

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

FORM 10-K

(Mark One)

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

For the fiscal year ended December 31, 2018

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

For the transition period from [] to []
Commission file number 001-15757

IMAGEWARE SYSTEMS INCORPORATED

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

33-0224167
(I.R.S. Employer
Identification No.)

**13500 Evening Creek Drive N., Suite 550
San Diego, CA 92128**

(Address of principal executive offices)

(858) 673-8600

(Registrant's Telephone Number, Including Area Code)

Securities registered pursuant to Section 12(b) of the Act: Common Stock, par value \$0.01 per share

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 (§232.405 of this chapter) during the preceding 12 months (or for such a 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 emerging growth company. See definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act.:

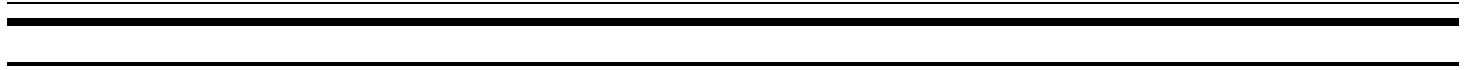
Large accelerated filer	<input type="checkbox"/>	Accelerated filer	<input checked="" type="checkbox"/>
Non-Accelerated filer	<input type="checkbox"/>	Small reporting company	<input checked="" type="checkbox"/>
		Emerging growth company	<input type="checkbox"/>

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 Exchange Act Rule 12b-2). Yes No

The aggregate market value of the registrant's common stock held by non-affiliates of the registrant as of June 30, 2018, the last business day of the registrant's most recently completed second fiscal quarter, as reported on the OTCQB marketplace was \$67,362,450. This number excludes shares of common stock held by affiliates, executive officers and directors.

As of March 26, 2019, there were 98,510,466 shares of the registrant's common stock outstanding.



IMAGEWARE SYSTEMS, INC.
Form 10-K
For the Year Ended December 31, 2018

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CAUTIONARY STATEMENT

This Annual Report contains forward-looking statements regarding our business, financial condition, results of operations and prospects. Words such as “expects,” “anticipates,” “intends,” “plans,” “believes,” “seeks,” “estimates” and similar expressions or variations of such words are intended to identify forward-looking statements, but are not the exclusive means of identifying forward-looking statements in this Annual Report. Additionally, statements concerning future matters such as the development of new products, sales levels, expense levels and other statements regarding matters that are not historical are forward-looking statements.

Although forward-looking statements in this Annual Report reflect the good faith judgment of our management, such statements can only be based on facts and factors currently known by us. Consequently, forward-looking statements are inherently subject to risks and uncertainties and actual results and outcomes may differ materially from the results and outcomes discussed in or anticipated by the forward-looking statements. Factors that could cause or contribute to such differences in results and outcomes include without limitation those discussed under the heading “Risk Factors” in Item 1A, as well as those discussed elsewhere in this Annual Report. Readers are urged not to place undue reliance on these forward-looking statements, which speak only as of the date of this Annual Report. We undertake no obligation to revise or update any forward-looking statements in order to reflect any event or circumstance that may arise after the date of this Annual Report. Readers are urged to carefully review and consider the various disclosures made in this Annual Report, which attempt to advise interested parties of the risks and factors that may affect our business, financial condition, results of operations and prospects.

PART I

ITEM 1. BUSINESS

ImageWare Systems, Inc., a Delaware corporation since 2005 and previously incorporated in California in 1987 as a California corporation, has its principal place of business at 13500 Evening Creek Drive N, Suite 550, San Diego, California 92128. We maintain a corporate website at <http://www.iwsinc.com>. Our common stock, par value \$0.01 per share (“Common Stock”), is currently listed for quotation on the OTCQB marketplace under the symbol “IWSY.” As used in this Annual Report, “we,” “us,” “our,” “ImageWare,” “ImageWare Systems,” “Company” or “our Company” refers to ImageWare Systems, Inc. and all of its subsidiaries.

Overview

ImageWare Systems, Inc. (the “Company”) is a pioneer and leader in the emerging market for biometrically enabled software-based identity management solutions. Using those human characteristics that are unique to us all, the Company creates software that provides a highly reliable indication of a person’s identity. The Company’s “flagship” product is the patented IWS Biometric Engine®. The Company’s products are used to manage and issue secure credentials including national IDs, passports, driver licenses and access control credentials. The Company’s products also provide law enforcement with integrated mug-shot, fingerprint LiveScan and investigative capabilities. The Company also provides comprehensive authentication security software using biometrics to secure physical and logical access to facilities or computer networks or internet sites. Biometric technology is now an integral part of all markets the Company addresses and all of the products are integrated into the IWS Biometric Engine.

The Company is also a leading developer of mobile and cloud-based identity management solutions providing patented biometric authentication solutions for the enterprise. The Company delivers next-generation biometrics as an interactive and scalable cloud-based solution. The Company brings together cloud and mobile technology to offer multi-factor authentication for smartphone users, for the enterprise, and across industries. The Company has introduced a set of mobile and cloud solutions to provide biometric user authentication, including the GoVerifyID® mobile application and cloud-based SaaS solutions. These solutions include GoMobile Interactive (“GMP”), which provides patented, secure, dynamic messaging. More recently, the Company has introduced GoVerifyID® Enterprise Suite, which provides turnkey integration with Microsoft Windows, Microsoft Active Directory, and security products from CA, HPE, IBM, and SAP. These solutions are marketed and sold to businesses across many industries. For the healthcare industry, the Company also developed and markets a patented, FDA-Cleared, biometrically-secure enterprise-level platform for patient engagement and medication adherence.

Historically, we have marketed our products to government entities at the federal, state and local levels. However, the emergence of cloud-based computing, a mobile market that demands increased security and interoperable systems, and the proven success of our products in the government markets, have enabled us to enlarge our target market focus to include the emerging consumer and non-government enterprise marketplace.

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Our biometric technology is a core software component of an organization's security infrastructure and includes a multi-biometric identity management solution for enrolling, managing, identifying and verifying the identities of people by the physical characteristics of the human body. We develop, sell and support various identity management capabilities within government (federal, state and local), law enforcement, commercial enterprises, and transportation and aviation markets for identification and verification purposes. Our IWS Biometric Engine is a patented biometric identity management software platform for multi-biometric enrollment, management and authentication, managing population databases of virtually unlimited sizes. It is hardware agnostic and can utilize different types of biometric algorithms. It allows different types of biometrics to be operated at the same time on a seamlessly integrated platform. It is also offered as a Software Development Kit ("SDK") based search engine, enabling developers and system integrators to implement a biometric solution or integrate biometric capabilities into existing applications without having to derive biometric functionality from preexisting applications. The IWS Biometric Engine combined with our secure credential platform, IWS EPI Builder, provides a comprehensive, integrated biometric and secure credential solution that can be leveraged for high-end applications such as passports, driver licenses, national IDs, and other secure documents.

Our law enforcement solutions enable agencies to quickly capture, archive, search, retrieve, and share digital images, fingerprints and other biometrics as well as criminal history records on a stand-alone, networked, wireless or web-based platform. We develop, sell and support a suite of modular software products used by law enforcement and public safety agencies to create and manage criminal history records and to investigate crime. Our IWS Law Enforcement solution consists of five software modules: Capture and Investigative modules, which provide a criminal booking system with related databases as well as the ability to create and print mug photo/SMT image lineups and electronic mug-books; a Facial Recognition module, which uses biometric facial recognition to identify suspects; a Web module, which provides access to centrally stored records over the Internet in a connected or wireless fashion; and a LiveScan module, which incorporates LiveScan capabilities into IWS Law Enforcement providing integrated fingerprint and palm print biometric management for civil and law enforcement use. The IWS Biometric Engine is also available to our law enforcement clients and allows them to capture and search using other biometrics such as iris or DNA.

Our secure credential solutions empower customers to create secure and smart digital identification documents with complete ID systems. We develop, sell and support software and design systems that utilize digital imaging and biometrics in the production of photo identification cards, credentials and identification systems. Our products in this market consist of IWS EPI Suite and IWS EPI Builder. These products allow for production of digital identification cards and related databases and records and can be used by, among others, schools, airports, hospitals, corporations or governments. We have added the ability to incorporate multiple biometrics into the ID systems with the integration of IWS Biometric Engine to our secure credential product line.

Our GoVerifyID products support multi-modal biometric authentication including, but not limited to, face, voice, fingerprint, iris, palm, and more. All the biometrics can be combined with or used as replacements for authentication and access control tools, including tokens, digital certificates, passwords, and PINS, to provide the ultimate level of assurance, accountability, and ease of use for corporate networks, web applications, mobile devices, and PC desktop environments. GoVerifyID provides patented multi-modal biometric identity authentication that can be used in place of passwords or as a strong second factor authentication method. GoVerifyID is provided as a cloud-based Software-as-a-Service ("SaaS") solution, thereby, eliminating complex IT deployment of biometric software and eliminating startup costs. GoVerifyID works with existing mobile devices, eliminating the need for specialized biometric scanning devices typically used with most biometric solutions.

GoVerifyID was built to work seamlessly with our patented technology portfolio, including GoMobile Interactive®, the secure dynamic messaging system, and the ultrascaleable IWS Biometric Engine that provides anonymous biometric matching and storage. GoVerifyID is secure, simple to use, and designed to provide instant identity authentication by engaging with the biometric capture capabilities of each user's mobile device. GoVerifyID also provides a fully open SDK for organizations that require the utmost in flexibility.

Our GoVerifyID Enterprise Suite for Windows easily and seamlessly integrates with a user's existing Microsoft ecosystem/infrastructure to support the user's extended workforce. GoVerifyID Enterprise Suite secures corporate networks from end-to-end – both applications and data – on client, server, and cloud systems with flexible user login policies to address varied trust requirements. Our GoVerifyID Enterprise Suite works with the smart devices that the workforce already uses, including iOS/Android smartphones and tablets.

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Our GoVerifyID Enterprise Suite for Windows provides biometric authentication for the Microsoft ecosystem that secures enterprise security without compromising agility, productivity, or user experience. Its comprehensive architecture offers biometric authentication for the complete range of enterprise stakeholders, delivering secure enterprise applications and workspaces to internal employees, partners, suppliers and vendors, and customers. Out of Band authentication is provided via universally available devices, such as smartphones and tablets. In-band authentication can be enabled via fingerprint readers, iris scanners, and any Windows Biometric Framework compatible device. The server component provides easy centralized management of biometric authentication policies for all users, using a standard Snap-In to the Microsoft Management Console. It provides greater user assurance and Single Sign-On (“SSO”) convenience for all corporate systems and cloud applications. There is no compromise in agility or user experience.

GoVerifyID Enterprise Suite also provides options for seamless integration with leading Enterprise Identity and Access Management (“IAM”) solutions including CA SSO, IBM Security Access Manager (“ISAM”), SAP Cloud Platform, and HPE’s Aruba ClearPass. These turnkey integrations provide multi-modal biometric authentication to replace or augment passwords for use with enterprise and consumer class systems.

Recent Developments

Creation of Series C Convertible Redeemable Preferred Stock

On September 10, 2018, the Company filed the Certificate of Designations, Preferences and Rights of Series C Convertible Preferred Stock with the Secretary of State for the State of Delaware – Division of Corporations, designating 1,000 shares of the Company’s preferred stock, par value \$0.01 per share, as Series C Convertible Preferred Stock (“*Series C Preferred*”), each share with a stated value of \$10,000 per share.

Series C Financing

From September 10, 2018 through September 21, 2018, the Company offered and sold an aggregate of 1,000 shares of Series C Preferred at a purchase price of \$10,000 per share (the “*Series C Financing*”). The aggregate gross proceeds to the Company from the Series C Financing were \$10,000,000. Issuance costs incurred in conjunction with the Series C Financing were approximately \$1,211,000, resulting in net proceeds to the Company of approximately \$8,789,000.

Amendment to Certificate of Designations of Series A Convertible Preferred Stock

On September 10, 2018, the Company filed an Amendment to the Certificate of Designations, Preferences, and Rights of Series A Convertible Preferred Stock with the Secretary of State for the State of Delaware – Division of Corporations, to increase the number of shares of Series A Convertible Preferred Stock, par value \$0.01 per share (“*Series A Preferred*”), authorized for issuance thereunder to 38,000 shares, in order to permit the Debt Exchange (as defined below).

Debt Exchange

On September 10, 2018, the Company entered into exchange agreements (the “*Exchange Agreements*”) with Neal Goldman and Charles Crocker, pursuant to which Messrs. Goldman and Crocker agreed to exchange approximately \$6.3 million and \$0.6 million, respectively, of outstanding debt (including accrued and unpaid interest) owed under the terms of their respective lines of credit for an aggregate of 6,896 shares of Series A Preferred (the “*Debt Exchange*”). As a result of the Debt Exchange, all indebtedness, liabilities and other obligations arising under the respective lines of credit were cancelled and deemed satisfied in full. Messrs. Goldman and Crocker are members of the Company’s Board of Directors and related parties.

Declaration of Special Dividend

Concurrently with the Series C Financing, the Company’s Board of Directors declared a special dividend (the “*Special Dividend*”) for holders of the Series A Preferred (each a “*Holder*”), pursuant to which each Holder received a warrant (“*Dividend Warrant*”) to purchase 39.87 shares of Company Common Stock for every share of Series A Preferred held, which resulted in the issuance of Dividend Warrants to the Holders as a group to purchase an aggregate of 1,493,856 shares of Common Stock. Each Dividend Warrant has an exercise price of \$0.01 per share, and is exercisable immediately upon issuance; *provided, however*, that a Dividend Warrant may only be exercised concurrently with the conversion of shares of Series A Preferred held by a Holder into shares of Common Stock. In addition, each Dividend Warrant held by a Holder shall expire on the earliest to occur of (i) the conversion of all Series A Preferred held by such Holder into Common Stock, (ii) the redemption by the Company of all outstanding shares of Series A Preferred held by such Holder, (iii) the Dividend Warrant no longer representing the right to purchase any shares of Common Stock, and (iv) the tenth anniversary of the date of issuance.

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Industry Background

Biometrics and Secure Credential Markets

The identity and access management market are expected to grow from \$7.2 billion in 2015 to \$12.78 billion by 2020, at an expected Compound Annual Growth Rate (“CAGR”) of 12.2%. This growth is based on a growing demand for compliance management requirements and increasing trends in mobility devices and applications. The main drivers are:

- Banking, Financial Services & Insurance
- Telecommunications
- Public Sectors

Audit and regulation compliance is a key driving force in the market; it is growing at the highest rate and will likely continue to grow through 2020.

Identity management solutions are rapidly moving into risk-based programs focused on enforcement of access control and entitlement management. The enterprise is achieving major benefits from costs, but still lacks the capability to manage time-sensitive processes, including manual approvals and provisioning.

Cloud services to date, though increasing, still suffer from a perceived lack of security. However, large enterprises are rapidly adopting cloud models, especially in centralizing the management of identities. This adoption is being done by still using on premise identity management solutions, but also venturing into the cloud as well. This means that the use of the hybrid model, utilizing both cloud and in-house identity management solutions, is increasing.

We believe the biometric identity management market will continue to grow as the role of biometrics becomes more widely adopted for enhancing security and complying with government regulations and initiatives and as biometric capture devices become increasingly mobile, robust and cost effective. Our biometric and secure credentialing solutions are meeting the requirements and standards for true multi-modal biometric identity management systems, as well as providing scalability to support evolving functionality.

Some of the industries that can benefit from biometric-based identity management and are a major part of our examples include:

Healthcare

- Access to patient health records
- Sharing patient records with other staff
- Remote access to clinical portals
- Entering Certified Physician Order Entry (“CPOE”) systems
- Submitting electronic prescriptions (“e-Rx”)

Banking

- Login for online banking
- Verifying transactions made on a banking website
- Mobile banking apps
- ATM access

Retail/e-Commerce

- Online store purchases
- Login for a mobile store with a mobile device
- Verifying purchases on a website or at mobile stores
- Sending coupons and offers to mobile devices

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Government

- Airport security
- Customs security
- Rail ticketing
- Internet access on trains and planes
- Police and fire services
- Armed forces

Law Enforcement and Public Safety Markets

The United States law enforcement and public safety markets are composed of federal, state and local law enforcement agencies. Our target customers include local police and sheriff's departments, primary state law enforcement agencies, prisons, special police agencies, county constable offices, and federal agencies such as the Department of Homeland Security, FBI, DEA and ICE.

In addition, police agencies in foreign countries have shown interest in using the full range of IWS Law Enforcement products to meet the growing need for a flexible yet robust booking/investigative solution that includes the routine use of IWS Facial Recognition as well as the ability to use other biometrics. We continue to target agencies in foreign countries for our biometric and law enforcement solutions.

Law enforcement customers require demanding end-to-end solutions that incorporate robust features and functionalities, such as biometric and secure credentialing capabilities, as well as instant access to centrally maintained records for real time verification of identity and privileges. Law enforcement has long used the multiple biometrics of fingerprint and face in establishing an individual's identity record. More recently, law enforcement is seeking capability to utilize additional biometrics such as iris and DNA. The Company's multi-biometric platform product, the IWS Biometric Engine, allows Company customers to use as many different biometrics as desired all on a single, integrated platform.

Many law enforcement agencies are also moving toward a more shared experience where specific pieces of suspect/arrest data may be viewed by outside agencies allowing a suspect's identity to be quickly defined with the end goal being the swift apprehension of the subject.

Products and Services

Our identity management solutions are primarily focused around biometrics and secure credentials providing complete, cross-functional and interoperable systems. Our biometric and secure credentialing products provide complete and interoperable solutions with features and functions required throughout the entire identity management life cycle, enabling users the flexibility to make use of any desired options, such as identity proofing and enrollment, card issuance, maintenance and access control. Our solutions offer a significant benefit that one vendor's solution is used throughout the various stages, from establishing an applicant's verified identity, to issuance of smart card-based credentials, to the usage and integration to physical and logical access control systems.

These solutions improve global communication, the integrity and authenticity of access control to facilities and information systems, as well as enhance security, increase efficiency, reduce identity fraud, and protect personal privacy.

We categorize our identity management products and services into three basic markets: (i) Biometrics, (ii) Secure Credential, and (iii) Law Enforcement and Public Safety. We offer a series of modular products that can be seamlessly integrated into an end-to-end solution or licensed as individual components.

Biometrics

Our biometric product line consists of the following:

GoMobile Interactive™

In July 2013, the Company introduced its mobile biometric identity management platform, GoMobile Interactive™ ("GMI"). Based upon acquired patented messaging platform technology, combined with the Company's patented IWS Biometric Engine®, GMI allows global business, service and content providers to offer users biometric security for their products, services and content on the Android or iPhone operating systems. GMI includes a standalone application that can be used as a turnkey solution, as well as an SDK, enabling integration with existing mobile applications for Android and iPhone. Targeted verticals for the product include mobile banking and value transfer, retail, healthcare and entertainment services. By supporting multi-modal biometrics on a mobile device, the Company is able to offer an out-of-band security solution that is far superior to traditional password or PIN protection, which are now failing and costing businesses billions of dollars. In addition, the GMI service supports dynamic information gathering, allowing clients to learn about their users through the use of interactive surveys that can be secured using biometrics.

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IWS Biometric Engine

This is a biometric identity management platform for multi-biometric enrollment, management and authentication, managing population databases of unlimited sizes without regard to hardware or algorithm. Searches can be 1:1 (verification), 1:N (identification), X:N (investigative) and N:N (database integrity). IWS Biometric Engine is technology and biometric agnostic, enabling the use of biometric devices and algorithms from any vendor, and the support of the following biometric types: finger, face, iris, hand geometry, palm, signature, DNA, voice, 3D face and retina. IWS Biometric Engine is a second-generation solution from the Company that is based on field-proven ImageWare technology solutions that have been used to manage millions of biometric records since 1997 and is ideal for a variety of applications, including: criminal booking, background checks (civil and criminal), watch list, visa/passport and border control (air, land and sea), physical and logical access control, and other highly-secure identity management environments. The Company believes that this product will be very attractive to the emerging commercial and consumer markets as they deploy biometric identity management systems.

Our IWS Biometric Engine is scalable, and biometric images and templates can be enrolled either live or offline. Because it stores the enrolled images, a new algorithm can be quickly converted to support new or alternate algorithms and capture devices. The IWS Biometric Engine is built to be hardware “agnostic,” and currently supports over 100 hardware capture devices and over 70 biometric algorithms.

The IWS Biometric Engine is available as an SDK, as well as a platform for custom configurations to meet specific customer requirements. The added suite of products provides government, law enforcement, border management and enterprise businesses with a wide variety of application-specific solutions that address specific government mandates and technology standards. It also provides users with the ability to integrate into existing legacy systems and expand based upon specific customer requirements. This enables users to integrate a complete solution or components as needed. The application suite of products includes packaged solutions for:

- HSPD-12 personal identity verification
- Border management
- Applicant identity vetting
- Mobile acquisition
- Physical access control
- Single-Sign-On and logical access control

IWS PIV Management Application. The Company provides a set of Enterprise Server products within our complete PIV solution, and these software products supply server-based features and functions, while the use case for PIV requires client-based presentation of PIV data and workflow. The IWS PIV Management Application supplies the web-based graphical user interface that presents the user or client interface to the various server functions. Since the server-based applications perform specific functions for specific phases of the PIV life cycle, these server-based applications need to be bound together with additional workflow processes. The IWS PIV Management Application meets this need with software modules that interface and interconnect the server-based applications.

IWS PIV Middleware. The IWS PIV Middleware product, which is NIST certified and listed on the GSA approved product list, is a library of functions that connect a card reader & PIV card on the hardware side with a software application. The library implements the specified PIV Middleware API functions that support interoperability of PIV Cards. This software has been developed in conformance with the FIPS-201 specification, and the software has been certified by the NIST Personal Identification Verification Program (“*NPIVP*”) Validation Authority as being compliant.

IWS Background Server. The IWS Background Server is a software application designed specifically for government and law enforcement organizations to support the first stage of biometric identity management functions such as identity proofing and vetting. IWS Background Check Server automatically processes the submission of an applicant’s demographic and biographic data to investigative bureaus for background checks prior to issuing a credential.

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IWS Desktop Security. IWS Desktop Security is a highly flexible, scalable and modular authentication management platform that is optimized to enhance network security and usability. This architecture provides an additional layer of security to workstations, networks and systems through advanced encryption and authentication technologies. Biometric technologies (face, fingerprint, iris, voice or signature), can be seamlessly coupled with TPM chips to further enhance corporate security. USB tokens, smart cards and RFID technologies can also be readily integrated. Additional features include:

- Support for multiple authentication tools, including Public Key Infrastructure (“PKI”) within a uniformed platform and Privilege Management Infrastructure (“PMI”) technology, to provide more advanced access control services and assure authentication and data integrity;
- Integration with IWS Biometric Engine for searching and match capabilities (1:1, 1:N and X:N);
- Integration with IWS EPI Builder for the production and management of secure credentials;
- Support for both BioAPI and BAPI standards;
- Supports a Single-Sign-On feature that securely manages Internet Explorer and Windows application ID and password information;
- Supports file and folder encryption features; and
- Supports various operating systems, including Microsoft Windows 2000, Windows XP, and Windows Server 2003.

IWS Biometric Quality Assessment & Enhancement (“IWS Biometric IQA&E”). The IWS Biometric IQA&E is a biometric image enhancement and assessment solution that assists government organizations with the ability to evaluate and enrich millions of biometric images automatically, saving time and costs associated with biometric enrollment while maintaining image and database integrity.

The IWS Biometric IQA&E improves the accuracy and effectiveness of biometric template enrollments. The software may be used stand-alone or in conjunction with the IWS Biometric Engine. IWS Biometric IQA&E provides automated image quality assessment with respect to relevant image quality standards from organizations such as International Civil Aviation Organization, National Institute of Standards and Technology (“NIST”), International Organization for Standards (“ISO”) and American Association of Motor Vehicle Association (“AAMVA”). IWS Biometric IQA&E also enables organizations to conduct multi-dimensional facial recognition, which further enhances accuracy for numerous applications, including driver licenses, passports and watch lists.

IWS Biometric IQA&E automatically provides real-time biometric image quality analysis and feedback to improve the overall effectiveness of biometric images, thus increasing the biometric verification performance, and maintaining database and image data integrity. IWS Biometric IQA&E provides a complete platform that includes an image enhancement library for biometric types including face, finger and iris.

Secure Credential

Our secure credential products consist of the following:

GoVerifyID®. On November 14, 2016, the Company introduced GoVerifyID® Enterprise Suite, a multi-modal, multi-factor biometric authentication solution for the enterprise market. An algorithm-agnostic solution, GoVerify ID Enterprise Suite is an end-to-end biometric platform that seamlessly integrates with an enterprise’s existing Microsoft infrastructure, offering businesses a turnkey biometric solution for quick deployment. The Company feels that this product has the potential to dramatically accelerate adoption of its biometric solution due to the worldwide prevalence of enterprise use of the Microsoft infrastructure. Working across the entire enterprise ecosystem, GoVerifyID Enterprise Suite offers a consistent user experience and centralized administration with the highest level of security, flexibility, and usability. GoVerifyID Enterprise Suite embodies the following characteristics:

- Mobile-workforce friendly—With GoVerifyID Enterprise Suite user authentication logins are possible for a tablet or laptop even when disconnected from the corporate network. Additionally, GoVerifyID Enterprise Suite offers a consistent user authentication experience across all login environments;
- Hybrid cloud—GoVerifyID Enterprise Suite is linked from the cloud to an enterprise’s Microsoft infrastructure and is backward compatible with Windows 7, 8 and 10. Additionally, because the solution is SaaS-based, it can easily scale to process hundreds of millions of transactions and store just as many biometrics; and
- Seamless integration—GoVerifyID Enterprise Suite is a snap-in to the Microsoft Management console and can be centrally managed at the server. Additionally, the solution allows for seamless movement as it integrates with Active Directory using an organization’s existing Microsoft security infrastructure.

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IWS Card Management. The IWS Card Management System (“CMS”) is a comprehensive solution to support and manage the issuance of smart cards complete with the following capabilities:

- Biometric enrollment and identity proofing with Smart Card encoding of biometrics;
- Flexible models of central or distributed issuance of credentials;
- Customizable card life-cycle workflow managed by the CMS; and
- Integration of the CMS data with other enterprise solutions, such as physical access control and logical access control (i.e. Single-Sign-On).

IWS EPI Suite. This is an ID software solution for producing, issuing, and managing secure credentials and personal identification cards. Users can efficiently manage large amounts of data, images and card designs, as well as track and issue multiple cards per person, automatically populate multiple cards and eliminate redundant data entry. IWS EPI Suite was designed to integrate with our customers’ existing security and computing infrastructure. We believe that this compatibility may be an appealing feature to corporations, government agencies, transportation departments, school boards and other public institutions.

IWS EPI Builder. This is an SDK and a leading secure credential component of identity management and security solutions, providing all aspects of ID functionality from image and biometric capture to the enrollment, issuance and management of secure documents. It contains components which developers or systems integrators can use to support and produce secure credentials, including national IDs, passports, International Civil Aviation Office -compliant travel documents, smartcards and driver licenses. IWS EPI Builder enables organizations to develop custom identification solutions or incorporate sophisticated identification capabilities into existing applications including the ability to capture images, biometric and demographic data; enable biometric identification and verification (1:1 and 1:X); as well as support numerous biometric hardware and software vendors. It also enables users to add electronic identification functionality for other applications, including access control, tracking of time and attendance, point of sale transactions, human resource systems, school photography systems, asset management, inventory control, warehouse management, facilities management and card production systems.

IWS EPI PrintFarm. While it is the last stage of PIV Card Issuance, the PIV smart card printing process is by no means the least important stage. Production printing of tens of thousands of PIV cards requires a significant investment and a well-engineered system. The IWS EPI PrintFarm software offers a cost-effective, yet high-performance method for high-volume card printing.

IWS PIV Encoder. PIV smart cards must be programmed with specific mandatory data, digital signatures and programs in order to maintain the interoperability as well as the security features specified for the cards. The IWS PIV Encoder could be considered to be a complex device driver that properly programs the PIV smart cards. The Encoder interacts with the CMS for data payload elements. It interacts with the Certificate Authority to encrypt or sign the PIV smart card data with trusted certificates. Finally, it acts as the application-level device driver to make the specific PIV smart card encoding system properly program the smart card, regardless if the system is a standalone encoding system or one integrated into a card printer.

Law Enforcement and Public Safety

We believe our integrated suite of software products significantly reduces the inefficiencies and expands the capabilities of traditional booking and mug shot systems. Using our products, an agency can create a digital database of thousands of criminal history records, each including one or more full-color facial images, finger and palm prints, biographic text information and images of other distinctive physical features such as scars, marks and tattoos (“SMT’s”). This database can be quickly searched using text queries, or biometric technology that can compare biometric characteristics of an unknown suspect with those in the database.

Our investigative software products can be used to create, edit and distribute both mug photo and SMT photo lineups of any size. In addition, electronic mug books display hundreds of images for a witness to review and from which electronic selections are made. The Witness View software component records the viewing of a lineup (mug photo or SMT) detailing the images provided for viewing along with the image or images selected. In addition to a printed report, the Witness View module provides a non-editable executable file (.exe) that may be played on any computer for court exhibit viewing purposes.

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Our IWS Law Enforcement solution consists of software modules, which may also be purchased individually. The IWS Law Enforcement Capture and Investigative modules make up our booking system and database. Our add-on modules include LiveScan, Facial Recognition, Law Enforcement Web and Witness View as well as the IWS Biometric Engine.

IWS Law Enforcement. IWS Law Enforcement is a digital booking, identification and investigative solution that enables users to digitally capture, store, search and retrieve images and demographic data, including mug shots, fingerprints and SMT's. Law enforcement may choose between submitting fingerprint data directly to the State Automated Fingerprint Identification System ("AFIS"), FBI criminal repository, or other agencies as required. Additional features and functionality include real-time access to images and data, creation of photo lineups and electronic mug books, and production of identification cards and credentials. IWS Law Enforcement also uses off-the-shelf hardware and is designed to comply with open industry standards so that it can operate on an array of systems ranging from a stand-alone personal computer to a wide area network. To avoid duplication of entries, the system can be integrated easily with several other information storage and retrieval systems, such as a records/jail management system ("RMS/JMS") or an automated fingerprint identification system.

Capture. This software module allows users to capture and store a variety of images (facial, SMT and others such as evidence photos) as well as biographical text information. Each record includes images and text information in an easy-to-view format made up of fields designed and defined by the individual agency. Current customers of this module range from agencies that capture a few thousand mug shots per year to those that capture hundreds of thousands of mug shots each year.

LiveScan. This software module is FBI certified and complies with the FBI Integrated Automated Fingerprint Identification System ("IAFIS") Image Quality Specifications ("IQS") while utilizing FBI certified LiveScan devices from most major vendors. LiveScan allows users to capture single to ten prints and palm data, providing an integrated biometric management solution for both civil and law enforcement use. By adding LiveScan capabilities, law enforcement organizations further enhance the investigative process by providing additional identifiers to identify suspects involved in a crime. In addition, officers no longer need to travel to multiple booking stations to capture fingerprints and mug shots. All booking information, including images, may be located at a central designation and from there routed to the State AFIS or FBI criminal history record repository.

Investigative. This software module allows users to search the database created with IWS Law Enforcement. Officers can conduct text searches in many fields, including file number, name, alias, distinctive features, and other information, such as gang membership and criminal history. The Investigative module creates a catalogue of possible matches, allowing officers or witnesses to save time by looking only at mug shots that closely resemble the description of the suspect. This module can also be used to create a line-up of similar facial images from which a witness may identify the suspect.

Facial Recognition. This software module uses biometric facial recognition and retrieval technology to help authorities identify possible suspects. Images taken from surveillance videos or photographs can be searched against a digital database of facial images to retrieve any desired number of faces with similar characteristics. This module can also be used at the time of booking to identify persons using multiple aliases. Using biometrics-based technology, the application can search through thousands of facial images in a matter of seconds, reducing the time it would otherwise take a witness to flip through a paper book of facial images that may or may not be similar to the description of the suspect. The Facial Recognition module then creates a selection of possible matches ranked in order of similarity to the suspect, and a percentage confidence level is attributed to each possible match. The application incorporates search engine technology, which we license from various facial recognition algorithm providers.

LE Web. This software module enables authorized personnel to access and search agency booking records stored in IWS Law Enforcement through a standard web browser from within the agency's intranet. This module allows remote access to the IWS Law Enforcement database without requiring the user to be physically connected to the customer's network. This application requires only that the user have access to the Internet and authorization to access the law enforcement agency's intranet.

EPI Designer for Law Enforcement. The EPI Designer for LE software is a design solution created for the IWS Law Enforcement databases based on the IWS EPI Suite program. This program allows integration with various IWS databases for the production of unique booking/inmate reports, wristbands, photo ID cards, Wanted or BOLO fliers, etc., created from the information stored in booking records. Designs can be created in minutes and quickly added to the IWS Law Enforcement system, allowing all users with appropriate permissions immediate access to the newly added form.

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Maintenance and Customer Support

We offer software and hardware support to our customers. Customers can contract with us for technical support that enables them to use a toll-free number to speak with our technical support center for software support and general assistance 24 hours a day, seven days a week. As many of our government customers operate around the clock and perceive our systems as critical to their day-to-day operations, a very high percentage contract for technical support. For the years ended December 31, 2018 and 2017, maintenance revenue accounted for approximately 60% and 62% of our total revenue, respectively.

Software Customization and Fulfillment

We directly employ computer programmers and retain independent programmers to develop our software and perform quality control. We provide customers with software that we specifically customize to operate on their existing computer system. We work directly with purchasers of our system to ensure that the system they purchase will meet their unique needs. We configure and test the system either at our facilities or on-site and conduct any customized programming necessary to connect the system with any legacy systems already in place. We can also provide customers with a complete computer hardware system with our software already installed and configured. In either case, the customer is provided with a complete turnkey solution, which can be used immediately. When we provide our customers with a complete solution including hardware, we use off-the-shelf computers, cameras and other components purchased from other companies such as Dell or Hewlett Packard. Systems are assembled and configured either at our facilities or at the customer's location.

Customers

We have a wide variety of domestic and international customers. Most of our IWS Law Enforcement customers are government agencies at the federal, state and local levels in the United States. Our secure credential products are also being used in Australia, Canada, the United Arab Emirates, Kuwait, Saudi Arabia, Mexico, Colombia, Costa Rica, Venezuela, Singapore, Indonesia and the Philippines. For the year ended December 31, 2018, one customer accounted for approximately 36% or \$1,573,000 of total revenue and had \$0 trade receivables as of the end of the year, as compared to one customer that accounted for approximately 25% or \$1,089,000 of total revenue and had \$201,000 trade receivables as of the end of the December 31, 2017.

Our Strategy

Our strategy is to provide patented open-architected identity management solutions including multi-biometric, secure credential and law enforcement technologies that are stand alone, integrated and/or bundled with key partners including channel relationships and large systems integrators such as United Technology Security, GCR, Unisys, Lockheed Martin, IBM and Fujitsu, among others. Key elements of our strategy for growth include the following:

Fully Exploit the Biometrics, Access Control and Identification Markets

The establishment of the Department of Homeland Security coupled with the movement by governments around the world to authenticate the identity of their citizens, employees and contractors has accelerated the adoption of biometric identification systems that can provide secure credentials and instant access to centrally maintained records for real-time verification of identity and access (physical and logical) privileges. Using our products, an organization can create secure credentials that correspond to records, including images and biographic data, in a digital database. A border guard or customs agent can stop an individual to quickly and accurately verify his identity against a database of authorized persons, and either allow or deny access as required. Our technology is also standards based and applied to facilitate activities such as federal identification mandates while complying with personal identification verification standards such as HSPD-12, International Civil Aviation Organization standards, American Association of Motor Vehicle Administrators driver licenses, voter registration, immigration control and welfare fraud identification. We believe that these or very similar standards are applicable in markets throughout the world.

With the identity management market growing at a rapid pace, biometric identifiers are becoming recognized and accepted as integral components to the identification process in the public and private sectors. As biometric technologies (facial recognition, fingerprint, iris, etc.) are adopted, identification systems must be updated to enable their use in the field. We have built our solutions to enable the incorporation of one or multiple biometrics, which can be associated with a record and stored both in a database and on a card for later retrieval and verification without regard to the specific hardware employed. We believe the increasing demand for biometric technology will drive demand for our solutions. Our identity management products are built to accommodate the use of biometrics and meet the demanding requirements across the entire identity life cycle.

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Expand Law Enforcement and Public Safety Markets

We intend to use our successful installations with customers such as the Arizona Department of Public Safety and the San Bernardino County Sheriff's Department as reference accounts, and to market IWS Law Enforcement as a superior technological solution. Our recent addition of the LiveScan module and support for local AFIS to our IWS Law Enforcement will enhance its functionality and value to the law enforcement customer as well as increase the potential revenue the Company can generate from a system sale. We primarily sell directly to the law enforcement community. Our sales strategy is to increase sales to new and existing customers, including renewing supporting maintenance agreements. We have also established relationships with large systems integrators such as Sagem Morpho to OEM our law enforcement solution utilizing their worldwide sales force. We will focus our sales efforts in the near term to establish IWS Law Enforcement as the integrated mug shot and LiveScan system adopted in as many countries, states, large counties and municipalities as possible. Once we have a system installed in a region, we intend to then sell additional systems or retrieval seats to other agencies within the primary customer's region and in neighboring regions. In addition, we plan to market our integrated investigative modules to the customer, including Facial Recognition, Web and WitnessView. As customer databases of digital mug shots grow, we expect that the perceived value of our investigative modules, and corresponding revenue from sales of those modules, will also grow.

