calculations.

Acquisition-Refer to Note 3 to the Financial Statements

Critical Audit Matter Description

The Company completed the acquisition of Speedpay, Inc., a subsidiary of The Western Union Company, for $754 million on May 9, 2019 in a cash transaction. The Company accounted for the acquisition as a business combination. Accordingly, the purchase price was allocated to the assets acquired, including intangible assets, and liabilities assumed based on their respective fair values. Intangible assets included goodwill and other identified intangible assets. Other identified intangible assets totaling $322 million as of May 9, 2019 included assets attributable to software (developed technologies) and customer relationships. The determination of the fair values of other identified intangible assets required significant management judgment as fair values are based on assumptions, including future expected cash flows from customer relationships and acquired developed technologies and the discount rate. To determine the estimated fair values of the other identified intangible assets, management utilized generally accepted valuation principles and the work of third-party valuation specialists.

Given the nature of future expected cash flows and the discount rate utilized in the process to determine the fair values of the other identified intangible assets, performing audit procedures to evaluate the reasonableness of these future expected cash flows and the discount rate assumptions required a high degree of auditor judgment and an increased extent of effort, including the need to involve our fair value specialists.

How the Critical Audit Matter Was Addressed in the Audit

Our audit procedures related to the valuation of other identified intangible assets from the Speedpay Inc. acquisition included the following, among others:

- We tested the effectiveness of the controls over the Company's valuation process, including, among others, controls over future expected cash flows and the discount rate.
- We evaluated the reasonableness of the future expected cash flows utilized in determining fair values of the other intangible assets, tested the accuracy and completeness of significant data underlying those future expected cash flows and assumptions, and made inquiries of management regarding the basis for their key judgments. Our primary procedures related to management's future expected cash flows included the following:
    - Evaluated the reasonableness of management's future expected cash flows by comparing the future expected cash flows to historical results, internal communications to management, and certain peer companies.
    - Compared current-year actual performance as of the acquisition date to future projected cash flows used in the fair value model.
- With the assistance of our fair value specialists, we evaluated the methodologies and calculations used by management to determine the fair value of the other identified intangible assets by:
    - Evaluating the reasonableness of the basis for the various valuation techniques utilized by management's third-party valuation specialists to value the other identified intangibles, and the valuation assumptions, including the discount rate.
    - Testing the mathematical accuracy of the valuation model and calculations.
    - Testing certain valuation assumptions, including the discount rate by evaluating management's underlying source information and developing a range of independent estimates to compare to those selected by management.

/s/ DELOITTE & TOUCHE LLP

Omaha, Nebraska
February 27, 2020
We have served as the Company's auditor since 2009.

ACI WORLDWIDE, INC. AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS
(in thousands, except share and per share amounts)

	December 31, 2019	December 31, 2018
ASSETS		
Current assets		
Cash and cash equivalents	$ 121,398	$ 148,502
Receivables, net of allowances of $5,149 and $3,912, respectively	359,197	348,182
Settlement assets	391,039	32,256
Prepaid expenses	24,542	23,277
Other current assets	24,200	14,260
Total current assets	920,376	566,477
Noncurrent assets		
Accrued receivables, net	213,041	189,010
Property and equipment, net	70,380	72,729
Operating lease right-of-use assets	57,382	—
Software, net	234,517	137,228
Goodwill	1,280,525	909,691
Intangible assets, net	356,969	168,127
Deferred income taxes, net	51,611	27,048
Other noncurrent assets	72,733	52,145
TOTAL ASSETS	$ 3,257,534	$ 2,122,455
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities		
Accounts payable	$ 37,010	$ 39,602
Settlement liabilities	368,719	31,605
Employee compensation	29,318	38,115
Current portion of long-term debt	34,148	20,767
Deferred revenue	65,784	104,843
Other current liabilities	76,971	61,688
Total current liabilities	611,950	296,620
Noncurrent liabilities		
Deferred revenue	53,155	51,292
Long-term debt	1,339,007	650,989
Deferred income taxes, net	32,053	31,715
Operating lease liabilities	46,766	—
Other noncurrent liabilities	44,635	43,608
Total liabilities	2,127,566	1,074,224
Commitments and contingencies (Note 15)		
Stockholders' equity		
Preferred stock; $0.01 par value; 5,000,000 shares authorized; no shares issued at December 31, 2019 and 2018	—	—
Common stock; $0.005 par value; 280,000,000 shares authorized; 140,525,055 shares issued at December 31, 2019 and 2018	702	702
Additional paid-in capital	667,658	632,235
Retained earnings	930,830	863,768
Treasury stock, at cost, 24,538,703 and 24,401,694 shares at December 31, 2019 and 2018, respectively	(377,639)	(355,857)
Accumulated other comprehensive loss	(91,583)	(92,617)
Total stockholders' equity	1,129,968	1,048,231
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY	$ 3,257,534	$ 2,122,455

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

ACI WORLDWIDE, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF OPERATIONS
(in thousands, except per share amounts)

	Years Ended December 31,		
	2019	**2018**	**2017**
Revenues			
Software as a service and platform as a service	$ 677,669	$ 433,025	$ 425,572
License	288,261	280,556	293,124
Maintenance	213,409	219,145	222,071
Services	78,955	77,054	83,424
Total revenues	1,258,294	1,009,780	1,024,191
Operating expenses			
Cost of revenue (1)	617,453	430,351	452,286
Research and development	146,573	143,630	136,921
Selling and marketing	123,684	117,881	107,885
General and administrative	135,296	107,422	153,032
Depreciation and amortization	111,532	84,585	89,427
Total operating expenses	1,134,538	883,869	939,551
Operating income	123,756	125,911	84,640
Other income (expense)			
Interest expense	(64,033)	(41,530)	(39,013)
Interest income	11,967	11,142	564
Other, net	520	(3,724)	(2,619)
Total other income (expense)	(51,546)	(34,112)	(41,068)
Income before income taxes	72,210	91,799	43,572
Income tax expense	5,148	22,878	38,437
Net income	$ 67,062	$ 68,921	$ 5,135
Income per common share			
Basic	$ 0.58	$ 0.59	$ 0.04
Diluted	$ 0.57	$ 0.59	$ 0.04
Weighted average common shares outstanding			
Basic	116,175	116,057	118,059
Diluted	118,571	117,632	119,444

(1) The cost of revenue excludes charges for depreciation but includes amortization of purchased and developed software for resale.

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

ACI WORLDWIDE, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(in thousands)

	Years Ended December 31,		
	2019	2018	2017
Net income	$ 67,062	$ 68,921	$ 5,135
Other comprehensive income (loss):			
Foreign currency translation adjustments	1,034	(15,261)	16,744
Total other comprehensive income (loss)	1,034	(15,261)	16,744
Comprehensive income	$ 68,096	$ 53,660	$ 21,879

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

ACI WORLDWIDE, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(in thousands, except share amounts)

	Common Stock	Additional Paid-in Capital	Retained Earnings	Treasury Stock	Accumulated Other Comprehensive Loss	Total
Balance as of December 31, 2016	$ 702	$ 600,344	$ 545,731	$ (297,760)	$ (94,100)	$ 754,917
Net income	—	—	5,135	—	—	5,135
Other comprehensive income	—	—	—	—	16,744	16,744
Stock-based compensation	—	13,683	—	—	—	13,683
Shares issued and forfeited, net, under stock plans, including income tax benefits	—	(3,682)	—	20,498	—	16,816
Repurchase of 1,653,573 shares of common stock	—	—	—	(37,387)	—	(37,387)
Repurchase of stock-based compensation awards for tax withholdings	—	—	—	(5,311)	—	(5,311)
Balance as of December 31, 2017	702	610,345	550,866	(319,960)	(77,356)	764,597
Net income	—	—	68,921	—	—	68,921
Other comprehensive loss	—	—	—	—	(15,261)	(15,261)
Stock-based compensation	—	20,360	—	—	—	20,360
Shares issued and forfeited, net, under stock plans, including income tax benefits	—	1,530	—	21,218	—	22,748
Repurchase of 2,346,427 shares of common stock	—	—	—	(54,527)	—	(54,527)
Repurchase of stock-based compensation awards for tax withholdings	—	—	—	(2,588)	—	(2,588)
Cumulative effect of accounting change, ASC 606	—	—	243,981	—	—	243,981
Balance as of December 31, 2018	702	632,235	863,768	(355,857)	(92,617)	1,048,231
Net income	—	—	67,062	—	—	67,062
Other comprehensive income	—	—	—	—	1,034	1,034
Stock-based compensation	—	36,763	—	—	—	36,763
Shares issued and forfeited, net, under stock plans including income tax benefits	—	(1,340)	—	17,821	—	16,481
Repurchase of 1,228,102 shares of common stock	—	—	—	(35,617)	—	(35,617)
Repurchase of stock-based compensation awards for tax withholdings	—	—	—	(3,986)	—	(3,986)
Balance as of December 31, 2019	$ 702	$ 667,658	$ 930,830	$ (377,639)	$ (91,583)	$ 1,129,968

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

ACI WORLDWIDE, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)

	Years Ended December 31,		
	2019	2018	2017
Cash flows from operating activities:			
Net income	$ 67,062	$ 68,921	$ 5,135
Adjustments to reconcile net income to net cash flows from operating activities:			
Depreciation	24,092	23,805	24,871
Amortization	98,477	73,545	77,353
Amortization of operating lease right-of-use assets	15,934	—	—
Amortization of deferred debt issuance costs	4,128	4,637	4,286
Deferred income taxes	(22,140)	(5,734)	21,660
Stock-based compensation expense	36,763	20,360	13,683
Other	5,175	2,007	435
Changes in operating assets and liabilities, net of impact of acquisitions:			
Receivables	(19,054)	(14,760)	(8,243)
Accounts payable	(7,703)	5,766	(1,700)
Accrued employee compensation	(10,829)	(9,684)	94
Current income taxes	(1,137)	(5,115)	(4,227)
Deferred revenue	(37,561)	14,219	439
Other current and noncurrent assets and liabilities	(15,558)	5,965	12,411
Net cash flows from operating activities	137,649	183,932	146,197
Cash flows from investing activities:			
Purchases of property and equipment	(23,099)	(18,265)	(25,717)
Purchases of software and distribution rights	(24,915)	(25,628)	(28,697)
Acquisition of businesses, net of cash acquired	(757,268)	—	—
Other	(25,199)	(1,467)	—
Net cash flows from investing activities	(830,481)	(45,360)	(54,414)
Cash flows from financing activities:			
Proceeds from issuance of common stock	3,591	3,098	2,958
Proceeds from exercises of stock options	12,985	19,674	13,872
Repurchase of stock-based compensation awards for tax withholdings	(3,986)	(2,588)	(5,311)
Repurchase of common stock	(35,617)	(54,527)	(37,387)
Proceeds from senior notes	—	400,000	—
Redemption of senior notes	—	(300,000)	—
Proceeds from revolving credit facility	280,000	109,000	67,000
Repayments of revolving credit facility	(41,000)	(111,000)	(153,000)
Proceeds from term portion of credit agreement	500,000	—	415,000
Repayments of term portion of credit agreement	(28,900)	(109,289)	(386,040)
Payment for debt issuance costs	(12,830)	(7,319)	(5,340)
Payments on or proceeds from other debt, net	(7,020)	(4,753)	(9,900)
Net cash flows from financing activities	667,223	(57,704)	(98,148)
Effect of exchange rate fluctuations on cash	(1,495)	(2,076)	322
Net increase (decrease) in cash and cash equivalents	(27,104)	78,792	(6,043)
Cash and cash equivalents, beginning of period	148,502	69,710	75,753
Cash and cash equivalents, end of period	$ 121,398	$ 148,502	$ 69,710
Supplemental cash flow information			
Income taxes paid, net	$ 27,727	$ 32,205	$ 37,817
Interest paid	$ 58,980	$ 35,300	$ 34,976

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

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. Nature of Business and Summary of Significant Accounting Policies

Nature of Business

ACI Worldwide, Inc., a Delaware corporation, and its subsidiaries (collectively referred to as "ACI" or the "Company") develop, market, install, and support a broad line of software products and services primarily focused on facilitating electronic payments. In addition to its own products, the Company distributes or acts as a sales agent for software developed by third parties. These products and services are used principally by banks, financial intermediaries, merchants, and billers, both in domestic and international markets.

Consolidated Financial Statements

The consolidated financial statements include the accounts of the Company and its wholly-owned subsidiaries. All intercompany balances and transactions have been eliminated. Certain prior period amounts have been reclassified to conform to current year presentation. The Company reclassified $32.3 million from other current assets to settlement assets and $31.6 million from other current liabilities to settlement liabilities in the consolidated balance sheet as of December 31, 2018.

Capital Stock

The Company's outstanding capital stock consists of a single class of common stock. Each share of common stock is entitled to one vote for each matter subject to a stockholder's vote and to dividends, if and when declared by the board of directors (the "board").

Use of Estimates

The preparation of consolidated financial statements in conformity with accounting principles generally accepted in the United States ("U.S. GAAP") requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the consolidated financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Cash and Cash Equivalents

The Company considers all highly liquid investments with original maturities of three months or less to be cash equivalents. The Company's cash and cash equivalents includes holdings in checking, savings, money market, and overnight sweep accounts, all of which have daily maturities, as well as time deposits with maturities of three months or less at the date of purchase. The carrying amounts of cash and cash equivalents on the consolidated balance sheets approximate fair value.

Other Current Liabilities

The components of other current liabilities are included in the following table (in thousands):

	December 31,	
	2019	2018
Operating lease liabilities	$ 15,049	$ —
Vendor financed licenses	9,667	3,551
Royalties payable	6,107	11,318
Accrued interest	9,212	8,407
Other	36,936	38,412
Total other current liabilities	$ 76,971	$ 61,688

Settlement Assets and Liabilities

Individuals and businesses settle their obligations to the Company's various Biller clients using credit or debit cards or via automated clearing house ("ACH") payments. The Company creates a receivable for the amount due from the credit or debit card processor and an offsetting payable to the client. Upon confirmation that the funds have been received, the Company settles the obligation to the client. Due to timing, in some instances, the Company may (1) receive the funds into bank accounts controlled by and in the Company's name that are not disbursed to its clients by the end of the day, resulting in a settlement deposit on the Company's books and (2) disburse funds to its clients in advance of receiving funds from the credit or debit card processor, resulting in a net settlement receivable position.

Off Balance Sheet Settlement Accounts

The Company also enters into agreements with certain Biller clients to process payment funds on their behalf. When an ACH or automated teller machine network payment transaction is processed, a transaction is initiated to withdraw funds from the designated source account and deposit them into a settlement account, which is a trust account maintained for the benefit of the Company's clients. A simultaneous transaction is initiated to transfer funds from the settlement account to the intended destination account. These "back to back" transactions are designed to settle at the same time, usually overnight, such that the Company receives the funds from the source at the same time as it sends the funds to their destination. However, due to the transactions being with various financial institutions there may be timing differences that result in float balances. These funds are maintained in accounts for the benefit of the client which is separate from the Company's corporate assets. As the Company does not take ownership of the funds, these settlement accounts are not included in the Company's balance sheet. The Company is entitled to interest earned on the fund balances. The collection of interest on these settlement accounts is considered in the Company's determination of its fee structure for clients and represents a portion of the payment for services performed by the Company. The amount of settlement funds as of December 31, 2019 and 2018, were $274.0 million and $256.5 million, respectively.

Property and Equipment

Property and equipment are stated at cost. Depreciation of these assets is generally computed using the straight-line method over their estimated useful lives based on asset class. As of December 31, 2019 and 2018, net property and equipment consisted of the following (in thousands):

		December 31,	
	Useful Lives	**2019**	**2018**
Computer and office equipment	3 - 5 years	$ 143,942	$ 129,359
Leasehold improvements	Lesser of useful life of improvement or remaining life of lease	33,346	32,096
Furniture and fixtures	7 years	12,980	12,500
Building and improvements	7 - 30 years	14,553	14,381
Land	Non-depreciable	1,785	1,785
Property and equipment, gross		206,606	190,121
Less: accumulated depreciation		(136,226)	(117,392)
Property and equipment, net		$ 70,380	$ 72,729

Software

Software may be for internal use or for resale. Costs related to certain software, which is for resale, are capitalized in accordance with Accounting Standards Codification ("ASC") 985-20, *Costs of Software to be Sold, Leased, or Marketed*, when the resulting product reaches technological feasibility. The Company generally determines technological feasibility when it has a detailed program design that takes product function, feature and technical requirements to their most detailed, logical form and is ready for coding. The Company does not typically capitalize costs related to software for resale as technological feasibility generally coincides with general availability of the software. The Company capitalizes the costs of software developed or obtained for internal use in accordance with ASC 350-40, *Internal Use Software*. The Company expenses all costs incurred during the preliminary project stage of its development and capitalizes the costs incurred during the application development stage. Costs incurred relating to upgrades and enhancements to the software are capitalized if it is determined that these upgrades or enhancements add additional functionality to the software. Costs incurred during the application development stage include purchased software licenses, implementation costs, consulting costs, and payroll-related costs for projects that qualify for capitalization. All other costs, primarily related to maintenance and minor software fixes, are expensed as incurred.

Amortization of software for resale is determined on a product-by-product basis and begins when the product is available for licensing to customers. The annual amortization is computed using the greater of (a) the ratio of current gross revenues to the total of current and future gross revenues expected to be derived from the software or (b) the straight-line method over the remaining estimated useful life of generally five to ten years, including the period being reported on. Due to competitive pressures, it may be possible that the estimates of future gross revenue or remaining estimated useful life of the software will be reduced significantly. As a result, the carrying amount of the software may be reduced accordingly. Amortization of internal-use software is generally computed using the straight-line method over estimated useful lives of one to ten years.

Business Combinations

The Company applies the provisions of ASC 805, *Business Combinations*, in the accounting for its acquisitions. It requires the Company to recognize separately from goodwill the assets acquired and the liabilities assumed at their acquisition date fair values. Goodwill as of the acquisition date is measured as the excess of consideration transferred and the net of the acquisition date fair values of the assets acquired and the liabilities assumed. While the Company uses its best estimates and assumptions to accurately value assets acquired and liabilities assumed at the acquisition date, its estimates are inherently uncertain and subject to refinement. As a result, during the measurement period, which may be up to one year from the acquisition date, it records adjustments to the assets acquired and liabilities assumed with the corresponding offset to goodwill. Upon the conclusion of the measurement period or final determination of the values of assets acquired or liabilities assumed, whichever comes first, any subsequent adjustments are recorded to our consolidated statements of operations.

Critical estimates in valuing certain intangible assets include but are not limited to future expected cash flows from customer relationships, covenants not to compete and acquired developed technologies, brand awareness and market position, as well as assumptions about the period of time the brand will continue to be used in our product portfolio, and discount rates. Management's estimates of fair value are based upon assumptions believed to be reasonable, but which are inherently uncertain and unpredictable and, as a result, actual results may differ from estimates.

Other estimates associated with the accounting for acquisitions may change as additional information becomes available regarding the assets acquired and liabilities assumed.

Fair Value

ASC 820, *Fair Value Measurements and Disclosures*, ("ASC 820") defines fair value as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants. ASC 820 establishes a fair value hierarchy for valuation inputs that gives the highest priority to quoted prices in active markets for identical assets or liabilities and the lowest priority to unobservable inputs. The fair value hierarchy is as follows:

- Level 1 Inputs – Unadjusted quoted prices in active markets for identical assets or liabilities that the reporting entity has the ability to access at the measurement date.
- Level 2 Inputs – Inputs other than quoted prices included in Level 1 that are observable for the asset or liability, either directly or indirectly. These might include quoted prices for similar assets or 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 (such as interest rates, volatilities, prepayment speeds, credit risks, etc.) or inputs that are derived principally from or corroborated by market data by correlation or other means.
- Level 3 Inputs – Unobservable inputs for determining the fair values of assets or liabilities that reflect an entity's own assumptions about the assumptions that market participants would use in pricing the assets or liabilities.

The fair value of the Company's Credit Agreement approximates the carrying value due to the floating interest rate (Level 2 of the fair value hierarchy). The Company measures the fair value of its Senior Notes based on Level 2 inputs, which include quoted market prices and interest rate spreads of similar securities. The fair value of the Company's 5.750% Senior Notes due 2026 ("2026 Notes") was $432.0 million and $395.0 million as of December 31, 2019 and 2018, respectively.

The fair values of cash and cash equivalents approximate the carrying values due to the short period of time to maturity (Level 2 of the fair value hierarchy).

Goodwill and Other Intangibles

In accordance with ASC 350, *Intangibles – Goodwill and Other*, the Company assesses goodwill for impairment annually during the fourth quarter of its fiscal year using October 1 balances or when there is evidence that events or changes in circumstances indicate that the carrying amount of the asset may not be recovered. The Company evaluates goodwill at the reporting unit level using the discounted cash flow valuation model and allocates goodwill to these reporting units using a relative fair value approach. During this assessment, management relies on a number of factors, including operating results, business plans, and anticipated future cash flows. The Company has identified its reportable segments, ACI On Premise and ACI On Demand, as the reporting units.

The key assumptions used in the discounted cash flow valuation model include discount rates, growth rates, cash flow projections and terminal value rates. Discount rates, growth rates, and cash flow projections are the most sensitive and susceptible to change, as they require significant management judgment. Discount rates are determined by using a weighted average cost of capital ("WACC"). The WACC considers market and industry data as well as company-specific risk factors. Operational management, considering industry and company-specific historical and projected data, develops growth rates and cash flow projections for each

reporting unit. Terminal value rate determination follows common methodology of capturing the present value of perpetual cash flow estimates beyond the last projected period, assuming a constant WACC and low, long-term growth rates. If the recoverability test indicates potential impairment, the Company calculates an implied fair value of goodwill for the reporting unit. The implied fair value of goodwill is determined in a manner similar to how goodwill is calculated in a business combination. If the implied fair value of goodwill exceeds the carrying value of goodwill assigned to the reporting unit, there is no impairment. If the carrying value of goodwill assigned to the reporting unit exceeds the implied fair value of the goodwill, an impairment charge is recorded to write down the carrying value. The calculated fair value substantially exceeded the current carrying value for all reporting units for all periods.

Changes in the carrying amount of goodwill attributable to each reporting unit during the year ended December 31, 2019, were as follows (in thousands):

	ACI On Demand	ACI On Premise	Total
Gross Balance, prior to December 31, 2018	$ 183,783	$ 773,340	$ 957,123
Total impairment prior to December 31, 2018	—	(47,432)	(47,432)
Balance, December 31, 2018	183,783	725,908	909,691
Goodwill from acquisitions (1)	370,834	—	370,834
Balance, December 31, 2019	$ 554,617	$ 725,908	$ 1,280,525

(1) Goodwill from acquisitions relates to the goodwill recorded for the acquisition of E Commerce Group Products, Inc. ("ECG"), along with ECG's subsidiary, Speedpay, Inc. (collectively referred to as "Speedpay") and Walletron, Inc. ("Walletron"), as discussed in Note 3, *Acquisition*. The purchase price allocations for Speedpay and Walletron are preliminary as of December 31, 2019, and are subject to future changes during the maximum one-year measurement period.

Other intangible assets, which include customer relationships and trademarks and trade names, are amortized using the straight-line method over periods ranging from three years to 20 years. The Company reviews its other intangible assets for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable.

Equity Method Investment

On July 23, 2019, the Company invested $18.3 million for a 30% non-controlling financial interest in a payment technology and services company in India. The Company accounted for this investment using the equity method in accordance with ASC 323, *Investments - Equity Method and Joint Ventures*. Accordingly, the Company recorded an initial investment of $18.5 million, which includes direct costs of acquiring the investment, and is included in other cash flows from investing activities in the consolidated statement of cash flows and other noncurrent assets in the consolidated balance sheet as of December 31, 2019. The Company records its share of earnings and losses in the investment on a one-quarter lag basis.

Impairment of Long-Lived Assets

The Company reviews its long-lived assets for impairment whenever events or changes in circumstances indicate that the carrying amount of a long-lived asset group may not be recoverable. An impairment loss is recorded if the sum of the future cash flows expected to result from the use of the asset (undiscounted and without interest charges) is less than the carrying amount of the asset. The amount of the impairment charge is measured based upon the fair value of the asset group.

Treasury Stock

The Company accounts for shares of its common stock that are repurchased without intent to retire as treasury stock. Such shares are recorded at cost and reflected separately on the consolidated balance sheets as a reduction of stockholders' equity. The Company issues shares of treasury stock upon exercise of stock options, issuance of restricted share awards and restricted share units, payment of earned performance shares, and for issuances of common stock pursuant to the Company's employee stock purchase plan. For purposes of determining the cost of the treasury shares re-issued, the Company uses the average cost method.

Stock-Based Compensation Plans

In accordance with ASC 718, *Compensation – Stock Compensation*, the Company recognizes stock-based compensation expense for awards that are probable of vesting on a straight-line basis over the requisite service period of the award, which is generally the vesting term. Stock-based compensation expense is recorded in operating expenses depending on where the respective individual's compensation is recorded. The Company generally utilizes the Black–Scholes option–pricing model to determine the fair value of stock options on the date of grant. To determine the grant date fair value of the supplemental stock options and total shareholder

return awards (“TSRs”), a Monte Carlo simulation model was used. The assumptions utilized in the Black-Scholes option-pricing and Monte Carlo simulation models, as well as the description of the plans the stock-based awards are granted under, are described in further detail in Note 11, *Stock-Based Compensation Plans*.

Translation of Foreign Currencies

The Company’s foreign subsidiaries typically use the local currency of the countries in which they are located as their functional currency. Their assets and liabilities are translated into U.S. dollars at the exchange rates in effect at the balance sheet date. Revenues and expenses are translated at the average exchange rates during the period. Translation gains and losses are reflected in the consolidated financial statements as a component of accumulated other comprehensive income (loss). Transaction gains and losses, including those related to intercompany accounts, that are not considered to be of a long-term investment nature are included in the determination of net income. Transaction gains and losses, including those related to intercompany accounts, that are considered to be of a long-term investment nature are reflected in the consolidated financial statements as a component of accumulated other comprehensive income (loss).

Income Taxes

The provision for income taxes is computed using the asset and liability method, under which deferred tax assets and liabilities are recognized for the expected future tax consequences of temporary differences between the financial reporting and tax bases of assets and liabilities. Deferred tax assets are reduced by a valuation allowance when it is more likely than not that some portion or all of the deferred tax assets will not be realized.

The Company periodically assesses its tax exposures and establishes, or adjusts, estimated unrecognized tax benefits for probable assessments by taxing authorities, including the Internal Revenue Service, and various foreign and state authorities. Such unrecognized tax benefits represent the estimated provision for income taxes expected to ultimately be paid.

New Accounting Standards Recently Adopted

In February 2016, the Financial Accounting Standards Board (“FASB”) issued Accounting Standards Update (“ASU”) 2016-02, *Leases* (codified as “ASC 842”). ASC 842 requires lessees to recognize right-of-use (“ROU”) assets and lease liabilities on the balance sheet for all leases unless, as a policy election, a lessee elects not to apply ASC 842 to short-term leases. In addition, this standard requires both lessees and lessors to disclose certain key information about lease transactions. The Company adopted ASC 842 on January 1, 2019 (the effective date) using the optional transition method to not apply the new lease standard in the comparative periods presented and elected the "practical expedient package", which permits the Company to not reassess prior conclusions about lease identification, lease classification, and initial direct costs. ASC 842 also provides practical expedients for the Company’s ongoing accounting, including the combination of lease and non-lease components into a single lease component which the Company has elected to apply to its leases. As of January 1, 2019, the Company recognized ROU assets and operating lease liabilities of $63.3 million and $68.6 million, respectively. Refer to Note 14, *Leases*, for further details.

In February 2018, the FASB issued ASU 2018-02, *Income Statement-Reporting Comprehensive Income: Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income*. This ASU provides an option to reclassify stranded tax effects within accumulated other comprehensive income (“AOCI”) to retained earnings in each period in which the effect of the change in the U.S. federal corporate income tax rate in the 2017 U.S. Tax Cuts and Jobs Act (or portion thereof) is recorded. This ASU requires disclosure of a description of the accounting policy for releasing income tax effects from AOCI; whether election is made to reclassify the stranded income tax effects from the 2017 U.S. Tax Cuts and Jobs Act; and information about the income tax effects that are reclassified. The Company adopted ASU 2018-2 as of January 1, 2019. The adoption of ASU 2018-2 did not have an impact on the consolidated balance sheet, statement of operations, and statement of cash flows.

In July 2019, the FASB issued ASU 2019-07, *Codification Updates to SEC Sections - Amendments to SEC Paragraphs Pursuant to SEC Final Rule Releases No. 33-10532, Disclosure Update and Simplification, and Nos. 33-10231 and 33-10442, Investment Company Reporting Modernization, and Miscellaneous Updates*, which clarifies or improves the disclosure and presentation requirements of a variety of codification topics by aligning them with the SEC 's regulations. ASU 2019-07 was effective upon issuance and did not have a material impact on the consolidated financial statements.

Recently Issued Accounting Standards Not Yet Effective

In June 2016, the FASB issued ASU 2016-13, *Financial Instruments – Credit Losses: Measurement of Credit Losses on Financial Instruments,* and subsequent amendments to the guidance, ASU 2018-19 in November 2018, ASU 2019-04 in April 2019, ASU 2019-05 in May 2019, and ASU's 2019-10 and 2019-11 in November 2019. This ASU provides financial statement users with more decision-useful information about the expected credit losses on financial instruments and other commitments to extend credit held by a reporting entity at each reporting date. The amendments in ASU 2016-13 replace the incurred loss impairment methodology in current U.S. GAAP with a methodology that reflects expected credit losses and requires consideration of a broader range of reasonable and supportable information to inform credit loss estimates. The Company will be required to use a forward-looking expected credit loss model for accounts receivables. ASU 2016-13 is effective for annual and interim periods beginning after December 15, 2019.