Software as a Service Business Model

With the advent of cloud-based computing and the proliferation of smart mobile devices, which allow for reliable biometric capture and the need to secure access to data, products and services, the Company believes that the market for multi-biometric solutions will expand to encompass significant deployments of biometric systems in the commercial and consumer markets. The Company therefore intends to leverage the strength of its experience servicing existing government clients who have deployed the Company's products for large populations, as well as its foundational patent portfolio in the field of multi-modal biometrics and the fusion of multiple biometric algorithms, to address the growing commercial and consumer market. As part of its marketing plan, the Company offered new versions of its product suite on a SaaS model during 2016. This new business model, which is intended to supplement the Company's existing business model, will allow new commercial and consumer clients to biometrically verify identity in order to access data, products or services from mobile and desktop devices.

Mobile Applications

The Company strengthened its patent portfolio in June 2012 with the purchase of four U.S. patents relating to wireless technology from Vocal. These patents, combined with the Company's existing foundational patents in the areas of biometric identification, verification, enrollment and fusion, provide a unique and protected foundation on which to build interactive mobile applications that are secured using biometrics.

The combination of our biometric identification technologies and wireless technologies has led to the development of the IWS Interactive Messaging System, which is a push application platform secured by biometrics that transforms mobile devices into a complete mobile ID, enabling companies to create applications that allow a range of unprecedented activities, from secure sharing of sensitive information to biometrically securing a mobile wallet. Identity authentication, using multi-modal biometrics gives users the confidence that their personal information is secure while the push marketing capabilities of the technology allow companies unparalleled interactivity that can be personalized to the needs and interests of their customers.

Sales and Marketing

We market and sell our products through our direct sales force and through indirect distribution channels, including systems integrators. As of December 31, 2018, we had sales and account representatives based domestically in the District of Columbia, California, Colorado, Oregon, Pennsylvania, Texas and Illinois and internationally in Japan, Chile and Mexico. Geographically, our sales and marketing force consisted of thirteen persons: ten persons in the United States, and three persons internationally as of December 31, 2018.

Our direct sales organization is supported by technical experts. Our technical experts are available by telephone and conduct on-site customer presentations in support of our sales professionals.

The typical sales cycle for IWS Biometric Engine and IWS Law Enforcement includes a pre-sale process to define the potential customer's needs and budget, an on-site demonstration and conversations between the potential customer and existing customers. Government agencies are typically required to purchase large systems by including a list of requirements in a Request for Proposal, known as an "RFP," and by allowing several companies to openly bid for the project by responding to the RFP. If our response is selected, we enter into negotiations for the contract and, if successful, ultimately receive a purchase order from the customer. This process can take anywhere from a few months to over a year.

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Our Biometric and ID products are also sold to large integrators, direct via our sales force and to end users through distributors. Depending on the customer's requirements, there may be instances that require an RFP. The sales cycle can vary from a few weeks to a year.

In addition to our direct sales force, we have developed relationships with a number of systems integrators who contract with government agencies for the installation and integration of large computer and communication systems. By acting as a subcontractor to these systems integrators, we are able to avoid the time consuming and often-expensive task of submitting proposals to government agencies, and we also gain access to large clients.

We also work with companies that offer complementary products, where value is created through product integration. Through teaming arrangements, we are able to enhance our products and to expand our customer base through the relationships and contracts of our strategic partners.

We plan to continue to market and sell our products internationally. Some of the challenges and risks associated with international sales include the difficulty in protecting our intellectual property rights, difficulty in enforcing agreements through foreign legal systems and volatility and unpredictability in the political and economic conditions of foreign countries. We believe we can work to successfully overcome these challenges.

Competition

The Law Enforcement and Public Safety Markets

Due to the fragmented nature of the law enforcement and public safety market and the modular nature of our product suite, we face different degrees of competition with respect to each IWS Law Enforcement module. We believe the principal bases on which we compete with respect to all of our products are:

- the unique ability to integrate our modular products into a complete biometric, LiveScan, imaging and investigative system;
- our reputation as a reliable systems supplier;
- the usability and functionality of our products; and
- the responsiveness, availability and reliability of our customer support.

Our law enforcement product line faces competition from other companies such as DataWorks Plus and 3M. Internationally, there are often a number of local companies offering solutions in most countries.

Secure Credential Market

Due to the breadth of our software offering in the secure credential market space, we face differing degrees of competition in certain market segments. The strength of our competitive position is based upon:

- our strong brand reputation with a customer base, which includes small and medium-sized businesses, Fortune 500 corporations and large government agencies;
- the ease of integrating our technology into other complex applications; and
- the leveraged strength that comes from offering customers software tools, packaged solutions and web-based service applications that support a wide range of hardware peripherals.

Our software faces competition from Datacard Corporation, a privately held manufacturer of hardware, software and consumables for the ID market, as well as small, regionally based companies.

Biometric Market

The market to provide biometric systems to the identity management market is evolving and we face competition from a number of sources. We believe that the strength of our competitive position is based on:

- our ability to provide a system which enables the enrollment, management and authentication of multiple biometrics managing population databases of unlimited sizes;
- searches can be 1:1 (verification), 1:N (identification), X:N (investigative), and N:N (database integrity); and
- the system is technology and biometric agnostic, enabling the use of biometric devices and algorithms from any vendor, and the support of the following biometric types: finger, face, iris, hand geometry, palm, DNA, signature, voice, 3D face and retina.

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Our multi-biometric product faces competition from French-based Safran, Irish-based Daon, 3M and Aware Inc., none of which have offerings with the scope and flexibility of our IWS Biometric Engine and its companion suite of products or relevant patent protection.

Intellectual Property

We rely on trademark, patent, trade secret and copyright laws and confidentiality and license agreements to protect our intellectual property. We have several federally registered trademarks, including the trademark ImageWare and IWS Biometric Engine, as well as trademarks for which there are pending trademark registrations with the United States, Canadian and other International Patent & Trademark Offices.

We hold several issued patents and have several other patent applications pending for elements of our products. We believe we have the foundational patents regarding the use of multiple biometrics and continue to be an IP leader in the biometric arena. It is our belief that this intellectual property leadership will create a sustainable competitive advantage. We are an early pioneer in the first to file patents related to multi-modal biometrics and currently are the worldwide leader in multi-modal biometric patents, with 22 issued patents worldwide and 25 patents pending. These technologies allow biometric matching using any type of biometric modality for identity verification while protecting the privacy of an individual. It is our belief that such technology will be critical to providing biometric management solutions for the consumer market where privacy protection has been a historical issue and barrier to biometric adoption.

The Company strengthened its patent portfolio in June 2012 with the purchase of four U.S. patents relating to wireless technology from Vocal. These patents, combined with the Company's existing foundational patents in the areas of biometric identification, verification, enrollment and fusion, provide a unique and protected foundation on which to build interactive mobile applications that are secured using biometrics.

We regard our software as proprietary and retain title to and ownership of the software we develop. We attempt to protect our rights in the software primarily through patents and trade secrets. We have not published the source code of most of our software products and require employees and other third parties who have access to the source code and other trade secret information to sign confidentiality agreements acknowledging our ownership and the nature of these materials as our trade secrets.

Despite these precautions, it may be possible for unauthorized parties to copy or reverse-engineer portions of our products. Although our competitive position could be threatened by disclosure or reverse engineering of this proprietary information, we believe that copyright and trademark protection are less important than other factors, such as the knowledge, ability, and experience of our personnel, name recognition and ongoing product development and support.

Our software products are licensed to end users under a perpetual, nontransferable, nonexclusive license that stipulates which modules can be used and how many concurrent users may use them. These forms of licenses are typically not signed by the licensee and may be more difficult to enforce than signed agreements in some jurisdictions.

Employees

We had a total of 73 and 64 full-time employees as of December 31, 2018 and 2017, respectively. Our employees are not covered by any collective bargaining agreement, and we have never experienced a work stoppage. We believe that our relations with our employees are good.

Environmental Regulation

Our business does not require us to comply with any particular environmental regulations.

Additional Available Information

We make available, free of charge, at our corporate website (<http://www.iwsinc.com>) copies of our annual reports filed with the United States Securities and Exchange Commission ("*SEC*") on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, proxy statements, and all amendments to these reports, as soon as reasonably practicable after such material is electronically filed with or furnished to the SEC pursuant to Section 13(a) or 15(d) of the Exchange Act. We also provide copies of our Forms 8-K, 10-K, 10-Q, and proxy statements at no charge to investors upon request. Additionally, all reports filed by us with the SEC are available free of charge via EDGAR through the SEC website at www.sec.gov.

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ITEM 1A. RISK FACTORS

Our business is subject to significant risks. You should carefully consider the risks described below and the other information in this Annual Report, including our financial statements and related notes, before you decide to invest in our Common Stock. If any of the following risks or uncertainties actually occur, our business, results of operations or financial condition could be materially harmed, the trading price of our Common Stock could decline and you could lose all or part of your investment. The risks and uncertainties described below are those that we currently believe may materially affect us; however, they may not be the only ones that we face. Additional risks and uncertainties of which we are unaware or currently deem immaterial may also become important factors that may harm our business. Except as required by law, we undertake no obligations to update any risk factors.

Available cash resources may be insufficient to provide for our working capital needs for the next twelve months. In the event such cash resources are insufficient to provide for our working capital requirements, we will need to raise additional capital to continue as a going concern.

During the year ended December 31, 2018, we consummated a preferred stock offering resulting in gross proceeds to the Company of approximately \$10.0 million. In addition, during the year ended December 31, 2018, we entered into an Exchange Agreement with the holders of our related party lines of credit aggregating \$6.0 million in principal borrowings and accrued unpaid interest incurred under the lines of credit of approximately \$0.9 million, whereby the holders agreed to exchange their notes and interest for an aggregate 6,896 shares of the Company's Series A Preferred stock. As a result of this exchange, all amounts owed by the Company under the lines of credit were deemed satisfied in full. At December 31, 2018, we had positive working capital of approximately \$3,078,000. Our principal source of liquidity at December 31, 2018 consisted of cash of \$5,694,000.

Considering our projected cash requirements, and assuming we are unable to generate incremental revenue, our available cash may be insufficient to satisfy our cash requirements for the next twelve months from the date of this filing. These factors raise substantial doubt about our ability to continue as a going concern. To address our working capital requirements, management may seek additional equity and/or debt financing through the issuance of additional debt and/or equity securities or may seek strategic or other transactions intended to increase shareholder value. There are currently no formal committed financing arrangements to support our projected cash shortfall, including commitments to purchase additional debt and/or equity securities, or other agreements, and no assurances can be given that we will be successful in raising additional capital through the issuance of debt and/or equity securities, or entering into any other transaction that addresses our ability to continue as a going concern.

We have a history of significant recurring losses totaling approximately \$186.6 million at December 31, 2018 and \$170.5 million at December 31, 2017, and these losses may continue in the future.

As of December 31, 2018 and 2017, we had an accumulated deficit of approximately \$186.6 million and \$170.5 million, respectively, and these losses may continue in the future. We expect to continue to incur significant sales and marketing, research and development, and general and administrative expense. As a result, we will need to generate significant revenue to achieve profitability, and we may never achieve profitability.

Our operating results have fluctuated in the past and are likely to fluctuate significantly in the future.

Our operating results have fluctuated in the past. These fluctuations in operating results are the consequence of the following, amongst other things:

- varying demand for and market acceptance of our technology and products;
- changes in our product or customer mix;
- the gain or loss of one or more key customers or their key customers, or significant changes in the financial condition of one or more of our key customers or their key customers;
- our ability to introduce, certify and deliver new products and technologies on a timely basis;
- the announcement or introduction of products and technologies by our competitors;
- competitive pressures on selling prices;
- costs associated with acquisitions and the integration of acquired companies, products and technologies;
- our ability to successfully integrate acquired companies, products and technologies;
- our accounting and legal expense; and
- general economic conditions.

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These factors, some of which are not within our control, will likely continue in the future. To respond to these and other factors, we may need to make business decisions that could result in failure to meet financial expectations. If our quarterly operating results fail to meet or exceed the expectations of securities analysts or investors, our stock price could drop suddenly and significantly. Most of our expense, such as employee compensation and inventory, is relatively fixed in the short term. Moreover, our expense levels are based, in part, on our expectations regarding future revenue levels. As a result, if our revenue for a particular period was below our expectations, we may not be able to proportionately reduce our operating expense for that period. Any revenue shortfall would have a disproportionately negative effect on our operating results for the period.

We depend upon a small number of large system sales ranging from \$100,000 to in excess of \$2,000,000 and we may fail to achieve one or more large system sales in the future.

Historically, we have derived a substantial portion of our revenue from a small number of sales of large, relatively expensive systems, typically ranging in price from \$100,000 to \$2,000,000. If we fail to receive orders for these large systems in a given sales cycle on a consistent basis, our business could be significantly harmed. Further, our quarterly results are difficult to predict because we cannot predict in which quarter, if any, large system sales will occur in a given year. As a result, we believe that quarter-to-quarter comparisons of our results of operations are not a good indication of our future performance. In some future quarters, our operating results may be below the expectations of securities analysts and investors, in which case the market price of our Common Stock may decrease significantly.

Our lengthy sales cycle may cause us to expend significant resources for one year or more in anticipation of a sale to certain customers, yet we still may fail to complete the sale.

When considering the purchase of a large computerized identity management system, potential customers may take as long as eighteen months to evaluate different systems and obtain approval for the purchase. Under these circumstances, if we fail to complete a sale, we will have expended significant resources and received no revenue in return. Generally, customers consider a wide range of issues before committing to purchase our products, including product benefits, ability to operate with their current systems, product reliability and their own budgetary constraints. While potential customers are evaluating our products, we may incur substantial selling costs and expend significant management resources in an effort to accomplish potential sales that may never occur. In times of economic recession, our potential customers may be unwilling or unable to commit resources to the purchase of new and costly systems.

A significant number of our customers and potential customers are government agencies that are subject to unique political and budgetary constraints and have special contracting requirements, which may affect our ability to obtain new and retain current government customers.

A significant number of our customers are government agencies. These agencies often do not set their own budgets and therefore have little control over the amount of money they can spend from quarter-to-quarter or year-to-year. In addition, these agencies experience political pressure that may dictate the manner in which they spend money. Due to political and budgetary processes and other scheduling delays that may frequently occur relating to the contract or bidding process, some government agency orders may be canceled or substantially delayed, and the receipt of revenue or payments from these agencies may be substantially delayed. In addition, future sales to government agencies will depend on our ability to meet government contracting requirements, certain of which may be onerous or impossible to meet, resulting in our inability to obtain a particular contract. Common requirements in government contracts include bonding requirements, provisions permitting the purchasing agency to modify or terminate at will the contract without penalty, and provisions permitting the agency to perform investigations or audits of our business practices, any of which may limit our ability to enter into new contracts or maintain our current contracts.

One customer accounted for approximately 36% of our total revenue during the year ended December 31, 2018, and approximately 25% of our total revenue during the year ended December 31, 2017. In the event of any material decrease in revenue from this customer, or if we are unable to replace the revenue through the sale of our products to additional customers, our financial condition and results from operations could be materially and adversely affected.

During the years ended December 31, 2018 and 2017, one customer accounted for approximately 36% or \$1,573,000 of our total revenue, and 25% or \$1,089,000 of our total revenue, respectively. If this customer were to significantly reduce its relationship with the Company, or in the event the we are unable to replace the revenue through the sale of our products to additional customers, our financial condition and results from operations could be negatively impacted, and such impact would be material.

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We occasionally rely on systems integrators to manage our large projects, and if these companies do not perform adequately, we may lose business.

We occasionally act as a subcontractor to systems integrators who manage large projects that incorporate our systems, particularly in foreign countries. We cannot control these companies, and they may decide not to promote our products or may price their services in such a way as to make it unprofitable for us to continue our relationship with them. Further, they may fail to perform under agreements with their customers, in which case we might lose sales to these customers. If we lose our relationships with these companies, our business, financial condition and results of operations may suffer.

We are dependent upon third parties for the successful integration of our products, and/or the launch of our products. Any delay in the integration of our products or the launch of third-party products may materially affect our results from operations and financial condition.

Our current marketing strategy involves the distribution of our products through larger product partners and/or resellers that will either resell our product alongside theirs, OEM a white label version of our products, or sell our products fully integrated into their offerings. Our strategy leaves us largely dependent upon the successful rollout of our products by our distribution partners. We have experienced delays in the rollout of our products due to these factors during the years ended December 31, 2017 and 2018, and no assurances can be given that we will not experience delays in the future. Any delays negatively affect our results from operations and financial condition.

If the patents we own or license, or our other intellectual property rights, do not adequately protect our products and technologies, we may lose market share to our competitors and our business, financial condition and results of operations would be adversely affected.

Our success depends significantly on our ability to protect our rights to the technologies used in our products. We rely on patent protection, trade secrets, as well as a combination of copyright and trademark laws and nondisclosure, confidentiality and other contractual arrangements to protect our technology. However, these legal means afford only limited protection and may not adequately protect our rights or permit us to gain or keep any competitive advantage. In addition, we cannot be assured that any of our current and future pending patent applications will result in the issuance of a patent to us. The U.S. Patent and Trademark Office (“PTO”) may deny or require significant narrowing of claims in our pending patent applications, and patents issued as a result of the pending patent applications, if any, may not provide us with significant commercial protection or may not be issued in a form that is advantageous to us. We could also incur substantial costs in proceedings before the PTO. These proceedings could result in adverse decisions as to the claims included in our patents.

Our issued and licensed patents and those that may be issued or licensed in the future may be challenged, invalidated or circumvented, which could limit our ability to stop competitors from marketing related products. Additionally, upon expiration of our issued or licensed patents, we may lose some of our rights to exclude others from making, using, selling or importing products using the technology based on the expired patents. We also must rely on contractual rights with the third parties that license technology to us to protect our rights in the technology licensed to us. Although we have taken steps to protect our intellectual property and technology, there is no assurance that competitors will not be able to design around our patents. We also rely on unpatented proprietary technology. We cannot assure you that we can meaningfully protect all our rights in our unpatented proprietary technology or that others will not independently develop substantially equivalent proprietary products or processes or otherwise gain access to our unpatented proprietary technology. We seek to protect our know-how and other unpatented proprietary technology with confidentiality agreements and intellectual property assignment agreements with our employees. However, such agreements may not provide meaningful protection for our proprietary information in the event of unauthorized use or disclosure or other breaches of the agreements or in the event that our competitors discover or independently develop similar or identical designs or other proprietary information. In addition, we rely on the use of registered and common law trademarks with respect to the brand names of some of our products. Our common law trademarks provide less protection than our registered trademarks. Loss of rights in our trademarks could adversely affect our business, financial condition and results of operations.

Furthermore, the laws of foreign countries may not protect our intellectual property rights to the same extent as the laws of the United States. If we fail to apply for intellectual property protection or if we cannot adequately protect our intellectual property rights in these foreign countries, our competitors may be able to compete more effectively against us, which could adversely affect our competitive position, as well as our business, financial condition and results of operations.

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If third parties claim that we infringe their intellectual property rights, we may incur liabilities and costs and may have to redesign or discontinue selling certain products.

Whether a product infringes a patent involves complex legal and factual issues, the determination of which is often uncertain. We face the risk of claims that we have infringed on third parties' intellectual property rights. Searching for existing intellectual property rights may not reveal important intellectual property and our competitors may also have filed for patent protection, which is not yet a matter of public knowledge, or claimed trademark rights that have not been revealed through our availability searches. Our efforts to identify and avoid infringing on third parties' intellectual property rights may not always be successful. Any claims of patent or other intellectual property infringement, even those without merit, could:

- increase the cost of our products;
- be expensive and time consuming to defend;
- result in us being required to pay significant damages to third parties;
- force us to cease making or selling products that incorporate the challenged intellectual property;
- require us to redesign, reengineer or rebrand our products;
- require us to enter into royalty or licensing agreements in order to obtain the right to use a third party's intellectual property, the terms of which may not be acceptable to us;
- require us to indemnify third parties pursuant to contracts in which we have agreed to provide indemnification to such parties for intellectual property infringement claims;
- divert the attention of our management; and
- result in our customers or potential customers deferring or limiting their purchase or use of the affected products until the litigation is resolved.

In addition, new patents obtained by our competitors could threaten a product's continued life in the market even after it has already been introduced.

If our security measures or those of our third-party data center hosting facilities, cloud computing platform providers, or third-party service partners, are breached, and unauthorized access is obtained to a customer's data, our data or our IT systems, or authorized access is blocked or disabled, our services may be perceived as not being secure, customers may curtail or stop using our services, and we may incur significant legal and financial exposure and liabilities.

Our services involve the storage and transmission of our customers' and our customers' customers' proprietary and other sensitive data, including financial information and other personally identifiable information. While we have security measures in place, they may be breached as a result of efforts by individuals or groups of hackers and sophisticated organizations, including state-sponsored organizations or nation-states. Our security measures could also be compromised by employee error or malfeasance, which could result in someone obtaining unauthorized access to, or denying authorized access to our IT systems, our customers' data or our data, including our intellectual property and other confidential business information. Additionally, third parties may attempt to fraudulently induce employees or customers into disclosing sensitive information such as user names, passwords or other information to gain access to our customers' data, our data or our IT systems.

We take extraordinary measures to ensure identity authentication of users who access critical IT infrastructure, including but not limited to, two-factor, multi-factor and biometric identity verification. This substantially reduces the threat of unauthorized access by bad actors using compromised user credentials.

Because the techniques used to breach, obtain unauthorized access to, or sabotage IT systems change frequently, grow more complex over time, and generally are not recognized until launched against a target, we may be unable to anticipate or implement adequate measures to prevent against such techniques.

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Our services operate in conjunction with and are dependent on products and components across a broad ecosystem and, as illustrated by the recent Spectre and Meltdown threats, if there are security vulnerabilities in one of these components, a security breach could occur. In addition, our internal IT systems continue to evolve and we are often early adapters of new technologies and new ways of sharing data and communicating internally and with partners and customers, which increases the complexity of our IT systems. These risks are mitigated by our ability to maintain and improve business and data governance policies and processes and internal security controls, including our ability to escalate and respond to known and potential risks.

In addition, our customers may authorize third-party technology providers to access their customer data, and some of our customers may not have adequate security measures in place to protect their data that is stored on our servers. Because we do not control our customers or third-party technology providers, or the processing of such data by third-party technology providers, we cannot ensure the integrity or security of such transmissions or processing. Malicious third parties may also conduct attacks designed to temporarily deny customers access to our services.

A security breach could expose us to a risk of loss or inappropriate use of proprietary and sensitive data, or the denial of access to this data. A security breach could also result in a loss of confidence in the security of our services, damage our reputation, negatively impact our future sales, disrupt our business and lead to legal liability. Finally, the detection, prevention and remediation of known or potential security vulnerabilities, including those arising from third-party hardware or software may result in additional direct and indirect costs, for example additional infrastructure capacity to mitigate any system degradation that could result from remediation efforts.

We operate in foreign countries and are exposed to risks associated with foreign political, economic and legal environments and with foreign currency exchange rates.

We have significant foreign operations. As a result, we are exposed to risks, including among others, risks associated with foreign political, economic and legal environments and with foreign currency exchange rates. Our results may be adversely affected by, among other things, changes in government policies with respect to laws and regulations, anti-inflation measures, currency conversions, collection of receivables abroad and rates and methods of taxation.

We depend on key personnel, the loss of any of whom could materially adversely affect future operations.

Our success will depend to a significant extent upon the efforts and abilities of our executive officers and other key personnel. The loss of the services of one or more of these key employees and any negative market or industry perception arising from the loss of such services could have a material adverse effect on us and the trading price of our Common Stock. Our business will also be dependent upon our ability to attract and retain qualified personnel. Acquiring and keeping these personnel could prove more difficult or cost substantially more than estimated and we cannot be certain that we will be able to retain such personnel or attract a high caliber of personnel in the future.

We may have additional tax liabilities.

We are subject to income taxes in the United States. Significant judgments are required in determining our provisions for income taxes. In the course of preparing our tax provisions and returns, we must make calculations where the ultimate tax determination may be uncertain. Our tax returns are subject to examination by the Internal Revenue Service (“IRS”) and state tax authorities. There can be no assurance as to the outcome of these examinations. If the ultimate determination of taxes owed is for an amount in excess of amounts previously accrued, our operating results, cash flows, and financial condition could be adversely affected.

We face competition from companies with greater financial, technical, sales, marketing and other resources, and, if we are unable to compete effectively with these competitors, our market share may decline and our business could be harmed.

We face competition from other established companies. A number of our competitors have longer operating histories, larger customer bases, significantly greater financial, technological, sales, marketing and other resources than we do. As a result, our competitors may be able to respond more quickly than we can to new or changing opportunities, technologies, standards or client requirements, more quickly develop new products or devote greater resources to the promotion and sale of their products and services than we can. Likewise, their greater capabilities in these areas may enable them to better withstand periodic downturns in the identity management solutions industry and compete more effectively on the basis of price and production. In addition, new companies may enter the markets in which we compete, further increasing competition in the identity management solutions industry.

We believe that our ability to compete successfully depends on a number of factors, including the type and quality of our products and the strength of our brand names, as well as many factors beyond our control. We may not be able to compete successfully against current or future competitors, and increased competition may result in price reductions, reduced profit margins, loss of market share and an inability to generate cash flows that are sufficient to maintain or expand the development and marketing of new products, any of which would adversely impact our results of operations and financial condition.

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Risks Related to Our Securities

Our Common Stock is subject to “penny stock” rules.

Our Common Stock is currently defined as a “penny stock” under Rule 3a51-1 promulgated under the Exchange Act. “Penny stocks” are subject to Rules 15g-2 through 15g-7 and Rule 15g-9, which impose additional sales practice requirements on broker-dealers that sell penny stocks to persons other than established customers and institutional accredited investors. Among other things, for transactions covered by these rules, a broker-dealer must make a special suitability determination for the purchaser and have received the purchaser’s written consent to the transaction prior to sale. Consequently, these rules may affect the ability of broker-dealers to sell our Common Stock and affect the ability of holders to sell their shares of our Common Stock in the secondary market. To the extent our Common Stock is subject to the penny stock regulations, the market liquidity for our shares will be adversely affected.

Our stock price has been volatile, and your investment in our Common Stock could suffer a decline in value.

There has been significant volatility in the market price and trading volume of equity securities, which is unrelated to the financial performance of the companies issuing the securities. These broad market fluctuations may negatively affect the market price of our Common Stock. You may not be able to resell your shares at or above the price you pay for those shares due to fluctuations in the market price of our Common Stock caused by changes in our operating performance or prospects and other factors.

Some specific factors that may have a significant effect on our Common Stock market price include:

- actual or anticipated fluctuations in our operating results or future prospects;
- our announcements or our competitors’ announcements of new products;
- the public’s reaction to our press releases, our other public announcements and our filings with the SEC;
- strategic actions by us or our competitors, such as acquisitions or restructurings;
- new laws or regulations or new interpretations of existing laws or regulations applicable to our business;
- changes in accounting standards, policies, guidance, interpretations or principles;
- changes in our growth rates or our competitors’ growth rates;
- developments regarding our patents or proprietary rights or those of our competitors;
- our inability to raise additional capital as needed;
- substantial sales of Common Stock underlying warrants and preferred stock;
- concern as to the efficacy of our products;
- changes in financial markets or general economic conditions;
- sales of Common Stock by us or members of our management team; and
- changes in stock market analyst recommendations or earnings estimates regarding our Common Stock, other comparable companies or our industry generally.

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Our future sales of our Common Stock could adversely affect its price and our future capital-raising activities could involve the issuance of equity securities, which would dilute shareholders' investments and could result in a decline in the trading price of our Common Stock.

We may sell securities in the public or private equity markets if and when conditions are favorable, even if we do not have an immediate need for additional capital at that time. Sales of substantial amounts of our Common Stock, or the perception that such sales could occur, could adversely affect the prevailing market price of our Common Stock and our ability to raise capital. We may issue additional Common Stock in future financing transactions or as incentive compensation for our executive management and other key personnel, consultants and advisors. Issuing any equity securities would be dilutive to the equity interests represented by our then-outstanding shares of Common Stock. The market price for our Common Stock could decrease as the market takes into account the dilutive effect of any of these issuances. Furthermore, we may enter into financing transactions at prices that represent a substantial discount to the market price of our Common Stock. A negative reaction by investors and securities analysts to any discounted sale of our equity securities could result in a decline in the trading price of our Common Stock.

The holders of our preferred stock have certain rights and privileges that are senior to our Common Stock, and we may issue additional shares of preferred stock without stockholder approval that could have a material adverse effect on the market value of the Common Stock.

Our Board of Directors has the authority to issue a total of up to four million shares of preferred stock and to fix the rights, preferences, privileges, and restrictions, including voting rights, of the preferred stock, which typically are senior to the rights of the Common Stock, without any further vote or action by the holders of our Common Stock. The rights of the holders of our Common Stock will be subject to, and may be adversely affected by, the rights of the holders of the preferred stock that have been issued, or might be issued in the future. Preferred stock also could have the effect of making it more difficult for a third party to acquire a majority of our outstanding voting stock. This could delay, defer, or prevent a change in control. Furthermore, holders of our preferred stock may have other rights, including economic rights, senior to the Common Stock. As a result, their existence and issuance could have a material adverse effect on the market value of the Common Stock. We have in the past issued, and may from time to time in the future issue, preferred stock for financing or other purposes with rights, preferences, or privileges senior to the Common Stock. As of March 18, 2019, we had three series of preferred stock outstanding, Series A Preferred stock, Series B Preferred stock and Series C Preferred stock.

The provisions of our Series A Preferred prohibit the payment of dividends on our Common Stock unless the dividends on our preferred shares are first paid. In addition, upon a liquidation, dissolution or sale of our business, the holders of our Series A Preferred will be entitled to receive, in preference to any distribution to the holders of Common Stock, initial distributions of \$1,000 per share, plus all accrued but unpaid dividends. As of December 31, 2018 and 2017, we had no cumulative undeclared dividends on our Series A Preferred.

The provisions of our Series B Preferred prohibit the payment of dividends on our Common Stock unless the dividends on our preferred shares are first paid. In addition, upon a liquidation, dissolution or sale of our business, the holders of our Series B Preferred will be entitled to receive, in preference to any distribution to the holders of Common Stock, initial distributions of \$2.50 per share, plus all accrued but unpaid dividends. As of December 31, 2018 and 2017, we had cumulative undeclared dividends on our Series B Preferred of approximately \$8,000.

The provisions of our Series C Preferred prohibit the payment of dividends on our Common Stock unless the dividends on our preferred shares are first paid. In addition, upon a liquidation, dissolution or sale of our business, the holders of our Series C Preferred will be entitled to receive, in preference to any distribution to the holders of Common Stock, initial distributions of \$10,000 per share, plus all accrued but unpaid dividends. As of December 31, 2017, there were no shares of Series C Preferred outstanding. As of December 31, 2018, we had cumulative undeclared dividends on our Series C Preferred of approximately \$0.

Upon the occurrence of certain events, we may be required to redeem all or a portion of our Series C Preferred.

On September 10, 2018, we filed the Series C COD with the Secretary of State of the State of Delaware, pursuant to which Holders of the Series C Preferred may require us to redeem all or any portion of such Holder's shares of Series C Preferred at a price per share equal to the Stated Value plus all accrued and unpaid dividends at any time from and after the third anniversary of the issuance date or in the event of the consummation of a Change of Control (as such term is defined in the Series C COD). We cannot assure you that we will maintain sufficient cash reserves or that our business will generate cash flow from operations at levels sufficient to permit us to redeem our shares of Series C Preferred if and when required to do so. In the event we have insufficient cash available or do not have access to additional third-party financings on commercially reasonable terms or at all to complete such redemption, our business, results of operations, and financial condition may be materially adversely affected.

Certain large shareholders may have certain personal interests that may affect the Company.

As a result of the securities issued to Goldman Capital Management and related entities controlled by Neal Goldman, a member of our Board of Directors (together, "Goldman"), Goldman beneficially owns, in the aggregate, approximately 39.5% of the Company's outstanding voting securities as of March 26, 2019. As a result, Goldman has the potential ability to exert influence over both the actions of the Board of Directors and the outcome of issues requiring approval by the Company's shareholders. This concentration of ownership may have effects such as delaying or preventing a change in control of the Company that may be favored by other shareholders or preventing transactions in which shareholders might otherwise recover a premium for their shares over current market prices.

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Our corporate documents and Delaware law contain provisions that could discourage, delay or prevent a change in control of the Company.

Provisions in our certificate of incorporation and bylaws may discourage, delay or prevent a merger or acquisition involving us that our stockholders may consider favorable. For example, our certificate of incorporation authorizes preferred stock, which carries special rights, including voting and dividend rights. With these rights, preferred stockholders could make it more difficult for a third party to acquire us.

We are also subject to the anti-takeover provisions of Section 203 of the Delaware General Corporation Law. Under these provisions, if anyone becomes an “interested stockholder,” we may not enter into a “business combination” with that person for three years without special approval, which could discourage a third party from making a takeover offer and could delay or prevent a change of control. For purposes of Section 203, “interested stockholder” means, generally, someone owning 15% or more of our outstanding voting stock or an affiliate of ours that owned 15% or more of our outstanding voting stock during the past three years, subject to certain exceptions as described in Section 203.

We do not expect to pay cash dividends on our Common Stock for the foreseeable future.

We have never paid cash dividends on our Common Stock and do not anticipate that any cash dividends will be paid on the Common Stock for the foreseeable future. The payment of any cash dividend by us will be at the discretion of our Board of Directors and will depend on, among other things, our earnings, capital, regulatory requirements and financial condition. Furthermore, the terms of our Series A Preferred, Series B Preferred and Series C Preferred directly limit our ability to pay cash dividends on our Common Stock.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

Our corporate headquarters are located in San Diego, California, where we occupy 8,511 square feet of office space. The lease for such office space commenced on November 1, 2018 and terminates on April 30, 2025. Annual base rent over the lease term approximates \$361,000 per year. Prior to November 1, 2018, we leased 9,927 square feet of office space in San Diego, California for approximately \$30,000 per month pursuant to a lease agreement that expired in October 2018.

In addition to our corporate headquarters, we also occupied the following spaces at December 31, 2018:

- 1,508 square feet in Ottawa, Province of Ontario, Canada, at a cost of approximately \$3,000 per month until the expiration of the lease on March 31, 2021;
- 9,720 square feet in Portland, Oregon, at a cost of approximately \$22,000 per month until the expiration of the lease on February 28, 2023; and
- 183 square feet of office space in Mexico City, Mexico, at a cost of approximately \$2,000 per month until September 30, 2019.

ITEM 3. LEGAL PROCEEDINGS

There is currently no action, suit, proceeding, inquiry or investigation before or by any court, public board, government agency, self-regulatory organization or body pending or, to the knowledge of the executive officers of the Company or any of our subsidiaries, threatened against or affecting the Company, our Common Stock, any of our subsidiaries or of the Company’s or our subsidiaries’ officers or directors in their capacities as such, in which an adverse decision could have a material adverse effect.

ITEM 4. MINE SAFETY DISCLOSURES

None.

[Table of Contents](#)**PART II****ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES****Market Information**

Our Common Stock does not trade on an established securities exchange. Our Common Stock is quoted under the symbol "IWSY" on the OTCQB marketplace. Any OTCQB marketplace quotations reflect inter-dealer prices, without retail mark-up, mark-down or commissions and may not necessarily represent actual transactions.

The following table sets forth the high and low sale prices for our Common Stock for each quarter in 2018 and 2017:

2018 Fiscal Quarters	High	Low
First Quarter	\$ 2.24	\$ 1.50
Second Quarter	\$ 1.90	\$ 1.08
Third Quarter	\$ 1.44	\$ 0.86
Fourth Quarter	\$ 1.01	\$ 0.55

2017 Fiscal Quarters	High	Low
First Quarter	\$ 1.39	\$ 0.98
Second Quarter	\$ 1.24	\$ 0.81
Third Quarter	\$ 1.50	\$ 0.83
Fourth Quarter	\$ 1.62	\$ 1.25

 Holders

As of March 26, 2019, we had approximately 197 registered holders of record of our Common Stock. A significant number of our shares of Common Stock were held in street name and, as such, we believe that the actual number of beneficial owners of our Common Stock is significantly higher.

 Dividends

We have never declared or paid cash dividends on our Common Stock. We currently intend to retain all available funds and any future earnings for use in the operation of our business and do not anticipate paying any cash dividends in the foreseeable future. Any future determination to declare cash dividends will be made at the discretion of our Board of Directors and will depend on our financial condition, results of operations, capital requirements, general business conditions and other factors that our Board of Directors may deem relevant.

As of December 31, 2018, and 2017, we had cumulative undeclared dividends of approximately \$0 relating to our Series A Preferred, \$8,000 relating to our Series B Preferred and \$0 related to our Series C Preferred.

 Securities Authorized for Issuance under Equity Compensation Plans

For a discussion of our equity compensation plans, please see Item 11 of this Annual Report.

 Recent Sales of Unregistered Securities

We issued certain equity securities in unregistered transactions during fiscal year 2018. All of the securities issued in non-registered transactions were issued in reliance on Section 3(a)(9) and/or Section 4(a)(2) of the Securities Act and were reported in our Quarterly Reports on Form 10-Q and in our Current Reports on Form 8-K filed with the Securities and Exchange Commission during the fiscal year ended December 31, 2018.