The Company established a project team to assess implementing changes to its processes and controls in conjunction with a comprehensive review of its financial instruments. The Company has determined that the adoption of ASU 2016-13 will not have a material impact on its consolidated balance sheet, statement of operations, and statement of cash flows.

In December 2019, the FASB issued ASU 2019-12, *Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes,* as part of its initiative to reduce complexity in accounting standards. The amendments in this update simplify the accounting for income taxes by removing certain exceptions within ASC 740, as well as clarify and simplify other aspects of the accounting for income taxes to promote consistency among reporting entities. ASU 2019-12 is effective for annual and interim periods beginning after December 15, 2020. The Company is currently assessing the impact the adoption of ASU 2019-12 will have on its consolidated balance sheet, statement of operations, and statement of cash flows.

2. Revenue

Revenue Recognition

In accordance with ASC 606, *Revenue From Contracts With Customers*, revenue is recognized upon transfer of control of promised products and/or services to customers in an amount that reflects the consideration the Company expects to receive in exchange for those products and services. Revenue is recognized net of any taxes collected from customers and subsequently remitted to governmental authorities.

Contract Combination. The Company may execute more than one contract or agreement with a single customer. The separate contracts or agreements may be viewed as one combined arrangement or separate agreements for revenue recognition purposes. In order to reach appropriate conclusions regarding whether such agreements should be combined, the Company evaluates whether the agreements were negotiated as a package with a single commercial objective, whether the amount of consideration to be paid in one agreement depends on the price and/or performance of another agreement, or whether the product(s) or services promised in the agreements represent a single performance obligation. The conclusions reached can impact the allocation of the transaction price to each performance obligation and the timing of revenue recognition related to those arrangements.

Software as a Service ("SaaS") and Platform as a Service ("PaaS") Arrangements. The Company's SaaS-based and PaaS-based arrangements, including implementation, support and other services, represent a single promise to provide continuous access (i.e. a stand-ready performance obligation) to its software solutions and their processing capabilities in the form of a service through one of the Company's data centers. As each day of providing access to the software solution(s) is substantially the same and the customer simultaneously receives and consumes the benefits as access is provided, the Company's single promise under its SaaS-based and PaaS-based arrangements is comprised of a series of distinct service periods. The Company's SaaS-based and PaaS-based arrangements may include fixed consideration, variable consideration, or a combination of the two. Fixed consideration is recognized over the term of the arrangement or longer if the fixed consideration relates to a material right. A material right would be a separate performance obligation. The Company estimates the stand-alone selling price for a material right by reference to the services expected to be provided and the corresponding expected consideration. Variable consideration in these arrangements is typically a function of transaction volume or another usage-based measure. Depending upon the structure of a particular arrangement, the Company: (1) allocates the variable amount to each distinct service period within the series and recognizes revenue as each distinct service period is performed (i.e. direct allocation), (2) estimates total variable consideration at contract inception (giving consideration to any constraints that may apply and updating the estimates as new information becomes available) and recognizes the total transaction price over the period to which it relates, or (3) applies the 'right to invoice' practical expedient and recognizes revenue based on the amount invoiced to the customer during the period.

License Arrangements. The Company's software license arrangements provide the customer with the right to use functional intellectual property (as it exists at the point in time at which the license is granted) for the duration of the contract term.

Implementation, support, and other services are typically considered distinct performance obligations when sold with a software license unless these services are determined to significantly modify the software.

Payment terms for the Company's software license arrangements generally include fixed license and capacity fees that are payable up front or over time. These arrangements may also include incremental usage-based fees that are payable when the customer exceeds its contracted license capacity limits. The Company accounts for capacity overages as a usage-based royalty that is recognized when the usage occurs.

When a software license arrangement contains payment terms that are extended beyond one year, a significant financing component may exist. The significant financing component is calculated as the difference between the stated value and present value of the software license fees and is recognized as interest income over the extended payment period. The total fixed software license fee net of the significant financing component is recognized as revenue at the point in time when the software is transferred to the customer.

For those software license arrangements that include customer-specific acceptance provisions, such provisions are generally presumed to be substantive and the Company does not recognize revenue until the earlier of the receipt of a written customer acceptance, objective demonstration that the delivered product meets the customer-specific acceptance criteria, or the expiration of the acceptance period. The Company recognizes revenues on such arrangements upon the earlier of receipt of written acceptance or the first production use of the software by the customer.

For software license arrangements in which the Company acts as a distributor of another company's product, and in certain circumstances, modifies or enhances the product, revenues are recorded on a gross basis. These include arrangements in which the Company takes control of the products and is responsible for providing the product or service. For software license arrangements in which the Company acts as a sales agent for another company's product, revenues are recorded on a net basis. These include arrangements in which the Company does not take control of products and is not responsible for providing the product or service.

For software license arrangements in which the Company utilizes a third-party distributor or sales agent, the Company recognizes revenue upon transfer of control of the software license(s) to the third-party distributor or sales agent.

The Company's software license arrangements typically provide the customer with a standard 90-day assurance-type warranty. These warranties do not represent an additional performance obligation as services beyond assuring that the software license complies with agreed-upon specifications are not provided.

Software license arrangements typically include an initial post contract customer support (maintenance or "PCS") term of one year with subsequent renewals for additional years within the initial license period. The Company's promise to those customers who elect to purchase PCS represents a stand-ready performance obligation that is distinct from the license performance obligation and recognized over the PCS term.

The Company also provides various professional services to customers with software licenses. These include project management, software implementation, and software modification services. Revenues from arrangements to provide professional services are generally distinct from the other promises in the contract(s) and are recognized as the related services are performed. Consideration payable under these arrangements is either fixed fee or on a time-and-materials basis, which represents variable consideration that must be estimated using the most likely amount based on the range of hours expected to be incurred in providing the services.

The Company estimates the stand-alone selling price ("SSP") for maintenance and professional services based on observable stand-alone sales. The Company applies the residual approach to estimate the SSP for software licenses.

Refer to Note 10, *Segment Information*, for further details, including disaggregation of revenue based on primary solution category and geographic location.

Significant Judgments

The Company applies judgment in determining the customer's ability and intention to pay, which is based on a variety of factors including the customer's historical payment experience or, in the case of a new customer, published credit and financial information.

The Company also applies judgment in determining the term of an arrangement when early termination rights are provided to the customer.

The Company's software license arrangements with its customers often include multiple promises to transfer licensed software products and services. Determining whether the products and/or services are distinct performance obligations that should be accounted for separately may require significant judgment.

The Company's SaaS and PaaS arrangements may include variable consideration in the form of usage-based fees. If the arrangement that includes variable consideration in the form of usage-based fees does not meet the allocation exception for variable consideration, the Company estimates the amount of variable consideration at the outset of the arrangement using either the expected value or most likely amount method, depending on the specifics of each arrangement. These estimates are constrained to the extent that it is probable that a significant reversal of incremental revenue will not occur and are updated each reporting period as additional information becomes available.

Judgment is used in determining: (1) whether the financing component in a software license agreement is significant and, if so, (2) the discount rate used in calculating the significant financing component. The Company assesses the significance of the financing component based on the ratio of license fees paid over time to total license fees. If determined to be significant, the financing component is calculated using a rate that discounts the license fees to the cash selling price.

Judgment is also used in assessing whether the extension of payment terms in a software license arrangement results in variable consideration and, if so, the amount to be included in the transaction price. The Company applies the portfolio approach to estimating the amount of variable consideration in these arrangements using the most likely amount method that is based on the Company's historical collection experience under similar arrangements.

Significant judgment is required to determine the SSP for each performance obligation, the amount allocated to each performance obligation and whether it depicts the amount that the Company expects to receive in exchange for the related product and/or service. As the selling prices of the Company's software licenses are highly variable, the Company estimates SSP of its software licenses using the residual approach when the software license is sold with other services and observable SSPs exist for the other services. The Company uses a range of amounts to estimate SSP for maintenance and services. These ranges are based on stand-alone sales and vary based on the type of service and geographic region. If the SSP of a performance obligation is not directly observable, the Company will maximize observable inputs to determine its SSP.

Contract Balances

Timing of revenue recognition may differ from the timing of invoicing to customers. The Company records an accrued receivable when revenue is recognized prior to invoicing and the Company's right to consideration only requires the passage of time, or deferred revenue when revenue is recognized subsequent to invoicing.

Total receivables represent amounts billed and amounts earned that are to be billed in the future (i.e., accrued receivables). Included in accrued receivables are services and SaaS and PaaS revenues earned in the current period but billed in the following period and amounts due under multi-year software license arrangements with extended payment terms for which the Company has an unconditional right to invoice and receive payment subsequent to invoicing.

Total receivables, net is comprised of the following (in thousands):

	December 31,	
	2019	**2018**
Billed receivables	$ 213,654	$ 239,275
Allowance for doubtful accounts	(5,149)	(3,912)
Billed receivables, net	208,505	235,363
Accrued receivables	399,302	336,858
Significant financing component	(35,569)	(35,029)
Total accrued receivables, net	363,733	301,829
Less: current accrued receivables	161,714	123,053
Less: current significant financing component	(11,022)	(10,234)
Total long-term accrued receivables, net	213,041	189,010
Total receivables, net	$ 572,238	$ 537,192

No customer accounted for more than 10% of the Company's consolidated receivables balance as of December 31, 2019 and 2018.

The Company maintains a general allowance for doubtful accounts based on historical experience, along with additional customer-specific allowances. The Company regularly monitors credit risk exposures in consolidated receivables. In estimating the necessary level of our allowance for doubtful accounts, management considers the aging of accounts receivable, the creditworthiness of customers, economic conditions within the customer's industry, and general economic conditions, among other factors.

The following reflects activity in the Company's allowance for doubtful accounts receivable for the periods indicated (in thousands):

	Years Ended December 31,		
	2019	**2018**	**2017**
Balance, beginning of period	$ (3,912)	$ (4,799)	$ (3,873)
Provision increase	(2,561)	(1,505)	(2,086)
Amounts written off, net of recoveries	1,368	2,269	1,305
Foreign currency translation adjustments and other	(44)	123	(145)
Balance, end of period	$ (5,149)	$ (3,912)	$ (4,799)

Provision increases recorded in general and administrative expense during the years ended December 31, 2019, 2018, and 2017, reflect increases in the allowance for doubtful accounts based upon collection experience in the geographic regions in which the Company conducts business, net of collection of customer-specific receivables that were previously reserved for as doubtful of collection.

Deferred revenue includes amounts due or received from customers for software licenses, maintenance, services, and/or SaaS and PaaS services in advance of recording the related revenue.

Changes in deferred revenue were as follows (in thousands):

Balance, January 1, 2018	$ 145,344
Deferral of revenue	215,188
Recognition of deferred revenue	(200,061)
Foreign currency translation	(4,336)
Balance, December 31, 2018	156,135
Deferral of revenue	149,253
Recognition of deferred revenue	(187,069)
Foreign currency translation	620
Balance, December 31, 2019	$ 118,939

Revenue allocated to remaining performance obligations represents contracted revenue that will be recognized in future periods, which is comprised of deferred revenue and amounts that will be invoiced and recognized as revenue in future periods. This does not include:

- Revenue that will be recognized in future periods from capacity overages that are accounted for as a usage-based royalty.
- SaaS and PaaS revenue from variable consideration that will be recognized in accordance with the 'right to invoice' practical expedient.
- SaaS and PaaS revenue from variable consideration that will be recognized in accordance with the direct allocation method.

Revenue allocated to remaining performance obligations was $678.0 million as of December 31, 2019, of which the Company expects to recognize approximately 48% over the next 12 months and the remainder thereafter.

During the year ended December 31, 2019, the revenue recognized by the Company from performance obligations satisfied in previous periods was $33.9 million.

Costs to Obtain and Fulfill a Contract

The Company accounts for costs to obtain and fulfill its contracts in accordance with ASC 340-40.

The Company capitalizes certain of its sales commissions that meet the definition of incremental costs of obtaining a contract and for which the amortization period is greater than one year. The costs associated with those sales commissions are capitalized during the period in which the Company becomes obligated to pay the commissions and are amortized over the period in which the related products or services are transferred to the customer. As of December 31, 2019 and 2018, $0.5 million and $1.3 million of these costs are included in other current assets, respectively, and $6.9 million and $11.7 million of these costs are included in other noncurrent assets, respectively, on the consolidated balance sheets. During the years ended December 31, 2019 and 2018, the Company recognized $6.6 million and $8.4 million of sales commission expense, respectively, related to the amortization of these costs, which is included in selling and marketing expense on the consolidated statements of operations.

The Company capitalizes costs incurred to fulfill its contracts that: (1) relate directly to the arrangement, (2) are expected to generate resources that will be used to satisfy the Company's performance obligation under the arrangement, and (3) are expected to be recovered through revenue generated under the arrangement. Contract fulfillment costs are expensed as the Company transfers the related services to the customer. As of December 31, 2019 and 2018, $0.2 million of these costs are included in other current assets, and $10.2 million and $12.6 million of these costs are included in other noncurrent assets, respectively, on the consolidated balance sheets. The amounts capitalized primarily relate to direct costs that enhance resources under the Company's SaaS and PaaS arrangements. During the years ended December 31, 2019 and 2018, the Company recognized $5.9 million and $4.7 million of expense, respectively, related to the amortization of these costs, which is included in cost of revenue on the consolidated statements of operations.

3. Acquisition

Speedpay

On May 9, 2019, the Company acquired Speedpay, a subsidiary of The Western Union Company ("Western Union"), for $754.1 million in cash, including working capital adjustments, pursuant to a Stock Purchase Agreement, among the Company, Western Union, and ACI Worldwide Corp., a wholly owned subsidiary of the Company. The Company has included the financial results of Speedpay in the consolidated financial statements from the date of acquisition. The combination of the Company and Speedpay bill pay solutions serves more than 4,000 customers across the U.S., bringing expanded reach in existing and complementary market segments such as consumer finance, insurance, healthcare, higher education, utilities, government, and mortgage. The acquisition of Speedpay increases the scale of the Company's On Demand platform business and allows the acceleration of platform innovation through increased research and development and investment in ACI's On Demand platform infrastructure.

To fund the acquisition, the Company amended its existing Credit Agreement, dated February 24, 2017, for an additional $500.0 million senior secured term loan ("Delayed Draw Term Loan"), in addition to drawing $250.0 million on the available Revolving Credit Facility. See Note 5, *Debt*, for terms of the Credit Agreement. The remaining acquisition consideration was funded with cash on hand.

The Company expensed approximately $22.2 million of costs related to the acquisition of Speedpay for the year ended December 31, 2019. These costs, which consist primarily of investment bank, consulting, and legal fees, are included in general and administrative expenses in the accompanying consolidated statements of operations.

Speedpay contributed approximately $227.7 million in revenue and $24.9 million in operating income for the year ended December 31, 2019.