 ITEM 6. SELECTED FINANCIAL DATA

The disclosures in this section are not required because we qualify as a smaller reporting company under federal securities laws.

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

The following discussion should be read in conjunction with our consolidated financial statements and the related notes and other financial information appearing elsewhere in this Annual Report on Form 10-K. Readers are also urged to carefully review and consider the various disclosures made by us, which attempt to advise interested parties of the factors which affect our business, including (without limitation) the disclosures made under the captions "Management's Discussion and Analysis of Financial Condition and Results of Operations" and "Risk Factors," and in the audited consolidated financial statements and related notes included in this Annual Report on Form 10-K.

Overview

The Company is a pioneer and leader in the emerging market for biometrically enabled software-based identity management solutions. Using those human characteristics that are unique to us all, we create software that provides a highly reliable indication of a person's identity. Our "flagship" product is our patented IWS Biometric Engine®. Scalable for small city business or worldwide deployment, our IWS Biometric Engine is a multi-biometric software platform that is hardware and algorithm independent, enabling the enrollment and management of unlimited population sizes. It allows a user to utilize one or more biometrics on a seamlessly integrated platform. Our products are used to manage and issue secure credentials, including national IDs, passports, driver licenses and access control credentials. Our products also provide law enforcement with integrated mug shot, LiveScan fingerprint and investigative capabilities. We also provide comprehensive authentication security software using biometrics to secure physical and logical access to facilities or computer networks or Internet sites. Biometric technology is now an integral part of all markets we address and all of our products are integrated into the IWS Biometric Engine.

With the advent of cloud-based computing and the proliferation of smart mobile devices, which allow for reliable biometric capture and the need to secure access to data, products and services, the Company believes that the market for multi-biometric solutions will expand to encompass significant deployments of biometric systems in the commercial and consumer markets. The Company therefore intends to leverage the strength of its experience servicing existing government clients who have deployed the Company's products for large populations, as well as its foundational patent portfolio in the field of multi-modal biometrics and the fusion of multiple biometric algorithms, to address the growing commercial and consumer market.

Our biometric technology is a core software component of an organization's security infrastructure and includes a multi-biometric identity management solution for enrolling, managing, identifying and verifying the identities of people by the physical characteristics of the human body. We develop, sell and support various identity management capabilities within government (federal, state and local), law enforcement, commercial enterprises, and transportation and aviation markets for identification and verification purposes. Our IWS Biometric Engine is a patented biometric identity management software platform for multi-biometric enrollment, management and authentication, managing population databases of virtually unlimited sizes. It is hardware agnostic and can utilize different types of biometric algorithms. It allows different types of biometrics to be operated at the same time on a seamlessly integrated platform. It is also offered as an SDK based search engine, enabling developers and system integrators to implement a biometric solution or integrate biometric capabilities into existing applications without having to derive biometric functionality from pre-existing applications. The IWS Biometric Engine combined with our secure credential platform, IWS EPI Builder, provides a comprehensive, integrated biometric and secure credential solution that can be leveraged for high-end applications such as passports, driver licenses, national IDs, and other secure documents.

Our law enforcement solutions enable agencies to quickly capture, archive, search, retrieve, and share digital images, fingerprints and other biometrics as well as criminal history records on a stand-alone, networked, wireless or web-based platform. We develop, sell and support a suite of modular software products used by law enforcement and public safety agencies to create and manage criminal history records and to investigate crime. Our IWS Law Enforcement solution consists of five software modules: Capture and Investigative modules, which provide a criminal booking system with related databases as well as the ability to create and print mug photo/SMT image lineups and electronic mugbooks; a Facial Recognition module, which uses biometric facial recognition to identify suspects; a Web module, which provides access to centrally stored records over the Internet in a connected or wireless fashion; and a LiveScan module, which incorporates LiveScan capabilities into IWS Law Enforcement providing integrated fingerprint and palm print biometric management for civil and law enforcement use. The IWS Biometric Engine is also available to our law enforcement clients and allows them to capture and search using other biometrics such as iris or DNA.

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Our secure credential solutions empower customers to create secure and smart digital identification documents with complete ID systems. We develop, sell and support software and design systems which utilize digital imaging and biometrics in the production of photo identification cards, credentials and identification systems. Our products in this market consist of IWS EPI Suite and IWS EPI Builder. These products allow for the production of digital identification cards and related databases and records and can be used by, among others, schools, airports, hospitals, corporations or governments. We have added the ability to incorporate multiple biometrics into the ID systems with the integration of IWS Biometric Engine to our secure credential product line.

Our enterprise authentication software includes the IWS Desktop Security product, which is a comprehensive authentication management infrastructure solution providing added layers of security to workstations, networks and systems through advanced encryption and authentication technologies. IWS Desktop Security is optimized to enhance network security and usability, and uses multi-factor authentication methods to protect access, verify identity and help secure the computing environment without sacrificing ease-of-use features such as quick login. Additionally, IWS Desktop Security provides an easy integration with various smart card-based credentials including the Common Access Card (“CAC”), Homeland Security Presidential Directive 12 (“HSPD-12”), Personal Identity Verification (“PIV”) credential, and Transportation Worker Identification Credential (“TWIC”) with an organization’s access control process. IWS Desktop Security provides the crucial end-point component of a Logical Access Control System (“LACS”), and when combined with a Physical Access Control System (“PACS”), organizations benefit from a complete door to desktop access control and security model.

Recent Developments

Creation of Series C Convertible Redeemable Preferred Stock

On September 10, 2018, the Company filed the Certificate of Designations, Preferences, and Rights of Series C Convertible Preferred Stock with the Secretary of State for the State of Delaware – Division of Corporations, designating 1,000 shares of the Company’s preferred stock, par value \$0.01 per share, as Series C Convertible Preferred stock, each share with a stated value of \$10,000 per share.

Series C Financing

From September 10, 2018 through September 21, 2018, the Company offered and sold an aggregate of 1,000 shares of Series C Preferred at a purchase price of \$10,000 per share. The aggregate gross proceeds to the Company from the Series C Financing was \$10,000,000. Issuance costs incurred in conjunction with the Series C Financing were approximately \$1,211,000, resulting in net proceeds to the Company of approximately \$8,789,000.

Amendment to Certificate of Designations of Series A Convertible Preferred Stock

On September 10, 2018, the Company filed an Amendment to the Certificate of Designations, Preferences, and Rights of Series A Convertible Preferred Stock with the Secretary of State for the State of Delaware – Division of Corporations, to increase the number of shares of Series A Preferred authorized for issuance thereunder to 38,000 shares, in order to permit the Debt Exchange.

Debt Exchange

On September 10, 2018, the Company entered into Exchange Agreements with Neal Goldman and Charles Crocker, pursuant to which Messrs. Goldman and Crocker agreed to exchange approximately \$6.3 million and \$0.6 million, respectively, of outstanding debt (including accrued and unpaid interest) owed under the terms of their respective lines of credit for an aggregate of 6,896 shares of Series A Preferred. As a result of the Debt Exchange, all indebtedness, liabilities and other obligations arising under the respective lines of credit were cancelled and deemed satisfied in full. Messrs. Goldman and Crocker are members of the Company’s Board of Directors and related parties.

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Declaration of Special Dividend

Concurrently with the Series C Financing, the Company's Board of Directors declared the Special Dividend for Holders of the Series A Preferred, pursuant to which each Holder received a Dividend Warrant to purchase 39.87 shares of Company Common Stock for every share of Series A Preferred held, which resulted in the issuance of Dividend Warrants to the Holders as a group to purchase an aggregate of 1,493,856 shares of Common Stock. Each Dividend Warrant has an exercise price of \$0.01 per share, and is exercisable immediately upon issuance; *provided, however*, that a Dividend Warrant may only be exercised concurrently with the conversion of shares of Series A Preferred held by a Holder into shares of Common Stock. In addition, each Dividend Warrant held by a Holder shall expire on the earliest to occur of (i) the conversion of all Series A Preferred held by such Holder into Common Stock, (ii) the redemption by the Company of all outstanding shares of Series A Preferred held by such Holder, (iii) the Dividend Warrant no longer representing the right to purchase any shares of Common Stock, and (iv) the tenth anniversary of the date of issuance.

Critical Accounting Estimates

The discussion and analysis of our consolidated financial condition and results of operations are based on our consolidated financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States of America ("*GAAP*"). The preparation of these consolidated financial statements in accordance with GAAP requires us to utilize accounting policies and make certain estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingencies as of the date of the consolidated financial statements and the reported amounts of revenue and expense during a fiscal period. The SEC considers an accounting policy to be critical if it is important to a company's financial condition and results of operations, and if it requires significant judgment and estimates on the part of management in its application.

Significant estimates include the evaluation of our ability to continue as a going concern, the allowance for doubtful accounts receivable, deferred tax asset valuation allowances, recoverability of goodwill, assumptions used in the Black-Scholes model to calculate the fair value of share based payments, assumptions used in the application of fair value methodologies to calculate the fair value differential of the Preferred Stock Exchange (as defined below), fair value of financial instruments issued with and affected by the Series C Financing, assumptions used in the application of revenue recognition policies and assumptions used in the application of fair value methodologies to calculate the fair value of pension assets and obligations.

The following are our critical accounting policies because we believe they are both important to the portrayal of our financial condition and results of operations and require critical management judgments and estimates about matters that are uncertain. If actual results or events differ materially from those contemplated by us in making these estimates, our reported financial condition and results of operations for future periods could be materially affected.

Revenue Recognition. Effective January 1, 2018, we adopted Accounting Standards Codification ("*ASC*"), Topic 606, Revenue from Contracts with Customers ("*ASC 606*"), using the modified retrospective transition method.

In accordance with ASC 606, revenue is recognized when control of the promised goods or services is transferred to our customers, in an amount that reflects the consideration we expect to be entitled to in exchange for those goods or services.

The core principle of the standard is that we should recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which we expect to be entitled in exchange for those goods or services. To achieve that core principle, we apply the following five step model:

1. Identify the contract with the customer;
2. Identify the performance obligation in the contract;
3. Determine the transaction price;
4. Allocate the transaction price to the performance obligations in the contract; and
5. Recognize revenue when (or as) each performance obligation is satisfied.

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At contract inception, we assess the goods and services promised in a contract with a customer and identify as a performance obligation each promise to transfer to the customer either: (i) a good or service (or a bundle of goods or services) that is distinct or (ii) a series of distinct goods or services that are substantially the same and that have the same pattern of transfer to the customer. We recognize revenue only when we satisfy a performance obligation by transferring a promised good or service to a customer.

Determining the timing of the satisfaction of performance obligations as well as the transaction price and the amounts allocated to performance obligations requires judgement.

We disclose disaggregation of our customer revenue by classes of similar products and services as follows:

- Software licensing and royalties;
- Sales of computer hardware and identification media;
- Services; and
- Post-contract customer support.

Software licensing and royalties

Software licenses consist of revenue from the sale of software for identity management applications. Our software licenses are functional intellectual property and typically provide customers with the right to use our software in perpetuity as it exists when made available to the customer. We recognize revenue from software licensing at a point in time upon delivery, provided all other revenue recognition criteria are met.

Royalties consist of revenue from usage-based arrangements and guaranteed minimum-based arrangements. We recognize revenue for royalty arrangements at the later of (i) when the related sales occur, or (ii) when the performance obligation to which some or all of the royalty has been allocated has been satisfied.

Computer hardware and identification media

We generate revenue from the sale of computer hardware and identification media. Revenue for these items is recognized upon delivery of these products to the customer, provided all other revenue recognition criteria are met.

Services

Services revenue is comprised primarily of software customization services, software integration services, system installation services and customer training. Revenue is generally recognized upon completion of services and customer acceptance provided all other revenue recognition criteria are met.

Post-contract customer support ("PCS")

Post contract customer support consists of maintenance on software and hardware for our identity management solutions. We recognize PCS revenue from periodic maintenance agreements. Revenue is generally recognized ratably over the respective maintenance periods provided no significant obligations remain. Costs related to such contracts are expensed as incurred.

Arrangements with multiple performance obligations

A performance obligation is a promise in a contract to transfer a distinct good or service to the customer. In addition to selling software licenses, hardware and identification media, services and post-contract customer support on a standalone basis, certain contracts include multiple performance obligations. For such arrangements, we allocate revenue to each performance obligation based on our best estimate of the relative standalone selling price. The standalone selling price for a performance obligation is the price at which we would sell a promised good or service separately to a customer. The primary methods used to estimate standalone selling price are as follows: (i) the expected cost-plus margin approach, under which we forecast our expected costs of satisfying a performance obligation and then add an appropriate margin for that distinct good or service and (ii) the percent discount off of list price approach.

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Contract costs

We recognize an asset for the incremental costs of obtaining a contract with a customer if we expect the benefit of those costs to be longer than one year. We apply a practical expedient to expense costs as incurred for costs to obtain a contract when the amortization period is one year or less.

Other items

We do not offer rights of return for our products and services in the normal course of business.

Sales tax collected from customers is excluded from revenue.

Allowance for Doubtful Accounts. We provide an allowance for our accounts receivable for estimated losses that may result from our customers' inability to pay. We determine the amount of allowance by analyzing historical losses, customer concentrations, customer creditworthiness, current economic trends, and the age of the accounts receivable balances and changes in our customer payment terms when evaluating the adequacy of the allowance for doubtful accounts.

Valuation of Goodwill, Other Intangible and Long-Lived Assets. The Company accounts for its intangible assets under the provisions of ASC 350, "Intangibles - Goodwill and Other." In accordance with ASC 350, intangible assets with a definite life are analyzed for impairment under ASC 360-10-05 "Property, Plant and Equipment" and intangible assets with an indefinite life are analyzed for impairment under ASC 360 annually, or more often if circumstances dictate. The Company performs its annual goodwill impairment test in the fourth quarter of each year, or if required, at the end of each fiscal quarter. In December 2018, the Company adopted the provisions of ASU 2017-04, "Intangibles - Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment." The provisions of ASU 2017-04 eliminate the requirement to calculate the implied fair value of goodwill to measure a goodwill impairment charge. Instead, entities will record an impairment charge based on the excess of a reporting unit's carrying amount over its fair value. Entities that have reporting units with zero or negative carrying amounts will no longer be required to perform a qualitative assessment assuming they pass the simplified impairment test.

The Company did not record any goodwill impairment charges for the years ended December 31, 2018 or 2017.

The Company evaluates long-lived assets for impairment whenever events or changes in circumstances indicate their net book value may not be recoverable. When such factors and circumstances exist, the Company compares the projected undiscounted future cash flows associated with the related asset or group of assets over their estimated useful lives against their respective carrying amount. Impairment, if any, is based on the excess of the carrying amount over the fair value, based on market value when available, or discounted expected cash flows, of those assets and is recorded in the period in which the determination is made. The Company's management currently believes there is no impairment of its long-lived assets. There can be no assurance, however, that market conditions will not change or demand for the Company's products under development will continue. Either of these could result in future impairment of long-lived assets.

There are many management assumptions and estimates underlying the determination of an impairment loss, and estimates using different, but reasonable, assumptions could produce significantly different results. Significant assumptions include estimates of future levels of revenue and operating expense. Therefore, the timing and recognition of impairment losses by us in the future, if any, may be highly dependent upon our estimates and assumptions. There can be no assurance that goodwill impairment will not occur in the future.

Stock-Based Compensation. At December 31, 2018, the Company had one stock-based compensation plan for employees and nonemployee directors, which authorizes the granting of various equity-based incentives including stock options and restricted stock.

The Company estimates the fair value of its stock options using a Black-Scholes option-pricing model, consistent with the provisions of ASC 718, "Compensation - Stock Compensation." The fair value of stock options granted is recognized to expense over the requisite service period. Stock-based compensation expense for all share-based payment awards is recognized using the straight-line single-option method. Stock-based compensation expense is reported in general and administrative, sales and marketing, engineering and customer service expense based upon the departments to which substantially all of the associated employees report and credited to additional paid-in capital.

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ASC 718 requires the use of a valuation model to calculate the fair value of stock-based awards. For the years ended December 31, 2018 and 2017, the Company has elected to use the Black-Scholes option-pricing model, which incorporates various assumptions including volatility, expected life, and interest rates. The Company is required to make various assumptions in the application of the Black-Scholes option-pricing model. The Company has determined that the best measure of expected volatility is based on the historical weekly volatility of the Company's Common Stock. Historical volatility factors utilized in the Company's Black-Scholes computations for options granted during the years ended December 31, 2018 and 2017 ranged from 57% and 64%. The Company has elected to estimate the expected life of an award based upon the SEC approved "simplified method" noted under the provisions of Staff Accounting Bulletin Topic 14. The expected term used by the Company to value the grants issued in 2018 and 2017 as computed by this method was 5.17 years. The effect of the difference between the actual historical expected life and the simplified method was immaterial. The interest rate used is the risk-free interest rate and is based upon U.S. Treasury rates appropriate for the expected term. Interest rates used in the Company's Black-Scholes calculations were 2.6% for the years ended December 31, 2018 and 2017. Dividend yield is zero, as the Company does not expect to declare any dividends on the Company's common shares in the foreseeable future.

In addition to the key assumptions used in the Black-Scholes model, the estimated forfeiture rate at the time of valuation is a critical assumption. The Company has estimated an annualized forfeiture rate of approximately 0% for corporate officers, 4.1% for members of the Board of Directors and 6.0% for all other employees. The Company reviews the expected forfeiture rate annually to determine if that percent is still reasonable based on historical experience.

Income Taxes. The Company accounts for income taxes in accordance with ASC 740, "Accounting for Income Taxes." Deferred income taxes are recognized for the tax consequences related to temporary differences between the carrying amount of assets and liabilities for financial reporting purposes and the amounts used for tax purposes at each year-end, based on enacted tax laws and statutory tax rates applicable to the periods in which the differences are expected to affect taxable income. A valuation allowance is established when necessary based on the weight of available evidence, if it is considered more likely than not that all or some portion of the deferred tax assets will not be realized. Income tax expense is the sum of current income tax plus the change in deferred tax assets and liabilities.

ASC 740-10 requires a company to first determine whether it is more-likely-than-not (defined as a likelihood of more than fifty percent) that a tax position will be sustained based on its technical merits as of the reporting date, assuming that taxing authorities will examine the position and have full knowledge of all relevant information. A tax position that meets this more-likely-than-not threshold is then measured and recognized at the largest amount of benefit that is greater than fifty percent likely to be realized upon effective settlement with a taxing authority.

We recognize and measure uncertain tax positions in accordance with GAAP, pursuant to which we only recognize the tax benefit from an uncertain tax position if it is more likely than not that the tax position will be sustained on examination by the taxing authorities, based on the technical merits of the position. Any tax benefits recognized in the consolidated financial statements from such positions are then measured based on the largest benefit that has a greater than fifty percent likelihood of being realized upon ultimate settlement. We report a liability for unrecognized tax benefits resulting from uncertain tax positions taken or expected to be taken in a tax return. GAAP further requires that a change in judgment related to the expected ultimate resolution of uncertain tax positions be recognized in earnings in the quarter of such change. We recognize interest and penalties, if any, related to unrecognized tax benefits in income tax expense.

We file annual income tax returns in multiple taxing jurisdictions around the world. A number of years may elapse before an uncertain tax position is audited and finally resolved. While it is often difficult to predict the final outcome or the timing of resolution of any particular uncertain tax position, we believe that our analysis of income tax reserves reflects the most likely outcome. We adjust these reserves, if any, as well as the related interest, in light of changing facts and circumstances. Settlement of any particular position could require the use of cash.

Significant judgment is required in evaluating the Company's uncertain tax positions and determining the Company's provision for income taxes. No assurance can be given that the final tax outcome of these matters will not be different from that which is reflected in the Company's historical income tax provisions and accruals. The Company adjusts these items in light of changing facts and circumstances. To the extent that the final tax outcome of these matters is different than the amounts recorded, such differences will impact the provision for income taxes in the period in which such determination is made.

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The Internal Revenue Code (the “Code”) limits the availability of certain tax credits and net operating losses that arose prior to certain cumulative changes in a corporation’s ownership resulting in a change of control of the Company. The Company’s use of its net operating loss carryforwards and tax credit carryforwards will be significantly limited because the Company believes it underwent “ownership changes,” as defined under Section 382 of the Internal Revenue Code, in 1991, 1995, 2000, 2003, 2004, 2011 and 2012, though the Company has not performed a study to determine the limitation. The Company has reduced its deferred tax assets to zero relating to its federal and state research credits because of such limitations. The Company continues to disclose the tax effect of the net operating loss carryforwards at their original amount as the actual limitation has not yet been quantified. The Company has also established a full valuation allowance for substantially all deferred tax assets due to uncertainties surrounding its ability to generate future taxable income to realize these assets. Since substantially all deferred tax assets are fully reserved, future changes in tax benefits will not impact the effective tax rate. Management periodically evaluates the recoverability of the deferred tax assets. If it is determined at some time in the future that it is more likely than not that deferred tax assets will be realized, the valuation allowance would be reduced accordingly at that time.

Fair-Value Measurements. The Company accounts for fair value measurements in accordance with ASC 820, “Fair Value Measurements and Disclosures,” which defines fair value, establishes a framework for measuring fair value in generally accepted accounting principles, and expands disclosures about fair value measurements.

ASC 820 establishes a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value. The hierarchy gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1 measurements) and the lowest priority to unobservable inputs (Level 3 measurements). The three levels of the fair value hierarchy under ASC 820 are described below:

Level 1	Unadjusted quoted prices in active markets that are accessible at the measurement date for identical, unrestricted assets or liabilities.
Level 2	Applies to assets or liabilities for which there are inputs other than quoted prices included within Level 1 that are observable for the asset or liability such as quoted prices for similar assets or liabilities in active markets; quoted prices for identical assets or liabilities in markets with insufficient volume or infrequent transactions (less active markets); or model-derived valuations in which significant inputs are observable or can be derived principally from, or corroborated by, observable market data.
Level 3	Prices or valuation techniques that require inputs that are both significant to the fair value measurement and unobservable (supported by little or no market activity).

Assessing the significance of a particular input to the fair value measurement requires judgment, considering factors specific to the asset or liability. Determining whether a fair value measurement is based on Level 1, Level 2, or Level 3 inputs is important because certain disclosures are applicable only to those fair value measurements that use Level 3 inputs. The use of Level 3 inputs may include information derived through extrapolation or interpolation which involves management assumptions as well as valuation techniques employing Monte Carlo simulation methodologies, binomial stock price models and variable conversion probabilities.

For a detailed discussion on the application of these and other accounting policies, see Note 2 in the Notes to the Consolidated Financial Statements.

Results of Operations

This management’s discussion and analysis of financial condition and results of operations should be read in conjunction with the consolidated financial statements and related notes contained elsewhere in this Annual Report.

Comparison of Results for Fiscal Years Ended December 31, 2018 and 2017

Product Revenue

Net Product Revenue (dollars in thousands)	Twelve Months Ended December 31,		\$ Change	% Change
	2018	2017		
Software and royalties	\$ 1,334	\$ 1,248	\$ 86	7%
Percentage of total net product revenue	76%	77%		
Hardware and consumables	\$ 133	\$ 94	\$ 39	41%
Percentage of total net product revenue	7%	6%		
Services	\$ 294	\$ 272	\$ 22	8%
Percentage of total net product revenue	17%	17%		
Total net product revenue	\$ 1,761	\$ 1,614	\$ 147	9%

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Software and royalty revenue increased 7% or approximately \$86,000 during the year ended December 31, 2018 as compared to the corresponding period in 2017. This increase is attributable to higher identification project related revenue of approximately \$193,000 and higher law enforcement project related revenue of approximately \$76,000, offset by lower sales of boxed identity management software sold through our distribution channel of approximately \$18,000 and lower royalty revenue of approximately \$165,000. The increase in identification project related revenue and law enforcement project revenue is reflective of additional software licenses sold into existing identification projects caused by increased end-user utilization. The decrease in boxed identity management software sold through our distribution channel reflects lower procurement from two of our channel partners and the decrease in royalty revenue results primarily from lower reported usage from certain customers.

Revenue from the sale of hardware and consumables increased 41% or approximately \$39,000 during the year ended December 31, 2018 as compared to the corresponding period in 2017 due to an increase in project related solutions containing hardware.

Services revenue is comprised primarily of software integration services, system installation services and customer training. Such revenue increased 8% or approximately \$22,000 during the year ended December 31, 2018 as compared to the corresponding period in 2017, due to an increase in the service element of project related work completed during the year ended December 31, 2018.

We believe that the period-to-period fluctuations of identity management software revenue in project-oriented solutions are largely due to the timing of government procurement with respect to the various programs we are pursuing. Although no assurances can be given, based on management's current visibility into the timing of potential government procurements and potential partnerships and current pilot programs, we believe that we will see an increase in government procurement and implementations with respect to identity management initiatives during 2019; however, government procurement initiatives, implementations and pilots are frequently delayed and extended, as was the case in the year ended December 31, 2018, and we cannot predict the timing of such initiatives.

During the twelve months ended December 31, 2018, we continued our efforts to move the Biometric Engine into cloud and mobile markets, and expand our end-user market into non-government sectors, including commercial, consumer and healthcare applications. Our approach to the markets we serve is to partner with larger integrators as resellers who have both the infrastructure and resources to sell into the worldwide market. We rely upon these partners for guidance as to when they expect revenue for our products to begin to ramp. During the year ended December 31, 2018 we saw additional customers implement GoVerify ID®, our cloud based mobile biometric authentication software as a service. Management believes that additional implementations will occur throughout 2019 resulting in increased identities under management, although no assurances can be given.

Maintenance Revenue

Maintenance Revenue (dollars in thousands)	Twelve Months Ended December 31,		\$ Change	% Change
	2018	2017		
Total maintenance revenue	\$ 2,643	\$ 2,679	\$ (36)	(1)%

Maintenance revenue was approximately \$2,643,000 for the year ended December 31, 2018, as compared to approximately \$2,679,000 for the corresponding periods in 2017. For the year ended December 31, 2018, identity management maintenance revenue was approximately \$1,344,000 as compared to \$1,311,000 for the comparable period in 2017. The increase in identity management maintenance revenue of approximately \$33,000 reflects the expansion of our installed base. Law enforcement maintenance revenue was approximately \$1,299,000 for the twelve months ended December 2018 as compared to \$1,368,000 for the comparable period in 2017. This decrease of approximately \$69,000 is primarily due to the expiration of certain law enforcement maintenance contracts.

We anticipate growth of our maintenance revenue through the retention of existing customers combined with the continued expansion of our installed base resulting from the completion of project-oriented work; however, we cannot predict the timing of this anticipated growth, if ever.

[Table of Contents](#)**Cost of Product Revenue**

	Twelve Months Ended December 31,		\$ Change	% Change
	2018	2017		
Cost of Product Revenue:				
(dollars in thousands)				
Software and royalties	\$ 11	\$ 39	\$ (28)	(72)%
Percentage of software and royalty product revenue	1%	3%		
Hardware and consumables	\$ 92	\$ 64	\$ 28	44%
Percentage of hardware and consumables product revenue	69%	68%		
Services	\$ 102	\$ 49	\$ 53	108%
Percentage of services product revenue	35%	18%		
Total product cost of revenue	\$ 205	\$ 152	\$ 53	(35)%
Percentage of total product revenue	12%	9%		

The cost of software and royalty product revenue decreased approximately \$28,000 during the year ended December 31, 2018 as compared to the corresponding period in 2017. This decrease, despite higher software and royalty product revenue of approximately \$86,000, is due primarily to the 2018 period containing significant software license revenue with no associated customization costs.

The cost of product revenue for our hardware and consumable sales during the year ended December 31, 2018 increased approximately \$28,000 as compared to the corresponding period in 2017, due primarily to higher hardware and consumable product revenue of approximately \$39,000 during the 2018 period.

Cost of services revenue increased approximately \$53,000 during the year ended December 31, 2018 as compared to the corresponding period in 2017. This increase reflects higher service revenue of approximately \$22,000 combined with the incurrence of certain non-recoverable project costs incurred due to implementation difficulties combined with the composition of labor resources utilized in the completion of the service element. In addition to changes in costs of services product revenue caused by revenue level fluctuations, costs of services can vary as a percentage of service revenue from period to period depending upon both the level and complexity of professional service resources utilized in the completion of the service element.

Cost of Maintenance Revenue

	Twelve Months Ended December 31,		\$ Change	% Change
	2018	2017		
Maintenance cost of revenue				
(dollars in thousands)				
Total maintenance cost of revenue	\$ 671	\$ 839	\$ (168)	(20)%
Percentage of total maintenance revenue	25%	31%		

Cost of maintenance revenue decreased approximately \$168,000 during the year ended December 31, 2018 as compared to the corresponding period in 2017, resulting principally from lower maintenance labor costs incurred during the year ended December 31, 2018 as compared to the corresponding period in 2017 due primarily to the composition of engineering resources used in the provision of maintenance services and reductions in headcount in our customer support department.

Product Gross Profit

	Twelve Months Ended December 31,		\$ Change	% Change
	2018	2017		
Product gross profit				
(dollars in thousands)				
Software and royalties	\$ 1,323	\$ 1,209	\$ 114	9%
Percentage of software and royalty product revenue	99%	97%		
Hardware and consumables	\$ 41	\$ 30	\$ 11	37%
Percentage of hardware and consumables product revenue	31%	32%		
Services	\$ 192	\$ 223	\$ (31)	(14)%
Percentage of services product revenue	65%	82%		
Total product gross profit	\$ 1,556	\$ 1,462	\$ 94	6%
Percentage of total product revenue	88%	91%		

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Software and royalty gross profit increased 9% or approximately \$114,000 for the year ended December 31, 2018 as compared to the corresponding period in 2017, due primarily to higher software and royalty revenue of approximately \$86,000 combined with lower software and royalty cost of revenue of approximately \$28,000 for the same period. This relationship is reflective of approximately \$694,000 in license revenue with extremely low costs for the 2018 year. In addition to changes in costs of software and royalty product revenue caused by revenue level fluctuations, costs of products can vary as a percentage of product revenue from period to period depending upon level of software customization and third-party software license content included in product sales during a given period.

Hardware and consumables gross profit increased approximately \$11,000 for the year ended December 31, 2018, as compared to the 2017 period. This increase resulted from higher sales of hardware and consumables in project solutions of approximately \$39,000 combined with corresponding higher cost of hardware and consumables product revenue of \$28,000 for the year ended December 31, 2018 as compared to the corresponding period in 2017.

Services gross profit decreased approximately \$94,000 during the year ended December 31, 2018, as compared to the corresponding period in 2017, with such decrease primarily resulting from higher service revenue of approximately \$22,000 offset by higher cost of service revenue of approximately \$53,000 for the year ended December 31, 2018 as compared to the corresponding period in 2017. These higher costs reflect the incurrence of certain non-recoverable project costs incurred due to implementation difficulties combined with a higher composition of more expensive labor resources.

Maintenance Gross Profit

Maintenance gross profit (dollars in thousands)	Twelve Months Ended December 31,		\$ Change	% Change
	2018	2017		
Total maintenance gross profit	\$ 1,972	\$ 1,840	\$ 132	7%
Percentage of total maintenance revenue	75%	69%		

Gross profit related to maintenance revenue increased 7% or approximately \$132,000 for the year ended December 31, 2018 as compared to the corresponding period in 2017. This increase results from lower maintenance revenue of approximately \$36,000 due to the expiration of certain Law Enforcement maintenance contracts offset by lower cost of maintenance revenue of approximately \$168,000 due to headcount reductions in our customer service department combined with lower maintenance labor costs incurred during the same period due to the composition of engineering resources used in the provision of maintenance services.

Operating Expense

Operating expense (dollars in thousands)	Twelve Months Ended December 31,		\$ Change	% Change
	2018	2017		
General and administrative	\$ 4,285	\$ 3,723	\$ 562	15%
Percentage of total net revenue	97%	87%		
Sales and marketing	\$ 3,571	\$ 2,816	\$ 755	27%
Percentage of total net revenue	81%	66%		
Research and development	\$ 7,351	\$ 6,324	\$ 1,027	16%
Percentage of total net revenue	167%	147%		
Depreciation and amortization	\$ 51	\$ 68	\$ (17)	(25)%
Percentage of total net revenue	1%	2%		

General and Administrative Expense

General and administrative expense is comprised primarily of salaries and other employee-related costs for executive, financial, and other infrastructure personnel. General legal, accounting and consulting services, insurance, occupancy and communication costs are also included with general and administrative expense.

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The dollar increase of approximately \$562,000 in general and administrative expense for the year ended December 31, 2018 as compared to the corresponding period in 2017 is comprised of the following major components:

- Decrease in personnel related expense of approximately \$49,000;
- Increases in professional services of approximately \$538,000, which includes higher Board of Director fees of approximately \$132,000 due primarily to additional members, higher patent-related fees of approximately \$29,000, higher auditing fees of approximately \$304,000, higher general corporate expense of approximately \$10,000, higher investor relations fees of approximately \$39,000 and higher legal fees of approximately \$24,000;
- Increase in travel, insurances, licenses, dues, rent, and office related costs of approximately \$199,000;
- Decrease in financing related expense of approximately \$131,000; and
- Increase in stock-based compensation expense of approximately \$5,000.

We continue to focus our efforts on achieving additional future operating efficiencies by reviewing and improving upon existing business processes and evaluating our cost structure. We believe these efforts will allow us to continue to gradually decrease our level of general and administrative expense expressed as a percentage of total revenue.

Sales and Marketing Expense

Sales and marketing expense consists primarily of the salaries, commissions, other incentive compensation, employee benefits and travel expense of our sales, marketing, and business development.

The dollar increase in sales and marketing expense of approximately \$755,000 during the year ended December 31, 2018 as compared to the corresponding period in 2017, is primarily comprised of the following major components:

- Increase in personnel related expense of approximately \$689,000 driven primarily by headcount increases;
- Increase in contractor and contract services of approximately \$88,000 resulting from decreased utilization of certain sales consultants of approximately \$171,000 offset by increased marketing dues and subscription expense and contract services of approximately \$259,000;
- Decrease in travel, trade show expense and office related expense of approximately \$5,000;
- Decrease in stock-based compensation expense of approximately \$4,000; and
- Decrease in our Mexico sales office expense and other of approximately \$13,000.

We anticipate that the level of expense incurred for sales and marketing during the year ended December 31, 2019 will increase as we pursue large project solution opportunities.

Research and Development Expense

Research and development expense consists primarily of salaries, employee benefits and outside contractors for new product development, product enhancements, custom integration work and related facility costs.

Research and development expense increased approximately \$1,027,000 for the year ended December 31, 2018, as compared to the corresponding period in 2017, due primarily to the following major components:

- Increase in personnel related expense of approximately \$552,000 due to headcount increases;
- Increase in contractor fees and contract services of approximately \$350,000 for services related to the accelerated development of mobile identity management applications;
- Decrease in stock-based compensation of approximately \$3,000; and
- Increase in rent, office related expense and engineering tools and supplies of approximately \$128,000.

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Our level of expenditures in research and development reflects our belief that to maintain our competitive position in markets characterized by rapid rates of technological advancement, we must continue to invest significant resources in new systems and software as well as continue to enhance existing products.

Depreciation and Amortization

During the year ended December 31, 2018, depreciation and amortization expense decreased approximately \$17,000 as compared to the corresponding period in 2017. The relatively small amount of depreciation and amortization reflects the relatively small property and equipment carrying value. The decrease is reflective of the full depreciation of certain fixed assets.

Interest Expense (Income), Net

For the year ended December 31, 2018, we recognized interest income of \$78,000 and interest expense of \$541,000. For the year ended December 31, 2017, we recognized interest income of \$43,000 and interest expense of \$634,000.

Interest expense for the year ended December 31, 2018 contains the following components:

- Approximately \$8,000 of amortization expense of deferred financing fees related to the Lines of Credit;
- Approximately \$162,000 of amortization expense of recognized beneficial conversion feature related to the Lines of Credit borrowings; and
- Approximately \$371,000 related to coupon interest on our 8% Line of Credit borrowings.

Interest expense for the year ended December 31, 2017 contains the following components:

- Approximately \$11,000 of amortization expense of deferred financing fees related to the Lines of Credit;
- Approximately \$198,000 of amortization expense of recognized beneficial conversion feature related to the Lines of Credit borrowings; and
- Approximately \$425,000 related to coupon interest on our 8% Line of Credit borrowings.

Other Income

For the year ended December 31, 2018, we recognized other income of approximately \$4,000 and other expense of \$0. Other income for the year ended December 31, 2018 is comprised of approximately \$4,000 from miscellaneous receipts.

For the year ended December 31, 2017, we recognized other income of approximately \$125,000 and other expense of \$0. Other income for the year ended December 31, 2017 is comprised of approximately \$75,000 from the write off of certain accrued expense due the expiration of the legal statute of limitations on such liabilities. Other income also includes \$50,000 from the sale of one of the Company's non-utilized trademarks.

Change in Fair Value of Derivative Liabilities

For the year ended December 31, 2018, we recognized approximately \$232,000 from the increase of derivative liabilities arising from the consummation of the Series C Financing in September 2018. Such increase was determined by management using fair value methodologies and is included as an expense under the caption "Change in fair value of derivative liabilities" in our consolidated statement of operations for twelve months ended December 31, 2018.

[Table of Contents](#)**Income Tax Expense**

During the year ended December 31, 2018, we recorded a net expense of approximately \$11,000 from income taxes, as compared to a benefit of \$124,000 for the year ended December 31, 2017.

During the years ended December 31, 2018 and 2017, we recorded an expense for income taxes of \$11,000 and a tax benefit of \$124,000, respectively. The tax benefit reflects the reversal of a prior year accrual related to foreign taxes which expired due to the expiration of the statute of limitation on this foreign tax liability. The 2018 tax expense relates to taxes on income generated in certain foreign jurisdictions offset by research and development tax credits generated in certain foreign jurisdictions.

We have incurred consolidated pre-tax losses during the years ended December 31, 2018, and 2017, and have incurred operating losses in all prior periods. Management has determined that it is more likely than not that a tax benefit from such losses will not be realized. Accordingly, we did not record a benefit for income taxes for these periods.

Liquidity, Capital Resources and Going Concern

Historically, our principal sources of cash have included customer payments from the sale of our products, proceeds from the issuance of common and preferred stock and proceeds from the issuance of debt, including our Lines of Credit (defined below). Our principal uses of cash have included cash used in operations, product development, and payments relating to purchases of property and equipment. We expect that our principal uses of cash in the future will be for product development, including customization of identity management products for enterprise and consumer applications, further development of intellectual property, development of SaaS capabilities for existing products as well as general working capital and capital expenditure requirements. Management expects that, as our revenue grows, our sales and marketing and research and development expense will continue to grow, albeit at a slower rate and, as a result, we will need to generate significant net revenue to achieve and sustain income from operations.

Series A Financing

On September 18, 2017, the Company offered and sold a total of 11,000 shares of Series A Preferred at a purchase price of \$1,000 per share (the "Series A Financing"). As a result of the Series A Financing, the Company generated net proceeds of approximately \$10.9 million.

In addition, on September 18, 2017, the Company entered into exchange agreements with holders of all outstanding shares of the Company's Series E Convertible Preferred Stock, Series F Convertible Preferred Stock and Series G Convertible Preferred Stock (collectively, the "Exchanged Preferred"), pursuant to which holders of the Exchanged Preferred agreed to cancel their respective shares of Exchanged Preferred in exchange for shares of Series A Preferred (the "Preferred Stock Exchange"), resulting in the issuance to the holders of Exchanged Preferred of an aggregate total of 20,021 shares of Series A Preferred.

Series C Financing

On September 10, 2018, the Company offered and sold a total of 890 shares of Series C Preferred at a purchase price of \$10,000 per share, and on September 21, 2018, the Company sold an additional 110 shares of Series C Preferred at a purchase price of \$10,000 per share. The total net proceeds to the Company were approximately \$8,789,000, after deducting insurance costs incurred in conjunction with the Series C Financing.

Lines of Credit

Lines of credit consist of the following:

(\$ in thousands)	December 31, 2018	December 31, 2017
Lines of Credit with Related Parties		
8% convertible lines of credit. Face value of advances under lines of credit \$0 at December 31, 2018 and \$6,000 at December 31, 2017. Discount on advances under lines of credit is \$0 at December 31, 2018 and \$226 at December 31, 2017. Maturity date was December 31, 2018; however, the lines of credit were terminated on September 10, 2018, as more thoroughly discussed below.	\$ —	\$ 5,774
Total lines of credit to related parties	—	5,774
Less current portion	—	(5,774)
Long-term lines of credit to related parties	\$ —	\$ —

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On September 10, 2018, the Company entered into Exchange Agreements with Neal Goldman and Charles Crocker, pursuant to which Messrs. Goldman and Crocker agreed to exchange approximately \$6.3 million and \$0.6 million, respectively, of outstanding debt (including accrued and unpaid interest) owed under the terms of their respective lines of credit for an aggregate of 6,896 shares of Series A Preferred. As a result of the Debt Exchange, all indebtedness, liabilities and other obligations arising under the respective lines of credit were cancelled and deemed satisfied in full.

The following table sets forth the Company's activity under its former Lines of Credit for the periods indicated:

Balance outstanding under Lines of Credit as of December 31, 2016	\$ 2,650
Borrowings under Lines of Credit	3,350
Repayments	—
Balance outstanding under Lines of Credit as of December 31, 2017	\$ 6,000
Borrowings under Lines of Credit	—
Exchanges	(6,000)
Balance outstanding under Lines of Credit as of December 31, 2018	\$ —

For a more detailed discussion of the Company's former Lines of Credit, see Note 5, Related Parties to these consolidated financial statements.

Going Concern and Management's Plan

At December 31, 2018, we had positive working capital of approximately \$3,078,000, as compared to a working capital deficit of approximately \$415,000 at December 31, 2017. Our principal sources of liquidity at December 31, 2018 consisted of cash and cash equivalents of \$5,694,000. Our principal sources of liquidity at December 31, 2017 consisted of cash and cash equivalents of \$7,317,000.

Considering our projected cash requirements, and assuming we are unable to generate incremental revenue, our available cash may be insufficient to satisfy our cash requirements for the next twelve months from the date of this filing. These factors raise substantial doubt about our ability to continue as a going concern. To address our working capital requirements, management may seek additional equity and/or debt financing through the issuance of additional debt and/or equity securities or may seek strategic or other transactions intended to increase shareholder value. There are currently no formal committed financing arrangements to support our projected cash shortfall, including commitments to purchase additional debt and/or equity securities, or other agreements, and no assurances can be given that we will be successful in raising additional debt and/or equity securities, or entering into any other transaction that addresses our ability to continue as a going concern.

In view of the matters described in the preceding paragraph, recoverability of a major portion of the recorded asset amounts shown in the accompanying consolidated balance sheet is dependent upon continued operations of the Company, which, in turn, is dependent upon the Company's ability to continue to raise capital and generate positive cash flows from operations. However, the Company operates in markets that are emerging and highly competitive. There is no assurance that the Company will be able to obtain additional capital, operate at a profit or generate positive cash flows in the future.

The consolidated financial statements do not include any adjustments relating to the recoverability and classification of recorded asset amounts and classifications of liabilities that might be necessary should the Company be unable to continue as a going concern.

Operating Activities

Net cash used in operating activities was \$10,310,000 during the year ended December 31, 2018 as compared to \$8,703,000 during the year ended December 31, 2017. During the year ended December 31, 2018, net cash used in operating activities consisted of net loss of \$12,550,000 and an increase in working capital and other assets and liabilities of \$489,000. Those amounts were offset by approximately \$1,751,000 of non-cash costs, including \$1,298,000 in stock-based compensation, \$170,000 in debt issuance cost amortization and beneficial conversion feature amortization, \$51,000 in depreciation and amortization, and \$232,000 in the change in fair value of derivative liabilities. During the year ended December 31, 2018, we used cash of \$593,000 from increases in current assets and generated cash of \$1,081,000 through increases in current liabilities and deferred revenue, excluding debt.

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During the year ended December 31, 2017, net cash used in operating activities consisted of net loss of \$10,069,000 and an increase in operating cash from changes in assets and liabilities of \$195,000. We also incurred \$1,171,000 in net non-cash costs including \$1,151,000 in stock based compensation, \$209,000 in debt issuance cost amortization and debt discount amortization, \$15,000 in provision for losses on accounts receivable and \$68,000 in depreciation and amortization offset by \$272,000 of non-cash income primarily from the write-off of certain accrued expense due to the expiration of the statute of limitations of \$222,000 and \$50,000 from the sale of one of the Company's non-utilized trademarks. During the year ended December 31, 2017, we used cash of \$282,000 from increases in current assets and generated cash of \$477,000 through increases in current liabilities and deferred revenue, excluding debt.

Investing Activities

Net cash used in investing activities was \$240,000 for the year ended December 31, 2018 as compared to net cash provided by investing activities of \$45,000 for the year ended December 31, 2017. For the year ended December 31, 2018, we used cash of \$240,000 to fund capital expenditures of leasehold improvements and office furniture. For the year ended December 31, 2017, we used cash of \$5,000 to fund capital expenditures of computer equipment, software and furniture and fixtures. This level of fixed asset purchases resulted primarily from the replacement of older items.

Financing Activities

We generated cash of \$8,900,000 from financing activities for the year ended December 31, 2018, as compared to \$14,495,000 for the year ended December 31, 2017. During the year ended December 31, 2018, we generated cash of approximately \$162,000 from the exercise of 235,852 stock options resulting in the issuance of 235,852 shares of Common Stock, and generated cash of \$10,000,000 in gross proceeds from the Series C Financing, offset by \$1,211,000 in offering costs. During the year ended December 31, 2018, we used cash of approximately \$51,000 for the payment of dividends on our Series B Preferred stock. During the year ended December 31, 2017 we generated cash of \$11,000,000 from the Series A Financing, offset by \$63,000 in offering costs, generated \$3,350,000 from borrowings under the former Lines of Credit and generated approximately \$259,000 from the exercise of 369,004 options resulting in the issuance of 369,004 shares of Common Stock. We used cash of approximately \$51,000 for the payment of dividends on our Series B Preferred stock.

Debt

At December 31, 2017, the Company had \$6,000,000 in outstanding debt and \$527,000 in related accrued but unpaid interest. As a result of the Debt Exchange consummated on September 10, 2018, the Lines of Credit and all indebtedness, liabilities and other obligations arising thereunder were terminated, cancelled and deemed satisfied in full. As a result, no future borrowings are available under the Lines of Credit.

Contractual Obligations

Total contractual obligations and commercial commitments as of December 31, 2018 are summarized in the following table (in thousands):

	Payment Due by Year				
	Total	Less than 1 Year	1-3 Years	3-5 Years	More than 5 Years
Operating lease obligations	\$ 3,312	\$ 480	\$ 1,257	\$ 1,575	\$ —
Total	\$ 3,312	\$ 480	\$ 1,257	\$ 1,575	\$ —

Real Property Leases

Our corporate headquarters are located in San Diego, California, where we now occupy 8,511 square feet of office space at a cost of approximately \$30,000 per month. We entered into this facility's lease in July 2018 and this new lease commenced on November 1, 2018 and terminates on April 30, 2025. In addition to our corporate headquarters, we also occupied the following spaces at December 31, 2018:

- 1,508 square feet in Ottawa, Province of Ontario, Canada, at a cost of approximately \$3,000 per month until the expiration of the lease on March 31, 2021;
- 9,720 square feet in Portland, Oregon, at a cost of approximately \$22,000 per month until the expiration of the lease on February 28, 2023; and
- 183 square feet of office space in Mexico City, Mexico, at a cost of approximately \$2,000 per month until September 30, 2019.

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Prior to entering into the new lease agreement in July 2018 and moving our corporate headquarters to a new location, we occupied 9,927 of office space in San Diego, at a cost of approximately \$30,000 per month.

Stock-Based Compensation

Stock-based compensation related to equity options and restricted stock has been classified as follows in the accompanying consolidated statements of operations (in thousands):

	Year Ended December 31,	
	2018	2017
Cost of revenue	\$ 19	\$ 19
General and administrative	840	655
Sales and marketing	216	220
Research and development	197	200
Total	\$ 1,272	\$ 1,094

Off-Balance Sheet Arrangements

At December 31, 2018, we did not have any relationships with unconsolidated entities or financial partnerships, such as entities often referred to as structured finance, special purpose or variable interest entities, which would have been established for the purpose of facilitating off-balance sheet arrangements or other contractually narrow or limited purposes. In addition, we did not engage in trading activities involving non-exchange traded contracts. As a result, we are not exposed to any financing, liquidity, market or credit risk that could arise if we had engaged in such relationships. We do not have relationships and transactions with persons or entities that derive benefits from their non-independent relationship with us or our related parties except as disclosed elsewhere in this Annual Report.

Recently Issued Accounting Pronouncements

From time to time, new accounting pronouncements are issued by the Financial Accounting Standards Board (the "FASB"), or other standard setting bodies, which are adopted by us as of the specified effective date. Unless otherwise discussed, the Company's management believes the impact of recently issued standards not yet effective will not have a material impact on the Company's consolidated financial statements upon adoption. See Note 2 to these consolidated financial statements for a detailed discussion of recently issued accounting pronouncements.

Impact of Inflation

The primary inflationary factor affecting our operations is labor costs, and we do not believe that inflation has materially affected earnings during the past four years. Substantial increases in costs and expense, particularly labor and operating expense, could have a significant impact on our operating results to the extent that such increases cannot be passed along to customers and end users.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Our business extends to countries outside the United States, and we intend to continue to expand our foreign operations. As a result, our revenue and results of operations are affected by fluctuations in currency exchange rates, interest rates, and other uncertainties inherent in doing business in more than one currency. In addition, our operations are exposed to risks that are associated with changes in social, political, and economic conditions in the foreign countries in which we operate, including changes in the laws and policies that govern foreign investment, as well as, to a lesser extent, changes in United States laws and regulations relating to foreign trade and investment.

We had approximately \$88,000 and \$76,000 in revenue from sources outside the United States for the years ended December 31, 2018 and 2017, respectively. We made payments in foreign currencies to fund our foreign operations of approximately \$1,009,000 and \$889,000 for the years ended December 31, 2018 and 2017, respectively. Changes in currency exchange rates affect the relative prices at which we sell our products and purchase goods and services. Given the uncertainty of exchange rate fluctuations, we cannot estimate the effect of these fluctuations on our future business, product pricing, results of operations, or financial condition. We do not use foreign currency exchange contracts or derivative financial instruments for hedging or speculative purposes. To the extent foreign sales become a more significant part of our business in the future, we may seek to implement strategies which make use of these or other instruments in order to minimize the effects of foreign currency exchange on our business.

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ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

Our consolidated financial statements as of and for the years ended December 31, 2018 and 2017 and the report of our independent registered public accounting firm are included in Item 15 of this Annual Report.

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

None.

ITEM 9A. CONTROLS AND PROCEDURES

(a) Evaluation of Disclosure Controls and Procedures

Under the supervision and with the participation of our Management, including our principal executive officer and principal financial officer, we conducted an evaluation of the effectiveness of the design and operations of our disclosure controls and procedures, as defined in Rules 13a-15I and 15d-15(e) under the Securities Exchange Act of 1934, as amended (the “*Exchange Act*”), as of December 31, 2018. Based on this evaluation, the Company’s Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective to ensure that information required to be disclosed in the reports submitted under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in SEC rules and forms. In making this assessment, we used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) in Internal Control—Integrated Framework.

(b) Management’s Annual Report on Internal Control over Financial Reporting.

Our management is responsible for establishing and maintaining adequate internal control over financial reporting (as defined in Rule 13a-15(f) under the Exchange Act). Our internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes of accounting principles generally accepted in the United States.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Therefore, even those systems determined to be effective can provide only reasonable assurance of achieving their control objectives.

Our Chief Executive Officer and Chief Financial Officer evaluated the effectiveness of our internal control over financial reporting as of December 31, 2018. In making this assessment, we used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) in Internal Control—Integrated Framework. Based on this evaluation, our Chief Executive Officer and Chief Financial Officer concluded that, as of December 31, 2018, our internal control over financial reporting was effective.

Mayer Hoffman McCann P.C., our independent registered public accounting firm that audited our consolidated financial statements included in this Annual Report, has issued an attestation report on the effectiveness of our internal control over financial reporting, which report is included in Part IV below.

(c) Changes in Internal Controls over Financial Reporting.

The Company’s Chief Executive Officer and Chief Financial Officer have determined that there have been no changes in the Company’s internal control over financial reporting during the period covered by this report identified in connection with the evaluation described in the above paragraph that have materially affected, or are reasonably likely to materially affect, Company’s internal control over financial reporting.

ITEM 9B. OTHER INFORMATION

Not applicable.

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The Board of Directors and executive officers currently consist of the persons named in the table below. Each director serves for a one-year term, until his or her successor is elected and qualified, or until earlier resignation or removal. Our bylaws provide that the number of directors shall not be less than four, but no more than ten. The directors and executive officers are as follows:

Name	Age	Principal Occupation/Position Held With the Company
Mr. S. James Miller, Jr.	65	Chief Executive Officer and Chairman of the Board of Directors
Mr. Wayne Wetherell	66	Senior Vice President of Administration, Chief Financial Officer, Secretary and Treasurer
Mr. David Harding	49	Senior Vice President, Chief Technical Officer
Mr. David Somerville	58	Senior Vice President, Sales and Marketing
Mr. David Carey	74	Director
Mr. Guy Steve Hamm	71	Director
Mr. David Loesch	74	Director
Mr. John Cronin	64	Director
Mr. Neal Goldman	74	Director
Mr. Dana W. Kammersgard	63	Director
Mr. Charles Frischer	52	Director
Mr. Robert T. Clutterbuck	68	Director

S. James Miller, Jr. has served as our Chief Executive Officer since 1990 and Chairman of the Board since 1996. He also served as our President from 1990 until 2003. From 1980 to 1990, Mr. Miller was an executive with Oak Industries, Inc., a manufacturer of components for the telecommunications industry. While at Oak Industries, Mr. Miller served as a director and as Senior Vice President, General Counsel, Corporate Secretary and Chairman/President of Oak Industries' Pacific Rim subsidiaries. He has a J.D. from the University of San Diego School of Law and a B.A. from the University of California, San Diego.

The Nominating and Corporate Governance Committee believes that Mr. Miller possesses substantial managerial expertise leading the Company through its various stages of development and growth, beginning in 1990 when Mr. Miller joined the Company as President and Chief Executive Officer, and that such expertise is extremely valuable to the Board of Directors and the Company as it executes its business plan. In addition, the Board of Directors values the input provided by Mr. Miller given his legal experience.

Wayne Wetherell has served as our Senior Vice President, Administration and Chief Financial Officer since August 1996 and additionally as our Secretary and Treasurer since October 2005. From 1996 to May 2001, he served as Vice President of Finance and Chief Financial Officer. From 1991 to 1996, Mr. Wetherell was the Vice President and Chief Financial Officer of Bilstein Corporation of America, a manufacturer and distributor of automotive parts. From 1980 to 1990 Mr. Wetherell served in various financial roles culminating as Director of Financial Planning and Analysis for Oak Industries, Inc., a manufacturer of components for the telecommunications industry traded on the NYSE. Mr. Wetherell holds a B.S. degree in Management and a M.S. degree in Finance from San Diego State University.

David Harding has served as our Sr. Vice President and Chief Technology Officer since January 2006. Mr. Harding has more than 25 years of technology implementation and management experience, is responsible for strategic design, technology infrastructure and core strategy from concept through delivery. Before joining us, Mr. Harding was the Chief Technology Officer at IC Solutions, Inc., where he was responsible for all technology departments including the development and management of software development, IT and quality assurance, as well as their respective hardware, software and human resource budgets from 2001 to 2003. He was the Chief Technology Officer at Thirsty.com from 1999 to 2000, the Chief Technology Officer at Fulcrum Point Technologies, Inc., from 1996 to 1999, and consultant to Access360, which is now part of IBM/Tivoli, from 1995 to 1996.

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David Somerville has served as our Senior Vice President of Sales and Marketing since January 2018. Mr. Somerville has spent over 20 years working in executive, consulting, and advisory board positions for public and private companies, supporting the world's major service providers, enterprises, and government agencies. Mr. Somerville leads our Sales and Marketing efforts and is responsible for bringing our industry leading, patented biometric platforms to mobile and desktop users around the globe via strategic partnerships and direct sales. Prior to joining the Company, Mr. Somerville held senior executive sales and business development positions at leading companies in the cybersecurity industry, including Norse Networks Inc. from January 2017 to January 2018, Fortscale Inc. from March 2016 to January 2017, Norse Corporation Inc. from September 2014 to February 2016, Cloudmark Inc. (now Proofpoint Inc.) from 2005 to March 2014, and Network Equipment Technologies, where he has consistently achieved global market leadership positions in the service provider, enterprise, and government markets. From April 2014 to September 2014, he served as the Principal at David Somerville Consulting. Mr. Somerville holds a Bachelor of Science degree in communications and electronic engineering with a minor in business studies from Edinburgh Napier University, Scotland.

David Carey was appointed to the Board in February 2006. Mr. Carey is a former Executive Director of the Central Intelligence Agency. Mr. Carey briefly served on the Board of Cybergly, Inc., a public company, resigning in October 2015 and currently is the Chairman of Proxy Boards for Leonard DRS Technologies and OnPoint Consulting. In addition, he is a member of the Proxy Board for Informatica Federal Operations, Corp. Mr. Carey also serves on a number of Advisory Boards. In addition, Mr. Carey worked for the CIA for 32 years until 2001. During his career at the CIA, Mr. Carey held several senior positions including that of Executive Director, often referred to as the Chief Operating Officer, or No. 3 person in the agency. Mr. Carey is a graduate of Cornell University and the University of Delaware.

The Nominating and Corporate Governance Committee believes that Mr. Carey's experience as a former Executive Director of the CIA, his experience dealing with IT security matters, and the extensive contacts gained over his career working within the intelligence and security community, provide the Board with specialized expertise that assists the Company in the specific industries in which it operates.

Guy Steve Hamm was appointed to the Board in October 2004. Mr. Hamm served as CFO of Aspen Holding, a privately held insurance provider, from December 2005 to February 2007. In 2003, Mr. Hamm retired from PricewaterhouseCoopers, where he was a national partner-in-charge of middle market. Mr. Hamm was instrumental in growing the Audit Business Advisory Services ("ABAS") Middle Market practice at PricewaterhouseCoopers, where he was responsible for \$300 million in revenue and more than 100 partners. Mr. Hamm is a graduate of San Diego State University.

The Nominating and Corporate Governance Committee believes that Mr. Hamm's experience in public accounting, together with his management experience as a Chief Financial Officer, provide the Audit Committee of the Board with the expertise needed to oversee the Company's finance and accounting professionals, and the Company's independent public accountants.

David Loesch was appointed to the Board in September 2001 after 29 years of service as a Special Agent with the Federal Bureau of Investigations ("FBI"). At the time of his retirement from the FBI, Mr. Loesch was the Assistant Director in Charge of the Criminal Justice Information Services Division of the FBI. Mr. Loesch was awarded the Presidential Rank Award for Meritorious Executive in 1998 and has served on the board of directors of the Special Agents Mutual Benefit Association since 1996. He is also a member of the International Association of Chiefs of Police and the Society of Former Special Agents of the FBI, Inc. In 1999, Mr. Loesch was appointed by former Attorney General Janet Reno to serve as one of 15 original members of the Compact Council, an organization charged with promulgating rules and procedures governing the use and exchange of criminal history records for non-criminal justice use. Mr. Loesch served in the United States Army as an Officer with the 101st Airborne Division in Vietnam. He holds a Bachelor's degree from Canisius College and a Master's degree in Criminal Justice from George Washington University. Mr. Loesch continues to work as a private consultant on criminal justice information sharing and the use of biometrics to help identify criminals and individuals of special concern.

The Nominating and Corporate Governance Committee believes that Mr. Loesch's extensive service as a Special Agent with the FBI, together with his knowledge of security issues relevant to the Company's products and markets, provides the Company and the Board of Directors with relevant input regarding the industries in which the Company competes, and the markets served by the Company.

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John Cronin was appointed to the Board in February 2012. Mr. Cronin is currently Managing Director and Chairman of ipCapital Group, Inc. (“ipCG”), an intellectual property consulting firm Mr. Cronin founded in 1998. During his time with ipCG, Mr. Cronin created both a unique ipCapital SysI(R) Methodology for consulting, as well as a world-class licensing and transaction process, and worked with over 700 companies, including more than 10% of the Fortune 500. Prior to forming ipCG, Mr. Cronin spent over 17 years at IBM and became its top inventor with over 100 patents and 150 patent publications. He created and ran the IBM Patent Factory, which was essential in helping IBM become number one in US patents, and the team that contributed to the startup and success of IBM’s licensing program. Additionally, Mr. Cronin serves as a member of the Board of Directors at Vermont Electric Power Company (“VELCO”), Armor Designs, Inc., Document Security Systems, and Primal Fusion, Inc., and GraphOn and as a member of the advisory board for innoPad, Inc. He holds a B.S. and a M.S.in electrical engineering, and a B.A. degree in Psychology from the University of Vermont.

The Nominating and Corporate Governance Committee believes that Mr. Cronin’s experience developing and extracting the value from intellectual property, and his experience serving on, and advising, boards of directors, will contribute to deliberations of our Board of Directors, and assist the Company as it capitalizes on the opportunities presented by its portfolio of intellectual property assets.

Neal Goldman was appointed to the Board in August 2012. Mr. Goldman is currently president, chief compliance officer and a director of Goldman Capital Management, Inc., an employee owned investment advisor that he founded in 1985. Additionally, Mr. Goldman is Chairman of Charles and Colvard, LTD, a specialty jewelry company. Mr. Goldman also served as a member of the Board of Directors and Compensation Committee for Blyth, Inc., a New York Stock Exchange-listed designer and marketer of home decorative and fragrance products.

Mr. Goldman is the Company’s largest shareholder and has significant investment experience. As a result, the Nominating and Corporate Governance Committee believes that Mr. Goldman can provide valuable guidance to the Board of Directors as it seeks to build shareholder value.

Dana Kammersgard was appointed to the Board in May of 2016. Mr. Kammersgard is currently the Executive Vice President, Cloud Systems and Solutions for Seagate Technology, where he is responsible for all storage systems related products and strategies. Prior to joining Seagate Systems in 2015, he served as the President, CEO and a director of Dot Hill System Corp. (“Dot Hill”) since March 2006. He served as President of Dot Hill from August 2004 to March 2006. From August 1999 to August 2004, Mr. Kammersgard served as Dot Hill’s Chief Technical Officer. Mr. Kammersgard was a founder of Artecon, where he served as a director from its inception in 1984 until the company’s merger with Box Hill Systems Corp. in August 1999. At Artecon, Mr. Kammersgard served in various positions, including Secretary and Senior Vice President of Engineering from March 1998 until August 1999, and as Vice President of Sales and Marketing from March 1997 until March 1998. Prior to cofounding Artecon, Mr. Kammersgard was the Director of Software Development at Calma, a division of General Electric Company. Mr. Kammersgard holds a B.A. in chemistry from the University of California, San Diego.

The Nominating and Corporate Governance Committee believes that Mr. Kammersgard’s engineering and technical experience, coupled with his senior executive management experience with technology companies, is valuable to the Company’s Board of Directors and senior management given the technical issues and marketing challenges facing the Company.

Charles Frischer was appointed to the Board in September of 2017. Mr. Frischer currently works as self-employed private investor, a role he has occupied since 2009, and serves as General Partner of LF Partners, LLC. Previously, he served as a Principal at Zephyr Management, L.P. from 2005 to 2008. Prior to that, he served as a Senior Vice President at Capri Capital, where he originated commercial loans, from 1995 to 2005, and as General Manager of Ericson Memorial Studios from 1993 to 1994. Mr. Frischer holds a B.A. from Cornell University.

The Nominating and Corporate Governance Committee believes that Mr. Frischer’s background with capital markets and public companies is valuable to the Company’s Board of Directors and senior management.

Robert T. Clutterbuck was appointed to the Board as a Series A Director in September of 2017. Mr. Clutterbuck is the Founder, and has served as the Managing Director and Portfolio Manager at Clutterbuck Capital Management LLC, since 2006. Mr. Clutterbuck gained more than 30 years of experience at McDonald & Company Investments, Inc., where he specialized in advising affluent clients, professionals and corporate executives on investment management, financial planning, estate preservation and wealth transfer strategies. During his time at McDonald & Company, Mr. Clutterbuck served as Chairman and Chief Executive Partner of Key Capital Partners, and as Chief Executive Officer of McDonald Investments Inc. from 2000 to 2002. Prior to 2000, Mr. Clutterbuck served in several senior management positions within McDonald Investments Inc., including as Chief Financial Officer and Executive Managing Director of McDonald & Co. Securities, Inc., as Treasurer of McDonald & Co. Investments, Inc., and as President and Chief Operating Officer of McDonald & Co. Securities, Inc. Currently, Mr. Clutterbuck serves as an Independent Director of Westmoreland Resources GP, LLC (NYSE: WMLP), a position he has held since January 6, 2015. Mr. Clutterbuck holds a B.A. from Ohio Wesleyan University and an M.B.A from the University of Pennsylvania Wharton School of Business.

The Nominating and Corporate Governance Committee believes that Mr. Clutterbuck’s background with capital markets and public companies is valuable to the Company’s Board of Directors and senior management.

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Section 16(a) Beneficial Ownership Reporting Compliance

Section 16(a) of the Exchange Act requires our directors and executive officers, and persons who beneficially own more than 10% of a registered class of our equity securities, to file with the SEC initial reports of ownership and reports of changes in ownership of our Common Stock and other equity securities. Such persons are required by SEC regulations to furnish us with copies of all Section 16(a) forms they file. To our knowledge, based solely on a review of the copies of such reports furnished to us and written representations that no other reports were required, during the fiscal year ended December 31, 2018, all Section 16(a) filing requirements were complied with in a timely manner except the following:

- Charles Crocker, a director of the Company, filed a Form 4 reporting two late transactions;
- Wayne Wetherell, the Company's Senior Vice President and Chief Financial Officer, filed a Form 4 reporting one late transaction;
- Robert Clutterbuck, a director of the Company, filed a Form 4 reporting four late transactions;
- James Miller, the Company's Chief Executive Officer and Chairman, filed a Form 4 reporting one late transaction;
- Neal Goldman, a director of the Company, filed a Form 4 reporting two late transactions; and
- Charles Frischer, a director of the Company, filed a Form 4 reporting one late transaction.

Code of Ethics

The Company has adopted a *Code of Business Conduct and Ethics* policy that applies to our directors and employees (including the Company's principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions). The Company intends to promptly disclose (i) the nature of any amendment to this code of ethics that applies to our principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions and (ii) the nature of any waiver, including an implicit waiver, from a provision of this code of ethics that is granted to one of these specified individuals, the name of such person who is granted the waiver and the date of the waiver on our website in the future. A copy of our Code of Business Conduct and Ethics can be obtained from our website at <http://www.iwsinc.com>.

Board Leadership Structure

Our Board of Directors has discretion to determine whether to separate or combine the roles of Chief Executive Officer and Chairman of the Board. S. James Miller has served in both roles since 1996, and our Board continues to believe that his combined role is most advantageous to the Company and our stockholders, as Mr. Miller possesses in-depth knowledge of the issues, opportunities and risks facing us, our business and our industry and is best positioned to fulfill the responsibilities of our Chief Executive Officer, as well as the Chairman's responsibility to develop meeting agendas that focus the Board's time and attention on the most critical matters and to facilitate constructive dialogue among Board members on strategic issues.

In addition to Mr. Miller's leadership, the Board maintains effective independent oversight through a number of governance practices, including open and direct communication with management, input on meeting agendas, and regular executive sessions.

Board Role in Risk Assessment

Management, in consultation with outside professionals, as applicable, identifies risks associated with the Company's operations, strategies and financial statements. Risk assessment is also performed through periodic reports received by the Audit Committee from management, counsel and the Company's independent registered public accountants relating to risk assessment and management. Audit Committee members meet privately in executive sessions with representatives of the Company's independent registered public accountants. The Board also provides risk oversight through its periodic reviews of the financial and operational performance of the Company.

Director Independence

Our Board of Directors has determined that all of its members, other than Mr. Miller, who serves as the Company's Chief Executive Officer, and Mr. Goldman, who beneficially owns approximately 39.4% of the Company's Common Stock, are "independent" within the meaning of the Nasdaq Stock Market Rules and SEC rules regarding independence.

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Committees of the Board of Directors

Our Board of Directors has an Audit Committee, a Compensation Committee and a Nominating and Corporate Governance Committee, each of which has the composition and responsibilities described below.

Audit Committee

The Audit Committee provides assistance to the Board of Directors in fulfilling its legal and fiduciary obligations in matters involving our accounting, auditing, financial reporting, internal control and legal compliance functions by approving the services performed by our independent accountants and reviewing their reports regarding our accounting practices and systems of internal accounting controls. The Audit Committee also oversees the audit efforts of our independent accountants and takes those actions as it deems necessary to satisfy it that the accountants are independent of management. The Audit Committee currently consists of Messrs. Hamm (Chairman), Carey and Loesch, each of whom is a non-management member of our Board of Directors. Mr. Hamm is also our Audit Committee financial expert, as currently defined under current SEC rules. The Audit Committee met four times during the year ended December 31, 2018. We believe that the composition of our Audit Committee meets the criteria for independence under, and the functioning of our Audit Committee complies with the applicable Nasdaq Stock Market Rules and SEC rules and regulations.

Compensation Committee

The Compensation Committee determines our general compensation policies and the compensation provided to our directors and officers. The Compensation Committee also reviews and determines bonuses for our officers and other employees. In addition, the Compensation Committee reviews and determines equity-based compensation for our directors, officers, employees and consultants and administers our stock option plans. The Compensation Committee currently consists of Messrs. Carey (Chairman), Cronin and Goldman, each of whom is a non-management member of our Board of Directors. The Compensation Committee met one time during the year ended December 31, 2018. Although Messrs. Carey and Cronin meet the criteria for independence under the applicable Nasdaq Stock Market Rules and SEC rules and regulations, Mr. Goldman is not considered independent under such requirements.

Nominating and Corporate Governance Committee

The Nominating and Corporate Governance Committee is responsible for making recommendations to the Board of Directors regarding candidates for directorships and the size and composition of the Board. In addition, the Nominating and Corporate Governance Committee is responsible for overseeing our corporate governance guidelines and reporting and making recommendations to the Board concerning corporate governance matters. The Nominating and Corporate Governance Committee currently consists of all the nonemployee members of the Board. The Nominating and Corporate Governance Committee met four times during the year ended December 31, 2018.

Indemnification of Officers and Directors

To the extent permitted by Delaware law, the Company will indemnify its directors and officers against expenses and liabilities they incur to defend, settle, or satisfy any civil or criminal action brought against them on account of their being or having been Company directors or officers unless, in any such action, they are adjudged to have acted with gross negligence or willful misconduct.

ITEM 11. EXECUTIVE COMPENSATION

Executive Compensation Discussion and Analysis

Overview of Compensation Program

The Compensation Committee of our Board of Directors has responsibility for establishing, implementing and monitoring adherence to our compensation philosophy. The Board of Directors has delegated to the Compensation Committee the responsibility for determining our compensation policies and procedures for senior management, including the named executive officers, periodically reviewing these policies and procedures, and making recommendations concerning executive compensation to be considered by the full board of directors, when such approval is required under any of our plans or policies or by applicable laws. The Compensation Committee also has the principal responsibility for the administration of our stock plans, including the approval of stock option grants to the named executive officers.

The compensation received by our named executive officers in fiscal year 2018 is set forth in the Summary Compensation Table, below. For 2018, the named executive officers included: (i) S. James Miller, Jr., Chairman of the Board of Directors and Chief Executive Officer; (ii) David Harding, Senior Vice President Engineering, Chief Technical Officer, and (iii) David Somerville, Senior Vice President Sales and Marketing.

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Compensation Philosophy

In general, our executive compensation policies are designed to recruit, retain and motivate qualified executives by providing them with a competitive total compensation package based in large part on the executive's contribution to our financial and operational success, the executive's personal performance and increases in stockholder value as measured by the price of our common stock. We believe that the total compensation paid to our executives should be fair, reasonable and competitive.

We seek to have a balanced approach to executive compensation with each primary element of compensation (base salary, variable compensation and equity incentives) designed to play a specific role. Overall, we design our compensation programs to allow for the recruitment, retention and motivation of the key executives and high-level talent required in order for us to:

- achieve or exceed our annual financial plan and achieve profitability;
- make continuous progression towards achieving our long-term strategic objectives to be a high-growth company with growing profitability; and
- increase our share price to provide greater value to our stockholders.

Role of Executive Officers in Compensation Decisions

The Compensation Committee considers action on executive compensation annually. They discuss their proposed actions with the Chief Executive Officer and make recommendations for any changes to the Company's Board of Directors. Only the Compensation Committee and the Board of Directors are authorized to approve the compensation for any named executive officer. Because our Chief Executive Officer is also a member of our Board of Directors, he does not participate in any conversation or approvals related to his compensation. Compensation of new executives is based on hiring negotiations between the individuals and our Chief Executive Officer and/or Compensation Committee.

Elements of Compensation

Consistent with our compensation philosophy and objectives, we offer executive compensation packages consisting of the following three components:

- base salary;
- annual incentive compensation (in the form of bonuses or otherwise); and
- equity awards pursuant to the terms and conditions of our 1999 Stock Award Plan (the "1999 Plan").

In each fiscal year, the Compensation Committee determines the amount and relative weight of each component for all executives, including the named executive officers. Base salaries are paid in fixed amounts and thus do not encourage risk taking. For 2018, we had no incentive bonus programs.

We also have issued stock options focusing the recipients on the achievement of certain short- and longer-term goals and objectives. The Compensation Committee believes that these awards do not encourage unnecessary or excessive risk taking because the ultimate value of the awards is tied to our stock price, and the vesting schedules align our employees' interests even more closely with those of our investors.

Base Salary

Because our compensation philosophy stresses performance-based awards, base salary is intended to be a smaller portion of total executive compensation relative to long-term equity. Therefore, we target executive base salary at the median level of the compensation guidelines that have been approved by the Compensation Committee. In addition, the Compensation Committee takes into account the executive's scope of responsibility and significance to the execution of our long-term strategy, past accomplishments, experience and personal performance and compares each executive's base salary with those of the other members of senior management. The Compensation Committee may give different weighting to each of these factors for each executive, as it deems appropriate. The Compensation Committee did not retain a compensation consultant or determine a compensation peer group for 2018. In 2018, there were no changes to the base salaries paid to our named executive officers except for the contractually specified cost of living adjustments.

Annual Incentive Compensation

The Compensation Committee has not adopted an executive bonus plan for 2019.