The consideration paid by the Company to complete the acquisition has been allocated preliminarily to the assets acquired and liabilities assumed based upon estimated fair values as of the date of the acquisition. The allocation of purchase price is based upon external valuation and other analyses that have not been completed as of the date of this filing, including, but not limited to, certain tax matters and accrued liabilities. Accordingly, the purchase price allocations are preliminary and are subject to future adjustments during the maximum one-year allocation period.

In connection with the acquisition, the Company recorded the following amounts based upon its preliminary purchase price allocation as of December 31, 2019, which are subject to completion of various analyses (in thousands, except weighted average useful lives):

	Amount	Weighted Average Useful Lives
Current assets:		
Cash and cash equivalents	$ 135	
Receivables, net of allowances	17,658	
Settlement assets	239,604	
Prepaid expenses	317	
Other current assets	19,585	
Total current assets acquired	277,299	
Noncurrent assets:		
Goodwill	366,627	
Software	113,600	7 years
Customer relationships	208,500	15 years
Trade names	10,900	5 years
Other noncurrent assets	3,746	
Total assets acquired	980,672	
Current liabilities:		
Accounts payable	6,743	
Settlement liabilities	212,892	
Employee compensation	1,959	
Other current liabilities	3,802	
Total current liabilities acquired	225,396	
Noncurrent liabilities:		
Other noncurrent liabilities	1,219	
Total liabilities acquired	226,615	
Net assets acquired	$ 754,057	

During the year ended December 31, 2019, the Company made adjustments to the preliminary purchase price allocation as additional information became available for receivables. These adjustments and any resulting adjustments to the statements of operations were not material to the Company's previously reported operating results or financial position.

Factors contributing to the purchase price that resulted in the goodwill (which is tax deductible) include the acquisition of management, sales, and technology personnel with the skills to market new and existing products of the Company, enhanced product capabilities, complementary products and customers.

Unaudited Pro Forma Financial Information

The pro forma financial information in the table below presents the combined results of operations for ACI and Speedpay as if the acquisition had occurred January 1, 2018. The pro forma information is shown for illustrative purposes only and is not necessarily indicative of future results of operations of the Company or results of operations of the Company that would have actually occurred had the transaction been in effect for the periods presented. This pro forma information is not intended to represent or be indicative of actual results had the acquisition occurred as of the beginning of each period, and does not reflect potential synergies, integration costs, or other such costs or savings.

Certain pro forma adjustments have been made to net income (loss) for the year ended December 31, 2019 and 2018, to give effect to estimated adjustments that remove the amortization expense on eliminated Speedpay historical identifiable intangible assets, add amortization expense for the value of acquired identified intangible assets (primarily acquired software, customer relationships, and trademarks), and add estimated interest expense on the Company's additional Delayed Draw Term Loan and Revolving Credit Facility borrowings. Additionally, certain transaction expenses that are a direct result of the acquisition have been excluded from the year ended December 31, 2019.

The following is the unaudited summarized pro forma financial information for the periods presented (in thousands, except per share data):

	Years Ended December 31,	
	2019	2018
Pro forma revenue	$ 1,382,957	$ 1,361,729
Pro forma net income	$ 82,003	$ 88,428
Pro forma income per share:		
Basic	$ 0.71	$ 0.76
Diluted	$ 0.69	$ 0.75

Walletron

On May 9, 2019, the Company also completed the acquisition of Walletron, which delivers patented mobile wallet technology. The Company has included the financial results of Walletron in the consolidated financial statements from the date of acquisition, which were not material.

RevChip and TranSend

On October 1, 2019, the Company acquired certain technology assets of RevChip, LLC ("RevChip") and TranSend Integrated Technologies Inc. ("TranSend") for a combined $7.0 million. As substantially all of the value was in the developed technology, the purchase was recognized as an asset acquisition. The Company has included the financial results of RevChip and TranSend in the consolidated financial statements from the date of acquisition, which were not material.

4. Software and Other Intangible Assets

The carrying amount and accumulated amortization of the Company's software assets subject to amortization at each balance sheet date are as follows (in thousands):

	December 31, 2019			December 31, 2018		
	Gross Carrying Amount	Accumulated Amortization	Net Balance	Gross Carrying Amount	Accumulated Amortization	Net Balance
Software for resale	$ 138,823	$ (122,061)	$ 16,762	$ 137,666	$ (110,124)	$ 27,542
Software for internal use	400,065	(182,310)	217,755	251,804	(142,118)	109,686
Total software	$ 538,888	$ (304,371)	$ 234,517	$ 389,470	$ (252,242)	$ 137,228

Software for resale amortization expense totaled $11.0 million for the year ended December 31, 2019, and totaled $12.8 million during both the years ended December 31, 2018 and 2017. These software amortization expense amounts are reflected in cost of revenue in the consolidated statements of operations.

Software for internal use amortization expense recorded during the years ended December 31, 2019, 2018, and 2017, totaled $55.6 million, $41.7 million, and $45.2 million, respectively. These software amortization expense amounts are reflected in depreciation and amortization in the consolidated statements of operations.

The carrying amount and accumulated amortization of the Company's other intangible assets subject to amortization at each balance sheet date are as follows (in thousands):

	December 31, 2019			December 31, 2018		
	Gross Carrying Amount	Accumulated Amortization	Net Balance	Gross Carrying Amount	Accumulated Amortization	Net Balance
Customer relationships	$ 507,785	$ (160,775)	$ 347,010	$ 297,991	$ (131,187)	$ 166,804
Trademarks and trade names	27,312	(17,353)	9,959	16,348	(15,025)	1,323
Total other intangible assets	$ 535,097	$ (178,128)	$ 356,969	$ 314,339	$ (146,212)	$ 168,127

Other intangible assets amortization expense recorded during the years ended December 31, 2019, 2018, and 2017, totaled $31.9 million, $19.0 million, and $19.4 million, respectively.

Based on capitalized intangible assets as of December 31, 2019, estimated amortization expense amounts in future fiscal years are as follows (in thousands):

Fiscal Year Ending December 31,	Software Amortization	Other Intangible Assets Amortization
2020	$ 70,056	$ 37,215
2021	55,595	36,730
2022	37,278	36,583
2023	25,406	36,270
2024	19,983	31,781
Thereafter	26,199	178,390
Total	$ 234,517	$ 356,969

5. Debt

As of December 31, 2019, the Company had $239.0 million, $756.1 million, and $400.0 million outstanding under its Revolving Credit Facility, Term Loan, and Senior Notes, respectively, with up to $261.0 million of unused borrowings under the Revolving Credit Facility portion of the Credit Agreement, as amended.

Credit Agreement

On April 5, 2019, the Company (and its wholly-owned subsidiaries, ACI Worldwide Corp. and Official Payments Corporation ("OPAY")) entered into the Second Amended and Restated Credit Agreement (the "Credit Agreement"), with the lenders, and Bank of America, N.A., as administrative agent for the lenders, to amend and restate the Company's existing agreement, as amended, dated February 24, 2017. The amended Credit Agreement permitted the Company to borrow up to $500.0 million in the form of an additional senior secured term loan; extended the revolver and the existing term loan maturity date from February 24, 2022, to April 5, 2024; increased the maximum consolidated senior secured net leverage ratio covenant from 3.50:1.00 to 3.75:1.00; and increased the maximum consolidated total net leverage ratio covenant from 4.25:1.00 to 5.00:1.00, with subsequent decreases occurring every three quarters thereafter for a specified period of time; among other things. In connection with amending the Credit Agreement, the Company incurred and paid debt issuance costs of $12.8 million during the year ended December 31, 2019.

The Credit Agreement consists of (a) a five-year $500.0 million senior secured revolving credit facility (the "Revolving Credit Facility"), which includes sublimits for (1) the issuance of standby letters of credit and (2) swingline loans, (b) a five-year $279.0 million senior secured term loan facility (the "Initial Term Loan") and (c) a five-year $500.0 million Delayed Draw Term Loan (together with the Initial Term Loan, the "Term Loans", and together with the Initial Term Loan and the Revolving Credit Facility, the "Credit Facility"). The Credit Agreement also allows the Company to request optional incremental term loans and increases in the revolving commitment.

At the Company's option, borrowings under the Credit Facility bear interest at an annual rate equal to either (a) a base rate determined by reference to the highest of (1) the annual interest rate publicly announced by the administrative agent as its Prime Rate, (2) the federal funds effective rate plus 1/2 of 1% or (3) a London Interbank Offered Rate ("LIBOR") rate determined by

reference to the costs of funds for U.S. dollar deposits for a one-month interest period, adjusted for certain additional costs plus 1% or (b) a LIBOR rate determined by reference to the costs of funds for U.S. dollar deposits for the interest period relevant to such borrowings, adjusted for certain additional costs plus an applicable margin. Based on the calculation of the applicable consolidated total leverage ratio, the applicable margin for borrowings under the Credit Facility is between 0.25% to 1.25% with respect to base rate borrowings and between 1.25% and 2.25% with respect to LIBOR rate borrowings. Interest is due and payable monthly. The interest rate in effect for the Credit Facility as of December 31, 2019, was 4.04%.

The Company is also required to pay (a) a commitment fee related to the unutilized commitments under the Revolving Credit Facility, payable quarterly in arrears, (b) letter of credit fees on the maximum amount available to be drawn under all outstanding letters of credit in an amount equal to the applicable margin on LIBOR rate borrowings under the Revolving Credit Facility on an annual basis, payable quarterly in arrears, and (c) customary fronting fees for the issuance of letters of credit fees and agency fees.

The Company's obligations under the Credit Facility and cash management arrangements entered into with lenders under the Credit Facility (or affiliates thereof) and the obligations of the subsidiary guarantors are secured by first-priority security interests in substantially all assets of the Company and any guarantor, including 100% of the capital stock of ACI Worldwide Corp. and each domestic subsidiary of the Company, each domestic subsidiary of any guarantor, and 65% of the voting capital stock of each foreign subsidiary of the Company that is directly owned by the Company or a guarantor, in each case subject to certain exclusions set forth in the credit documentation governing the Credit Facility. The collateral agreement of the Credit Agreement, as amended, released the lien on certain assets of OPAY, our electronic bill presentment and payment affiliate, to allow OPAY to comply with certain eligible securities and unencumbered asset requirements related to money transmitter or transfer license rules and regulations.

The Credit Agreement contains a number of covenants that, among other things and subject to certain exceptions, restrict the Company's and its subsidiaries' ability to: create, incur, assume or suffer to exist any additional indebtedness; create, incur, assume or suffer to exist any liens; enter into agreements and other arrangements that include negative pledge clauses; pay dividends on capital stock or redeem, repurchase or retire capital stock or subordinated indebtedness; create restrictions on the payment of dividends or other distributions by subsidiaries; make investments, loans, advances and acquisitions; merge, consolidate or enter into any similar combination or sell assets, including equity interests of the subsidiaries; enter into sale and leaseback transactions; directly or indirectly engage in transactions with affiliates; alter in any material respect the character or conduct of the business; enter into amendments of or waivers under subordinated indebtedness, organizational documents and certain other material agreements; and hold certain assets and incur certain liabilities.

Expected Discontinuation of LIBOR

In July 2017, the United Kingdom's Financial Conduct Authority, which regulates LIBOR, announced it will no longer compel banks to submit rates for the calculation of LIBOR after 2021. The Alternative Reference Rates Committee has proposed the Secured Overnight Financing Rate ("SOFR") as its recommended alternative to LIBOR, and the first publication of SOFR rates was released in April 2018.

The Company is evaluating the potential impact of the transition from LIBOR as an interest rate benchmark to other potential alternative reference rates, including SOFR. The Company's Credit Agreement is currently indexed to LIBOR and the maturity date of the Credit Agreement extends beyond 2021. The Credit Agreement contemplates the discontinuation of LIBOR and provides options for the Company in such an event. The Company will continue to actively assess the related opportunities and risks involved in this transition.

Senior Notes

On August 21, 2018, the Company completed a $400.0 million offering of the 2026 Notes at an issue price of 100% of the principal amount in a private placement for resale to qualified institutional buyers. The 2026 Notes bear interest at an annual rate of 5.750%, payable semi-annually in arrears on February 15 and August 15 of each year, which commenced on February 15, 2019. Interest accrued from August 21, 2018. The 2026 Notes will mature on August 15, 2026. In connection with the issuance of the 2026 Notes, the Company incurred and paid debt issuance costs of $7.3 million for the year ended December 31, 2018.

The Company used the net proceeds of the offering described above to redeem, in full, the Company's outstanding 6.375% Senior Notes due 2020, including accrued interest, and repaid a portion of the outstanding amount under the Term Credit Facility.

Maturities on debt outstanding at December 31, 2019, are as follows (in thousands):

Fiscal year ending December 31,	
2020	$ 38,950
2021	38,950
2022	50,431
2023	69,906
2024	796,823
Thereafter	400,000
Total	$ 1,395,060

The Credit Facility will mature on April 5, 2024, and the 2026 Notes will mature on August 15, 2026. The Revolving Credit Facility and 2026 Notes do not amortize. The Term Loans do amortize, with principal payable in consecutive quarterly installments.

The Credit Agreement and 2026 Notes contain certain customary affirmative covenants and negative covenants that limit or restrict, subject to certain exceptions, the incurrence of liens, indebtedness of subsidiaries, mergers, advances, investments, acquisitions, transactions with affiliates, change in nature of business, and the sale of the assets. In addition, the Credit Agreement and 2026 Notes contain certain customary mandatory prepayment provisions. The Company is also required to maintain a consolidated leverage ratio at or below a specified amount and an interest coverage ratio at or above a specified amount. As specified in the Credit Agreement and 2026 Notes agreement, if certain events occur and continue, the Company may be required to repay all amounts outstanding under the Credit Facility and 2026 Notes. As of December 31, 2019, and at all times during the period, the Company was in compliance with its financial debt covenants.

Total debt is comprised of the following (in thousands):

	December 31,	
	2019	**2018**
Term loans	$ 756,060	$ 284,959
Revolving credit facility	239,000	—
5.750% Senior Notes, due August 2026	400,000	400,000
Debt issuance costs	(21,905)	(13,203)
Total debt	1,373,155	671,756
Less current portion of term credit facility	38,950	23,747
Less current portion of debt issuance costs	(4,802)	(2,980)
Total long-term debt	$ 1,339,007	$ 650,989

Overdraft Facility

In 2019, the Company and OPAY entered in to a $140.0 million uncommitted overdraft facility with Bank of America, N.A. The overdraft facility bears interest at LIBOR plus 0.875% based on the Company's average outstanding balance and the frequency in which overdrafts occur. The overdraft facility acts as a secured loan under the terms of the Credit Agreement to provide an additional funding mechanism for timing differences that can occur in the bill payment settlement process. Amounts outstanding on the overdraft facility are included in other current liabilities in the consolidated balance sheet. As of December 31, 2019, there was $1.5 million outstanding on the overdraft facility.