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Equity Awards

Although we do not have a mandated policy regarding the ownership of shares of Common Stock by officers and directors, we believe that granting equity awards to executives and other key employees on an ongoing basis gives them a strong incentive to maximize stockholder value and aligns their interests with those of our other stockholders on a long-term basis. Our 1999 Plan enables us to grant equity awards, as well as other types of stock-based compensation, to our executive officers and other employees. Under authority delegated to it by the board of directors, the Compensation Committee reviews and approves all equity awards granted to named executive officers under the 1999 Plan. Typically, the options granted upon the executive's hire vest over three years with a third vesting on the one-year anniversary, and the remainder vesting quarterly over the next eight quarters. The options granted to executives in connection with an annual performance review typically begin vesting on the one-year anniversary of the grant date, and vest ratably over the following eight quarters. Our general policy is to grant the options with an exercise price equal to fair market value, which currently is the closing price of our Common Stock, as reported by the OTCQB marketplace, on the grant date.

We intend to grant equity awards to achieve retention and motivation:

- upon the hiring of key executives and other personnel;
- annually, when we review progress against corporate and personal goals; and
- when we believe that competitive forces or economic conditions threaten to cause our key executives to lose their motivation and/or where retention of these key executives is in jeopardy.

With the Compensation Committee's approval, we grant options to purchase shares of Common Stock when we initially hire executives and other employees, as a long-term performance incentive. The Compensation Committee has determined the size of the initial option grants to newly hired executives with reference to existing guidelines and hiring negotiations with the individual, in addition to other relevant information regarding the size and type of compensation package considered necessary to enable us to recruit, retain and motivate the executive.

Historically, no employee was eligible for an annual performance grant until the employee had worked for us for at least sixty days. The Compensation Committee reviews our Chief Executive Officer's and other executives' performance and determines whether they should be granted an option to purchase additional shares. Aside from stock award grants in connection with annual performance reviews, we do not have a policy of granting additional awards to executives and, consequently, the Board of Directors and the Compensation Committee has not adopted a policy with respect to granting awards in coordination with the release of material non-public information.

In determining the size of equity awards the Compensation Committee takes into account the executive's current position with and responsibilities to us.

Only the Board of Directors or the Compensation Committee may approve options or other equity-based compensation to our executives. However, the Board of Directors has authorized our Chief Executive Officer to approve option grants to non-executive employees. All such grants must be consistent with equity incentive guidelines approved by the Compensation Committee. The exercise price for such grants must be equal to the most recent closing price of a share of the Common Stock as reported by the OTCQB marketplace on the date of grant.

Going forward, we intend to continue to evaluate and consider equity grants to our executives on an annual basis. We expect to consider potential equity awards for executives at the same time as we annually review our employees' performance and determine whether to award grants for all employees.

Accounting and Tax Considerations

Our Compensation Committee has reviewed the impact of tax and accounting treatment on the various components of our executive compensation program. Section 162(m) of the Internal Revenue Code (the "*Code*") generally disallows a tax deduction to publicly held companies for compensation paid to "covered" executive officers, to the extent that compensation paid to such an officer exceeds \$1.0 million during the taxable year. We endeavor to award compensation that will be deductible for income tax purposes, though other factors will also be considered. Our Compensation Committee may authorize compensation payments that do not comply with the exemptions to Section 162(m) when we believe that such payments are appropriate to attract and retain executive talent.

Say-on-Pay

Our stockholders have not yet had the opportunity to provide feedback on our executive compensation through an advisory vote, as we have not held an annual meeting of stockholders since 2011, at which time we were not required to hold a "Say-on-Pay" vote as we followed the disclosure guidelines of a Smaller Reporting Company.

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Compensation Committee Interlocks and Insider Participation

As of December 31, 2018, the members of our Compensation Committee were, and currently are, David Carey (Chairman), John Cronin and Neal Goldman. None of the current or past members of our Compensation Committee is or has been an officer or employee of our Company. None of our executive officers currently serves, or in the past year has served, as a member of the compensation committee (or other board committee performing equivalent functions or, in the absence of any such committee, the entire board of directors) or director of any entity that has one or more executive officers serving on our Compensation Committee or our Board of Directors.

COMPENSATION COMMITTEE REPORT

The Compensation Committee has reviewed and discussed with management the Compensation Discussion and Analysis provisions to be included in this Annual Report on Form 10-K for the year ended December 31, 2018. Based on this review and discussion, the Compensation Committee has recommended to the board of directors that the Compensation Discussion and Analysis be included in this in our Annual Report on Form 10-K for the year ended December 31, 2018.

The Compensation Committee of the Board of Directors:

David Carey (Chairman)
John Cronin
Neal Goldman

[Table of Contents](#)**Summary Compensation Table**

The following table sets forth certain information about the compensation paid or accrued during the years ended December 31, 2018 and 2017 to our Chief Executive Officer and each of our two most highly compensated executive officers other than our Chief Executive Officer who were serving as executive officers at December 31, 2018, and whose annual compensation exceeded \$100,000 during such year or would have exceeded \$100,000 during such year if the executive officer were employed by the Company for the entire fiscal year (collectively the “*Named Executive Officers*”).

Name and Principal Position	Year	Salary	Stock Awards	Option Awards (1)(2)	All Other Compensation	Total
S. James Miller, Jr. <i>Chairman of the Board and Chief Executive Officer</i>	2018	\$ 387,787	\$ -	\$ 199,408	\$ 19,967 ⁽³⁾	\$ 607,163
	2017	\$ 380,076	\$ -	\$ 174,125	\$ 19,913	\$ 574,114
David Harding <i>Vice President and Chief Technical Officer</i>	2018	\$ 275,000	\$ -	\$ 161,481	\$ 5,288 ⁽⁴⁾	\$ 441,769
	2017	\$ 280,288	\$ -	\$ 163,885	\$ 4,788	\$ 448,961
David Somerville <i>Sr. Vice President Sales and Marketing</i>	2018	\$ 230,631	\$ -	\$ 90,400	\$ 67,089 ⁽⁵⁾	\$ 388,120

(1) All option awards were granted under the 1999 Plan.

(2) The amounts presented in this column do not reflect the cash value or realizable value of option grants to the named executive officers during the year ended December 31, 2018. During the year ended December 31, 2018, no named executive officer exercised an option and therefore no value was realized during the reporting period. The amounts reflect the grant date fair value of the options awarded in the fiscal year ended December 31, 2018 and 2017, respectively, in accordance with the provisions of FASB ASC Topic 718. We have elected to use the Black-Scholes option-pricing model, which incorporates various assumptions including volatility, expected life, and interest rates. We are required to make various assumptions in the application of the Black-Scholes option-pricing model and have determined that the best measure of expected volatility is based on the historical weekly volatility of our common stock. Historical volatility factors utilized in our Black-Scholes computations for options granted during the years ended December 31, 2018 and 2017 ranged from 57% to 64%. We have elected to estimate the expected life of an award based upon the SEC approved “simplified method” noted under the provisions of Staff Accounting Bulletin Topic 14. The expected term used by the Company during the years ended December 31, 2018 and 2017 was 5.17 years. The difference between the actual historical expected life and the simplified method was immaterial. The interest rate used is the risk-free interest rate and is based upon U.S. Treasury rates appropriate for the expected term. Interest rates used in the Company’s Black-Scholes calculations for the years ended December 31, 2018 and 2017 was 2.58%. Dividend yield is zero, as we do not expect to declare any dividends on our common shares in the foreseeable future. In addition to the key assumptions used in the Black-Scholes model, the estimated forfeiture rate at the time of valuation is a critical assumption. We have estimated an annualized forfeiture rate of 0% for corporate officers, 4.1% for members of the Board of Directors and 6.0% for all other employees. We review the expected forfeiture rate annually to determine if that percent is still reasonable based on historical experience.

(3) This amount includes premiums on life insurance and disability insurance of \$8,967 and matching 401(k) contributions of \$11,000.

(4) This amount includes premiums on life insurance and disability insurance of \$2,888 and matching 401(k) contributions of \$2,400.

(5) This amount includes premiums in life insurance and disability insurance of \$1,232, matching 401(k) contributions of \$7,106, and \$58,750 as a guaranteed draw against commissions.

[Table of Contents](#)**Grants of Plan Based Awards**

The following table provides information on plan-based awards granted in 2018 to each of the Named Executive Officers:

	Grant Date	All Other Option Awards: Number of Securities Underlying Options (#)	Exercise or Base Price of Option Awards (\$/Share) ⁽¹⁾	Grant Date Fair Value of Stock and Option Awards (\$)⁽²⁾
S. James Miller, Jr.	1/31/2018	200,000	1.75	\$ 197,236
David Harding	1/31/2018	100,000	1.75	\$ 98,618
David Somerville	1/31/2018	300,000	1.75	\$ 298,853

⁽¹⁾ Each option was granted at an exercise price equal to the fair market value of our Common Stock on the grant date which was equal to the closing price of a share of our common stock, as reported by the OTCQB marketplace, on the date of grant.

⁽²⁾ The amounts reflect the grant date fair value, in accordance with the provisions of ASC 718. Assumptions used in the calculation of these amounts are included in Note 2 of the Consolidated Financial Statements included in our Annual Report on Form 10-K for the year ended December 31, 2018.

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Outstanding Equity Awards at Fiscal Year-End

The following table sets forth information regarding unexercised options, stock that has not vested and equity incentive awards held by each of the Named Executive Officers outstanding as of December 31, 2018:

Name	Option Awards				Stock Awards	
	Number of Securities Underlying Unexercised Options: Exercisable (#)	Number of Securities Underlying Unexercised Options: Unexercisable (#)	Option Exercise Price (\$)	Option Expiration Date	Number of Shares That Have Not Vested (#)	Market Value of Shares That Have Not Vested (\$)
S. James Miller, Jr.	100,000	—	\$ 0.20	1/27/2019	—	\$ —
	183,000	—	\$ 0.73	1/29/2020	—	\$ —
	225,000	—	\$ 1.11	3/10/2021	—	\$ —
	450,000	—	\$ 0.92	2/2/2022	—	\$ —
	100,000	—	\$ 0.93	2/8/2023	—	\$ —
	100,000	—	\$ 1.93	10/29/2023	—	\$ —
	50,000	—	\$ 2.29	12/15/2024	—	\$ —
	150,000	—	\$ 1.73	9/14/2025	—	\$ —
	225,000	75,000	\$ 1.37	9/20/2026	—	\$ —
—	200,000	1.75	1/31/2028			
David Harding	50,000	—	\$ 0.20	1/27/2019	—	\$ —
	80,000	—	\$ 0.73	1/29/2020	—	\$ —
	325,000	—	\$ 0.92	2/2/2022	—	\$ —
	100,000	—	\$ 0.93	2/8/2023	—	\$ —
	75,000	—	\$ 1.93	10/29/2023	—	\$ —
	50,000	—	\$ 2.29	12/15/2024	—	\$ —
	125,000	—	\$ 1.73	9/14/2025	—	\$ —
	225,000	75,000	\$ 1.37	9/20/2026	—	\$ —
	—	100,000	\$ 1.75	1/31/2028	—	\$ —
David Somerville	—	300,000	\$ 1.75	1/31/2028	—	\$ —

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Employment Agreements

S. James Miller, Jr. On October 1, 2005, we entered into an employment agreement with Mr. Miller, pursuant to which Mr. Miller serves as President and Chief Executive Officer. Historically, Mr. Miller's employment agreement has been amended annually to extend the expiration date, and was amended on January 31, 2019 to extend the expiration date of the agreement to December 31, 2019. The agreement provides for annual base compensation in the amount of \$291,048, which amount, as a result of cost-of-living adjustments, has increased to \$400,856. Under this agreement, we will reimburse Mr. Miller for reasonable expenses incurred in connection with our business. Under the terms of the agreement, Mr. Miller will be entitled to the following severance benefits if we terminate his employment without cause or in the event of an involuntary termination: (i) a lump sum cash payment equal to twenty-four months base salary; (ii) continuation of Mr. Miller's fringe benefits and medical insurance for a period of three years; and (iii) immediate vesting of 50% of Mr. Miller's outstanding stock options and restricted stock awards. In the event that Mr. Miller's employment is terminated within six months prior to or thirteen months following a change of control (defined below), Mr. Miller is entitled to the severance benefits described above, except that 100% of Mr. Miller's outstanding stock options and restricted stock awards will immediately vest.

Wayne Wetherell. On October 1, 2005, we entered into an employment agreement with Mr. Wetherell, pursuant to which Mr. Wetherell will serve as our Chief Financial Officer. Mr. Wetherell's employment agreement, as amended, terminated on December 31, 2017 and was not subsequently replaced by a new employment agreement. However, he continues to serve as our Chief Financial Officer.

David Harding. On May 21, 2007, we entered into a Change of Control and Severance Benefits Agreement with Mr. David Harding, our Vice President and Chief Technical Officer. This agreement was originally for a two-year term, ending on May 21, 2009; however, the agreement has been amended to extend the expiration date to December 31, 2019. Under the terms of the agreement, Mr. Harding is paid a semi-monthly base salary of \$11,458, and is entitled to the following severance benefits if we terminate his employment without cause or in the event of an involuntary termination: (i) a lump sum cash payment equal to six months base salary; and continuation of Mr. Harding's medical and disability insurance for a period of six months. In the event that Mr. Harding's employment is terminated within six months prior to or thirteen months following a change of control (defined below), Mr. Harding is entitled to the severance benefits described above, except that 100% of Mr. Harding's outstanding stock options and restricted stock awards will immediately vest.

For purposes of the above-referenced agreements, termination for "cause" means the executive's commission of a criminal act or an act of fraud, embezzlement, breach of trust or other act of gross misconduct; violations of policies or rules of the Company; refusal to follow the direction given by the Company from time to time or breach of any covenant or obligation under the above-referenced agreements or other agreements with the Company; neglect of duty; misappropriation, concealment, or conversion of any money or property of the Company; intentional damage or destruction of property of the Company; reckless conduct which endangers the safety of other persons or property during the course of employment or while on premises leased or owned by the Company; or a breach of any obligation or requirement set forth in the above-referenced agreements. A "change in control" as used in these agreements generally means the occurrence of any of the following events: (i) the acquisition by any person or group of 50% or more of our outstanding voting stock; (ii) the consummation of a merger, consolidation, reorganization, or similar transaction other than a transaction: (1) in which substantially all of the holders of our voting stock hold or receive directly or indirectly 50% or more of the voting stock of the resulting entity or a parent company thereof, in substantially the same proportions as their ownership of the Company immediately prior to the transaction, or (2) in which the holders of our capital stock immediately before such transaction will, immediately after such transaction, hold as a group on a fully diluted basis the ability to elect at least a majority of the directors of the surviving corporation (or a parent company); (iii) there is consummated a sale, lease, exclusive license, or other disposition of all or substantially all of the consolidated assets of us and our Subsidiaries, other than a sale, lease, license, or other disposition of all or substantially all of the consolidated assets of us and our Subsidiaries to an entity, 50% or more of the combined voting power of the voting securities of which are owned by our stockholders in substantially the same proportions as their ownership of the Company immediately prior to such sale, lease, license, or other disposition; or (iv) individuals who, on the date the applicable agreement was adopted by the Board, are Directors (the "Incumbent Board") cease for any reason to constitute at least a majority of the Directors; *provided, however*, that if the appointment or election (or nomination for election) of any new Director was approved or recommended by a majority vote of the members of the Incumbent Board then still in office, such new member shall, for purposes of the applicable agreement, be considered as a member of the Incumbent Board.

[Table of Contents](#)**Securities Authorized for Issuance Under Equity Compensation Plans**

The following table provides information as of December 31, 2018 regarding equity compensation plans approved by our security holders and equity compensation plans that have not been approved by our security holders:

Plan Category	Number of securities to be issued upon exercise of outstanding options, warrants and rights	Weighted-Average exercise price of outstanding options, warrants and rights	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column) (a)
	(a)	(b)	(c)
Equity compensation plans approved by security holders:			
1999 Stock Award Plan, as amended and restated	7,227,248	\$ 1.34	730,677
Total	7,227,248	\$ 1.34	730,677

Description of Equity Compensation Plans*1999 Stock Option Plan*

The 1999 Plan was adopted by the Company's Board of Directors on December 17, 1999. Under the terms of the 1999 Plan, the Company could, originally, issue up to 350,000 non-qualified or incentive stock options to purchase Common Stock of the Company. During the year ended December 31, 2014, the Company subsequently amended and restated the 1999 Plan, whereby it increased the share reserve for issuance to approximately 7.0 million shares of the Company's Common Stock. Subsequently, in February 2018, the Company amended and restated the 1999 Plan, whereby it increased the share reserve for issuance by an additional 2.0 million shares. The 1999 Plan prohibits the grant of stock option or stock appreciation right awards with an exercise price less than fair market value of Common Stock on the date of grant. The 1999 Plan also generally prohibits the "re-pricing" of stock options or stock appreciation rights, although awards may be bought-out for a payment in cash or the Company's stock. The 1999 Plan permits the grant of stock-based awards other than stock options, including the grant of "full value" awards such as restricted stock, stock units and performance shares. The 1999 Plan permits the qualification of awards under the plan (payable in either stock or cash) as "performance-based compensation" within the meaning of Section 162(m) of the Internal Revenue Code. The number of options issued and outstanding and the number of options remaining available for future issuance are shown in the table below. The number of authorized shares available for issuance under the plan at December 31, 2018 was 7,957,925.

Director Compensation

Each of our non-employee directors receives equity compensation in the form of stock options that vest monthly during the year of service for serving on the Board of Directors. Board members who also serve on the Audit Committee receive additional monthly compensation of \$458 for the Chairman and \$208 for the remaining members of the Audit Committee. Board members who also serve on the Compensation Committee receive additional monthly compensation of \$417 for the Chairman and \$208 for the remaining members of the Compensation Committee. The members of the Board of Directors are also eligible for reimbursement for their expenses incurred in attending Board meetings in accordance with our policies. For the fiscal year ended December 31, 2018 the total amounts of compensation to non-employee directors (excluding reimbursable expenses) was approximately \$425,799, which amount was paid \$20,500 in cash with the remainder paid in stock options of the Company.

Each of our non-employee directors is also eligible to receive stock option grants under the 1999 Plan. Stock options granted under the 1999 Plan are intended by us not to qualify as incentive stock options under the Code.

The term of stock options granted under the 1999 Plan is ten years. In the event of a merger of us with or into another corporation or a consolidation, acquisition of assets or other change-in-control transaction involving us, an equivalent option will be substituted by the successor corporation; *provided, however*, that we may cancel outstanding options upon consummation of the transaction by giving at least thirty (30) days' notice.

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The following table sets forth the compensation awarded to, earned by, or paid to each person who served as a director during the year ended December 31, 2018, other than a director who also served as an executive officer:

	Fees Earned or Paid in Cash (\$)	Stock Awards (\$)	Option Awards (\$)⁽¹⁾	All Other Compensation (\$)	Total (\$)
Guy Steve Hamm	\$ 5,500	\$ -	\$ 41,538	\$ -	\$ 47,038
David Carey	\$ 7,500	\$ -	\$ 41,538	\$ -	\$ 49,038
David Loesch	\$ 2,500	\$ -	\$ 41,538	\$ -	\$ 44,038
John Cronin	\$ 2,500	\$ -	\$ 41,538	\$ -	\$ 44,038
Neal Goldman	\$ 2,500	\$ -	\$ 41,538	\$ -	\$ 44,038
Charles Crocker ⁽²⁾	\$ -	\$ -	\$ 41,538	\$ -	\$ 41,538
Dana Kammersgard	\$ -	\$ -	\$ 51,704	\$ -	\$ 51,704
Charles Frischer	\$ -	\$ -	\$ 52,184	\$ -	\$ 52,184
Robert T. Clutterbuck	\$ -	\$ -	\$ 52,184	\$ -	\$ 52,184

⁽¹⁾ The amounts reflect the grant date fair value of options recognized as compensation in 2018, in accordance with the provisions of FASB ASC Topic 718, and thus may include amounts from awards granted prior to 2018. Assumptions used in the calculation of these amounts are included in Notes to the Consolidated Financial Statements.

⁽²⁾ Mr. Crocker resigned from his position as a member of our Board of Directors on February 14, 2019.

[Table of Contents](#)**ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDERS MATTERS**

As of March 26, 2019, we had four classes of voting stock outstanding: (i) Common Stock; (ii) Series A Preferred; (iii) Series B Preferred; and (iv) Series C Preferred. The following tables sets forth information regarding shares of Series A Preferred, Series B Preferred, Series C Preferred and Common Stock beneficially owned as of March 26, 2019 by:

- (i) Each of our Named Executive Officers and directors;
- (ii) All Named Executive Officers and directors as a group; and
- (iii) Each person known by us to beneficially own five percent or more of the outstanding shares of our Common Stock, Series A Preferred, Series B Preferred and Series C Preferred. Percent ownership is calculated based on 37,467 shares of Series A Preferred, 239,400 shares of Series B Preferred, 1,000 shares of Series C Preferred and 98,510,466 shares Common Stock outstanding at March 26, 2019.

Unless otherwise noted, the addresses of the individuals listed in the below tables are 13500 Evening Creek Drive N., Suite 550, San Diego, California 92128.

Beneficial Ownership of Series A Preferred

Name, Address and Title (if applicable)	<u>Series A Preferred Stock ⁽²⁾</u>	<u>% Ownership of Class ⁽²⁾</u>
<i>Directors and Named Executive Officers: ⁽¹⁾</i>		
S. James Miller, Jr., Chairman, Chief Executive Officer	100	*
Neal Goldman, Director	9,434	25.2%
Robert T. Clutterbuck, Director	2,148	5.7%
Charles Frischer, Director	3,105	8.3%
Total beneficial ownership of directors and Named Executive Officers as a group (12 persons):	14,812	39.5%
<i>5% Stockholders:</i>		
CF Special Situation Fund I, LP ⁽³⁾ 1360 East 9th Street, Suite 1250 Cleveland, OH 44114	5,605	15.0%
CAP I LLC ⁽⁴⁾ 14000 Quail Spring Parkway, Suite 2200 Oklahoma City, OK 73134	3,000	8.0%
Richard Leahy 322 Pilots Point Mt. Pleasant, SC 29464	2,000	5.3%

* less than 1%

- (1) Each of the Company's Named Executive Officers and directors who do not hold shares of Series A Preferred were excluded from this table.
- (2) Beneficial ownership is determined in accordance with the rules of the SEC and generally includes voting or investment power with respect to securities.
- (3) Mr. Robert T. Clutterbuck, Managing Partner of CF Special Situation Fund I, LP, may be deemed to have voting and investment discretion over the securities identified herein.
- (4) Mr. David Sackler, President of CAP I LLC, may be deemed to have voting and investment discretion over the securities identified herein.

[Table of Contents](#)**Beneficial Ownership of Series B Preferred**

Name, Address and Title (if applicable) ⁽¹⁾	Series B Preferred Stock ⁽²⁾	% Ownership of Class ⁽²⁾
Darrellyn Carpenter	28,000	12%
Frederick C. Orton	20,000	8%
Howard Harrison	20,000	8%
Wesley Hampton	16,000	7%

(1) Each of the Company's Named Executive Officers and directors who do not hold shares of Series B Preferred were excluded from this table.

(2) Beneficial ownership is determined in accordance with the rules of the SEC and generally includes voting or investment power with respect to securities.

Beneficial Ownership of Series C Preferred

Name, Address and Title (if applicable) ⁽¹⁾	Series C Preferred Stock ⁽²⁾	% Ownership of Class ⁽²⁾
Blackwell Partners LLC – Series A ⁽³⁾ c/o Nantahala Capital Management, LLC 19 Old Kings Highway South, Suite 200 Darien, CT 06820	128	12.8%
Geode Capital Management LP 1 Post Office Square, 20th Floor Boston, MA 02109	100	10.0%
Nantahala Capital Partners Limited Partnership ⁽³⁾ c/o Nantahala Capital Management, LLC 19 Old Kings Highway South, Suite 200 Darien, CT 06820	54	5.4%
Nantahala Capital Partners II Limited Partnership ⁽³⁾ c/o Nantahala Capital Management, LLC 19 Old Kings Highway South, Suite 200 Darien, CT 06820	112	11.2%
Nantahala Capital Partners SI LP ⁽³⁾ c/o Nantahala Capital Management, LLC 19 Old Kings Highway South, Suite 200 Darien, CT 06820	397	39.7%
Shellback Financial, LLC 16405 45th Avenue North Minneapolis, MN 55446	100	10.0%
Silver Creek CS SAV, L.L.C. ⁽³⁾ c/o Nantahala Capital Management, LLC 19 Old Kings Highway South, Suite 200 Darien, CT 06820	59	5.9%

(1) Each of the Company's Named Executive Officers and directors who do not hold shares of Series C Preferred were excluded from this table.

(2) Beneficial ownership is determined in accordance with the rules of the SEC and generally includes voting or investment power with respect to securities.

(3) Nantahala Capital Management, LLC is a Registered Investment Adviser and has been delegated the legal power to vote and/or direct the disposition of securities on behalf of these entities as a General Partner or Investment Manager and would be considered the beneficial owner of such securities. The above shall not be deemed to be an admission by the record owners that they are themselves beneficial owners of these shares of Series C Preferred for purposes of Section 13(d) of the Exchange Act or any other purpose.

[Table of Contents](#)**Beneficial Ownership of Common Stock**

Name and Address	<u>Number of Shares</u> ⁽¹⁾	<u>Percent of Class</u> ⁽²⁾
<i>Directors and Named Executive Officers:</i>		
S. James Miller, Jr., Chairman, Chief Executive Officer ⁽³⁾	2,642,736	2.6%
David Carey Director ⁽⁴⁾	265,689	*
G. Steve Hamm, Director ⁽⁵⁾	265,775	*
David Loesch, Director ⁽⁶⁾	293,897	*
Neal Goldman, Director ⁽⁷⁾	42,547,329	39.5%
John Cronin, Director ⁽⁸⁾	226,189	*
Dana W. Kammersgard, Director ⁽⁹⁾	224,003	*
Robert T. Clutterbuck, Director ⁽¹⁰⁾	2,549,538	2.5%
Charles Frischer, Director ⁽¹¹⁾	3,592,469	3.5%
David Harding, Chief Technical Officer ⁽¹²⁾	1,096,725	1.1%
David Somerville, Senior Vice President of Sales and Marketing ⁽¹³⁾	125,000	*
Total beneficial ownership of directors and Named Executive Officers as a group (12 persons):	53,829,350	52.6%

* less than 1%

- (1) All entries exclude beneficial ownership of shares issuable pursuant to options that have not vested or that are not otherwise exercisable as of the date hereof, or which will not become vested or exercisable within 60 days of March 26, 2019.
- (2) Percentages are rounded to nearest one-tenth of one percent. Percentages are based on 98,443,632 shares of Common Stock outstanding as of March 26, 2019. Options that are presently exercisable or exercisable within 60 days of March 26, 2019 are deemed to be beneficially owned by the stockholder holding the options for the purpose of computing the percentage ownership of that stockholder, but are not treated as outstanding for the purpose of computing the percentage of any other stockholder.
- (3) Includes 75,201 shares held jointly with spouse, 1,591,338 shares issuable upon exercise of stock options, each exercisable within 60 days of March 26, 2019, and 92,603 shares issuable upon the conversion of Series A Preferred, and 3,987 shares issuable upon the exercise of warrants.
- (4) Includes 159,003 shares issuable upon exercise of stock options exercisable within 60 days of March 26, 2019.
- (5) Includes 161,503 shares issuable upon exercise of stock options exercisable within 60 days of March 26, 2019.
- (6) Includes 159,003 shares issuable upon exercise of stock options, each exercisable within 60 days of March 26, 2019.
- (7) Includes 8,736,142 shares issuable upon the conversion of Series A Preferred and 136,503 shares issuable upon exercise of stock options, each exercisable within 60 days of March 26, 2019. Mr. Goldman exercises sole voting and dispositive power over 33,298,556 shares, and shared voting and dispositive power over 3,147,700 reported shares, of which 3,000,000 shares are owned by the Goldman Family 2012 GST Trust and 147,700 shares are owed by The Neal and Marlene Goldman Foundation, and 376,128 shares issuable upon the exercise of warrants.
- (8) Includes 186,503 shares issuable upon exercise of stock options exercisable within 60 days of March 26, 2019.
- (9) Includes 138,503 shares issuable upon exercise of stock options exercisable within 60 days of March 26, 2019.
- (10) Includes 1,989,107 shares issuable upon the conversion of Series A Preferred and 47,169 shares issuable upon exercise of stock options exercisable within 60 days of March 26, 2019, and 85,642 shares issuable upon the exercise of warrants.
- (11) Includes 2,875,315 shares issuable upon the conversion of Series A Preferred and 47,169 shares issuable upon exercise of stock options exercisable within 60 days of March 26, 2019, and 123,795 shares issuable upon the exercise of warrants.
- (12) Includes 1,046,725 shares issuable upon exercise of stock options exercisable within 60 days of March 26, 2019.
- (13) Includes 125,000 shares issuable upon exercise of stock options exercisable within 60 days of March 26, 2019.

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ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

Lines of Credit

In March 2013, the Company and Neal Goldman, a member of the Company's Board of Directors ("*Goldman*"), entered into a line of credit (the "*Goldman Line of Credit*") with available borrowings of up to \$2.5 million. In March 2014, the Goldman Line of Credit's borrowing was increased to an aggregate total of \$3.5 million (the "*Amendment*"). Pursuant to the terms and conditions of the Amendment, Goldman had the right to convert up to \$2.5 million of the outstanding balance of the Goldman Line of Credit into shares of the Company's Common Stock for \$0.95 per share. Any remaining outstanding balance was convertible into shares of the Company's Common Stock for \$2.25 per share.

As consideration for the initial Goldman Line of Credit, the Company issued a warrant to Goldman, exercisable for 1,052,632 shares of the Company's Common Stock (the "*Line of Credit Warrant*"). The Goldman Line of Credit Warrant had a term of two years from the date of issuance and an exercise price of \$0.95 per share. As consideration for entering into the Amendment, the Company issued to Goldman a second warrant, exercisable for 177,778 shares of the Company's Common Stock (the "*Amendment Warrant*"). The Amendment Warrant expired on March 27, 2015 and had an exercise price of \$2.25 per share.

In April 2014, the Company and Goldman entered into a further amendment to the Goldman Line of Credit to decrease the available borrowings to \$3.0 million (the "*Second Amendment*"). Contemporaneous with the execution of the Second Amendment, the Company entered into a new unsecured line of credit with Charles Crocker, a member of the Company's Board of Directors ("*Crocker*"), with available borrowings of up to \$500,000 (the "*Crocker LOC*"), which amount was convertible into shares of the Company's Common Stock for \$2.25 per share. As a result of these amendments, total available borrowings under the Lines of Credit available to the Company remained unchanged at a total of \$3.5 million. In connection with the Second Amendment, Goldman assigned and transferred to Crocker one-half of the Amendment Warrant.

In December 2014, the Company and Goldman entered into a further amendment to the Goldman Line of Credit to increase the available borrowing to \$5.0 million and extend the maturity date of the Goldman Line of Credit to March 27, 2017 (the "*Third Amendment*"). Also, as a result of the Third Amendment, Goldman had the right to convert up to \$2.5 million outstanding principal, plus any accrued but unpaid interest ("*Outstanding Balance*") into shares of the Company's Common Stock for \$0.95 per share, the next \$500,000 Outstanding Balance into shares of Common Stock for \$2.25 per share and any remaining outstanding balance thereafter into shares of Common Stock for \$2.30 per share. The Third Amendment also modified the definition of a "Qualified Financing" to mean a debt or equity financing resulting in gross proceeds to the Company of at least \$5.0 million.

In February 2015, as a result of the Series E Financing, the Company issued 1,978 shares of Series E Preferred to Goldman to satisfy \$1,950,000 in principal borrowings under the Goldman Line of Credit plus approximately \$28,000 in accrued interest. As a result of the Series E Financing, the Company's borrowing capacity under the Goldman Line of Credit was reduced to \$3,050,000 with the maturity date unchanged and the Crocker LOC was terminated in accordance with its terms.

In March 2016, the Company and Goldman entered into a fourth amendment to the Goldman Line of Credit (the "*Fourth Amendment*") solely to (i) increase available borrowings to \$5.0 million; (ii) extend the maturity date to June 30, 2017, and (iii) provide for the conversion of the outstanding balance due under the terms of the Goldman Line of Credit into that number of fully paid and non-assessable shares of the Company's Common Stock as is equal to the quotient obtained by dividing the outstanding balance by \$1.25.

Contemporaneous with the execution of the Fourth Amendment, the Company entered into a new \$500,000 Line of Credit (the "*New Crocker LOC*") with available borrowings of up to \$500,000 with Crocker, which replaced the original Crocker LOC that terminated as a result of the consummation of the Series E Financing. Similar to the Fourth Amendment, the New Crocker LOC with Crocker originally matured on June 30, 2017, and provides for the conversion of the outstanding balance due under the terms of the New Crocker LOC into that number of fully paid and non-assessable shares of the Company's Common Stock as is equal to the quotient obtained by dividing the outstanding balance by \$1.25.

On December 27, 2016, in connection with the consummation of the Series G Financing, the Company and Goldman agreed to enter into the Fifth Amendment (the "*Line of Credit Amendment*") to the Goldman Line of Credit to provide the Company with the ability to borrow up to \$5.5 million under the terms of the Goldman Line of Credit. In addition, the Maturity Date, as defined in the Goldman Line of Credit was amended to be December 31, 2017. The Line of Credit Amendment was executed on January 23, 2017.

In addition, on January 23, 2017, the Company and Crocker amended the New Crocker LOC to extend the maturity date thereof to December 31, 2017.

On May 10, 2017, Goldman and Crocker agreed to further extend the maturity dates of Lines of Credit to December 31, 2018.

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On September 10, 2018, the Company entered into the Exchange Agreements with Goldman and Crocker, pursuant to which Goldman and Crocker agreed to exchange approximately \$6.3 million and \$0.6 million, respectively, of outstanding debt (including accrued and unpaid interest) owed under the terms of their respective Lines of Credit for an aggregate of 6,896 shares of Series A Preferred. As a result of the Debt Exchange, all indebtedness, liabilities and other obligations arising under the Lines of Credit were terminated, cancelled and deemed satisfied in full. As a result, no future borrowings are available under the Lines of Credit.

The following table sets forth the Company's activity under its Lines of Credit for the periods indicated:

Balance outstanding under Lines of Credit as of December 31, 2015	\$ —
Borrowings under Lines of Credit	2,650
Repayments	—
Balance outstanding under Lines of Credit as of December 31, 2016	\$ 2,650
Borrowings under Lines of Credit	3,350
Repayments	—
Balance outstanding under Lines of Credit as of December 31, 2017	\$ 6,000
Borrowings under Lines of Credit	—
Exchanges	(6,000)
Balance outstanding under Lines of Credit as of December 31, 2018	\$ —

Series A Financing

In September 2017, Messrs. Miller, Goldman, Wetherell, Clutterbuck and Frischer purchased an aggregate of 1,450 Series A Preferred in connection with the Series A Financing resulting in gross proceeds of \$1,450,000 to the Company. Messrs. Goldman, Clutterbuck and Frischer also exchanged an aggregate 11,364 shares of Series E Preferred, Series F Preferred and Series G Preferred for 11,364 shares of Series A Preferred in connection with the Series A Financing.

Professional Services Agreement

During the year ended December 31, 2018, the Company entered into professional services agreement with a firm whose managing director is also a member of the Company's Board of Directors. During the year ended December 31, 2018 the Company recorded and paid one-half of the aggregate fee of \$50,000.

Review, Approval or Ratification of Transactions with Related Persons

As provided in the charter of our Audit Committee, it is our policy that we will not enter into any transactions required to be disclosed under Item 404 of the SEC's Regulation S-K unless the Audit Committee or another independent body of our Board of Directors first reviews and approves the transactions.

In addition, pursuant to our Code of Ethical Conduct and Business Practices, all employees, officers and directors of ours and our subsidiaries are prohibited from engaging in any relationship or financial interest that is an actual or potential conflict of interest with us without approval. Employees, officers and directors are required to provide written disclosure to the Chief Executive Officer as soon as they have any knowledge of a transaction or proposed transaction with an outside individual, business or other organization that would create a conflict of interest or the appearance of one.

[Table of Contents](#)**ITEM 14. PRINCIPAL ACCOUNTING FEES AND SERVICES**

The following table represents aggregate fees billed to the Company for the fiscal years ended December 31, 2018 and 2017 by Mayer Hoffman McCann P.C. (“MHM”), the Company’s independent registered public accounting firm. MHM leases substantially all its personnel, who work under the control of MHM shareholders, from wholly owned subsidiaries of CBIZ, Inc., in an alternative practice structure.

	Fiscal Year Ended	
	2018	2017
Audit fees	\$ 396,000	\$ 248,000
Audit-related fees	—	—
Tax fees	—	—
All other fees	—	—
Total Fees	\$ 396,000	\$ 248,000

The Audit Committee of the Company’s Board of Directors approved all fees described above.

Pre-Approval Policies and Procedures.

The Audit Committee has adopted a policy and procedures for the pre-approval of audit and non-audit services rendered by our independent auditor, currently Mayer Hoffman McCann P.C. The policy generally pre-approves specified services in the defined categories of audit services, audit-related services, and tax services up to specified amounts. Pre-approval may also be given as part of the Audit Committee’s approval of the scope of the engagement of the independent auditor or on an individual explicit case-by-case basis before the independent auditor is engaged to provide each service. The pre-approval of services may be delegated to one or more of the Audit Committee’s members, but the decision must be reported to the full Audit Committee at its next scheduled meeting.

The Audit Committee has applied the de minimis exception to fees paid of approximately \$2,000 or 1% of total fees paid to the Company’s independent accountant. Such fees relate to tax return preparation fees for one of the Company’s dormant foreign subsidiaries.

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PART IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

(a) The following documents are filed as part of this Annual Report:

<u>Exhibit No.</u>	<u>Description</u>
2.1	Agreement and Plan of Merger, dated October 27, 2005 (incorporated by reference to Annex A to the Company's Definitive Proxy Statement on Schedule 14A, filed November 15, 2005).
3.1	Certificate of Incorporation (incorporated by reference to Annex B to the Company's Definitive Proxy Statement on Schedule 14A, filed November 15, 2005).
3.2	Certificate of Amendment to Certificate of Incorporation (incorporated by reference to Exhibit 3.1 to the Company's Current Report on Form 8-K, filed October 14, 2011).
3.3	Amended and Restated Bylaws (incorporated by reference to Exhibit 3.2 to the Company's Current Report on Form 8-K, filed February 16, 2017).
3.4	Certificate of Designations, Preferences and Rights of the Series E Convertible Preferred Stock (incorporated by reference to Exhibit 3.1 to the Company's Current Report on Form 8-K, filed February 2, 2015).
3.5	Certificate of Designations, Preferences and Rights of the Series F Convertible Preferred Stock (incorporated by reference to Exhibit 3.1 to the Company's Current Report on Form 8-K, filed September 9, 2016).
3.6	Certificate of Designations, Preferences and Rights of the Series G Convertible Preferred Stock (incorporated by reference to Exhibit 3.1 to the Company's Current Report on Form 8-K, filed December 30, 2016).
3.7	Amendment No. 1 to the Certificate of Designations, Preferences and Rights of the Series E Convertible Preferred Stock (incorporated by reference to Exhibit 3.2 to the Company's Current Report on Form 8-K, filed December 30, 2016).
3.8	Certificate of Designations, Preferences and Rights of the Series A Convertible Preferred Stock (incorporated by reference to Exhibit 3.1 to the Company's Current Report on Form 8-K, filed September 19, 2017).
3.9	Certificate of Elimination of the Series E Convertible Preferred Stock, Series F Convertible Preferred Stock and Series G Convertible Preferred Stock (incorporated by reference to Exhibit 3.1 to the Company's Current Report on Form 8-K, filed October 19, 2017).
3.10	Certificate of Amendment to Certificate of Incorporation (incorporated by reference to Exhibit 3.1 to the Company's Current Report on Form 8-K, filed February 13, 2018).
3.11	Certificate of Designations, Preferences, and Rights of Series C Convertible Preferred Stock (incorporated by reference to Exhibit 3.1 to the Company's Current Report on Form 8-K, filed September 13, 2018).
3.12	Amendment No. 1 to the Certificate of Designations, Preferences, and Rights of Series A Convertible Preferred Stock (incorporated by reference to Exhibit 3.2 to the Company's Current Report on Form 8-K, filed September 13, 2018).
4.1	Form of Amendment to Warrant, dated March 21, 2012, (incorporated by reference to Exhibit 4.16 to the Company's Annual Report on Form 10-K, filed April 4, 2012).
4.2	Form of Warrant, dated September 10, 2018 (incorporated by reference to Exhibit 3.3 to the Company's Current Report on Form 8-K, filed September 13, 2018).
10.1	Employment Agreement, dated September 27, 2005, between the Company and S. James Miller (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K, filed September 30, 2005).
10.2	Form of Indemnification Agreement entered into by the Company with its directors and executive officers (incorporated by reference to Exhibit 10.4 to the Company's Registration Statement on Form SB-2 (No. 333-93131), filed December 20, 1999, as amended).
10.3	Amended and Restated 1999 Stock Plan Award (incorporated by reference to Appendix B of the Company's Definitive Proxy Statement on Schedule 14A, filed November 21, 2007).
10.4	Form of Stock Option Agreement (incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K, filed July 14, 2005).
10.5	2001 Equity Incentive Plan (incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-QSB, filed November 14, 2001).
10.6	Securities Purchase Agreement, dated September 25, 2007, by and between the Company and certain accredited investors (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K, filed September 26, 2007).
10.7	Office Space Lease between I.W. Systems Canada Company and GE Canada Real Estate Equity, dated July 25, 2008 (incorporated by reference to Exhibit 10.39 to the Company's Annual Report on Form 10-K, filed February 24, 2010).
10.8	Form of Securities Purchase Agreement, dated August 29, 2008 by and between the Company and certain accredited investors (incorporated by reference to Exhibit 10.40 to the Company's Annual Report on Form 10-K, filed February 24, 2010).
10.9	Change of Control and Severance Benefits Agreement, dated September 27, 2008, between Company and Charles Aubuchon (incorporated by reference to Exhibit 10.41 to the Company's Annual Report on Form 10-K, filed February 24, 2010).
10.10	Change of Control and Severance Benefits Agreement, dated September 27, 2008, between Company and David Harding (incorporated by reference to Exhibit 10.42 to the Company's Annual Report on Form 10-K, filed February 24, 2010).
10.11	First Amendment to Employment Agreement, dated September 27, 2008, between the Company and S. James Miller (incorporated by reference to Exhibit 10.43 to the Company's Annual Report on Form 10-K, filed February 24, 2010).

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- [10.12](#) Form of Convertible Note dated November 14, 2008 (incorporated by reference to Exhibit 10.45 to the Company's Annual Report on Form 10-K, filed February 24, 2010).
 - [10.13](#) Second Amendment to Employment Agreement, dated April 6, 2009, between the Company and S. James Miller (incorporated by reference to Exhibit 10.50 to the Company's Annual Report on Form 10-K, filed February 24, 2010).
 - [10.14](#) Office Space Lease between the Company and Allen W. Wooddell, dated July 25, 2008 (incorporated by reference to Exhibit 10.54 to the Company's Annual Report on Form 10-K, filed February 24, 2010).
 - [10.15](#) Third Amendment to Employment Agreement, dated December 10, 2009, between the Company and S. James Miller (incorporated by reference to Exhibit 10.60 to the Company's Annual Report on Form 10-K, filed February 24, 2010).
 - [10.16](#) Securities Purchase Agreement, dated December 12, 2011, by and between the Company and certain accredited investors (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K, filed December 21, 2011).
 - [10.17](#) Note Exchange Agreement, dated December 12, 2011, by and between the Company and certain accredited investors (incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K, filed December 21, 2011).
 - [10.18](#) Fourth Amendment to Employment Agreement, dated March 10, 2011, between the Company and S. James Miller, (incorporated by reference to Exhibit 10.40 to the Company's Annual Report on Form 10-K, filed January 17, 2012).
 - [10.19](#) Fifth Amendment to Employment Agreement, dated January 31, 2012, between the Company and S. James Miller, Jr., (incorporated by reference to Exhibit 10.44 to the Company's Annual Report on Form 10-K, filed April 4, 2012).
 - [10.20](#) Employment Agreement, dated January 1, 2013, between the Company and Wayne Wetherell (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K, filed March 7, 2013).
 - [10.21](#) Employment Agreement, dated January 1, 2013, between the Company and David Harding (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K, filed March 7, 2013).
 - [10.22](#) Convertible Promissory Note dated March 27, 2013 issued by the Company to Neal Goldman (incorporated by reference to Exhibit 10.41 to the Company's Annual Report on Form 10-K, filed April 1, 2013).
 - [10.23](#) Amendment to Convertible Promissory Note, dated March 12, 2014 (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K, filed March 13, 2014).
 - [10.24](#) Note Exchange Agreement, dated January 29, 2015 (incorporated by reference to the Company's Current Report on Form 8-K, filed February 2, 2015).
 - [10.25](#) Sixth Amendment to Employment Agreement, by and between S. James Miller and the Company, dated November 1, 2013 (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K, filed November 7, 2013).
 - [10.26](#) Seventh Amendment to Employment Agreement, by and between S. James Miller, Jr. and the Company, dated January 9, 2015 (incorporated by reference to the Company's Current Report on Form 8-K, filed January 15, 2015).
 - [10.27](#) Second Amendment to Employment Agreement, by and between Wayne Wetherell and the Company, dated January 9, 2015 (incorporated by reference to the Company's Current Report on Form 8-K, filed January 15, 2015).
 - [10.28](#) Second Amendment to Employment Agreement, by and between David E. Harding and the Company, dated January 9, 2015 (incorporated by reference to the Company's Current Report on Form 8-K, filed January 15, 2015).
 - [10.29](#) Amendment No. 3 to Convertible Promissory Note, dated December 8, 2014 (incorporated by reference to the Company's Current Report on Form 8-K, filed December 10, 2014).
 - [10.30](#) Third Amendment to Employment Agreement, by and between Wayne Wetherell and the Company, dated December 14, 2015 (incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K, filed December 21, 2015).
 - [10.31](#) Third Amendment to Employment Agreement, by and between David E. Harding and the Company, dated December 14, 2015 (incorporated by reference to Exhibit 10.3 to the Company's Current Report on Form 8-K, filed December 21, 2015).
 - [10.32](#) Eighth Amendment to Employment Agreement, by and between S. James Miller and the Company, dated December 14, 2015 (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K, filed December 21, 2015).
 - [10.33](#) Amendment No. 4 to Convertible Promissory Note, dated March 8, 2016 (incorporated by reference to the Company's Current Report on Form 8-K, filed March 10, 2017).
 - [10.34](#) Convertible Promissory Note, dated March 9, 2016 (incorporated by reference to the Company's Current Report on Form 8-K, filed March 10, 2017).
 - [10.35](#) Form of Securities Purchase Agreement, dated September 7, 2016 (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K, filed September 9, 2016).
 - [10.36](#) Amendment No. 5 to Convertible Promissory Note, dated January 23, 2017 (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 10-K, filed January 26, 2017).
 - [10.37](#) Form of Subscription Agreement for Series G Convertible Preferred Stock (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K, filed December 30, 2016).
 - [10.38](#) Form of Exchange Agreement (incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K, filed December 30, 2016).
 - [10.39](#) Ninth Amendment to Employment Agreement, by and between James Miller, Jr. and the Company, dated October 20, 2016 (incorporated by reference to Exhibit 10.3 to the Company's Current Report on Form 8-K, filed December 30, 2016).
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10.40	Fourth Amendment to Employment Agreement, by and between Wayne Wetherell and the Company, dated October 20, 2016 (incorporated by reference to Exhibit 10.4 to the Company's Current Report on Form 8-K, filed December 30, 2016).
10.41	Fourth Amendment to Employment Agreement, by and between David E. Harding and the Company, dated October 20, 2016 (incorporated by reference to Exhibit 10.5 to the Company's Current Report on Form 8-K, dated December 30, 2016).
10.42	Amendment No. 2 to Convertible Promissory Note, dated May 10, 2017 (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q, filed May 12, 2017).
10.43	Amendment No. 6 to Convertible Promissory Note, dated May 10, 2017 (incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q, filed May 12, 2017).
10.44	Form of Subscription Agreement for Series A Convertible Preferred Stock (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K, filed September 19, 2017).
10.45	Form of Exchange Agreement (incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K, filed September 19, 2017).
10.46	Fifth Amendment to Employment Agreement, by and between David E. Harding and the Company, dated February 7, 2018 (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K, dated February 13, 2018).
10.47	Tenth Amendment to Employment Agreement, by and between James Miller, Jr. and the Company, dated February 8, 2018 (incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K, dated February 13, 2018).
10.48	Form of Securities Purchase Agreement for Series C Convertible Preferred Stock (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K, filed September 13, 2018).
10.49	Form of Registration Rights Agreement (incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K, filed September 13, 2018).
10.50	Placement Agency Agreement, by and between the Company and Northland Capital Markets (incorporated by reference to Exhibit 10.3 to the Company's Current Report on Form 8-K, filed September 13, 2018).
10.51	Form of Exchange Agreement (incorporated by reference to Exhibit 10.4 to the Company's Current Report on Form 8-K, filed September 13, 2018).
10.52	Eleventh Amendment to Employment Agreement, by and between James Miller, Jr. and the Company, dated January 31, 2019 (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K, dated February 1, 2019).
10.53	Sixth Amendment to Employment Agreement, by and between David Harding and the Company, dated January 31, 2019 (incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K, dated February 1, 2019).
21.1	List of Subsidiaries (incorporated by referenced to Exhibit 21.1 to the Company's Annual Report on Form 10-K filed February 24, 2010).
23.1	Consent of Independent Registered Public Accounting Firm.
31.1	Certification of CEO as Required by Rule 13a-14(a)/15d-14, filed herewith
31.2	Certification of CFO as Required by Rule 13a-14(a)/15d-14, filed herewith.
32	Certification of CEO and CFO as Required by Rule 13a-14(a) and Rule 15d-14(b) (17 CFR 240.15d-14(b)) and Section 1350 of Chapter 63 of Title 18 of the United States Code, filed herewith.
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema
101.CAL	XBRL Taxonomy Extension Calculation Linkbase
101.DEF	XBRL Taxonomy Extension Definition Linkbase
101.LAB	XBRL Taxonomy Extension Label Linkbase
101.PRE	XBRL Taxonomy Extension Presentation Linkbase

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SIGNATURES

In accordance with 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, there unto duly authorized.

Registrant	<i>ImageWare Systems, Inc.</i>
Date: March 27, 2019	<u>/s/ S. James Miller, Jr.</u> S. James Miller, Jr. Chief Executive Officer (Principal Executive Officer), President
Date: March 27, 2019	<u>/s/ Wayne Wetherell</u> Wayne Wetherell Chief Financial Officer (Principal Financial Officer)

In accordance with the Securities Exchange Act of 1934, this Report has been signed below by the following persons on behalf of the Company and in the capacities and on the dates indicated.

Date: March 27, 2019	<u>/s/ S. James Miller, Jr.</u> S. James Miller, Jr. Chairman of the Board
Date: March 27, 2019	<u>/s/ David Loesch</u> David Loesch Director
Date: March 27, 2019	<u>/s/ Steve Hamm</u> Steve Hamm Director
Date: March 27, 2019	<u>/s/ David Carey</u> David Carey Director
Date: March 27, 2019	<u>/s/ John Cronin</u> John Cronin Director
Date: March 27, 2019	<u>/s/ Neal Goldman</u> Neal Goldman Director
Date: March 27, 2019	<u>/s/ Dana Kammersgard</u> Dana Kammersgard Director
Date: March 27, 2019	<u>/s/ Robert T. Clutterbuck</u> Robert T. Clutterbuck Director
Date: March 27, 2019	<u>/s/ Charles Frischer</u> Charles Frischer Director

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**IMAGEWARE SYSTEMS, INC.
INDEX TO CONSOLIDATED FINANCIAL STATEMENTS**

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Shareholders of:
ImageWare Systems, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of **ImageWare Systems, Inc.** ("Company") as of December 31, 2018 and 2017, and the related consolidated statements of operations, comprehensive loss, shareholders' equity (deficit) and cash flows for each of the two years in the period ended December 31, 2018, and the related notes (collectively referred to as the "financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2018 and 2017, and the results of its operations and its cash flows for each of the two years in the period ended December 31, 2018, in conformity with accounting principles generally accepted in the United States of America.

Adoption of New Accounting Standard

As discussed in Note 2 to the financial statements, the Company changed its method of accounting for revenue from contracts with customers as a result of the adoption of Accounting Standards Codification Topic 606, *Revenue from Contracts with Customers* effective January 1, 2018, under the modified retrospective method.

Going Concern Uncertainty

The accompanying financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 1 to the financial statements, the Company has incurred recurring operating losses and is dependent on additional financing to fund operations. These conditions raise substantial doubt about the Company's ability to continue as a going concern. Management's plans in regard to these matters are also described in Note 1 to the financial statements. The financial statements do not include any adjustments to reflect the possible future effects on the recoverability and classification of assets or the amounts and classification of liabilities that may result from the outcome of this uncertainty.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the Company's internal control over financial reporting as of December 31, 2018, based on criteria established in the 2013 *Internal Control—Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) and our report dated March 27, 2019, expressed an unqualified opinion.

Basis for Opinion

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

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

/s/ Mayer Hoffman McCann P.C.

We have served as the Company's auditor since 2011.

San Diego, California
March 27, 2019

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Report of Independent Registered Public Accounting Firm

To the Board of Directors and Shareholders of:
ImageWare Systems, Inc.

Opinion on Internal Control over Financial Reporting

We have audited **ImageWare Systems, Inc.**'s ("Company") internal control over financial reporting as of December 31, 2018, based on criteria established in *Internal Control—Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO criteria). In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2018, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) ("PCAOB"), the consolidated balance sheets of the Company as of December 31, 2018 and 2017, and the related consolidated statements of operations, comprehensive loss, shareholders' equity (deficit) and cash flows for each of the two years in the period ended December 31, 2018, and our report dated March 27, 2019, expressed an unqualified opinion on those financial statements, and included explanatory paragraphs regarding the Company's change in method of accounting for revenue from contracts with customers as a result of the adoption of Accounting Standards Codification Topic 606, *Revenue from Contracts with Customers*, effective January 1, 2018, as well as the Company's ability to continue as a going concern.

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 of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included 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 accounting principles generally accepted in the United States of America. 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/ Mayer Hoffman McCann P.C.

San Diego, California
March 27, 2019

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IMAGEWARE SYSTEMS, INC.
CONSOLIDATED BALANCE SHEETS
(In thousands, except share and per share data)

	December 31, 2018	December 31, 2017
ASSETS		
Current Assets:		
Cash and cash equivalents	\$ 5,694	\$ 7,317
Accounts receivable, net of allowance for doubtful accounts of \$0 and \$15 at December 31, 2018 and 2017, respectively.	968	458
Inventory, net	29	79
Other current assets	233	163
Total Current Assets	6,924	8,017
Property and equipment, net	244	43
Other assets	332	35
Intangible assets, net of accumulated amortization	82	93
Goodwill	3,416	3,416
Total Assets	\$ 10,998	\$ 11,604
LIABILITIES, MEZZANINE EQUITY AND SHAREHOLDERS' EQUITY (DEFICIT)		
Current Liabilities:		
Accounts payable	\$ 678	\$ 457
Deferred revenue	1,215	1,016
Accrued expense	888	658
Accrued interest payable to related parties	—	527
Convertible lines of credit to related parties, net of discount	—	5,774
Derivative liabilities	1,065	—
Total Current Liabilities	3,846	8,432
Other long-term liabilities	147	—
Pension obligation	1,876	2,024
Total Liabilities	5,869	10,456
Mezzanine Equity:		
Series C Convertible Redeemable Preferred Stock, \$0.01 par value, designated 1,000 shares, 1,000 and 0 shares issued and outstanding at December 31, 2018 and December 31, 2017, respectively; liquidation preference \$10,000 and \$0 at December 31, 2018 and December 31, 2017, respectively.	8,156	—
Shareholders' Equity (Deficit):		
Preferred stock, authorized 4,000,000 shares:		
Series A Convertible Redeemable Preferred Stock, \$0.01 par value; designated 38,000 shares, 37,467 shares and 31,021 shares issued and outstanding at December 31, 2018 and 2017, respectively; liquidation preference \$37,467 and \$31,021 at December 31, 2018 and 2017, respectively.	—	—
Series B Convertible Redeemable Preferred Stock, \$0.01 par value; designated 750,000 shares, 389,400 shares issued and 239,400 shares outstanding at December 31, 2018 and 2017; liquidation preference \$607 at December 31, 2018 and 2017, respectively.	2	2
Common Stock, \$0.01 par value, 175,000,000 shares authorized; 98,230,336 and 94,174,540 shares issued at December 31, 2018 and 2017, respectively, and 98,223,632 and 94,167,836 shares outstanding at December 31, 2018 and 2017, respectively.	981	941
Additional paid-in capital	184,130	172,414
Treasury stock, at cost 6,704 shares	(64)	(64)
Accumulated other comprehensive loss	(1,428)	(1,664)
Accumulated deficit	(186,648)	(170,481)
Total Shareholders' Equity (Deficit)	(3,027)	1,148
Total Liabilities, Mezzanine Equity and Shareholders' Equity (Deficit)	\$ 10,998	\$ 11,604

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

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IMAGEWARE SYSTEMS, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS
(In thousands, except share and per share amounts)

	Year Ended December 31,	
	2018	2017
Revenue:		
Product	\$ 1,761	\$ 1,614
Maintenance	2,643	2,679
	<u>4,404</u>	<u>4,293</u>
Cost of revenue:		
Product	205	152
Maintenance	671	839
Gross profit	<u>3,528</u>	<u>3,302</u>
Operating expense:		
General and administrative	4,285	3,723
Sales and marketing	3,571	2,816
Research and development	7,351	6,324
Depreciation and amortization	51	68
	<u>15,258</u>	<u>12,931</u>
Loss from operations	(11,730)	(9,727)
Interest expense, net	463	591
Change in fair value of derivative liabilities	232	—
Other components of net periodic pension expense	118	98
Other income, net	(4)	(125)
Loss before income taxes	<u>(12,539)</u>	<u>(10,193)</u>
Income tax expense (benefit)	11	(124)
Net loss	<u>\$ (12,550)</u>	<u>\$ (10,069)</u>
Preferred dividends, deemed dividends and accretion	(3,913)	(2,400)
Preferred stock exchange	—	(1,245)
Net loss available to common shareholders	<u>\$ (16,463)</u>	<u>\$ (13,714)</u>
Basic and diluted loss per common share — see Note 2:		
Net loss	\$ (0.13)	\$ (0.11)
Preferred dividends, deemed dividends and accretion	(0.04)	(0.03)
Preferred stock exchange	—	(0.01)
Basic and diluted loss per share available to common shareholders	<u>\$ (0.17)</u>	<u>\$ (0.15)</u>
Basic and diluted weighted-average shares outstanding	<u>95,210,572</u>	<u>92,816,723</u>

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

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IMAGEWARE SYSTEMS, INC.
CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
(In thousands)

	Year Ended December 31,	
	2018	2017
Net loss	\$ (12,550)	\$ (10,069)
Other comprehensive income (loss):		
Reduction (increase) in additional minimum pension liability	209	(15)
Foreign currency translation adjustment	27	(106)
Comprehensive loss	<u>\$ (12,314)</u>	<u>\$ (10,190)</u>

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

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IMAGEWARE SYSTEMS, INC.
CONSOLIDATED STATEMENTS OF SHAREHOLDERS' EQUITY (DEFICIT)
(In thousands, except share amounts)

	Series A Convertible, Redeemable Preferred		Series B Convertible, Redeemable Preferred		Series E Convertible Preferred		Series F Convertible Preferred		Series G Convertible Preferred		Common Stock		Treasury Stock		Additional Paid-In Capital	Accumulated Other Comprehensive Loss	Accumulated Deficit	Total
	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount				
Balance at December 31, 2016	-	\$ -	239,400	\$ 2	12,000	\$ -	2,000	\$ -	6,021	\$ -	91,853,499	\$ 917	(6,704)	\$ (64)	\$ 56,195	\$ (1,543)	\$ (156,767)	\$ 1,260
Issuance of Series A Convertible Redeemable Preferred Stock for cash, net of issuance costs	11,000	-	-	-	-	-	-	-	-	-	-	-	-	-	10,937	-	-	10,937
Issuance of Series A Convertible Redeemable Preferred Stock in exchange for preferred shares	20,021	-	-	-	(12,000)	-	(2,000)	-	(6,021)	-	-	-	-	-	1,245	-	(1,245)	-
Issuance of common stock warrants as compensation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	57	-	-	57
Issuance of Common Stock pursuant to option exercises	-	-	-	-	-	-	-	-	-	-	369,004	4	-	-	255	-	-	259
Recognition of beneficial conversion feature on convertible debt	-	-	-	-	-	-	-	-	-	-	-	-	-	-	302	-	-	302
Stock-based compensation expense	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,094	-	-	1,094
Additional minimum pension liability	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(15)	-	(15)
Foreign currency translation adjustment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(106)	-	(106)
Dividends on preferred stock	-	-	-	-	-	-	-	-	-	-	1,952,037	20	-	-	2,329	-	(2,400)	(51)
Net loss	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(10,069)	(10,069)
Balance at December 31, 2017	31,021	\$ -	239,400	\$ 2	-	\$ -	-	\$ -	-	\$ -	94,174,546	\$ 941	(6,704)	\$ (64)	\$ 72,414	\$ (1,664)	\$ (170,481)	\$ 1,148
Issuance of common stock pursuant to Series A Preferred	(450)	-	-	-	-	-	-	-	-	-	391,304	4	-	-	(4)	-	-	-

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IMAGEWARE SYSTEMS, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(In thousands)

	Year Ended December 31,	
	2018	2017
Cash flows from operating activities		
Net loss	\$ (12,550)	\$ (10,069)
Adjustments to reconcile net loss to net cash used by operating activities:		
Depreciation and amortization	51	68
Amortization of debt discounts and debt issuance costs	170	209
Stock-based compensation	1,272	1,094
Provision for losses on accounts receivable	—	15
Gain from sale of trademark	—	(50)
Reduction in accrued expense from expiration of statute of limitations	—	(222)
Warrants issued in lieu of cash as compensation for services	26	57
Loss from change in fair value of derivative liabilities	232	—
Change in assets and liabilities		
Accounts receivable	(414)	(186)
Inventory	50	(56)
Other assets	(229)	(40)
Accounts payable	221	32
Accrued expense	600	359
Deferred revenue	200	(29)
Pension obligation	61	115
Total adjustments	2,240	1,366
Net cash used by operating activities	(10,310)	(8,703)
Cash flows from investing activities		
Purchase of property and equipment	(240)	(5)
Proceeds from sale of trademark	—	50
Net cash provided by (used by) investing activities	(240)	45
Cash flows from financing activities		
Proceeds from line of credit	—	3,350
Proceeds from exercise of stock options	162	259
Proceeds from issuance of preferred stock, net of issuance costs	8,789	10,937
Dividends paid to preferred stockholders	(51)	(51)
Net cash provided by financing activities	8,900	14,495
Effect of exchange rate changes on cash and cash equivalents	27	(106)
Net increase (decrease) in cash and cash equivalents	(1,623)	5,731
Cash and cash equivalents at beginning of year	7,317	1,586
Cash and cash equivalents at end of year	\$ 5,694	\$ 7,317
Supplemental disclosure of cash flow information:		
Cash paid for interest	\$ —	\$ —
Cash paid for income taxes	\$ —	\$ —
Summary of non-cash investing and financing activities:		
Exchange of related party indebtedness for Series A Convertible Preferred Stock	\$ 6,802	\$ —
Beneficial conversion feature of related party lines of credit	\$ 30	\$ 302
Stock dividends on Series A Convertible Preferred Stock	\$ 3,251	\$ 923
Stock dividends on Series C Convertible Redeemable Preferred Stock	\$ 319	\$ —
Stock dividends on Series E, Series F and Series G Convertible Preferred Stocks	\$ —	\$ 1,426
Conversion of Series A Convertible Preferred Stock into Common Stock	\$ 4	\$ —
Recognition of derivative liabilities on preferred stock issuance	\$ 833	\$ —
Deemed dividend on preferred stock modification	\$ 92	\$ —
Accretion of discount on Series C Convertible Redeemable Preferred Stock	\$ 200	\$ —
Reduction (increase) in additional minimum pension liability	\$ 209	\$ (15)
Preferred stock exchange	\$ —	\$ 1,245

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

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IMAGEWARE SYSTEMS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
DECEMBER 31, 2018 AND 2017

1. DESCRIPTION OF BUSINESS AND OPERATIONS**Overview**

As used in this Quarterly Report, “we,” “us,” “our,” “ImageWare,” “ImageWare Systems,” “Company” or “our Company” refers to ImageWare Systems, Inc. and all of its subsidiaries. ImageWare Systems, Inc. is incorporated in the state of Delaware. The Company is a pioneer and leader in the emerging market for biometrically enabled software-based identity management solutions. Using those human characteristics that are unique to us all, the Company creates software that provides a highly reliable indication of a person’s identity. The Company’s “flagship” product is the patented IWS Biometric Engine®. The Company’s products are used to manage and issue secure credentials, including national IDs, passports, driver licenses and access control credentials. The Company’s products also provide law enforcement with integrated mug shot, fingerprint LiveScan and investigative capabilities. The Company also provides comprehensive authentication security software using biometrics to secure physical and logical access to facilities or computer networks or internet sites. Biometric technology is now an integral part of all markets the Company addresses, and all the products are integrated into the IWS Biometric Engine.

Recent Developments*Creation of Series C Convertible Redeemable Preferred Stock*

On September 10, 2018, the Company filed the Certificate of Designations, Preferences, and Rights of Series C Convertible Redeemable Preferred Stock with the Secretary of State for the State of Delaware – Division of Corporations, designating 1,000 shares of the Company’s preferred stock, par value \$0.01 per share, as Series C Convertible Redeemable Preferred Stock (“*Series C Preferred*”), each share with a stated value of \$10,000 per share.

Series C Financing

From September 10, 2018 through September 21, 2018, the Company offered and sold an aggregate of 1,000 shares of Series C Preferred at a purchase price of \$10,000 per share (the “*Series C Financing*”). The aggregate gross proceeds to the Company from the Series C Financing were approximately \$10,000,000. Issuance costs incurred in conjunction with the Series C Financing were approximately \$1,211,000, resulting in net proceeds to the Company of approximately \$8,789,000.

Amendment to Certificate of Designations of Series A Convertible Preferred Stock

On September 10, 2018, the Company filed an Amendment to the Certificate of Designations, Preferences, and Rights of Series A Convertible Preferred Stock with the Secretary of State for the State of Delaware – Division of Corporations, to increase the number of shares of Series A Convertible Preferred Stock, par value \$0.01 per share (“*Series A Preferred*”), authorized for issuance thereunder to 38,000 shares, in order to permit the Debt Exchange (as defined below).

Debt Exchange

On September 10, 2018, the Company entered into exchange agreements (the “*Exchange Agreements*”) with Neal Goldman and Charles Crocker, pursuant to which Messrs. Goldman and Crocker agreed to exchange approximately \$6.3 million and \$0.6 million, respectively, of outstanding debt (including accrued and unpaid interest) owed under the terms of their respective lines of credit for an aggregate of 6,896 shares of Series A Preferred (the “*Debt Exchange*”). As a result of the Debt Exchange, all indebtedness, liabilities and other obligations arising under the respective lines of credit were cancelled and deemed satisfied in full. Messrs. Goldman and Crocker are members of the Company’s Board of Directors and related parties.

Declaration of Special Dividend

Concurrently with the Series C Financing, the Company’s Board of Directors declared a special dividend (the “*Special Dividend*”) for holders of the Series A Preferred (each a “*Holder*”), pursuant to which each Holder received a warrant (“*Dividend Warrant*”) to purchase 39.87 shares of Company Common Stock for every share of Series A Preferred held, which resulted in the issuance of Dividend Warrants to the Holders as a group to purchase an aggregate of 1,493,856 shares of Common Stock. Each Dividend Warrant has an exercise price of \$0.01 per share, and is exercisable immediately upon issuance; *provided, however*, that a Dividend Warrant may only be exercised concurrently with the conversion of shares of Series A Preferred held by a Holder into shares of Common Stock. In addition, each Dividend Warrant held by a Holder shall expire on the earliest to occur of (i) the conversion of all Series A Preferred held by such Holder into Common Stock, (ii) the redemption by the Company of all outstanding shares of Series A Preferred held by such Holder, (iii) the Dividend Warrant no longer representing the right to purchase any shares of Common Stock, and (iv) the tenth anniversary of the date of issuance.

[Table of Contents](#)**Liquidity, Going Concern and Management's Plan**

Historically, our principal sources of cash have included customer payments from the sale of our products, proceeds from the issuance of common and preferred stock and proceeds from the issuance of debt, including our Lines of Credit (defined below). Our principal uses of cash have included cash used in operations, product development, and payments relating to purchases of property and equipment. We expect that our principal uses of cash in the future will be for product development, including customization of identity management products for enterprise and consumer applications, further development of intellectual property, development of Software-as-a-Service ("SaaS") capabilities for existing products as well as general working capital and capital expenditure requirements. Management expects that, as our revenue grows, our sales and marketing and research and development expense will continue to grow, albeit at a slower rate and, as a result, we will need to generate significant net revenue to achieve and sustain income from operations.

At December 31, 2018, we had positive working capital of approximately \$3,078,000, as compared to a working capital deficit of approximately \$415,000 at December 31, 2017. Our principal sources of liquidity at December 31, 2018 consisted of cash and cash equivalents of \$5,694,000. Our principal sources of liquidity at December 31, 2017 consisted of cash and cash equivalents of \$7,317,000.

Considering our projected cash requirements, and assuming we are unable to generate incremental revenue, our available cash may be insufficient to satisfy our cash requirements for the next 12 months from the date of this filing. These factors raise substantial doubt about our ability to continue as a going concern. To address our working capital requirements, management may seek additional equity and/or debt financing through the issuance of additional debt and/or equity securities or may seek strategic or other transactions intended to increase shareholder value. There are currently no formal committed financing arrangements to support our projected cash shortfall, including commitments to purchase additional debt and/or equity securities, or other agreements, and no assurances can be given that we will be successful in raising additional debt and/or equity securities, or entering into any other transaction that addresses our ability to continue as a going concern.

In view of the matters described in the preceding paragraph, recoverability of a major portion of the recorded asset amounts shown in the accompanying consolidated balance sheet is dependent upon continued operations of the Company, which, in turn, is dependent upon the Company's ability to continue to raise capital and generate positive cash flows from operations. However, the Company operates in markets that are emerging and highly competitive. There is no assurance that the Company will be able to obtain additional capital, operate at a profit or generate positive cash flows in the future.

The consolidated financial statements do not include any adjustments relating to the recoverability and classification of recorded asset amounts and classifications of liabilities that might be necessary should the Company be unable to continue as a going concern

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES***Principles of Consolidation***

The consolidated financial statements include the accounts of the Company and its wholly owned subsidiaries. The Company's wholly-owned subsidiaries are: XImage Corporation, a California Corporation; ImageWare Systems ID Group, Inc., a Delaware corporation (formerly Imaging Technology Corporation); I.W. Systems Canada Company, a Nova Scotia unlimited liability company; ImageWare Digital Photography Systems, LLC, a Nevada limited liability company (formerly Castleworks LLC); Digital Imaging International GmbH, a company formed under German laws; and Image Ware Mexico S de RL de CV, a company formed under Mexican laws. All significant intercompany transactions and balances have been eliminated.

Operating Cycle

Assets and liabilities related to long-term contracts are included in current assets and current liabilities in the accompanying consolidated balance sheets, although they will be liquidated in the normal course of contract completion which may take more than one operating cycle.

Use of Estimates

The preparation of the consolidated financial statements in conformity with 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 revenue and expense during the reporting period. Significant estimates include the evaluation of our ability to continue as a going concern, the allowance for doubtful accounts receivable, deferred tax asset valuation allowances, recoverability of goodwill, assumptions used in the Black-Scholes model to calculate the fair value of share based payments, fair value of financial instruments issued with and affected by the Series C Preferred Financing (defined above), fair value of Exchanged Preferred (defined below), assumptions used in the application of revenue recognition policies and assumptions used in the application of fair value methodologies to calculate the fair value of pension assets and obligations. Actual results could differ from estimates.

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Accounts Receivable

In the normal course of business, the Company extends credit without collateral requirements to its customers that satisfy pre-defined credit criteria. Accounts receivable are recorded net of an allowance for doubtful accounts. Accounts receivable are considered delinquent when the due date on the invoice has passed. The Company records its allowance for doubtful accounts based upon its assessment of various factors. The Company considers historical experience, the age of the accounts receivable balances, the credit quality of its customers, current economic conditions and other factors that may affect customers' ability to pay to determine the level of allowance required. Accounts receivable are written off against the allowance for doubtful accounts when all collection efforts by the Company have been unsuccessful.

Inventories

Finished goods inventories are stated at the lower of cost, determined using the average cost method, or net realizable value. See Note 6.

Property, Equipment and Leasehold Improvements

Property and equipment, consisting of furniture and equipment, are stated at cost and are being depreciated on a straight-line basis over the estimated useful lives of the assets, which generally range from three to five years. Maintenance and repairs are charged to expense as incurred. Major renewals or improvements are capitalized. When assets are sold or abandoned, the cost and related accumulated depreciation are removed from the accounts and the resulting gain or loss is recognized. Expenditures for leasehold improvements are capitalized. Amortization of leasehold improvements is computed using the straight-line method over the shorter of the remaining lease term or the estimated useful lives of the improvements.

Revenue Recognition. Effective January 1, 2018, we adopted Accounting Standards Codification ("ASC"), Topic 606, Revenue from Contracts with Customers ("ASC 606"), using the modified retrospective transition method.

In accordance with ASC 606, revenue is recognized when control of the promised goods or services is transferred to our customers, in an amount that reflects the consideration we expect to be entitled to in exchange for those goods or services.

The core principle of the standard is that we should recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which we expect to be entitled in exchange for those goods or services. To achieve that core principle, we apply the following five step model:

1. Identify the contract with the customer;
2. Identify the performance obligation in the contract;
3. Determine the transaction price;
4. Allocate the transaction price to the performance obligations in the contract; and
5. Recognize revenue when (or as) each performance obligation is satisfied.

At contract inception, we assess the goods and services promised in a contract with a customer and identify as a performance obligation each promise to transfer to the customer either: (i) a good or service (or a bundle of goods or services) that is distinct or (ii) a series of distinct goods or services that are substantially the same and that have the same pattern of transfer to the customer. We recognize revenue only when we satisfy a performance obligation by transferring a promised good or service to a customer.