Other

During the year ended December 31, 2019, the Company financed certain multi-year license agreements for internal-use software for $10.4 million with annual payments through April 2022. As of December 31, 2019, $13.8 million is outstanding, under these and other license agreements previously entered into, of which $6.0 million and $7.8 million is included in other current liabilities and other noncurrent liabilities, respectively, in the consolidated balance sheet. As of December 31, 2018, $9.4 million was outstanding, of which $2.5 million and $6.9 million was included in other current liabilities and other noncurrent liabilities, respectively, in the consolidated balance sheet. Upon execution, these arrangements have been treated as a non-cash investing and financing activity for purposes of the consolidated statements of cash flows.

6. Corporate Restructuring and Other Organizational Changes

Lease Terminations

During the year ended December 31, 2017, the Company ceased use of a portion of its leased facilities in Edison, NJ; Chantilly, VA; Charlotte, NC; Parsippany, NJ; and Waltham, MA. As a result, the Company recorded additional expense of $2.4 million, which was recorded in general and administrative expenses in the consolidated statements of operations for the year ended December 31, 2017.

A summary of the facility closures liability is as follows (in thousands):

Balance, December 31, 2017	$	5,945
Amounts paid during the period		(1,732)
Foreign currency translation adjustments		(86)
Balance, December 31, 2018		4,127
Amounts paid during the period		(1,554)
Foreign currency translation adjustments		29
Balance, December 31, 2019	$	2,602

Of the $2.6 million facility closure liability, $1.3 million is recorded to both other current liabilities and operating lease liabilities in the consolidated balance sheet as of December 31, 2019.

7. Common Stock and Treasury Stock

In 2005, the board approved a stock repurchase program authorizing the Company, as market and business conditions warrant, to acquire its common stock and periodically authorize additional funds for the program. In February 2018, the board approved the repurchase of the Company's common stock of up to $200.0 million, in place of the remaining purchase amounts previously authorized.

The Company repurchased 1,228,102 shares for $35.6 million under the program for the year ended December 31, 2019. Under the program to date, the Company has repurchased 45,357,495 shares for approximately $583.4 million. As of December 31, 2019, the maximum remaining amount authorized for purchase under the stock repurchase program was $141.0 million.

During the year ended September 30, 2006, the Company began to issue shares of treasury stock upon exercise of stock options, payment of earned performance shares, issuance of restricted share awards (“RSAs”), vesting of restricted share units (“RSUs”), and for issuances of common stock pursuant to the Company’s employee stock purchase plan ("ESPP"). Treasury shares issued during the year ended December 31, 2017, included 1,204,559, 560,174, and 158,194 shares issued pursuant to stock option exercises, RSA grants, and the ESPP, respectively. Treasury shares issued during the year ended December 31, 2018, included 1,379,704, 10,000, and 148,520 shares issued pursuant to stock option exercises, RSUs vested, and the ESPP, respectively. Treasury shares issued during the year ended December 31, 2019, included 854,524, 259,634, and 126,983 shares issued pursuant to stock option exercises, RSUs vested, and the ESPP, respectively.

8. Earnings Per Share

Basic earnings per share is computed in accordance with ASC 260, *Earnings per Share,* based on weighted average outstanding common shares. Diluted earnings per share is computed based on basic weighted average outstanding common shares adjusted for the dilutive effect of stock options, RSUs, and certain contingently issuable shares for which performance targets have been achieved.

The following table reconciles the weighted average share amounts used to compute both basic and diluted earnings per share (in thousands):

	Years Ended December 31,		
	2019	**2018**	**2017**
Weighted average shares outstanding:			
Basic weighted average shares outstanding	116,175	116,057	118,059
Add: Dilutive effect of stock options, RSUs, and contingently issuable shares	2,396	1,575	1,385
Diluted weighted average shares outstanding	118,571	117,632	119,444

The diluted earnings per share computation excludes 1.8 million, 2.2 million, and 3.9 million options to purchase shares, RSUs, and contingently issuable shares during the years ended December 31, 2019, 2018, and 2017, respectively, as their effect would be anti-dilutive.

Common stock outstanding as of December 31, 2019 and 2018, was 115,986,352 and 116,123,361, respectively.

9. **Other, Net**

Other, net is comprised of foreign currency transaction gains of $0.5 million for the year ended December 31, 2019, and foreign currency transaction losses of $3.7 million and $2.6 million for the years ended December 31, 2018 and 2017, respectively.

10. Segment Information

The Company reports financial performance based on its segments, ACI On Premise and ACI On Demand, and analyzes Segment Adjusted EBITDA as a measure of segment profitability.

The Company's interim Chief Executive Officer is also the chief operating decision maker ("CODM"). The CODM, together with other senior management personnel, focus their review on consolidated financial information and the allocation of resources based on operating results, including revenues and Segment Adjusted EBITDA, for each segment, separate from Corporate operations.

ACI On Premise serves customers who manage their software on site or through a third-party cloud service provider. These on-premise customers use the Company's software to develop sophisticated solutions, which are often part of a larger system located and managed at the customer specified site. These customers require a level of control and flexibility that ACI On Premise solutions can offer, and they have the resources and expertise to take a lead role in managing these solutions.

ACI On Demand serves the needs of banks, merchants, and billers who use payments to facilitate their core business. These on-demand solutions are maintained and delivered through the cloud via our global data centers and are available in either a single-tenant environment for SaaS offerings, or in a multi-tenant environment for PaaS offerings.

Revenue is attributed to the reportable segments based upon the product sold and mechanism for delivery to the customer. Expenses are attributed to the reportable segments in one of three methods, (1) direct costs of the segment, (2) labor costs that can be attributed based upon time tracking for individual products, or (3) costs that are allocated. Allocated costs are generally marketing and sales related activities as well as information technology and facilities related expense for which multiple segments benefit. The Company also allocates certain depreciation costs to the segments.

Segment Adjusted EBITDA is the measure reported to the CODM for purposes of making decisions on allocating resources and assessing the performance of the Company's segments and, therefore, Segment Adjusted EBITDA is presented in conformity with ASC 280, *Segment Reporting*. Segment Adjusted EBITDA is defined as earnings (loss) from operations before interest, income tax expense (benefit), depreciation and amortization ("EBITDA") adjusted to exclude stock-based compensation, and net other income (expense).

Corporate and unallocated expenses consist of the corporate overhead costs that are not allocated to reportable segments. These overhead costs relate to human resources, finance, legal, accounting, merger and acquisition activity, and other costs that are not considered when management evaluates segment performance. For the year ended December 31, 2017, corporate and unallocated expenses included $46.7 million of general and administrative expense for the legal judgment discussed in Note 15, *Commitments and Contingencies*.

The following is selected financial data for the Company's reportable segments for the periods indicated (in thousands):

	Years Ended December 31,		
	2019	2018	2017
Revenues			
ACI On Premise	$ 579,334	$ 576,755	$ 598,590
ACI On Demand	678,960	433,025	425,601
Total revenue	$ 1,258,294	$ 1,009,780	$ 1,024,191
Segment Adjusted EBITDA			
ACI On Premise	$ 321,305	$ 323,902	$ 347,094
ACI On Demand	66,501	12,015	(1,832)
Depreciation and amortization	(122,569)	(97,350)	(102,224)
Stock-based compensation expense	(36,763)	(20,360)	(13,683)
Corporate and unallocated expenses	(104,718)	(92,296)	(144,715)
Interest, net	(52,066)	(30,388)	(38,449)
Other, net	520	(3,724)	(2,619)
Income before income taxes	$ 72,210	$ 91,799	$ 43,572
Depreciation and amortization			
ACI On Premise	$ 11,992	$ 11,634	$ 13,094
ACI On Demand	34,395	31,541	34,171
Corporate	76,182	54,175	54,959
Total depreciation and amortization	$ 122,569	$ 97,350	$ 102,224
Stock-based compensation expense			
ACI On Premise	$ 7,651	$ 4,348	$ 2,234
ACI On Demand	7,995	4,338	2,230
Corporate	21,117	11,674	9,219
Total stock-based compensation expense	$ 36,763	$ 20,360	$ 13,683

Assets are not allocated to segments, and the Company's CODM does not evaluate operating segments using discrete asset information.

The following is revenue by primary geographic market and primary solution category for the Company's reportable segments for the periods indicated (in thousands):

	Year Ended December 31, 2019			Year Ended December 31, 2018		
	ACI On Premise	ACI On Demand	Total	ACI On Premise	ACI On Demand	Total
Primary Geographic Markets						
Americas - United States	$ 172,660	$ 609,160	$ 781,820	$ 131,382	$ 369,097	$ 500,479
Americas - Other	68,020	9,350	77,370	61,969	9,577	71,546
EMEA	251,035	50,629	301,664	296,157	48,889	345,046
Asia Pacific	87,619	9,821	97,440	87,247	5,462	92,709
Total	$ 579,334	$ 678,960	$ 1,258,294	$ 576,755	$ 433,025	$ 1,009,780
Primary Solution Categories						
Bill Payments	$ —	$ 510,300	$ 510,300	$ —	$ 275,526	$ 275,526
Digital Channels	32,980	44,731	77,711	35,231	40,342	75,573
Merchant Payments	25,693	77,204	102,897	30,447	64,956	95,403
Payments Intelligence	33,790	36,019	69,809	42,353	41,330	83,683
Real-Time Payments	97,153	3,456	100,609	92,068	2,193	94,261
Retail Payments	389,718	7,250	396,968	376,656	8,678	385,334
Total	$ 579,334	$ 678,960	$ 1,258,294	$ 576,755	$ 433,025	$ 1,009,780

	Year Ended December 31, 2017		
	ACI On Premise	ACI On Demand	Total
Primary Geographic Markets			
Americas - United States	$ 175,682	$ 365,553	$ 541,235
Americas - Other	72,802	9,429	82,231
EMEA	270,388	47,872	318,260
Asia Pacific	79,718	2,747	82,465
Total	$ 598,590	$ 425,601	$ 1,024,191
Primary Solution Categories			
Bill Payments	$ —	$ 271,421	$ 271,421
Digital Channels	47,973	46,063	94,036
Merchant Payments	27,155	56,018	83,173
Payments Intelligence	32,478	41,628	74,106
Real-Time Payments	70,087	2,785	72,872
Retail Payments	420,897	7,686	428,583
Total	$ 598,590	$ 425,601	$ 1,024,191

The following is the Company's long-lived assets by geographic location for the periods indicated (in thousands):

	December 31,	
	2019	2018
Long-lived Assets		
United States	$ 1,526,046	$ 811,435
Other	759,501	717,495
Total	$ 2,285,547	$ 1,528,930

No single customer accounted for more than 10% of the Company's consolidated revenues during the years ended December 31, 2019, 2018, and 2017. No other country outside the United States accounted for more than 10% of the Company's consolidated revenues during the years ended December 31, 2019, 2018, and 2017.

11. Stock-Based Compensation Plans

Employee Stock Purchase Plan

On April 6, 2017, the board approved the 2017 Employee Stock Purchase Plan ("2017 ESPP"), which was approved by shareholders at the 2017 Annual Shareholder meeting. The 2017 ESPP provides employees with an opportunity to purchase shares of the Company's common stock. The 1999 Employee Stock Purchase Plan terminated upon the August 1, 2017, effective date of the 2017 ESPP. Under the Company's 2017 ESPP, a total of 3,000,000 shares of the Company's common stock have been reserved for issuance to eligible employees. Participating employees are permitted to designate up to the lesser of $25,000 or 10% of their annual base compensation for the purchase of common stock under the ESPP. Purchases under the ESPP are made one calendar month after the end of each fiscal quarter. The price for shares of common stock purchased under the ESPP is 85% of the stock's fair market value on the last business day of the three-month participation period.

Additionally, the discount offered pursuant to the Company's ESPP discussed above is 15%, which exceeds the 5% non-compensatory guideline in ASC 718 and exceeds the Company's estimated cost of raising capital. Consequently, the entire 15% discount to employees is deemed to be compensatory for purposes of calculating expense using a fair value method. Compensation expense related to the ESPP for the year ended December 31, 2019, was approximately $0.6 million and compensation expense related to the ESPP for both the years ended December 31, 2018 and 2017, was approximately $0.5 million.

Stock Incentive Plans – Active Plans

2016 Equity and Performance Incentive Plan

On March 23, 2016, the board approved the 2016 Equity and Performance Incentive Plan (the "2016 Incentive Plan"). The 2016 Incentive Plan is intended to meet the Company's objective of balancing stockholder concerns about dilution with the need to provide appropriate incentives to achieve Company performance objectives. The 2016 Incentive Plan was adopted by the stockholders on June 14, 2016. Following the adoption of the 2016 Incentive Plan, the 2005 Equity and Performance Incentive Plan, as amended (the "2005 Incentive Plan") was terminated. Termination of the 2005 Incentive Plan did not affect any equity awards outstanding under the 2005 Incentive Plan.

The 2016 Incentive Plan provides for the grant of incentive stock options, nonqualified stock options, stock appreciation rights, restricted share and restricted share units, performance shares and performance units, and other awards ("awards"). Subject to adjustment in certain circumstances, the maximum number of shares of common stock that may be issued or transferred in connection with awards granted under the 2016 Incentive Plan will be the sum of (i) 8,000,000 shares of common stock and (ii) any shares of common stock that are represented by options previously granted under the 2005 Incentive Plan which are forfeited, expire, or are canceled without delivery of common stock or which result in the forfeiture or relinquishment of common stock back to the Company. To the extent awards granted under the 2016 Incentive Plan terminate, expire, are canceled without being exercised, are forfeited or lapse for any reason, the shares of common stock subject to such award will again become available for grants under the 2016 Incentive Plan.

The 2016 Incentive Plan expressly prohibits re-pricing stock options and appreciation rights. The 2016 Incentive Plan also, subject to certain limited exceptions, expressly requires a one-year vesting period for all stock options and appreciation rights.

No eligible person selected by the board to receive awards ("participant") will receive stock options, stock appreciation rights, restricted share awards, restricted share units, and other awards under the 2016 Incentive Plan, during any calendar year, for more than 3,000,000 shares of common stock. In addition, no participant may receive performance shares or performance units having an aggregate value on the date of grant in excess of $9,000,000 during any calendar year. Each of the limits described above may be adjusted equitably to accommodate a change in the capital structure of the Company.

2005 Equity and Performance Incentive Plan

The Company had a 2005 Incentive Plan, as amended, under which shares of the Company's common stock were reserved for issuance to eligible employees or non-employee directors of the Company. The 2005 Incentive Plan provided for the grant of incentive stock options, nonqualified stock options, stock appreciation rights, restricted stock awards, performance awards, and other awards. The maximum number of shares of the Company's common stock that was issued or transferred in connection with awards granted under the 2005 Incentive Plan was the sum of (i) 23,250,000 shares and (ii) any shares represented by outstanding

options that had been granted under designated terminated stock option plans that were subsequently forfeited, expired, or are canceled without delivery of the Company's common stock.

Stock Options

Stock options granted pursuant to the 2016 Incentive Plan are granted at an exercise price not less than the market value per share of the Company's common stock on the date of grant. Under the 2016 Incentive Plan, the term of the outstanding options may not exceed ten years nor be less than one year. Vesting of options is determined by the compensation committee of the board and the administrator of the 2016 Incentive Plan and can vary based upon the individual award agreements. In addition, outstanding options do not have dividend equivalent rights associated with them under the 2016 Incentive Plan.