Determining the timing of the satisfaction of performance obligations as well as the transaction price and the amounts allocated to performance obligations requires judgement.

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We disclose disaggregation of our customer revenue by classes of similar products and services as follows:

- Software licensing and royalties;
- Computer hardware and identification media;
- Services; and
- Post-contract customer support.

Software licensing and royalties

Software licenses consist of revenue from the sale of software for identity management applications. Our software licenses are functional intellectual property and typically provide customers with the right to use our software in perpetuity as it exists when made available to the customer. We recognize revenue from software licensing at a point in time upon delivery, provided all other revenue recognition criteria are met.

Royalties consist of revenue from usage-based arrangements and guaranteed minimum-based arrangements. We recognize revenue for royalty arrangements at the later of (i) when the related sales occur, or (ii) when the performance obligation to which some or all of the royalty has been allocated has been satisfied.

Computer hardware and identification media

We generate revenue from the sale of computer hardware and identification media. Revenue for these items is recognized upon delivery of these products to the customer, provided all other revenue recognition criteria are met.

Services

Services revenue is comprised primarily of software customization services, software integration services, system installation services and customer training. Revenue is generally recognized upon completion of services and customer acceptance provided all other revenue recognition criteria are met.

Post-contract customer support ("PCS")

Post contract customer support consists of maintenance on software and hardware for our identity management solutions. We recognize PCS revenue from periodic maintenance agreements. Revenue is generally recognized ratably over the respective maintenance periods provided no significant obligations remain. Costs related to such contracts are expensed as incurred.

Arrangements with multiple performance obligations

A performance obligation is a promise in a contract to transfer a distinct good or service to the customer. In addition to selling software licenses, hardware and identification media, services and post-contract customer support on a standalone basis, certain contracts include multiple performance obligations. For such arrangements, we allocate revenue to each performance obligation based on our best estimate of the relative standalone selling price. The standalone selling price for a performance obligation is the price at which we would sell a promised good or service separately to a customer. The primary methods used to estimate standalone selling price are as follows: (i) the expected cost-plus margin approach, under which we forecast our expected costs of satisfying a performance obligation and then add an appropriate margin for that distinct good or service and (ii) the percent discount off of list price approach.

Contract costs

We recognize an asset for the incremental costs of obtaining a contract with a customer if we expect the benefit of those costs to be longer than one year. We apply a practical expedient to expense costs as incurred for costs to obtain a contract when the amortization period is one year or less.

Other items

We do not offer rights of return for our products and services in the normal course of business.

Sales tax collected from customers is excluded from revenue.

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The adoption of ASC 606 as of January 1, 2018 resulted in a cumulative positive adjustment to beginning accumulated deficit and accounts receivable of approximately \$96,000. The following table sets forth our disaggregated revenue for the years ended December 31, 2018 and 2017:

Net Revenue (dollars in thousands)	Year Ended December 31,	
	2018	2017
Software and royalties	\$ 1,334	\$ 1,248
Hardware and consumables	133	94
Services	294	272
Maintenance	2,643	2,679
Total net revenue	<u>\$ 4,404</u>	<u>\$ 4,293</u>

Fair Value of Financial Instruments

For certain of the Company's financial instruments, including accounts receivable, accounts payable, accrued expense, deferred revenue and lines of credit payable to related parties, the carrying amounts approximate fair value due to their relatively short maturities.

Goodwill

The Company accounts for its intangible assets under the provisions of ASC 350, "Intangibles - Goodwill and Other." In accordance with ASC 350, intangible assets with a definite life are analyzed for impairment under ASC 360-10-05 "Property, Plant and Equipment" and intangible assets with an indefinite life are analyzed for impairment under ASC 360 annually, or more often if circumstances dictate. The Company performs its annual goodwill impairment test in the fourth quarter of each year, or if required, at the end of each fiscal quarter. In December 2018, the Company adopted the provisions of ASU 2017-04, "Intangibles - Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment". The provisions of ASU 2017-04 eliminate the requirement to calculate the implied fair value of goodwill to measure a goodwill impairment charge. Instead, entities will record an impairment charge based on the excess of a reporting unit's carrying amount over its fair value. Entities that have reporting units with zero or negative carrying amounts will no longer be required to perform a qualitative assessment assuming they pass the simplified impairment test. The adoption of this ASU did not have a material effect on the Company's consolidated financial statements or results of operations.

The Company did not record any goodwill impairment charges for the years ended December 31, 2018 or 2017.

Intangible and Long-Lived Assets

Intangible assets are carried at their cost less any accumulated amortization. Any costs incurred to renew or extend the life of an intangible or long-lived asset are reviewed for capitalization. The Company evaluates long-lived assets for impairment whenever events or changes in circumstances indicate their net book value may not be recoverable. When such factors and circumstances exist, the Company compares the projected undiscounted future cash flows associated with the related asset or group of assets over their estimated useful lives against their respective carrying amount. Impairment, if any, is based on the excess of the carrying amount over the fair value, based on market value when available, or discounted expected cash flows, of those assets and is recorded in the period in which the determination is made. The Company's management currently believes there is no impairment of its long-lived assets. There can be no assurance, however, that market conditions will not change or demand for the Company's products under development will continue. Either of these could result in future impairment of long-lived assets.

Concentration of Credit Risk

Financial instruments which potentially subject the Company to concentrations of credit risk consist principally of cash and trade accounts receivable. The Company places its cash with high quality financial institutions and at times during the years ended December 31, 2018 and 2017 exceeded the FDIC insurance limits of \$250,000. Sales are typically made on credit and the Company generally does not require collateral. The Company performs ongoing credit evaluations of its customers' financial condition and maintains an allowance for doubtful accounts. The Company considers historical experience, the age of the accounts receivable balances, the credit quality of its customers, current economic conditions and other factors that may affect customers' ability to pay to determine the level of allowance required. Accounts receivable are presented net of an allowance for doubtful accounts of approximately \$0 and \$15,000 at December 31, 2018 and 2017, respectively.

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For the year ended December 31, 2018 one customer accounted for approximately 36% or \$1,573,000 of total revenue and had trade receivables of approximately \$0 as of the end of the year. For the year ended December 31, 2017 one customer accounted for approximately 25% or \$1,089,000 of total revenue and had trade receivables of approximately \$201,000 as of the end of the year.

Stock-Based Compensation

At December 31, 2018, the Company had one stock-based compensation plan for employees and nonemployee directors, which authorize the granting of various equity-based incentives including stock options and restricted stock.

The Company estimates the fair value of its stock options using a Black-Scholes option-pricing model, consistent with the provisions of ASC 718, “*Compensation – Stock Compensation*.” The fair value of stock options granted is recognized to expense over the requisite service period. Stock-based compensation expense for all share-based payment awards is recognized using the straight-line single-option method. Stock-based compensation expense is reported in operating expense based upon the departments to which substantially all of the associated employees report and credited to additional paid-in-capital. Stock-based compensation expense related to equity options was approximately \$1,272,000 and \$1,094,000 for the years ended December 31, 2018 and 2017, respectively.

ASC 718 requires the use of a valuation model to calculate the fair value of stock-based awards. The Company has elected to use the Black-Scholes option-pricing model, which incorporates various assumptions including volatility, expected life, and interest rates. The Company is required to make various assumptions in the application of the Black-Scholes option-pricing model. The Company has determined that the best measure of expected volatility is based on the historical weekly volatility of the Company’s Common Stock. Historical volatility factors utilized in the Company’s Black-Scholes computations for options granted during the years ended December 31, 2018 and 2017 ranged from 57% to 64%. The Company has elected to estimate the expected life of an award based upon the SEC approved “simplified method” noted under the provisions of Staff Accounting Bulletin Topic 14. The expected term used by the Company during the years ended December 31, 2018 and 2017 was 5.17 years. The difference between the actual historical expected life and the simplified method was immaterial. The interest rate used is the risk-free interest rate and is based upon U.S. Treasury rates appropriate for the expected term. Interest rates used in the Company’s Black-Scholes calculations for the years ended December 31, 2018 and 2017 averaged 2.58%. Dividend yield is zero as the Company does not expect to declare any dividends on the Company’s common shares in the foreseeable future.

In addition to the key assumptions used in the Black-Scholes model, the estimated forfeiture rate at the time of valuation is a critical assumption. The Company has adopted the provisions of ASU 2016-09 and will continue to use an estimated annualized forfeiture rate of approximately 0% for corporate officers, 4.1% for members of the Board of Directors and 6.0% for all other employees. The Company reviews the expected forfeiture rate annually to determine if that percent is still reasonable based on historical experience.

Restricted stock units are recorded at the grant date fair value with corresponding compensation expense recorded ratably over the requisite service period.

Income Taxes

Current income tax expense or benefit is the amount of income taxes expected to be payable or refundable for the current year. A deferred income tax asset or liability is computed for the expected future impact of differences between the financial reporting and tax bases of assets and liabilities and for the expected future tax benefit to be derived from tax credits and loss carryforwards. Deferred tax assets are reduced by a valuation allowance when, in the opinion of management, it is more likely than not that some portion or all of the deferred tax assets will not be realized.

Foreign Currency Translation

The financial position and results of operations of the Company’s foreign subsidiaries are measured using the foreign subsidiary’s local currency as the functional currency. Revenue and expense of such subsidiaries have been translated into U.S. dollars at weighted-average exchange rates prevailing during the period. Assets and liabilities have been translated at the rates of exchange on the balance sheet date. The resulting translation gain and loss adjustments are recorded directly as a separate component of shareholders’ equity, unless there is a sale or complete liquidation of the underlying foreign investments. The Company translates foreign currencies of its German, Canadian and Mexican subsidiaries. The cumulative translation adjustment, which is recorded in accumulated other comprehensive loss, increased approximately \$27,000 for the year ended December 31, 2018, and decreased approximately \$106,000 for the year ended December 31, 2017.

[Table of Contents](#)**Comprehensive Loss**

Comprehensive loss consists of net gains and losses affecting shareholders' equity (deficit) that, under generally accepted accounting principles, are excluded from net loss. For the Company, the only items are the cumulative translation adjustment and the additional minimum liability related to the Company's defined benefit pension plan, recognized pursuant to ASC 715-30, "Compensation - Retirement Benefits - Defined Benefit Plans - Pension."

Advertising Costs

The Company expenses advertising costs as incurred. The Company incurred approximately \$5,000 in advertising expense during the year ended December 31, 2018, and \$45,000 in advertising expense during the year ended December 31, 2017.

Loss Per Share

Basic loss per common share is calculated by dividing net loss available to common shareholders for the period by the weighted-average number of common shares outstanding during the period. Diluted loss per common share is calculated by dividing net loss available to common shareholders for the period by the weighted-average number of common shares outstanding during the period, adjusted to include, if dilutive, potential dilutive shares consisting of convertible preferred stock, convertible notes payable, stock options and warrants, calculated using the treasury stock and if-converted methods. For diluted loss per share calculation purposes, the net loss available to common shareholders is adjusted to add back any preferred stock dividends in the consolidated statement of operations for the respective periods.

(Amounts in thousands, except share and per share amounts)

	Year Ended December 31,	
	2018	2017
Numerator for basic and diluted loss per share:		
Net loss	\$ (12,550)	\$ (10,069)
Preferred dividends, deemed dividends and accretion	(3,913)	(2,400)
Preferred stock exchange	—	(1,245)
Net loss available to common shareholders	<u>\$ (16,463)</u>	<u>\$ (13,714)</u>
Denominator for basic loss per share — weighted-average shares outstanding	95,210,572	92,816,723
Effect of dilutive securities	—	—
Denominator for diluted loss per share — weighted-average shares outstanding	<u>95,210,572</u>	<u>92,816,723</u>
Basic and diluted loss per share:		
Net loss	\$ (0.13)	\$ (0.11)
Preferred dividends, deemed dividends and accretion	(0.04)	(0.03)
Preferred stock exchange	—	(0.01)
Net loss available to common shareholders	<u>\$ (0.17)</u>	<u>\$ (0.15)</u>

The following potential dilutive securities have been excluded from the computations of diluted weighted-average shares outstanding as their effect would have been antidilutive:

	Common Share Equivalents at December 31, 2018	Common Share Equivalents at December 31, 2017
Potential Dilutive Securities:		
Convertible lines of credit	—	5,221,964
Convertible redeemable preferred stock – Series A	32,580,000	26,974,783
Convertible redeemable preferred stock – Series B	46,029	46,029
Convertible redeemable preferred stock – Series C	10,000,000	—
Stock options	7,227,248	6,093,512
Warrants	1,813,856	230,000
Total Potential Dilutive Securities	<u>51,667,133</u>	<u>38,566,288</u>

[Table of Contents](#)**Recently Issued Accounting Standards**

From time to time, new accounting pronouncements are issued by the Financial Accounting Standards Board (the “FASB”), or other standard setting bodies, which are adopted by us as of the specified effective date. Unless otherwise discussed, the Company’s management believes the impact of recently issued standards not yet effective will not have a material impact on the Company’s consolidated financial statements upon adoption.

FASB ASU No. 2016-02. In February 2016, the FASB issued ASU No. 2016-02, (*Topic 842*): “Leases.” This guidance will result in key changes to lease accounting and will aim to bring leases onto balance sheets to give investors, lenders, and other financial statement users a more comprehensive view of a company’s long-term financial obligations as well as the assets it owns versus leases. The new leasing standard will be effective for fiscal years beginning after December 15, 2018, and for interim periods within those fiscal years. Although the Company is in the process of finalizing the impact of adoption of the ASU on its consolidated financial statements, the Company will elect the optional transition method to account for the impact of the adoption with a cumulative-effect adjustment in the period of adoption and will not restate prior periods. The Company expects to elect certain practical expedients permitted under the transition guidance. The Company will record a right-of-use asset and liability upon adoption of the guidance pertaining to its long-term real estate lease for its corporate facilities. The Company is currently finalizing its review of contracts and may identify additional embedded leases and additional amounts to be recorded.

FASB ASU No. 2016-13. In June 2016, the FASB issued Accounting Standard Update No. 2016-13, *Financial Instruments—Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments*. ASU No. 2016-13 changes the impairment model for most financial assets and certain other instruments. For trade and other receivables, held-to-maturity debt securities, loans and other instruments, entities will be required to use a new forward-looking “expected loss” model that will replace today’s “incurred loss” model and generally will result in the earlier recognition of allowances for losses. For available-for-sale debt securities with unrealized losses, entities will measure credit losses in a manner similar to current practice, except that the losses will be recognized as an allowance. This guidance is effective for fiscal years beginning after December 15, 2019 including interim periods within those fiscal years. The Company is currently evaluating the potential impact of adoption of this standard on its consolidated financial statements.

FASB ASU No. 2017-04. In January 2017, the FASB issued ASU No. 2017-04, *Intangibles – Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment*. The amendments of this ASU eliminate step 2 from the goodwill impairment test. The annual, or interim test is performed by comparing the fair value of a reporting unit with its carrying amount. The amendments of this ASU also eliminate the requirements for any reporting unit with a zero or negative carrying amount to perform a qualitative assessment and if it fails that qualitative test, to perform step 2 of the goodwill impairment test. ASU No. 2017-04 is effective for fiscal years beginning after December 15, 2019 with early adoption permitted. The Company adopted this ASU in December 2018 as more fully described in Note 4 to these consolidated financial statements.

FASB ASU No. 2017-07. Effective January 1, 2018, we adopted ASU No. 2017-07, *Compensation – Retirement Benefits (Topic 715): Improving the Presentation of Periodic Pension Cost and Net Periodic Postretirement Benefit Cost* issued by the FASB, which requires employers to present the service cost component of net periodic benefit cost in the same income statement line item(s) as other employee compensation costs arising from services rendered during the period. The adoption of this standard resulted in the reclassification of other components of net periodic pension expense to a separate line item outside loss from operations in the Company’s Consolidated Statement of Operations for the years ended December 31, 2018 and 2017.

FASB ASU No. 2017-11. In July 2017, the FASB issued ASU No 2017-11, “*Earnings Per Share (Topic 260); Distinguishing Liabilities from Equity (Topic 480); Derivatives and Hedging (Topic 815): (Part I) Accounting for Certain Financial Instruments with Down Round Features, (Part II) Replacement of the Indefinite Deferral.*” The ASU applies to issuers of financial instruments with down-round features. It amends (1) the classification of such instruments as liabilities or equity by revising the guidance in ASC 815 on the evaluation of whether instruments or embedded features with down-round provisions must be accounted for as derivative instruments and (2) the guidance on recognition and measurement of the value transferred upon the trigger of a down-round feature for equity-classified instruments by revising ASC 260. The ASU is effective for public business entities for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2018. For all other organizations, the amendments are effective for fiscal years beginning after December 15, 2019, and interim periods within fiscal years beginning after December 15, 2020. Early adoption is permitted. The adoption of this standard is not expected to have a material impact on the Company’s consolidated financial statements.

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FASB ASU No. 2018-07. In June 2018, the FASB issued ASU 2018-07, “*Shared-Based Payment Arrangements with Nonemployees*” (Topic 505), which simplifies the accounting for share-based payments granted to nonemployees for goods and services. Under the ASU, most of the guidance on such payments to nonemployees will be aligned with the requirements for share-based payments granted to employees. Under the ASU 2018-07, the measurement of equity-classified nonemployee share-based payments will be fixed on the grant date, as defined in ASC 718, and will use the term nonemployee vesting period, rather than requisite service period. The amendments in this update are effective for fiscal years beginning after December 15, 2018, including interim periods within those fiscal years. Early adoption is permitted if financial statements have not yet been issued. The adoption of this standard will not have a material impact on the Company’s consolidated financial statements.

FASB ASU No. 2018-13. In August 2018, the FASB issued ASU 2018-13, “*Fair Value Measurement (Topic 820) —Disclosure Framework —Changes to the Disclosure Requirements for Fair Value Measurement*” (“ASU 2018-13”). The amendments in this update improve the effectiveness of fair value measurement disclosures. ASU 2018-13 is effective for fiscal years ending after December 15, 2019. Early adoption is permitted. The adoption of this standard should be applied to all periods presented. The adoption of this standard will not have a material impact on the Company’s consolidated financial statements.

FASB ASU No. 2018-14. In August 2018, the FASB issued ASU 2018-14, “*Compensation —Retirement Benefits —Defined Benefit Plans —General (Subtopic 715-20) —Disclosure Framework —Changes to the Disclosure Requirements for Defined Benefit Plans*” (“ASU 2018-14”). The amendments in this update remove defined benefit plan disclosures that are no longer considered cost-beneficial, clarify the specific requirements of disclosures, and add disclosure requirements identified as relevant. ASU 2018-14 is effective for fiscal years ending after December 15, 2020. Early adoption is permitted. The adoption of this standard should be applied to all periods presented. The adoption of this standard will not have a material impact on the Company’s consolidated financial statements.

FASB ASU No. 2018-15. In August 2018, the FASB issued ASU 2018-15, “*Intangibles —Goodwill and Other —Internal-Use Software (Subtopic 350-40): Customer’s Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract*” (“ASU 2018-15”). The amendments in this update align the requirements for capitalizing implementation costs incurred in a hosting arrangement that is a service contract with the requirements for capitalizing implementation costs incurred to develop or obtain internal-use software (and hosting arrangements that include an internal-use software license). ASU 2018-15 is effective for fiscal years ending after December 15, 2019. Early adoption is permitted. The adoption of this standard is not expected to have a material impact on the Company’s consolidated financial statements.

Reclassifications

Certain prior period operating expenses have been reclassified to conform with the current period presentation. These reclassifications are between general and administrative expense and research and development expense and approximate \$371,000. Pursuant to the Company’s adoption of ASU 2017-07, the Company is presenting certain elements of periodic pension expense as a separate line item “Other components of net periodic pension expense” outside the loss from operations, in the Company’s Consolidated Statements of Operations. Such costs aggregate approximately \$118,000 and \$98,000 for the years ended December 31, 2018 and 2017, respectively. These reclassifications have no impact on net loss.

3. FAIR VALUE ACCOUNTING

The Company accounts for fair value measurements in accordance with ASC 820, “*Fair Value Measurements and Disclosures*,” which defines fair value, establishes a framework for measuring fair value in generally accepted accounting principles, and expands disclosures about fair value measurements.

ASC 820 establishes a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value. The hierarchy gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1 measurements) and the lowest priority to unobservable inputs (Level 3 measurements). The three levels of the fair value hierarchy under ASC 820 are described below:

Level 1	Unadjusted quoted prices in active markets that are accessible at the measurement date for identical, unrestricted assets or liabilities.
Level 2	Applies to assets or liabilities for which there are inputs other than quoted prices included within Level 1 that are observable for the asset or liability such as quoted prices for similar assets or liabilities in active markets; quoted prices for identical assets or liabilities in markets with insufficient volume or infrequent transactions (less active markets); or model-derived valuations in which significant inputs are observable or can be derived principally from, or corroborated by, observable market data.
Level 3	Prices or valuation techniques that require inputs that are both significant to the fair value measurement and unobservable (supported by little or no market activity).

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The following table sets forth the Company's financial assets and liabilities measured at fair value by level within the fair value hierarchy. As required by ASC 820, assets and liabilities are classified in their entirety based on the lowest level of input that is significant to the fair value measurement.

(\$ in thousands)	Fair Value at December 31, 2018			
	Total	Level 1	Level 2	Level 3
Assets:				
Pension assets	\$ 1,733	\$ —	\$ —	\$ 1,733
Totals	\$ 1,733	\$ —	\$ —	\$ 1,733
Liabilities:				
Derivative liabilities	\$ 1,065	\$ —	\$ —	\$ 1,065
Totals	\$ 1,065	\$ —	\$ —	\$ 1,065

(\$ in thousands)	Fair Value at December 31, 2017			
	Total	Level 1	Level 2	Level 3
Assets:				
Pension assets	\$ 1,806	\$ —	\$ —	\$ 1,806
Totals	\$ 1,806	\$ —	\$ —	\$ 1,806
Liabilities:				
Derivative liabilities	\$ —	\$ —	\$ —	\$ —
Totals	\$ —	\$ —	\$ —	\$ —

The Company's German pension plan is funded by insurance contract policies whereby the insurance company guarantees a fixed minimum return. The Company has determined that the pension assets are more appropriately classified within Level 3 of the fair value hierarchy because they are valued using actuarial valuation methodologies which approximate cash surrender value that cannot be corroborated with observable market data. Accordingly, the Company has reclassified the classification level of the pension plan insurance contracts to Level 3 for all periods presented. Such pension plan insurance contracts were previously classified by the Company as Level 1. All plan assets are managed in a policyholder pool in Germany by outside investment managers. The investment manager is responsible for the investment strategy of the insurance premiums that Company submits and does not hold individual assets per participating employer. The German Federal Financial Supervisory oversees and supervises the insurance contracts.

As of December 31, 2018, the Company had embedded features contained in the Series C Preferred host instrument (issued in September 2018) that qualified for derivative liability treatment. The recorded fair market value of these features at December 31, 2018 was approximately \$1,065,000, which is reflected as a current liability in the consolidated balance sheet as of December 31, 2018. The fair value of the Company's derivative liabilities are classified within Level 3 of the fair value hierarchy because they are valued using pricing models that incorporate management assumptions that cannot be corroborated with observable market data. The Company uses the lattice framework, Monte-Carlo simulations and other fair value methodologies in the determination of the fair value of derivative liabilities.

As more fully described in Note 14 to these Consolidated Financial Statements, on September 10, 2018, the Company's Board of directors declared a Dividend Warrant for Holders of Series A Preferred. The Company evaluated this warrant issuance in conjunction with the Series A Preferred becoming junior to the Series C Preferred in liquidation preference and determined such warrants and changes in liquidation preference to be in effect a modification of the Series A Preferred. To determine the effect of this modification, the Company, using fair value methodologies, determined the value of the Series A Preferred both pre and post warrant issuance. The valuation indicated an increase in the fair value of the Series A Preferred post issuance of approximately \$92,000. The Company recorded this incremental increase as a deemed dividend.

Some of the aforementioned fair value methodologies are affected by the Company's stock price as well as assumptions regarding the expected stock price volatility over the term of the derivative liabilities in addition to the probability of future events.

The Company monitors the activity within each level and any changes with the underlying valuation techniques or inputs utilized to recognize if any transfers between levels are necessary. That determination is made, in part, by working with outside valuation experts for Level 3 instruments and monitoring market related data and other valuation inputs for Level 1 and Level 2 instruments.

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The reconciliations of Level 3 pension assets measured at fair value in 2018 and 2017 are presented below:

(\$ in thousands)	December 31, 2018	December 31, 2017
Pension assets:		
Fair value at beginning of year	\$ 1,806	\$ 1,646
Return on plan assets	82	7
Company contributions and benefits paid, net	(71)	(68)
Effect of rate changes	(84)	221
Fair value at end of year	<u>\$ 1,733</u>	<u>\$ 1,806</u>

The reconciliations of Level 3 derivative liabilities measured at fair value in 2018 and 2017 are presented below:

(\$ in thousands)	December 31, 2018	December 31, 2017
Derivative liabilities		
Fair value at beginning of year	\$ -	\$ -
Issuances from Series C Preferred Financing	833	-
Change in fair value included in earnings	232	-
Fair value at end of year	<u>\$ 1,065</u>	<u>\$ -</u>

4. INTANGIBLE ASSETS AND GOODWILL

The carrying amounts of the Company's patent intangible assets were \$82,000 and \$93,000 as of December 31, 2018 and 2017, respectively, which includes accumulated amortization of \$577,000 and \$566,000 as of December 31, 2018 and 2017, respectively. Amortization expense for patent intangible assets was \$11,000 for the years ended December 31, 2018 and 2017. Patent intangible assets are being amortized on a straight-line basis over their remaining life of approximately 7.5 years. There was no impairment of the Company's intangible assets during the years ended December 31, 2018 and 2017.

The Company annually, or more frequently if events or circumstances indicate a need, tests the carrying amount of goodwill for impairment. The Company performs its annual impairment test in the fourth quarter of each year. In December 2018, the Company adopted the provisions of ASU 2017-04, "Intangibles - Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment". The provisions of ASU 2017-04 eliminate the requirement to calculate the implied fair value of goodwill to measure a goodwill impairment charge. Instead, entities will record an impairment charge based on the excess of a reporting unit's carrying amount over its fair value. Entities that have reporting units with zero or negative carrying amounts, will no longer be required to perform a qualitative assessment assuming they pass the simplified impairment test. The Company continues to have only one reporting unit, Identity Management which, at December 31, 2018, had a negative carrying amount of approximately \$3,027,000. Based on the results of the Company's impairment testing, the Company determined that its goodwill was not impaired during the years ended December 31, 2018 and 2017.

The estimated acquired intangible amortization expense for the next five fiscal years is as follows:

Fiscal Year Ended December 31,	Estimated Amortization Expense (\$ in thousands)
2019	\$ 12
2020	12
2021	12
2022	12
2023	12
Thereafter	22
Totals	<u>\$ 82</u>

[Table of Contents](#)**5. RELATED PARTIES**

Outstanding lines of credit consist of the following:

(\$ in thousands)	December 31, 2018	December 31, 2017
Lines of Credit with Related Parties		
8% convertible lines of credit. Face value of advances under lines of credit \$0 and \$6,000 at December 31, 2018 and 2017, respectively. Discount on advances under lines of credit was \$0 at December 31, 2018 and \$226 at December 31, 2017. Maturity date was December 31, 2018; however, the lines of credit were terminated on September 10, 2018, as more thoroughly discussed below.	\$ —	\$ 5,774
Total lines of credit to related parties	—	5,774
Less current portion	—	(5,774)
Long-term lines of credit to related parties	\$ —	\$ —

Lines of Credit

In March 2013, the Company and Neal Goldman, a member of the Company's Board of Directors ("*Goldman*"), entered into a line of credit (the "*Goldman Line of Credit*") with available borrowings of up to \$2.5 million. In March 2014, the Goldman Line of Credit's borrowing was increased to an aggregate total of \$3.5 million (the "*Amendment*"). Pursuant to the terms and conditions of the Amendment, Goldman had the right to convert up to \$2.5 million of the outstanding balance of the Goldman Line of Credit into shares of the Company's Common Stock for \$0.95 per share. Any remaining outstanding balance was convertible into shares of the Company's Common Stock for \$2.25 per share.

As consideration for the initial Goldman Line of Credit, the Company issued a warrant to Goldman, exercisable for 1,052,632 shares of the Company's Common Stock (the "*Line of Credit Warrant*"). The Line of Credit Warrant had a term of two years from the date of issuance and an exercise price of \$0.95 per share. As consideration for entering into the Amendment, the Company issued to Goldman a second warrant, exercisable for 177,778 shares of the Company's Common Stock (the "*Amendment Warrant*"). The Amendment Warrant expired on March 27, 2015 and had an exercise price of \$2.25 per share.

The Company estimated the fair value of the Line of Credit Warrant using the Black-Scholes option pricing model using the following assumptions: term of two years, a risk-free interest rate of 2.58%, a dividend yield of 0%, and volatility of 79%. The Company recorded the fair value of the Line of Credit Warrant as a deferred financing fee of approximately \$580,000 to be amortized over the life of the Goldman Line of Credit. The Company estimated the fair value of the Amendment Warrant using the Black-Scholes option pricing model using the following assumptions: term of one year, a risk-free interest rate of 2.58%, a dividend yield of 0% and volatility of 74%. The Company recorded the fair value of the Amendment Warrant as an additional deferred financing fee of approximately \$127,000 to be amortized over the life of the Goldman Line of Credit.

During the years ended December 31, 2018 and 2017, the Company recorded an aggregate of approximately \$8,000 and \$11,000, respectively in deferred financing fee amortization expense which is recorded as a component of interest expense in the Company's consolidated statements of operations.

In April 2014, the Company and Goldman entered into a further amendment to the Goldman Line of Credit to decrease the available borrowings to \$3.0 million (the "*Second Amendment*"). Contemporaneous with the execution of the Second Amendment, the Company entered into a new unsecured line of credit with Charles Crocker, a member of the Company's Board of Directors ("*Crocker*"), with available borrowings of up to \$500,000 (the "*Crocker LOC*"), which amount was convertible into shares of the Company's Common Stock for \$2.25 per share. As a result of these amendments, total available borrowings under the lines of credit available to the Company remained unchanged an aggregate of \$3.5 million. In connection with the Second Amendment, Goldman assigned and transferred to Crocker one-half of the Amendment Warrant.

In December 2014, the Company and Goldman entered into a further amendment to the Goldman Line of Credit to increase the available borrowing to \$5.0 million and extend the maturity date of the Goldman Line of Credit to March 27, 2017 (the "*Third Amendment*"). Also, as a result of the Third Amendment, Goldman had the right to convert up to \$2.5 million of outstanding principal, plus any accrued but unpaid interest ("*Outstanding Balance*") into shares of the Company's Common Stock for \$0.95 per share, the next \$500,000 Outstanding Balance into shares of Common Stock for \$2.25 per share, and any remaining outstanding balance thereafter into shares of Common Stock for \$2.30 per share. The Third Amendment also modified the definition of a "Qualified Financing" to mean a debt or equity financing resulting in gross proceeds to the Company of at least \$5.0 million.

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In February 2015, as a result of the Series E Financing, the Company issued 1,978 shares of Series E Preferred to Goldman to satisfy \$1,950,000 in principal borrowings under the Goldman Line of Credit, plus approximately \$28,000 in accrued interest. As a result of the Series E Financing, the Company's borrowing capacity under the Goldman Line of Credit was reduced to \$3,050,000 with the maturity date unchanged and the Crocker LOC was terminated in accordance with its terms.

In March 2016, the Company and Goldman entered into a fourth amendment to the Goldman Line of Credit (the "*Fourth Amendment*") solely to (i) increase available borrowings to \$5.0 million; (ii) extend the maturity date to June 30, 2017, and (iii) provide for the conversion of the outstanding balance due under the terms of the Goldman Line of Credit into that number of fully paid and non-assessable shares of the Company's Common Stock as is equal to the quotient obtained by dividing the outstanding balance by \$1.25.

Contemporaneous with the execution of the Fourth Amendment, the Company entered into a new \$500,000 line of credit with Crocker (the "*New Crocker LOC*") with available borrowings of up to \$500,000, which replaced the original Crocker LOC that terminated as a result of the consummation of the Series E Financing. Similar to the Fourth Amendment, the New Crocker LOC originally matured on June 30, 2017, and provided for the conversion of the outstanding balance due under the terms of the New Crocker LOC into that number of fully paid and non-assessable shares of the Company's Common Stock as is equal to the quotient obtained by dividing the outstanding balance by \$1.25.

On December 27, 2016, in connection with the consummation of the Series G Financing, the Company and Goldman agreed to enter into the Fifth Amendment (the "*Line of Credit Amendment*") to the Goldman Line of Credit to provide the Company with the ability to borrow up to \$5.5 million under the terms of the Goldman Line of Credit. In addition, the Maturity Date, as defined in the Goldman Line of Credit, was amended to be December 31, 2017. The Line of Credit Amendment was executed on January 23, 2017.

In addition, on January 23, 2017, the Company and Crocker amended the New Crocker LOC to extend the maturity date thereof to December 31, 2017.

On May 10, 2017, Goldman and Crocker agreed to further extend the maturity dates of the Goldman Line of Credit and the New Crocker Line of Credit (collectively, the "*Lines of Credit*") to December 31, 2018.

As the aforementioned amendments to the Lines of Credit resulted in an increase to the borrowing capacity of the Lines of Credit, the Company adjusted the amortization period of any remaining unamortized deferred costs and note discounts to the term of the new arrangement.

The Company evaluated the Lines of Credit and determined that the instruments contained a contingent beneficial conversion feature, i.e. an embedded conversion right that enabled the holder to obtain the underlying Common Stock at a price below market value. The beneficial conversion feature was contingent, as the terms of the conversion did not permit the Company to compute the number of shares that the holder would receive if the contingent event occurred (i.e. future borrowings under the Line of Credit). The Company has considered the accounting for this contingent beneficial conversion feature using the guidance in ASC 470, Debt. The guidance in ASC 470 states that a contingent beneficial conversion feature in an instrument shall not be recognized in earnings until the contingency is resolved. The beneficial conversion features of borrowings under the Line of Credit were to be measured using the intrinsic value calculated at the date the contingency is resolved using the conversion price and trading value of the Company's Common Stock at the date the Lines of Credit were issued (commitment date).

For the years ended December 31, 2018 and 2017, the Company recorded approximately \$30,000 and \$302,000, respectively, in debt discount attributable to beneficial conversion feature and accreted approximately \$162,000 and \$198,000, respectively, of debt discount. Such expense is recorded as a component of interest expense in the Company's consolidated statements of operations.

The Company incurred no additional borrowings under the Lines of Credit during the year ended December 31, 2018.

On September 10, 2018, the Company entered into the Exchange Agreements with Goldman and Crocker, pursuant to which Goldman and Crocker agreed to exchange approximately \$6.3 million and \$0.6 million, respectively, of outstanding debt (including accrued and unpaid interest) owed under the terms of their respective Lines of Credit for an aggregate of 6,896 shares of the Company's Series A Preferred. As a result of the Debt Exchange, all indebtedness, liabilities and other obligations arising under the Lines of Credit were terminated, cancelled and deemed satisfied in full. As a result, no future borrowings are available under the Lines of Credit and the Lines of Credit were terminated on September 10, 2018. Because Messrs. Goldman and Crocker are members of the Company's Board of Directors and shareholders of the Company, they are considered related parties and the Debt Exchange transaction is considered a capital transaction and is recorded within the equity accounts of the Company.

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The following table sets forth the Company's activity under its Lines of Credit for the periods indicated:

Balance outstanding under Lines of Credit as of December 31, 2016	\$ 2,650
Borrowing under Lines of Credit	3,350
Repayments	—
Balance outstanding under Lines of Credit as of December 31, 2017	<u>\$ 6,000</u>
Borrowings under Lines of Credit	-
Repayments	-
Conversion of Lines of Credit into Series A Preferred Stock	(6,000)
Balance outstanding under Lines of Credit as of December 31, 2018	<u><u>\$ -</u></u>

Series A Financing

During the year ended December 31, 2017, Messrs. Miller, Goldman, Wetherell, Clutterbuck and Frischer purchased an aggregate of 1,450 Series A Preferred in connection with the Series A Financing resulting in gross proceeds of \$1,450,000 to the Company. Also, during the year ended December 31, 2017, Messrs. Goldman, Clutterbuck and Frischer exchanged an aggregate 11,364 shares of Series E Preferred, Series F Preferred and Series G Preferred for 11,364 shares of Series A Preferred in connection with the Series A Financing.

Professional Services Agreement

During the year ended December 31, 2018, the Company entered into professional services agreement with a firm whose managing director is also a member of the Company's Board of Directors. During the year ended December 31, 2018, the Company recorded and paid one-half of the aggregate fee of \$50,000.

6. INVENTORY

Inventories of \$29,000 as of December 31, 2018 were comprised of work in process of \$21,000, representing direct labor costs on in-process projects and finished goods of \$8,000 net of reserves for obsolete and slow-moving items of \$3,000.

Inventories of \$79,000 as of December 31, 2017 were comprised of work in process of \$53,000 representing direct labor costs on in-process projects and finished goods of \$26,000 net of reserves for obsolete and slow-moving items of \$3,000.

Appropriate consideration is given to obsolescence, excessive levels, deterioration and other factors in evaluating net realizable value and required reserve levels.