A summary of stock option activity is as follows:

	Number of Shares	Weighted Average Exercise Price ($)	Weighted Average Remaining Contractual Term (Years)	Aggregate Intrinsic Value of In-the-Money Options ($)
Outstanding, December 31, 2018	4,864,836	$ 17.76		
Exercised	(854,524)	15.78		
Forfeited	(3,496)	17.89		
Outstanding, December 31, 2019	4,006,816	$ 18.18	3.71	$ 78,949,941
Exercisable, December 31, 2019	3,462,664	$ 17.86	3.70	$ 69,349,255

The weighted average grant date fair value of stock options granted during the years ended December 31, 2018 and 2017, was $7.03 and $6.24, respectively. The Company did not grant stock options during the year ended December 31, 2019. The total intrinsic value of stock options exercised during the years ended December 31, 2019, 2018, and 2017, was $16.0 million, $15.8 million, and $13.4 million, respectively.

The fair value of options granted in the respective fiscal years are estimated on the date of grant using the Black-Scholes option-pricing model, acceptable under ASC 718, with the following weighted average assumptions:

	Years Ended December 31,	
	2018	2017
Expected life (years)	5.6	5.6
Risk-free interest rate	2.7%	1.9%
Expected volatility	26.4%	29.4%
Expected dividend yield	—	—

Expected volatilities are based on the Company's historical common stock volatility, derived from historical stock price data for periods commensurate with the options' expected life. The expected life of options granted represents the period of time options are expected to be outstanding, based primarily on historical employee option exercise behavior. The risk-free interest rate is based on the implied yield currently available on U.S. Treasury zero coupon bonds issued with a term equal to the expected life at the date of grant of the options. The expected dividend yield is zero, as the Company has historically paid no dividends and does not anticipate dividends to be paid in the future.

Long-term Incentive Program Performance Share Awards

During the year ended December 31, 2017, pursuant to the Company's 2016 Incentive Plan, the Company granted long-term incentive program performance share awards ("LTIP performance shares"). These LTIP performance shares are earned, if at all, based upon the achievement, over a specified period that must not be less than one year and is typically a three-year performance period, of performance goals related to (i) the compound annual growth over the performance period in the sales for the Company as determined by the Company, and (ii) the cumulative operating income or EBITDA over the performance period as determined by the Company. Up to 200% of the LTIP performance shares may be earned upon achievement of performance goals equal to or exceeding the maximum target levels for the performance goals over the performance period. On a quarterly basis, management

must evaluate the probability that the threshold performance goals will be achieved, if at all, and the anticipated level of attainment to determine the amount of compensation expense to record in the consolidated financial statements.

A summary of the nonvested LTIP performance shares is as follows:

	Number of Shares at Expected Attainment	Weighted Average Grant Date Fair Value
Nonvested at December 31, 2018	540,697	$ 19.83
Forfeited	(56,567)	18.80
Change in expected attainment	185,339	20.09
Nonvested at December 31, 2019	669,469	$ 20.12

During the year ended December 31, 2019, the Company revised the expected attainment rates for outstanding LTIP performance shares due to changes in forecasted sales and operating income, resulting in additional stock-based compensation expense of approximately $3.7 million.

Restricted Share Awards

During the years ended December 31, 2017, pursuant to the Company's 2016 Incentive Plan and 2005 Incentive Plan, the Company granted RSAs. The awards have requisite service periods of three years and vest in increments of 33% on the anniversary of the grant dates. Under each arrangement, shares are issued without direct cost to the employee. RSAs granted to our board vest one year from grant or as of the next annual shareholders meeting, whichever is earlier. The Company estimates the fair value of the RSAs based upon the market price of the Company's stock at the date of grant. The RSA grants provide for the payment of dividends on the Company's common stock, if any, to the participant during the requisite service period, and the participant has voting rights for each share of common stock. The Company recognizes compensation expense for RSAs on a straight-line basis over the requisite service period.

A summary of nonvested RSAs is as follows:

	Number of Shares	Weighted Average Grant Date Fair Value
Nonvested at December 31, 2018	213,337	$ 20.21
Vested	(106,610)	20.17
Forfeited	(13,885)	20.64
Nonvested at December 31, 2019	92,842	$ 20.13

During the year ended December 31, 2019, a total of 106,610 RSAs vested. The Company withheld 32,371 of those shares to pay the employees' portion of the minimum payroll withholding taxes.

Total Shareholder Return Awards

During the years ended December 31, 2019, 2018, and 2017, pursuant to the 2016 Incentive Plan, the Company granted total shareholder return awards ("TSRs"). TSRs are performance shares that are earned, if at all, based upon the Company's total shareholder return as compared to a group of peer companies over a three-year performance period. The award payout can range from 0% to 200%. To determine the grant date fair value of the TSRs, a Monte Carlo simulation model is used. The Company recognizes compensation expense for the TSRs over a three-year performance period based on the grant date fair value.

The grant date fair value of the TSRs was estimated using the following weighted-average assumptions:

	Years Ended December 31,		
	2019	2018	2017
Expected life (years)	2.8	2.9	2.9
Interest rate	2.5%	2.4%	1.5%
Volatility	29.3%	28.0%	26.5%
Expected dividend yield	—	—	—

A summary of nonvested TSRs is as follows:

	Number of Shares at Expected Attainment	Weighted Average Grant Date Fair Value
Nonvested as of December 31, 2018	718,931	$ 29.25
Granted	436,674	47.90
Forfeited	(93,314)	35.37
Nonvested as of December 31, 2019	1,062,291	$ 35.77

Restricted Share Units

During the year ended December 31, 2019, pursuant to the 2016 Incentive Plan, the Company granted restricted share unit awards ("RSUs"). RSUs generally have requisite service periods of three years and vest in increments of 33% on the anniversary of the grant dates. RSUs granted to our board vest one year from grant or as of the next annual shareholders meeting, whichever is earlier. Under each arrangement, RSUs are issued without direct cost to the employee on the vesting date. The Company estimates the fair value of the RSUs based upon the market price of the Company's stock at the date of grant. The Company recognizes compensation expense for RSUs on a straight-line basis over the requisite service period.

A summary of nonvested RSUs is as follows:

	Number of Shares	Weighted Average Grant Date Fair Value
Nonvested as of December 31, 2018	651,045	$ 23.82
Granted	742,579	33.28
Vested	(259,634)	24.16
Forfeited	(124,586)	29.79
Nonvested as of December 31, 2019	1,009,404	$ 29.96

During the year ended December 31, 2019, a total of 259,634 RSUs vested. The Company withheld 57,802 of those shares to pay the employees' portion of the minimum payroll withholding taxes.

As of December 31, 2019, there was unrecognized compensation expense of $20.5 million related to RSUs, $15.0 million related to TSRs, $0.5 million related to LTIP performance shares, $0.3 million related to nonvested RSAs, and $0.2 million related to nonvested stock options, which the Company expects to recognize over weighted average periods of 1.9 years, 1.9 years, 0.1 years, 0.2 years, and 0.3 years, respectively.

The Company recorded stock-based compensation expense recognized under ASC 718 during the years ended December 31, 2019, 2018, and 2017, of $36.8 million, $20.4 million, and $13.7 million, respectively, with corresponding tax benefits of $5.9 million, $3.9 million, and $1.7 million, respectively. The Company recognizes compensation expense for stock option awards that vest with only service conditions on a straight-line basis over the requisite service period. The Company recognizes compensation expense for stock option awards that vest with service and market-based conditions on a straight-line basis over the longer of the requisite service period or the estimated period to meet the defined market-based condition.

12. Employee Benefit Plans

ACI 401(k) Plan

The ACI 401(k) Plan is a defined contribution plan covering all domestic employees of the Company. Participants may contribute up to 75% of their annual eligible compensation up to a maximum of $19,000 (for employees who are under the age of 50 on December 31, 2019) or a maximum of $25,000 (for employees aged 50 or older on December 31, 2019). After one year of service, the Company matches 100% of the first 4% of eligible participant contributions and 50% of the next 4% of eligible participant contributions, not to exceed $5,000 per employee annually. Company contributions charged to expense were $6.4 million during both the years ended December 31, 2019 and 2018, and $5.3 million during the year ended December 31, 2017.

ACI Worldwide EMEA Group Personal Pension Scheme

The ACI Worldwide EMEA Group Personal Pension Scheme is a defined contribution plan covering substantially all ACI Worldwide (EMEA) Limited ("ACI-EMEA") employees. For those ACI-EMEA employees who elect to participate in the plan, the Company contributes a minimum of 8.5% of eligible compensation to the plan for employees employed at December 1, 2000 (up to a maximum of 15.5% for employees aged over 55 years on December 1, 2000) or from 6% to 10% of eligible compensation for employees employed subsequent to December 1, 2000. ACI-EMEA contributions charged to expense were $1.5 million during the year ended December 31, 2019, and $1.6 million during both the years ended December 31, 2018 and 2017.

13. Income Taxes

On December 22, 2017, the Tax Cuts and Jobs Act ("Tax Act") was signed into U.S. Law. As of December 31, 2018, the Company had completed its accounting for the tax effects related to the enactment of the Tax Act.

The Tax Act reduced the U.S. federal corporate income tax rate from 35% to 21%, effective January 1, 2018. During the year ended December 31, 2017, the Company remeasured certain deferred tax assets and liabilities and recorded a $15.0 million provisional tax charge. During the year ended December 31, 2018, the Company reduced the initial provisional tax charge by recording a $4.9 million benefit related to accelerated tax deductions claimed on the 2018 U.S. Federal Income Tax Return.

The Tax Act required U.S. companies to pay a one-time transition tax on certain unremitted foreign earnings. During the year ended December 31, 2017, the Company recorded a $20.9 million provisional tax charge based on post-1986 earnings and profits of foreign subsidiaries that were previously deferred from U.S. income taxes. Upon further analysis, the Company reduced the initial provisional tax charge by recording an $8.1 million benefit during the year ended December 31, 2018.

During the year ended December 31, 2018, the Company recorded a $15.5 million valuation allowance on its deferred tax asset related to U.S. foreign tax credits based upon business conditions and tax laws in effect at that time.

During the year ended December 31, 2019, following the acquisition of Speedpay, the Company determined it will more likely than not be able to utilize foreign tax credits in future years due to additional income generated by Speedpay; therefore, the Company released the $15.5 million valuation allowance that had been established on this deferred tax asset.

The Tax Act subjects a U.S. shareholder to tax on global intangible low-taxed income ("GILTI") earned by certain foreign subsidiaries. The Company has elected to account for GILTI in the year the tax is incurred.

Prior to 2018, the Company considered all earnings in foreign subsidiaries to be indefinitely reinvested, and accordingly, recorded no deferred income taxes related to unremitted earnings. As of December 31, 2019 and 2018, the Company considered only the earnings in its Indian subsidiaries to be indefinitely reinvested. The earnings of all other foreign subsidiaries are no longer considered indefinitely reinvested. The Company is also permanently reinvested for outside book/tax basis differences related to foreign subsidiaries.

For financial reporting purposes, income before income taxes includes the following components (in thousands):

	Years Ended December 31,		
	2019	2018	2017
United States	$ (16,317)	$ 16,312	$ (42,863)
Foreign	88,527	75,487	86,435
Total	$ 72,210	$ 91,799	$ 43,572

The expense (benefit) for income taxes consists of the following (in thousands):

	Years Ended December 31,		
	2019	2018	2017
Federal			
Current	$ 3,738	$ 6,545	$ 2,586
Deferred	(25,150)	(6,587)	19,212
Total	(21,412)	(42)	21,798
State			
Current	590	4,441	(1,857)
Deferred	342	(2,649)	(1,324)
Total	932	1,792	(3,181)
Foreign			
Current	22,960	17,626	16,048
Deferred	2,668	3,502	3,772
Total	25,628	21,128	19,820
Total	$ 5,148	$ 22,878	$ 38,437

Differences between the income tax expense computed at the statutory federal income tax rate and per the consolidated statements of operations are summarized as follows (in thousands):

	Years Ended December 31,		
	2019	2018	2017
Tax expense at federal rate of 21% (35% pre-2018)	$ 15,164	$ 19,278	$ 15,250
State income taxes, net of federal benefit	1,227	5,246	(2,238)
Change in valuation allowance	(12,760)	12,657	(1,884)
Foreign tax rate differential	(2,535)	(4,796)	(15,622)
Unrecognized tax benefit increase	898	1,262	3,007
Tax effect of foreign operations	6,698	8,546	5,532
Tax benefit of research & development	(2,506)	(2,557)	(1,904)
Transition tax	—	(8,112)	20,867
Revaluation of deferred tax balances	—	(4,937)	14,953
Performance-based compensation	(560)	(4,541)	2,081
Domestic production activities	—	—	(3,793)
Other	(478)	832	2,188
Income tax provision	$ 5,148	$ 22,878	$ 38,437

The countries having the greatest impact on the tax rate adjustment line shown in the above table as “Foreign tax rate differential” are Ireland, Luxembourg, and the United Kingdom for the year ended December 31, 2019; Ireland and Luxembourg for the year ended December 31, 2018; and Ireland, Luxembourg, and the United Kingdom for the year ended December 31, 2017.

The deferred tax assets and liabilities result from differences in the timing of the recognition of certain income and expense items for tax and financial accounting purposes. The sources of these differences at each balance sheet date are as follows (in thousands):

	December 31,	
	2019	2018
Deferred income tax assets:		
Net operating loss carryforwards	$ 23,030	$ 25,745
Tax credits	52,902	43,838
Compensation	18,791	15,934
Deferred revenue	25,599	27,587
Research and development expense deferral	—	12,631
Other	4,065	5,393
Gross deferred income tax assets	124,387	131,128
Less: valuation allowance	(7,653)	(20,415)
Net deferred income tax assets	$ 116,734	$ 110,713
Deferred income tax liabilities:		
Depreciation and amortization	$ (52,978)	$ (60,872)
Deferred revenue	(44,198)	(54,508)
Total deferred income tax liabilities	(97,176)	(115,380)
Net deferred income taxes	$ 19,558	$ (4,667)
Deferred income taxes / liabilities included in the balance sheet are:		
Deferred income tax asset – noncurrent	$ 51,611	$ 27,048
Deferred income tax liability – noncurrent	(32,053)	(31,715)
Net deferred income taxes	$ 19,558	$ (4,667)

In assessing the realizability of deferred tax assets, the Company considers whether it is more likely than not that some portion or all of the deferred tax assets will not be realized. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income during the periods in which those temporary differences become deductible. The Company considers projected future taxable income, carryback opportunities, and tax planning strategies in making this assessment. Based upon the level of historical taxable income and projections for future taxable income over the periods which the deferred tax assets are deductible, the Company believes it is more likely than not that it will realize the benefits of these deductible differences, net of the valuation allowances recorded. During the year ended December 31, 2019, the Company decreased its valuation allowance by $12.8 million which relates to a reduction in the valuation allowance on U.S. foreign tax credits offset by an increase in valuation allowance on foreign net operating losses.

At December 31, 2019, the Company had domestic federal tax net operating losses ("NOLs") of $65.9 million, which will begin to expire in 2020. The Company had deferred tax assets equal to $1.4 million related to domestic state tax NOLs which will begin to expire in 2020. The Company does not have any valuation allowance against the federal tax NOLs but has provided a $1.2 million valuation allowance against the deferred tax asset associated with the state NOLs. The Company had foreign tax NOLs of $30.4 million, of which $28.1 million may be utilized over an indefinite life, with the remainder expiring over the next 17 years. The Company has provided a $0.7 million valuation allowance against the deferred tax asset associated with the foreign NOLs.

The Company had U.S. foreign tax credit carryforwards at December 31, 2019, of $40.7 million, for which an $1.2 million valuation allowance has been provided. The U.S. foreign tax credits will begin to expire in 2022. The Company had foreign tax credit carryforwards in other foreign jurisdictions at December 31, 2019, of $1.9 million, of which $1.3 million may be utilized over an indefinite life, with the remainder expiring over the next seven years. The Company has provided a $1.2 million valuation allowance against the tax benefit associated with these foreign credits. The Company also has domestic federal and state general business tax credit carryforwards at December 31, 2019, of $15.7 million and $0.8 million, respectively, which will begin to expire in 2020 and 2022, respectively.

The unrecognized tax benefit at December 31, 2019 and 2018, was $29.0 million and $28.4 million, respectively, of which $22.4 million and $22.6 million, respectively, are included in other noncurrent liabilities in the consolidated balance sheets. Of the total

unrecognized tax benefit amounts at December 31, 2019 and 2018, $28.2 million and $27.5 million, respectively, represent the net unrecognized tax benefits that, if recognized, would favorably impact the effective income tax rate in the respective years.

A reconciliation of the beginning and ending amount of unrecognized tax benefits for the years ended December 31 is as follows (in thousands):

	2019	2018	2017
Balance of unrecognized tax benefits at beginning of year	$ 28,406	$ 27,237	$ 24,278
Increases for tax positions of prior years	2,784	315	2,478
Decreases for tax positions of prior years	(96)	(61)	(114)
Increases for tax positions established for the current period	2,542	1,185	1,677
Decreases for settlements with taxing authorities	(220)	—	(154)
Reductions resulting from lapse of applicable statute of limitation	(4,462)	(115)	(1,155)
Adjustment resulting from foreign currency translation	46	(155)	227
Balance of unrecognized tax benefits at end of year	$ 29,000	$ 28,406	$ 27,237

The Company files income tax returns in the U.S. federal jurisdiction, various state and local jurisdictions, and many foreign jurisdictions. The United States, Germany, India, Ireland, Luxembourg, Mexico, the United Kingdom, and Uruguay are the main taxing jurisdictions in which the Company operates. The years open for audit vary depending on the tax jurisdiction. In the United States, the Company's tax returns for years following 2015 are open for audit. In the foreign jurisdictions, the tax returns open for audit generally vary by jurisdiction between 2003 and 2018.

The Company's Indian income tax returns covering fiscal years 2003, 2005, 2010 through 2013, and 2016 are under audit by the Indian tax authority. Other foreign subsidiaries could face challenges from various foreign tax authorities. It is not certain that the local authorities will accept the Company's tax positions. The Company believes its tax positions comply with applicable tax law and intends to vigorously defend its positions. However, differing positions on certain issues could be upheld by tax authorities, which could adversely affect the Company's financial condition and results of operations.

The Company believes it is reasonably possible that the total amount of unrecognized tax benefits will decrease within the next 12 months by approximately $11.7 million due to the settlement of various audits and the expiration of statutes of limitations. The Company accrues interest related to uncertain tax positions in interest expense or interest income and recognizes penalties related to uncertain tax positions in other income or other expense. As of December 31, 2019 and 2018, $1.2 million is accrued for the payment of interest and penalties related to income tax liabilities. The aggregate amount of interest and penalties expense (benefit) recorded in the statements of operations for the years ended December 31, 2019, 2018, and 2017, is $0.2 million, $0.0 million, and $(0.8) million, respectively.

14. Leases

The Company has operating leases for corporate offices and data centers. Excluding office leases, leases with an initial term of 12-months or less that do not include an option to purchase the underlying asset are not recorded on the consolidated balance sheet and are expensed on a straight-line basis over the lease term.

The Company's leases typically include certain renewal options to extend the leases for up to 25 years, some of which include options to terminate the leases within one year. The exercise of lease renewal options is at the Company's sole discretion. The Company combines lease and non-lease components of its leases and currently has no leases with options to purchase the leased property. Payments of maintenance and property tax costs paid by the Company are accounted for as variable lease cost, which are expensed as incurred.

The components of lease cost are as follows (in thousands):

	Year Ended December 31, 2019
Operating lease cost	$ 18,486
Variable lease cost	3,756
Sublease income	(528)
Total lease cost	$ 21,714

Supplemental cash flow information related to leases is as follows (in thousands):

	Year Ended December 31, 2019
Cash paid for amounts included in the measurement of lease liabilities:	
Operating cash flows from operating leases	$ 19,578
Right-of-use assets obtained in exchange for new lease obligations:	
Operating leases	$ 10,478

Supplemental balance sheet information related to leases is as follows (in thousands, except lease term and discount rate):

	December 31, 2019
Assets:	
Operating lease right-of-use assets	$ 57,382
Liabilities:	
Other current liabilities	$ 15,049
Operating lease liabilities	46,766
Total operating lease liabilities	$ 61,815
Weighted average remaining operating lease term (years)	6.58
Weighted average operating lease discount rate	4.00%

The Company uses its incremental borrowing rate as the discount rate. As the Company enters into operating leases in multiple jurisdictions and denominated in currencies other than the U.S. dollar, judgment is used to determine the Company's incremental borrowing rate including (1) conversion of its subordinated borrowing rate (using published yield curves) to an unsubordinated and collateralized rate, (2) adjusting the rate to align with the term of each lease, and (3) adjusting the rate to incorporate the effects of the currency in which the lease is denominated.

Maturities on lease liabilities as of December 31, 2019, are as follows (in thousands):

Fiscal Year Ending December 31,	
2020	$ 17,180
2021	13,050
2022	10,066
2023	7,787
2024	4,951
Thereafter	17,250
Total lease payments	70,284
Less: imputed interest	8,469
Total lease liability	$ 61,815

Future payments under operating lease agreements accounted for under ASC 840, *Leases,* as of December 31, 2018, were as follows (in thousands):

Fiscal Year Ending December 31,		
2019	$	16,925
2020		14,212
2021		10,538
2022		8,178
2023		6,529
Thereafter		21,196
Total minimum lease payments	$	77,578

As of December 31, 2019, the Company has additional operating leases for office facilities that have not yet commenced with minimum lease payments of $2.1 million. These operating leases will commence in fiscal year 2020, with lease terms of one to five years.

15. Commitments and Contingencies

In accordance with ASC 460, *Guarantees*, the Company recognizes the fair value for guarantee and indemnification arrangements it issues or modifies if these arrangements are within the scope of the interpretation. In addition, the Company must continue to monitor the conditions that are subject to the guarantees and indemnifications, as required under the previously existing generally accepted accounting principles, to identify if a loss has occurred. If the Company determines it is probable a loss has occurred, then any estimable loss would be recognized under those guarantees and indemnifications. Under its customer agreements, the Company may agree to indemnify, defend, and hold harmless its customers from and against certain losses, damages, and costs arising from claims alleging that the use of its software infringes the intellectual property of a third-party. Historically, the Company has not been required to pay material amounts in connection with claims asserted under these provisions, and accordingly, the Company has not recorded a liability relating to such provisions.

Under its customer agreements, the Company also may represent and warrant to customers that its software will operate substantially in conformance with its documentation, and that the services the Company performs will be performed in a workmanlike manner by personnel reasonably qualified by experience and expertise to perform their assigned tasks. Historically, only minimal costs have been incurred relating to the satisfaction of warranty claims. In addition, from time to time, the Company may guarantee the performance of a contract on behalf of one or more of its subsidiaries, or a subsidiary may guarantee the performance of a contract on behalf of another subsidiary.

Other guarantees include promises to indemnify, defend, and hold harmless the Company's executive officers, directors, and certain other key officers. The Company's certificate of incorporation provides that it will indemnify and advance expenses to its directors and officers to the maximum extent permitted by Delaware law. The indemnification covers any expenses and liabilities reasonably incurred by a person, by reason of the fact that such person is, was, or has agreed to be a director or officer, in connection with the investigation, defense, and settlement of any threatened, pending, or completed action, suit, proceeding, or claim. The Company's certificate of incorporation authorizes the use of indemnification agreements, and the Company enters into such agreements with its directors and certain officers from time to time. These indemnification agreements typically provide for a broader scope of the Company's obligation to indemnify the directors and officers than set forth in the certificate of incorporation. The Company's contractual indemnification obligations under these agreements are in addition to the respective directors' and officers' rights under the certificate of incorporation or under Delaware law.

Legal Proceedings

On September 23, 2015, a jury verdict was returned against ACI Worldwide Corp. ("ACI Corp."), a subsidiary of the Company, for $43.8 million in connection with counterclaims brought by Baldwin Hackett & Meeks, Inc. ("BHMI") in the District Court of Douglas County, Nebraska. On September 21, 2012, ACI Corp. sued BHMI for misappropriation of ACI Corp.'s trade secrets. The jury found that ACI Corp. had not met its burden of proof regarding these claims. On March 6, 2013, BHMI asserted counterclaims alleged to arise out of ACI Corp.'s filing of its lawsuit. The court entered a judgment against ACI Corp. for $43.8 million for damages and $2.7 million for attorney fees and costs. ACI Corp. disagreed with the verdicts and judgment, and, after the trial court denied ACI Corp.'s post-judgment motions, ACI Corp. perfected an appeal of the dismissal of its claims against BHMI and the judgment in favor of BHMI. On June 9, 2017, the Nebraska Supreme Court affirmed the District Court judgment. The Company recorded expense of $48.1 million during the year ended December 31, 2017, of which $46.7 million is included in general and

administrative expense and $1.4 million is included in interest expense in the accompanying consolidated statement of operations. The Company paid the judgment, including interest, during the year ended December 31, 2017.

16. Quarterly Financial Data (Unaudited)

The following consists of quarterly financial data (in thousands, except per share amounts):

	Quarter Ended				Year Ended
	March 31, 2019	June 30, 2019	September 30, 2019	December 31, 2019	December 31, 2019
Revenues:					
Software as a service and platform as a service	$ 108,557	$ 172,499	$ 192,952	$ 203,661	$ 677,669
License	21,078	52,541	92,058	122,584	288,261
Maintenance	55,111	51,922	52,638	53,738	213,409
Services	21,109	20,656	17,253	19,937	78,955
Total revenues	205,855	297,618	354,901	399,920	1,258,294
Operating expenses:					
Cost of revenue (1)	114,941	155,240	174,168	173,104	617,453
Research and development	36,194	39,235	36,543	34,601	146,573
Selling and marketing	29,430	32,962	30,417	30,875	123,684
General and administrative	31,517	49,319	27,286	27,174	135,296
Depreciation and amortization	21,866	26,744	31,169	31,753	111,532
Total operating expenses	233,948	303,500	299,583	297,507	1,134,538
Operating income (loss)	(28,093)	(5,882)	55,318	102,413	123,756
Other income (expense):					
Interest expense	(11,614)	(15,323)	(18,987)	(18,109)	(64,033)
Interest income	3,033	2,997	2,988	2,949	11,967
Other, net	(1,912)	1,402	(2,369)	3,399	520
Total other income (expense)	(10,493)	(10,924)	(18,368)	(11,761)	(51,546)
Income (loss) before income taxes	(38,586)	(16,806)	36,950	90,652	72,210
Income tax expense (benefit)	(12,623)	(22,531)	5,136	35,166	5,148
Net income (loss)	$ (25,963)	$ 5,725	$ 31,814	$ 55,486	$ 67,062
Earnings (loss) per share					
Basic	$ (0.22)	$ 0.05	$ 0.27	$ 0.48	$ 0.58
Diluted	$ (0.22)	$ 0.05	$ 0.27	$ 0.47	$ 0.57

(1) The cost of revenue excludes charges for depreciation but includes amortization of purchased and developed software for resale.

	Quarter Ended				Year Ended
	March 31, 2018	June 30, 2018	September 30, 2018	December 31, 2018	December 31, 2018
Revenues:					
Software as a service and platform as a service	$ 104,280	$ 113,600	$ 104,519	$ 110,626	$ 433,025
License	28,046	45,555	68,964	137,991	280,556
Maintenance	56,659	55,048	54,373	53,065	219,145
Services	20,325	20,792	17,669	18,268	77,054
Total revenues	209,310	234,995	245,525	319,950	1,009,780
Operating expenses:					
Cost of revenue (1)	107,336	116,261	102,473	104,281	430,351
Research and development	36,791	37,862	36,008	32,969	143,630
Selling and marketing	31,893	33,160	28,252	24,576	117,881
General and administrative	28,649	28,837	29,537	20,399	107,422
Depreciation and amortization	21,345	21,033	20,896	21,311	84,585
Total operating expenses	226,014	237,153	217,166	203,536	883,869
Operating income (loss)	(16,704)	(2,158)	28,359	116,414	125,911
Other income (expense):					
Interest expense	(9,365)	(9,717)	(12,573)	(9,875)	(41,530)
Interest income	2,744	2,742	2,763	2,893	11,142
Other, net	(55)	(1,677)	(1,304)	(688)	(3,724)
Total other income (expense)	(6,676)	(8,652)	(11,114)	(7,670)	(34,112)
Income (loss) before income taxes	(23,380)	(10,810)	17,245	108,744	91,799
Income tax expense (benefit)	(3,952)	3,764	2,012	21,054	22,878
Net income (loss)	$ (19,428)	$ (14,574)	$ 15,233	$ 87,690	$ 68,921
Earnings (loss) per share					
Basic	$ (0.17)	$ (0.13)	$ 0.13	$ 0.76	$ 0.59
Diluted	$ (0.17)	$ (0.13)	$ 0.13	$ 0.74	$ 0.59

(1) The cost of revenue excludes charges for depreciation but includes amortization of purchased and developed software for resale.

EXHIBIT INDEX

Exhibit No.		Description
2.01	(1)	Stock Purchase Agreement, dated February 28, 2019
3.01	(2)	2013 Amended and Restated Certificate of Incorporation of the Company
3.02	(3)	Amended and Restated Bylaws of the Company
4.01	(4)	Form of Common Stock Certificate (P)
4.02	(5)	Indenture, dated as of August 21, 2018, among ACI Worldwide, Inc., the guarantors listed therein, and Wilmington Trust, National Association, as trustee
4.03		Form of 5.750% Senior Notes due 2026 (Included as Exhibit A to Exhibit 4.02)
10.01	(6)*	ACI Worldwide, Inc. 2017 Employee Stock Purchase Plan
10.02	(7)*	ACI Worldwide, Inc. 2005 Equity and Performance Incentive Plan, as amended
10.03	(8)*	Form of Severance Compensation Agreement (Change-in-Control) between the Company and certain officers, including executive officers
10.04	(9)*	Form of Indemnification Agreement between the Company and certain officers, including executive officers
10.05	(10)*	Form of Nonqualified Stock Option Agreement – Non-Employee Director for the Company's 2005 Equity and Performance Incentive Plan, as amended
10.06	(11)*	Form of Nonqualified Stock Option Agreement – Employee for the Company's 2005 Equity and Performance Incentive Plan, as amended
10.07	(12)*	Form of LTIP Performance Shares Agreement for the Company's 2005 Equity and Performance Incentive Plan, as amended
10.08	(13)*	Amended and Restated Employment Agreement by and between the Company and Philip G. Heasley, dated December 4, 2015 (effective as of January 7, 2016)
10.09	(14)*	ACI Worldwide, Inc. 2013 Executive Management Incentive Compensation Plan
10.10	(15)*	Form of Change-in-Control Employment Agreement between the Company and certain officers, including executive officers
10.11	(16)*	Form of Restricted Share Award Agreement for the Company's 2005 Equity and Performance Incentive Plan, as amended
10.12	(17)*	Amended and Restated Deferred Compensation Plan
10.13	(18)	Amended and Restated Credit Agreement, dated February 24, 2017, by and among ACI Worldwide, Inc., Bank of America, N.A. and the lenders that are party thereto
10.14	(19)*	Form of 2015 Supplemental LTIP Performance Shares Agreement for the Company's 2005 Equity and Performance Incentive Plan, as amended
10.15	(20)*	Form of 2015 Supplemental Non-Qualified Stock Option Agreement - Employee for the Company's 2005 Equity and Performance Incentive Plan, as amended
10.16	(21)*	Form of 2015 LTIP Performance Shares Agreement for the Company's 2005 Equity and Performance Incentive Plan, as amended
10.17	(22)*	Form of 2015 Non-Qualified Stock Option Agreement - Employee for the Company's 2005 Equity and Performance Incentive Plan, as amended
10.18	(23)*	ACI Worldwide, Inc. 2016 Equity and Performance Incentive Plan
10.19	(24)*	Form of 2016 Supplemental Performance Share Award Agreement for the Company's 2016 Equity and Performance Incentive Plan
10.20	(25)*	Form of 2016 Supplemental Nonqualified Stock Option Agreement for the Company's 2016 Equity and Performance Incentive Plan
10.21	(26)*	Form of 2016 Performance Share Award Agreement for the Company's 2016 Equity and Performance Incentive Plan
10.22	(27)*	Form of 2016 Nonqualified Stock Option Agreement for the Company's 2016 Equity and Performance Incentive Plan
10.23	(28)*	Form of 2016 Restricted Share Award Agreement for the Company's 2016 Equity and Performance Incentive Plan
10.24	(29)*	Form of 2016 Restricted Share Award Agreement – Non-Employee Director for the Company's 2016 Equity and Performance Incentive Plan

10.25	(30)*	Form of Change-in-Control Employment Agreement
10.26	(31)*	Form of 2016 Restricted Share Unit Award Agreement for the Company's 2016 Equity and Performance Incentive Plan
10.27	(32)*	Form of Restricted Share Unit Award Agreement CEO (RSUs)
10.28	(33)*	Form of Performance Share Award Agreement CEO (rTSR Performance Share Awards)
10.29	(34)*	Form of Restricted Share Unit Award Agreement (RSUs)
10.30	(35)*	Form of Performance Share Award Agreement (rTSR Performance Share Awards)
10.31	(36)	Amendment Agreement to the Amended and Restated Credit Agreement, dated April 5, 2019
10.32	(37)	November 5, 2019 Retirement and General Release Agreement between the Company and Philip G. Heasley
10.33	(38)*	Form of Severance Agreement between ACI Worldwide, Inc. and Odilon Almeida
10.34	(39)*	Form of Change in Control Employment Agreement between ACI Worldwide, Inc. and certain officers, including executive officers
21.01		Subsidiaries of the Registrant (filed herewith)
23.01		Consent of Independent Registered Public Accounting Firm (filed herewith) – Deloitte & Touche LLP
31.01		Certification of Chief Executive Officer pursuant to S.E.C. Rule 13a-14, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 (filed herewith)
31.02		Certification of Chief Financial Officer pursuant to S.E.C. Rule 13a-14, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 (filed herewith)
32.01	**	Certification of Chief Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (furnished herewith)
32.02	**	Certification of Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (furnished herewith)
101.INS		XBRL Instance Document - the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document.
101.SCH		XBRL Taxonomy Extension Schema
101.CAL		XBRL Taxonomy Extension Calculation Linkbase
101.LAB		XBRL Taxonomy Extension Label Linkbase
101.PRE		XBRL Taxonomy Extension Presentation Linkbase
101.DEF		XBRL Taxonomy Extension Definition Linkbase
104		Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101)

(1) Incorporated herein by reference to Exhibit 2.01 to the registrant's quarterly report on Form 10-Q for the period ended March 31, 2019.
(2) Incorporated herein by reference to Exhibit 3.1 to the registrant's current report on Form 8-K filed August 17, 2017.
(3) Incorporated herein by reference to Exhibit 3.1 to the registrant's current report on Form 8-K filed February 27, 2017.
(4) Incorporated herein by reference to Exhibit 4.01 to the registrant's Registration Statement No. 33-88292 on Form S-1.
(5) Incorporated herein by reference to Exhibit 4.1 to the registrant's current report on Form 8-K filed August 21, 2018.
(6) Incorporated herein by reference to Annex A to the registrant's Proxy Statement filed on April 27, 2017.
(7) Incorporated herein by reference to Exhibit 10.07 to the registrant's quarterly report on Form 10-Q for the period ended June 30, 2014.
(8) Incorporated herein by reference to Exhibit 10.9 to the registrant's annual report on Form 10-K for the year ended December 31, 2009.
(9) Incorporated herein by reference to Exhibit 10.10 to the registrant's annual report on Form 10-K for the year ended December 31, 2009.
(10) Incorporated herein by reference to Exhibit 10.17 to the registrant's annual report on Form 10-K for the year ended December 31, 2009.
(11) Incorporated herein by reference to Exhibit 10.18 to the registrant's annual report on Form 10-K for the year ended December 31, 2009.
(12) Incorporated herein by reference to Exhibit 10.1 to the registrant's current report on Form 8-K filed December 16, 2009.
(13) Incorporated herein by reference to Exhibit 10.1 to the registrant's current report on Form 8-K filed on December 10, 2015.
(14) Incorporated herein by reference to Annex A to the registrant's Proxy Statement for its 2013 Annual Meeting (File No. 000-25346) filed on April 29, 2013.

(15) Incorporated herein by reference to Exhibit 10.3 the registrant's current report on Form 8-K filed June 20, 2016.
(16) Incorporated herein by reference to Exhibit 10.29 to the registrant's annual report on Form 10-K for the year ended December 31, 2009.
(17) Incorporated herein by reference to Exhibit 4.3 to the registrant's Registration Statement No. 333-169293 on Form S-8 filed September 9, 2010
(18) Incorporated herein by reference to Exhibit 10.1 to the registrant's current report on Form 8-K filed February 27, 2017.
(19) Incorporated herein by reference to Exhibit 10.1 to the registrant's current report on Form 8-K filed January 30, 2015.
(20) Incorporated herein by reference to Exhibit 10.2 to the registrant's current report on Form 8-K filed January 30, 2015.
(21) Incorporated herein by reference to Exhibit 10.3 to the registrant's current report on Form 8-K filed January 30, 2015.
(22) Incorporated herein by reference to Exhibit 10.4 to the registrant's current report on Form 8-K filed January 30, 2015.
(23) Incorporated herein by reference to Exhibit 10.1 to the registrant's current report on Form 8-K filed June 20, 2016.
(24) Incorporated herein by reference to Exhibit 10.02 to the registrant's quarterly report on Form 10-Q for the period ended June 30, 2016.
(25) Incorporated herein by reference to Exhibit 10.03 to the registrant's quarterly report on Form 10-Q for the period ended June 30, 2016.
(26) Incorporated herein by reference to Exhibit 10.2 to the registrant's current report on Form 8-K filed February 27, 2017.
(27) Incorporated herein by reference to Exhibit 10.05 to the registrant's quarterly report on Form 10-Q for the period ended June 30, 2016.
(28) Incorporated herein by reference to Exhibit 10.06 to the registrant's quarterly report on Form 10-Q for the period ended June 30, 2016.
(29) Incorporated herein by reference to Exhibit 10.07 to the registrant's quarterly report on Form 10-Q for the period ended June 30, 2016.
(30) Incorporated herein by reference to Exhibit 10.3 to the registrant's current report on Form 8-K filed June 20, 2016.
(31) Incorporated herein by reference to Exhibit 10.26 to the registrant's annual report on Form 10-K for the year ended December 31, 2017.
(32) Incorporated herein by reference to Exhibit 10.1 to the registrant's current report on Form 8-K filed March 8, 2019.
(33) Incorporated herein by reference to Exhibit 10.2 to the registrant's current report on Form 8-K filed March 8, 2019.
(34) Incorporated herein by reference to Exhibit 10.3 to the registrant's current report on Form 8-K filed March 8, 2019.
(35) Incorporated herein by reference to Exhibit 10.4 to the registrant's current report on Form 8-K filed March 8, 2019.
(36) Incorporated herein by reference to Exhibit 10.1 to the registrant's current report on Form 8-K filed April 11, 2019.
(37) Incorporated herein by reference to Exhibit 10.1 to the registrant's current report on Form 8-K filed November 7, 2019.
(38) Incorporated herein by reference to Exhibit 10.1 to the registrant's current report on Form 8-K filed February 20, 2020.
(39) Incorporated herein by reference to Exhibit 10.2 to the registrant's current report on Form 8-K filed February 20, 2020.

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* Denotes exhibit that constitutes a management contract, or compensatory plan or arrangement.

** This certification is not deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, or otherwise subject to the liability of that section. Such certification will not be deemed to be incorporated by reference into any filing under the Securities Act of 1933 or the Securities Exchange Act of 1934, except to the extent that the Company specifically incorporates it by reference.

SIGNATURES

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

ACI WORLDWIDE, INC.
(Registrant)

Date: February 27, 2020

By: /s/ CRAIG S. SAKS
Craig S. Saks
Interim President, Interim Chief Executive Officer, and Chief Operating Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

Name	Title	Date
/s/ CRAIG S. SAKS Craig S. Saks	Interim President, Interim Chief Executive Officer, and Chief Operating Officer *(Interim Principal Executive Officer)*	February 27, 2020
/s/ SCOTT W. BEHRENS Scott W. Behrens	Executive Vice President, Chief Financial Officer, and Chief Accounting Officer *(Principal Financial Officer)*	February 27, 2020
/s/ DAVID A. POE David A. Poe	Chairman of the Board and Director	February 27, 2020
/s/ PAM H. PATSLEY Pam H. Patsley	Director	February 27, 2020
/s/ JAMES C. HALE James C. Hale	Director	February 27, 2020
/s/ CHARLES E. PETERS, JR Charles E. Peters, JR	Director	February 27, 2020
/s/ ADALIO T. SANCHEZ Adalio T. Sanchez	Director	February 27, 2020
/s/ THOMAS W. WARSOP, III Thomas W. Warsop, III	Director	February 27, 2020
/s/ JANET O. ESTEP Janet O. Estep	Director	February 27, 2020

BOARD OF DIRECTORS

DAVID A. POE

Chairman of the Board,
ACI Worldwide, Inc.

Director Emeritus and Advisor,
Edgar, Dunn & Company

Former CEO and Senior Director,
Edgar, Dunn & Company

ODILON ALMEIDA

President and CEO,
ACI Worldwide, Inc.

Former Operating Partner,
Advent International

Former President,
Western Union Global
Money Transfer

JANET O. ESTEP

Former President and CEO,
NACHA

Former Executive Vice President,
Transaction Services
Division and Merchant Payment
Services Division, U.S. Bank

Former Vice President
of Sales and Marketing,
Pace Analytical Services

JAMES C. HALE

Founder and Chairman,
Columbus Strategic Advisors LLC

Founder, Managing Partner
Emeritus and Advisor, FTV Capital

Former Senior Managing Partner,
Bank America Securities
(Montgomery Securities)

PAMELA H. PATSLEY

Former Executive Chairman
and CEO, MoneyGram
International, Inc.

Former President,
First Data International

Former President and CEO,
Paymentech, Inc.

Former CFO, First USA, Inc.

CHARLES E. PETERS, JR.

Former Executive Vice President
and CFO, Red Hat, Inc.

Former Senior Vice President
and CFO, Burlington Industries

Former Senior Vice President of
Finance, Boston Edison Company

ADALIO T. SANCHEZ

President, S Group Advisory, LLC

Former Senior Vice President,
Lenovo Group Limited

Former Senior Executive Officer,
International Business Machines

THOMAS W. WARSOP III

CEO, One Call Care Management

CEO, Hananui, LLC

Former Executive Chairman,
York Risk Services Group

Former President and CEO,
The Warranty Group, Inc.

Former Group President,
Fiserv, Inc.

INVESTOR INFORMATION

Copies of ACI Worldwide, Inc.'s Annual Report on Form 10-K for the year that ended December 31, 2019, as filed with the Securities and Exchange Commission, will be sent free of charge to stockholders upon written request to:

Investor Relations Department
ACI Worldwide, Inc.
3520 Kraft Road, Suite 300
Naples, FL 34105

TRANSFER AGENT

Communications regarding change of address, transfer of stock ownership or lost stock certificates should be sent directly to:

EQ Shareowner Services
1110 Centre Pointe Curve
Suite 101
Mendota Heights, MN 55120

STOCK LISTING

The company's common stock trades on the NASDAQ Global Select Market under the symbol ACIW.

INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Deloitte & Touche LLP
First National Tower
1601 Dodge Street, Suite 3100
Omaha, NE 68102

PRINCIPAL OFFICES

CORPORATE HEADQUARTERS
Naples, Florida, United States

ARGENTINA
AUSTRALIA
AUSTRIA
BAHRAIN
BELGIUM
BRAZIL
CANADA
CHILE
CHINA
COLOMBIA
FRANCE
GERMANY
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IRELAND
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SOUTH KOREA
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TAIWAN
THAILAND
U.A.E.
U.K.
U.S.
URUGUAY

ACI Worldwide, the Universal Payments® (UP) company, powers electronic payments for more than 5,100 organizations around the world. More than 1,000 of the largest financial institutions and intermediaries, as well as thousands of global merchants, rely on ACI to execute $14 trillion each day in payments and securities. In addition, thousands of corporate and government organizations utilize our electronic bill presentment and payment services. Through our comprehensive suite of software solutions delivered on customers' premises or through ACI's private cloud, we provide real-time, immediate payments capabilities and enable the industry's most complete omni-channel payments experience.

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