7. PROPERTY AND EQUIPMENT

Property and equipment at December 31, 2018 and 2017, consisted of:

(\$ in thousands)	<u>2018</u>	<u>2017</u>
Equipment	\$ 967	\$ 946
Leasehold improvements	77	11
Furniture	255	102
	<u>1,299</u>	<u>1,059</u>
Less accumulated depreciation	(1,055)	(1,016)
	<u><u>\$ 244</u></u>	<u><u>\$ 43</u></u>

Total depreciation expense for the years ended December 31, 2018 and 2017 was approximately \$39,000 and \$56,000, respectively.

[Table of Contents](#)**8. ACCRUED EXPENSE**

Principal components of accrued expense consist of:

(\$ in thousands)	December 31, 2018	December 31, 2017
Compensated absences	\$ 352	\$ 273
Wages, payroll taxes and sales commissions	44	38
Customer deposits	30	40
Rent	14	—
Royalties	72	72
Pension and employee benefit plans	48	5
Professional services	145	100
Income and sales taxes	79	27
Dividends	42	34
Other	62	69
	<u>\$ 888</u>	<u>\$ 658</u>

9. LINES OF CREDIT

Outstanding lines of credit consist of the following:

(\$ in thousands)	December 31, 2018	December 31, 2017
Lines of Credit with Related Parties		
8% convertible lines of credit. Face value of advances under lines of credit \$0 at December 31, 2018 and \$6,000 at December 31, 2017. Discount on advances under lines of credit is \$0 at December 31, 2018 and \$226 at December 31, 2017. Maturity date was December 31, 2018; however, the lines of credit were terminated on September 10, 2018, as more thoroughly discussed below.	\$ —	\$ 5,774
Total lines of credit to related parties	—	5,774
Less current portion	—	(5,774)
Long-term lines of credit to related parties	<u>\$ —</u>	<u>\$ —</u>

For a more detailed discussion of the Company's Lines of Credit, see Note 5, Related Parties.

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10. DERIVATIVE LIABILITIES

The Company accounts for its derivative instruments under the provisions of ASC 815, “*Derivatives and Hedging*.” Under the provisions of ASC 815, the Company identified embedded features within the Series C Preferred host contract that qualify as derivative instruments and require bifurcation.

The Company determined that the conversion option, redemption option and participating dividend feature contained in the Series C Preferred host instrument required bifurcation. The Company valued the bifurcatable features at fair value. Such liabilities aggregated approximately \$833,000 at inception and are classified as current liabilities on the Company’s consolidated balance sheet under the caption “Derivative liabilities.” The Company will revalue these features at each balance sheet date and record any change in fair value in the determination of period net income or loss. Such amounts are recorded in the caption “Change in fair value of derivative liabilities” in the Company’s consolidated statement of operations. During the twelve months ended December 31, 2018, the Company recorded an increase to these derivative liabilities using fair value methodologies of approximately \$232,000. As a result of this increase, such liabilities aggregated approximately \$1,065,000 at December 31, 2018.

11. INCOME TAXES

The Company accounts for income taxes in accordance with ASC 740, *Accounting for Income Taxes*, (ASC 740). Deferred income taxes are recognized for the tax consequences related to temporary differences between the carrying amount of assets and liabilities for financial reporting purposes and the amounts used for tax purposes at each year-end, based on enacted tax laws and statutory tax rates applicable to the periods in which the differences are expected to affect taxable income. A valuation allowance is established when necessary based on the weight of available evidence, if it is considered more likely than not that all or some portion of the deferred tax assets will not be realized. Income tax expense is the sum of current income tax plus the change in deferred tax assets and liabilities. The Company has established a valuation allowance against its deferred tax asset due to the uncertainty surrounding the realization of such asset.

ASC 740 requires a company to first determine whether it is more-likely-than-not (defined as a likelihood of more than fifty percent) that a tax position will be sustained based on its technical merits as of the reporting date, assuming that taxing authorities will examine the position and have full knowledge of all relevant information. A tax position that meets this more-likely-than-not threshold is then measured and recognized at the largest amount of benefit that is greater than fifty percent likely to be realized upon effective settlement with a taxing authority. The amount accrued for uncertain tax positions was zero at December 31, 2018 and 2017, respectively.

The Company’s uncertain position relative to unrecognized tax benefits and any potential increase in these liabilities relates primarily to the allocations of revenue and costs among the Company’s global operations and the impact of tax rulings made during the period affecting its tax positions. The Company’s existing tax position could result in liabilities for unrecognized tax benefits. The Company recognizes interest and/or penalties related to uncertain tax positions in income tax expense. The amount of interest and penalties accrued as of December 31, 2018 and 2017 was approximately \$0 and \$10,000, respectively.

Significant judgment is required in evaluating the Company’s uncertain tax positions and determining the Company’s provision for income taxes. No assurance can be given that the final tax outcome of these matters will not be different from that which is reflected in the Company’s historical income tax provisions and accruals. The Company adjusts these items in light of changing facts and circumstances. To the extent that the final tax outcome of these matters is different than the amounts recorded, such differences will impact the provision for income taxes in the period in which such determination is made.

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The significant components of the income tax provision are as follows:

(\$ in thousands)	Year Ended December 31,	
	2018	2017
Current		
Federal	\$ —	\$ —
State	—	—
Foreign	11	(124)
Deferred		
Federal	—	—
State	—	—
Foreign	—	—
	\$ 11	\$ (124)

The principal components of the Company's deferred tax assets at December 31, 2018 and 2017 were as follows:

(\$ in thousands)	2018	2017
Net operating loss carryforwards	\$ 19,881	\$ 13,734
Intangible and fixed assets	(85)	(28)
Stock based compensation	2,318	1,954
Reserves and accrued expense	45	38
Other	—	—
	22,159	15,698
Less valuation allowance	(22,159)	(15,698)
Net deferred tax assets	\$ —	\$ —

A reconciliation of the provision for income taxes to the amount computed by applying the statutory income tax rates to loss before income taxes is as follows:

	2018	2017
Amounts computed at statutory rates	\$ (2,636)	\$ (3,423)
State income tax, net of federal benefit	(1,051)	(497)
Change in net operating loss carryforwards	(3,012)	688
Non-deductible interest	36	250
Tax Act – federal rate change	—	7,276
Foreign taxes	210	143
Other	3	4
Net change in valuation allowance on deferred tax assets	6,461	(4,565)
	\$ 11	\$ (124)

The Company has established a valuation allowance against its deferred tax assets due to the uncertainty surrounding the realization of such assets.

On December 22, 2017 the 2017 Tax Cuts and Jobs Act (the "Act") was enacted into laws and the new legislation reduces the corporate tax rate to 21% effective January 1, 2018. Consequently, the Company remeasured the deferred tax assets and recorded a decrease in federal tax assets and valuation allowance of approximately \$7,276,000. The Company believes that the one-time transition tax does not apply because there were no post-1986 earnings and profits previously deferred from US income taxes.

At December 31, 2018 and 2017, the Company had federal and state net operating loss carryforwards, a portion of which may be available to offset future taxable income for tax purposes. The federal net operating loss carryforwards expire at various dates from 2023 through 2038. The state net operating loss carryforwards expire at various dates from 2031 through 2038. Due to an incorrect application of the NOL carryforward periods, the Company reinstated approximately \$4,200,000 in deferred tax assets. Such amounts continue to be fully offset by a valuation allowance due to the uncertainty surrounding the realization of such assets. As such amounts are fully reserved, the Company considers such amounts immaterial.

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At December 31, 2018, the Company had federal net operating loss carryforwards of approximately \$67,222,000 that begin to expire in 2023. The Company has federal net operating losses of approximately \$10,300,000 that arose after the 2017 tax year and will carryforward indefinitely, the utilization of which is limited to 80% of taxable income in any given year. The Company has net operating losses carryforwards of approximately \$50,434,000 for the state of California that will begin to expire in 2035. The Internal Revenue Code (the "Code") limits the availability of certain tax credits and net operating losses that arose prior to certain cumulative changes in a corporation's ownership resulting in a change of control of the Company. The Company's use of its net operating loss carryforwards and tax credit carryforwards will be significantly limited because the Company believes it underwent "ownership changes," as defined under Section 382 of the Internal Revenue Code, in 1991, 1995, 2000, 2003, 2004, 2011 and 2012, though the Company has not performed a study to determine the limitation. The Company has reduced its deferred tax assets to zero relating to its federal and state research credits because of such limitations. The Company continues to disclose the tax effect of the net operating loss carryforwards at their original amount in the table above as the actual limitation has not yet been quantified. The Company has also established a full valuation allowance for substantially all deferred tax assets due to uncertainties surrounding its ability to generate future taxable income to realize these assets. Since substantially all deferred tax assets are fully reserved, future changes in tax benefits will not impact the effective tax rate. Management periodically evaluates the recoverability of the deferred tax assets. If it is determined at some time in the future that it is more likely than not that deferred tax assets will be realized, the valuation allowance would be reduced accordingly at that time.

Tax returns for the years 2014 through 2018 are subject to examination by taxing authorities.

12. COMMITMENTS AND CONTINGENCIES

Employment Agreements

The Company has employment agreements with its Chief Executive Officer and its Chief Technical Officer. The Company may terminate the agreements with or without cause. Subject to the conditions and other limitations set forth in each respective employment agreement, each executive will be entitled to the following severance benefits if the Company terminates the executive's employment without cause or in the event of an involuntary termination (as defined in the employment agreements) by the Company or by the executive:

Under the terms of the agreement, the Chief Executive Officer will be entitled to the following severance benefits if we terminate his employment without cause or in the event of an involuntary termination: (i) a lump sum cash payment equal to twenty-four months' base salary; (ii) continuation of fringe benefits and medical insurance for a period of three years; and (iii) immediate vesting of 50% of outstanding stock options and restricted stock awards. In the event that the Chief Executive Officer's employment is terminated within six months prior to or thirteen months following a change of control (as defined in the employment agreements), the Chief Executive Officer is entitled to the severance benefits described above, except that 100% of the Chief Executive Officer's outstanding stock options and restricted stock awards will immediately vest.

Under the terms of the employment agreement with our Chief Technical Officer, this executive will be entitled to the following severance benefits if we terminate his employment without cause or in the event of an involuntary termination: (i) a lump sum cash payment equal to six months of base salary; and (ii) continuation of their fringe benefits and medical insurance for a period of six months. In the event that his employment is terminated within six months prior to or thirteen months following a change of control (as defined in the employment agreements), he is entitled to the severance benefits described above, except that 100% of his outstanding stock options and restricted stock awards will immediately vest.

Effective September 15, 2017, the employment agreements for the Company's Chief Executive Officer and Chief Technical Officer were amended to extend the term of each executive officer's employment agreement until December 31, 2018, and on January 30, 2019, both agreements were amended again to further extend the term of each executive officer's employment agreement until December 31, 2019.

Litigation

There is no action, suit, proceeding, inquiry or investigation before or by any court, public board, government agency, self-regulatory organization or body pending or, to the knowledge of the executive officers of the Company or any of our subsidiaries, threatened against or affecting the Company, our Common Stock, any of our subsidiaries or of the Company's or our subsidiaries' officers or directors in their capacities as such, in which an adverse decision could have a material adverse effect.

Leases

The Company's corporate headquarters are located in San Diego, California, where it occupies 8,511 square feet of office space at a cost of approximately \$30,000 per month. This facility's lease was entered into by the Company in July 2018 and commenced on November 1, 2018 and terminates on April 30, 2025. In addition to its corporate headquarters, the Company also occupied the following spaces at December 31, 2018:

- 1,508 square feet in Ottawa, Province of Ontario, Canada, at a cost of approximately \$3,000 per month until the expiration of the lease on March 31, 2021;
- 9,720 square feet in Portland, Oregon, at a cost of approximately \$22,000 per month until the expiration of the lease on February 28, 2023; and
- 183 square feet of office space in Mexico City, Mexico, at a cost of approximately \$2,000 per month until September 30, 2019.

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Prior to entering into the new lease agreement in July 2018 and moving its corporate headquarters to a new location, the Company occupied 9,927 of office space in San Diego, at a cost of approximately \$30,000 per month.

At December 31, 2018, future minimum lease payments are as follows:

(\$ in thousands)

2019	\$	480
2020	\$	632
2021	\$	625
2022	\$	635
2023	\$	421
Thereafter	\$	519
Total	\$	3,312

Rental expense incurred under operating leases for the years ended December 31, 2018 and 2017 was approximately \$672,000 and \$545,000, respectively.

13. MEZZANINE EQUITY*Series C Convertible Redeemable Preferred Stock*

On September 10, 2018, the Company filed the Certificate of Designations, Preferences, and Rights of Series C Convertible Redeemable Preferred stock (the “*Series C COD*”) with the Secretary of State for the State of Delaware – Division of Corporations, designating 1,000 shares of the Company’s preferred stock, par value \$0.01 per share, as Series C Preferred, each share with a stated value of \$10,000 per share (the “*Stated Value*”). Shares of Series C Preferred accrue dividends cumulatively and are payable quarterly at a rate of 8% per annum if paid in cash, or 10% per annum if paid by the issuance of shares of Common Stock. Each share of Series C Preferred has a liquidation preference equal to the greater of (i) the Stated Value plus all accrued and unpaid dividends, and (ii) such amount per share as would have been payable had each share been converted into Common Stock immediately prior to the occurrence of a Liquidation Event or Deemed Liquidation Event. Each share of Series C Preferred is convertible into that number of shares of the Company’s Common Stock (“*Conversion Shares*”) equal to the Stated Value, divided by \$1.00, which conversion rate is subject to adjustment in accordance with the terms of the Series C COD. Holders of Series C Preferred may elect to convert shares of Series C Preferred into Conversion Shares at any time. Holders of the Series C Preferred may also require the Company to redeem all or any portion of such holder’s shares of Series C Preferred at any time from and after the third anniversary of the issuance date or in the event of the consummation of a Change of Control (as such term is defined in the Series C COD). Subject to the terms and conditions set forth in the Series C COD, in the event the volume-weighted average price of the Company’s Common Stock is at least \$3.00 per share (subject to adjustment in accordance with the terms of the Series C COD) for at least 20 consecutive trading days, the Company may convert all, but not less than all, issued and outstanding shares of Series C Preferred into Conversion Shares. In addition, in the event of a Change of Control, the Company will have the option to redeem all, but not less than all, issued and outstanding shares of Series C Preferred for 115% of the Liquidation Preference Amount per share. Holders of Series C Preferred will have the right to vote, on an as-converted basis, with the holders of the Company’s Common Stock on any matter presented to the Company’s stockholders for their action or consideration. Shares of Series C Preferred rank senior to the Company’s Common Stock and Series A Preferred, and junior to the Company’s Series B Preferred.

On September 10, 2018, the Company offered and sold a total of 890 shares of Series C Preferred at a purchase price of \$10,000 per share, and on September 21, 2018, the Company offered and sold an additional 110 shares of Series C Preferred at a purchase price of \$10,000 per share. The total gross proceeds to the Company from the Series C Financing were \$10,000,000. Issuance costs incurred in conjunction with the Series C Financing were approximately \$1,211,000. Such costs have been recorded as a discount on the Series C Preferred Stock and will be accreted to the point of earliest redemption which is the third anniversary of the Series C Financing or September 10, 2021 using the effective interest rate method. The accretion of these costs is recorded as a deemed dividend.

The Company had 1,000 shares of Series C Preferred outstanding as of September 30, 2018. The Company issued the holders of Series C Preferred 55,736 shares of Common Stock on September 30, 2018, as payment of dividends due on that date and on December 31, 2018, the Company issued the holders of Series C Preferred 298,896 shares of Common Stock as payment of dividends due on that date.

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Guidance for accounting for freestanding financial instruments that contain characteristics of both liabilities and equity are contained in ASC 480, *Distinguishing Liabilities From Equity* and Accounting Series Release 268 (“*ASR 268*”) *Redeemable Preferred Stocks*. The Company evaluated the provisions of the Series C Preferred and determined that the provisions of the Series C Preferred grant the holders of the Series C Preferred a redemption right whereby the holders of the Series C Preferred may, at any time after the third anniversary of the Series C Preferred issuance, require the Company to redeem in cash any or all of the holder’s outstanding Series C Preferred at an amount equal to the Liquidation Preference Amount (“*Liquidation Preference Amount*”). The Liquidation Preference Amount is defined as the greater of the stated value of the Series C Preferred plus any accrued unpaid interest or such amount per share as would have been payable had each such share been converted into Common Stock. In the event of a Change of Control, the holders of Series C Preferred shall have the right to require the Company to redeem in cash all or any portion of such holder’s shares at the Liquidation Preference Amount. The Company has concluded that because the redemption features of the Series C Preferred are outside of the control of the Company, the instrument is to be recorded as temporary or mezzanine equity in accordance with the provisions of ASR 268.

The Company noted that the Series C Preferred Stock instrument was a hybrid instrument that contains several embedded features. In November 2014, the FASB issued ASU 2014-16 to amend ASC 815, “*Derivatives and Hedging*,” (“*ASC 815*”) and require the use of the whole instrument approach (described below) to determine whether the nature of the host contract in a hybrid instrument issued in the form of a share is more akin to debt or to equity. ASU 2014-16 is effective for public business entities for fiscal years, and interim periods within those years, beginning after December 15, 2015.

The whole instrument approach requires an issuer or investor to consider the economic characteristics and risks of the entire hybrid instrument, including all of its stated and implied substantive terms and features. Under this approach, all stated and implied features, including the embedded feature being evaluated for bifurcation, must be considered. Each term and feature should be weighed based on the relevant facts and circumstances to determine the nature of the host contract. This approach results in a single, consistent determination of the nature of the host contract, which is then used to evaluate each embedded feature for bifurcation. That is, the host contract does not change as each feature is evaluated.

The revised guidance further clarifies that the existence or omission of any single feature, including an investor-held, fixed-price, noncontingent redemption option, does not determine the economic characteristics and risks of the host contract. Instead, an entity must base that determination on an evaluation of the entire hybrid instrument, including all substantive terms and features.

However, an individual term or feature may be weighed more heavily in the evaluation based on facts and circumstances. An evaluation of all relevant terms and features, including the circumstances surrounding the issuance or acquisition of the equity share, as well as the likelihood that an issuer or investor is expected to exercise any options within the host contract, to determine the nature of the host contract, requires judgement.

Using the whole instrument approach, the Company concluded that the host instrument is more akin to debt than equity as the majority of identified features contain more characteristics of debt.

The Company evaluated the identified embedded features of the Series C Preferred host instrument and determined that certain features meet the definition of and contained the characteristics of derivative financial instruments requiring bifurcation at fair value from the host instrument.

Accordingly, the Company has bifurcated from the Series C Preferred host instrument the conversion options, redemption option and participating dividend feature in accordance with the guidance in ASC 815. These bifurcated features aggregated approximately \$834,000 at issuance and have been recorded as a discount to the Series C Preferred. Such amount will be accreted to the point of earliest redemption which is the third anniversary of the Series C Financing or September 10, 2021 using the effective interest rate method. The accretion of these features is recorded as a deemed dividend.

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For the twelve months ended December 31, 2018 the Company recorded the accretion of debt issuance costs and derivative liabilities aggregating approximately \$200,000 using the effective interest rate method.

The Company reflected the following in Mezzanine Equity for the Series C Preferred Stock as of December 31, 2018:

(amounts in thousands, except share amounts)	Series C Convertible, Redeemable Preferred		
	Shares	Amount	Total
Issuance of Series C Preferred Stock	1,000	\$ 10,000	\$ 10,000
Discount - transaction costs	-	\$ (1,211)	\$ (1,211)
Net Proceeds	-	\$ 8,789	\$ 8,789
Discount - bifurcated derivative	-	\$ (833)	\$ (833)
Accretion of discount - deemed dividend	-	\$ 200	\$ 200
Total Series C Preferred Stock	<u>1,000</u>	<u>\$ 8,156</u>	<u>\$ 8,156</u>

14. EQUITY

The Company's Certificate of Incorporation, as amended, authorizes the issuance of two classes of stock to be designated "Common Stock" and "Preferred Stock." The Preferred Stock may be divided into such number of series and with the rights, preferences, privileges and restrictions as the Board of Directors may determine.

Series A Convertible Preferred Stock

On September 15, 2017, the Company filed the Certificate of Designations of the Series A Preferred with the Delaware Secretary of State, designating 31,021 shares of the Company's preferred stock, par value \$0.01 per share, as Series A Preferred. Shares of Series A Preferred accrue dividends at a rate of 8% per annum if the Company chooses to pay accrued dividends in cash, and 10% per annum if the Company chooses to pay accrued dividends in shares of Common Stock. Each share of Series A Preferred has a liquidation preference of \$1,000 per share and is convertible, at the option of the holder, into that number of shares of the Company's Common Stock equal to the Liquidation Preference, divided by \$1.15 ("Conversion Shares"). Each holder of the Series A Preferred is entitled to vote on all matters, together with the holders of Common Stock, on an as converted basis.

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Holders of Series A Preferred may elect to convert shares of Series A Preferred into Conversion Shares at any time. In the event the volume-weighted average price (“VWAP”) of the Company’s Common Stock is at least \$2.15 per share for at least 20 consecutive trading days, the Company may elect to convert one-half of the shares of Series A Preferred issued and outstanding, on a pro-rata basis, into Conversion Shares, or, if the VWAP of the Company’s Common Stock is at least \$2.15 for 80 consecutive trading days, the Company may convert all issued and outstanding shares of Series A Preferred into Conversion Shares. In addition, in the event of a Change of Control, the Company will have the option to redeem all issued and outstanding shares of Series A Preferred for 115% of the Liquidation Preference per share.

On September 18, 2017, the Company offered and sold a total of 11,000 shares of Series A Preferred at a purchase price of \$1,000 per share (the “*Series A Financing*”). The total net proceeds to the Company from the Series A Financing were approximately \$10.9 million.

Concurrently with the Series A Financing, the Company entered into exchange agreements with holders of all outstanding shares of the Company’s Series E Convertible Preferred Stock, all outstanding shares of the Company’s Series F Convertible Preferred Stock and all outstanding shares of the Company’s Series G Convertible Preferred Stock (collectively, the “*Exchanged Preferred*”), pursuant to which the holders thereof agreed to cancel their respective shares of Exchanged Preferred in exchange for shares of Series A Preferred (the “*Preferred Stock Exchange*”). As a result of the Preferred Stock Exchange, the Company issued to the holders of the Exchanged Preferred an aggregate total of 20,021 shares of Series A Preferred.

The Company evaluated the Preferred Stock Exchange and determined that the Preferred Stock Exchange was both an induced conversion and an extinguishment transaction. Using the guidance in ASC 260-10-S99-2, *Earnings Per Share – SEC Materials – SEC Staff Announcement: The Effect on the Calculations of Earnings Per Share for a Period That Includes the Redemption or Induced Conversion of Preferred Stock* and ASC 470-50, *Debt – Modifications and Extinguishments*, the Company recorded the fair value differential of the Exchanged Preferred as adjustments within Shareholders’ Equity (deficit) and in the computation of Net Loss Available to Common Shareholders in the computation of basic and diluted loss per share. The Company performed the computation of the fair value of the Exchanged Preferred. Based on the fair value using these methodologies, the Company recorded approximately \$1,245,000 in fair value differential as adjustments within Shareholders’ Deficit in the Company’s Consolidated Balance Sheet for the year ended December 31, 2017.

On September 10, 2018, the Company filed an Amendment to the Certificate of Designations, Preferences and Rights of Series A Convertible Preferred Stock with the Delaware Division of Corporations to increase the number of shares of Series A Preferred authorized for issuance thereunder to 38,000 shares.

On September 10, 2018, the Company entered into the Exchange Agreements with Goldman and Crocker, pursuant to which Goldman and Crocker agreed to exchange approximately \$6.3 million and \$0.6 million, respectively, of outstanding debt (including accrued and unpaid interest) owed under the terms of their respective Lines of Credit for an aggregate of 6,896 shares of Series A Preferred.

On September 10, 2018 the Company’s Board of Directors also declared a Special Dividend for Holders of the Series A Preferred, pursuant to which each Holder received a Dividend Warrant to purchase 39.87 shares of Common Stock for every share of Series A Preferred held, which resulted in the issuance of Dividend Warrants to the Holders as a group to purchase an aggregate of 1,493,856 shares of Common Stock. Each Dividend Warrant has an exercise price of \$0.01 per share, and is exercisable immediately upon issuance; *provided, however*, that a Dividend Warrant may only be exercised concurrently with the conversion of shares of Series A Preferred held by a Holder into shares of Common Stock. In addition, each Dividend Warrant held by a Holder shall expire on the earliest to occur of (i) the conversion of all Series A Preferred held by such Holder into Common Stock, (ii) the redemption by the Company of all outstanding shares of Series A Preferred held by such Holder, (iii) the Dividend Warrant no longer representing the right to purchase any shares of Common Stock, and (iv) the tenth anniversary of the date of issuance.

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The Company evaluated this warrant issuance in conjunction with the Series A Preferred becoming junior to the Series C Preferred in liquidation preference and determined such warrants and changes in liquidation preference to be in effect a modification of the Series A Preferred. To determine the effect of this modification, the Company, using fair value methodologies, determined the value of the Series A Preferred both pre and post warrant issuance. The valuation indicated an increase in the fair value of the Series A Preferred post issuance of approximately \$92,000. The Company recorded this increase as a deemed dividend.

The Company had 37,467 shares and 31,021 shares of Series A Preferred outstanding as of December 31, 2018 and 2017, respectively. At December 31, 2018 and 2017, the Company had cumulative undeclared dividends of \$0. During the year ended December 31, 2018, certain holders of Series A Preferred converted 450 shares of Series A Preferred into 391,304 shares of the Company's Common Stock. The Company issued the holders of Series A Preferred an aggregate of 3,074,008 shares of Common Stock during the year ended December 31, 2018 as payment of dividends due during the 2018 year. The Company issued the holders of Series A Preferred an aggregate of 585,058 shares of Common Stock during the year ended December 31, 2017 as payment of dividends due during the 2017 year.

Series B Convertible Redeemable Preferred Stock

The Company had 239,400 shares of Series B Convertible Preferred stock, par value \$0.01 per share ("*Series B Preferred*"), outstanding as of December 31, 2018 and 2017. At December 31, 2018 and 2017, the Company had cumulative undeclared dividends of approximately and \$8,000. There were no conversions of Series B Preferred into Common Stock during the year ended December 31, 2018 and 2017. The Company paid dividends of approximately \$51,000 to the holders of our Series B Preferred during the twelve months ended December 31, 2018 and December 31, 2017.

Common Stock

On February 8, 2018, the Company filed with the Secretary of the State of Delaware a Certificate of Amendment to its Certificate of Incorporation, as amended, to increase the authorized number of shares of its Common Stock to from 150,000,000 shares to 175,000,000 shares.

The following table summarizes outstanding Common Stock activity for the following periods:

	Common Stock
Shares outstanding at December 31, 2016	<u>91,846,795</u>
Shares issued pursuant to payment of stock dividend on Series E Preferred	585,058
Shares issued pursuant to payment of stock dividend on Series F Preferred	822,122
Shares issued pursuant to payment of stock dividend on Series G Preferred	135,855
Shares issued pursuant to cashless warrants exercised	409,002
Shares issued pursuant to option exercises	<u>369,004</u>
Shares outstanding at December 31, 2017	94,167,836
Shares issued pursuant to payment of stock dividend on Series A Preferred	3,074,008
Shares issued as payment of stock dividend on Series C Preferred	354,632
Shares issued pursuant to conversion of Series A Preferred	391,304
Shares issued pursuant to option exercises	<u>235,852</u>
Shares outstanding at December 31, 2018	<u>98,223,632</u>

[Table of Contents](#)*Warrants*

As of December 31, 2018, warrants to purchase 1,813,856 shares of Common Stock at prices ranging from \$0.01 to \$1.46 were outstanding. All warrants are exercisable as of December 31, 2018 and expire as of September 11, 2019, except for an aggregate of 1,643,856 warrants, which become exercisable only upon the attainment of specified events and 20,000 warrants that become exercisable on June 7, 2019. Such warrants expire at various dates through September 2028. The intrinsic value of warrants outstanding at December 31, 2018 was approximately \$14,000. The Company has excluded from this computation any intrinsic value of the 1,493,856 warrants issued to the Series A Preferred stockholders due to the conversion exercise contingency more fully described below.

As discussed above, on September 10, 2018 the Company's Board of Directors declared a Special Dividend for Holders of the Series A Preferred, pursuant to which each Holder received a Dividend Warrant to purchase 39.87 shares of Common Stock for every share of Series A Preferred held, which resulted in the issuance of Dividend Warrants to the Holders as a group to purchase an aggregate of 1,493,856 shares of Common Stock. Each Dividend Warrant has an exercise price of \$0.01 per share, and is exercisable immediately upon issuance; *provided, however*, that a Dividend Warrant may only be exercised concurrently with the conversion of shares of Series A Preferred held by a Holder into shares of Common Stock. In addition, each Dividend Warrant held by a Holder shall expire on the earliest to occur of (i) the conversion of all Series A Preferred held by such Holder into Common Stock, (ii) the redemption by the Company of all outstanding shares of Series A Preferred held by such Holder, (iii) the Dividend Warrant no longer representing the right to purchase any shares of Common Stock, and (iv) the tenth anniversary of the date of issuance. The accounting treatment for the issuance of these warrants is discussed above in the Company's description of its Series A Preferred Stock.

During the year ended December 31, 2018, the Company issued an aggregate of 40,000 warrants to certain members of the Company's advisory board. The Company determined the grant date fair value of these warrants using the Black-Scholes option valuation model and recorded approximately \$9,000 in expense for the year ended December 31, 2018. The Company used the following assumptions in the application of the Black-Scholes option valuation model: an exercise price ranging between \$1.09 and \$1.17, a term of 2.0 years, a risk-free interest rate of 2.58%, a dividend yield of 0% and volatility of 59%. Such expense is recorded in the Company's consolidated statement of operations as a component of general and administrative expense. The Company also issued, during the year ended December 31, 2018, an aggregate of 50,000 warrants to a certain professional services provider firm. The Company determined the grant date fair value of these warrants using the Black-Scholes option valuation model and recorded approximately \$17,000 in expense for the year ended December 31, 2018. The Company used the following assumptions in the application of the Black-Scholes option valuation model: an exercise price of \$1.14, a term of 2.0 years, a risk-free interest rate of 2.58%, a dividend yield of 0% and volatility of 51%. Such expense is recorded in the Company's consolidated statement of operations as a component of general and administrative expense.

The following table summarizes warrant activity for the following periods:

	<u>Warrants</u>	<u>Weighted-Average Exercise Price</u>
Balance at December 31, 2016	175,000	\$ 0.84
Granted	80,000	\$ 1.13
Expired / Canceled	(25,000)	\$ 1.10
Exercised	—	\$ —
Balance at December 31, 2017	230,000	\$ 0.91
Granted	1,583,856	\$ 0.08
Expired / Canceled	—	\$ —
Exercised	—	\$ —
Balance at December 31, 2018	1,813,856	\$ 0.19

There were no warrants exercised during the twelve months ended December 31, 2018 and zero warrants expired unexercised during the 2018 year.

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15. STOCK-BASED COMPENSATION

Stock Options

As of December 31, 2018, the Company had one active stock-based compensation plan: the 1999 Stock Option Plan (the “1999 Plan”).

1999 Plan

The Company’s 1999 Stock Award Plan (the “1999 Plan”) was adopted by the Company’s Board of Directors on December 17, 1999. Under the terms of the 1999 Plan, the Company could, originally, issue up to 350,000 non-qualified or incentive stock options to purchase Common Stock of the Company. During the year ended December 31, 2014, the Company subsequently amended and restated the 1999 Plan, whereby it increased the share reserve for issuance to approximately 7.0 million shares of the Company’s Common Stock. Subsequently, in February 2018, the Company amended and restated the 1999 Plan, whereby it increased the share reserve for issuance by an additional 2.0 million shares. The 1999 Plan prohibits the grant of stock option or stock appreciation right awards with an exercise price less than fair market value of Common Stock on the date of grant. The 1999 Plan also generally prohibits the “re-pricing” of stock options or stock appreciation rights, although awards may be bought-out for a payment in cash or the Company’s stock. The 1999 Plan permits the grant of stock-based awards other than stock options, including the grant of “full value” awards such as restricted stock, stock units and performance shares. The 1999 Plan permits the qualification of awards under the plan (payable in either stock or cash) as “performance-based compensation” within the meaning of Section 162(m) of the Internal Revenue Code. The number of options issued and outstanding and the number of options remaining available for future issuance are shown in the table below. The number of authorized shares available for issuance under the plan at December 31, 2018 was 730,677.

The Company estimates the fair value of its stock options using a Black-Scholes option-pricing model, consistent with the provisions of ASC 718, “*Compensation – Stock Compensation*.” The fair value of stock options granted is recognized to expense over the requisite service period. Stock-based compensation expense for all share-based payment awards is recognized using the straight-line single-option method. Stock-based compensation expense is reported in operating expense based upon the departments to which substantially all the associated employees report and credited to additional paid-in-capital. Stock-based compensation expense related to equity options was approximately \$1,272,000 and 1,094,000 for the years ended December 31, 2018 and 2017, respectively.

ASC 718 requires the use of a valuation model to calculate the fair value of stock-based awards. The Company has elected to use the Black-Scholes option-pricing model, which incorporates various assumptions including volatility, expected life, and interest rates. The Company is required to make various assumptions in the application of the Black-Scholes option-pricing model. The Company has determined that the best measure of expected volatility is based on the historical weekly volatility of the Company’s Common Stock. Historical volatility factors utilized in the Company’s Black-Scholes computations for options granted during the years ended December 31, 2018 and 2017 ranged from 57% to 64%. The Company has elected to estimate the expected life of an award based upon the SEC approved “simplified method” noted under the provisions of Staff Accounting Bulletin Topic 14. The expected term used by the Company during the years ended December 31, 2018 and 2017 was 5.17 years. The difference between the actual historical expected life and the simplified method was immaterial. The interest rate used is the risk-free interest rate and is based upon U.S. Treasury rates appropriate for the expected term. Interest rates used in the Company’s Black-Scholes calculations for the years ended December 31, 2018 and 2017 averaged 2.58%. Dividend yield is zero as the Company does not expect to declare any dividends on the Company’s common shares in the foreseeable future.

In addition to the key assumptions used in the Black-Scholes model, the estimated forfeiture rate at the time of valuation is a critical assumption. The Company has adopted the provisions of ASU 2016-09 and will continue to use an estimated annualized forfeiture rate of approximately 0% for corporate officers, 4.1% for members of the Board of Directors and 6.0% for all other employees. The Company reviews the expected forfeiture rate annually to determine if that percent is still reasonable based on historical experience.

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A summary of the activity under the Company's stock option plans is as follows:

	Options	Weighted- Average Exercise Price	Weighted- Average Remaining Contractual Term (Years)
Balance at December 31, 2016	6,506,843	\$ 1.21	6.6
Granted	112,500	\$ 1.39	—
Expired/Cancelled	(156,827)	\$ 1.67	—
Exercised	(369,004)	\$ 0.70	—
Balance at December 31, 2017	6,093,512	\$ 1.23	5.8
Granted	1,545,500	\$ 1.67	—
Expired/Cancelled	(175,912)	\$ 1.33	—
Exercised	(235,852)	\$ 0.70	—
Balance at December 31, 2018	7,227,248	\$ 1.34	5.8

At December 31, 2018, a total of 7,227,248 options were outstanding, of which 5,753,529 were exercisable at a weighted average price of \$1.27 per share with a remaining weighted average contractual term of approximately 5.0 years. The Company expects that, in addition to the 5,753,529 options that were exercisable as of December 31, 2018, another 1,473,719 will ultimately vest resulting in a combined total of 7,227,248. Those 7,227,248 shares have a weighted average exercise price of \$1.34 and an aggregate intrinsic value of approximately \$248,000 as of December 31, 2018. Stock-based compensation expense related to equity options was approximately \$1,272,000 and \$1,094,000 for the years ended December 31, 2018 and 2017, respectively.

The weighted-average grant-date fair value per share of options granted to employees during the years ended December 31, 2018 and 2017 was \$0.94 and \$0.77, respectively. At December 31, 2018, the total remaining unrecognized compensation cost related to unvested stock options amounted to approximately \$995,000, which will be amortized over the weighted-average remaining requisite service period of 2.0 years.

During the year ended December 31, 2018, there were 235,852 options exercised for cash resulting in the issuance of 235,852 shares of the Company's Common Stock and proceeds of approximately \$164,000. During the year ended December 31, 2017, there were 369,004 options exercised for cash resulting in the issuance of 369,004 shares of the Company's Common Stock and proceeds of approximately \$259,000.

The intrinsic value of options exercised during the years ended December 31, 2018 and 2017 was approximately \$175,000 and \$177,000, respectively. The intrinsic value of options exercisable at December 31, 2018 and 2017 was approximately \$248,000 and \$2,388,000, respectively. The intrinsic value of options that vested during 2018 was approximately \$0. The aggregate intrinsic value for all options outstanding as of December 31, 2018 and 2017 was approximately \$248,000 and \$2,595,000, respectively.

In September 2016, the Company issued an aggregate of 168,000 options to purchase shares of the Company's Common Stock to certain members of the Company's Board of Directors in return for their service from January 1, 2017 through December 31, 2017. Such options vested at the rate of 14,000 options per month on the last day of each month during the 2017 year. The options have an exercise price of \$1.37 per share and a term of 10 years. The Company began recognition of compensation based on the grant-date fair value ratably over the 2017 requisite service period and recorded approximately \$140,000 in expense. Such expense is recorded in the Company's consolidated statement of operations as a component of general and administrative expense.

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In January 2018, the Company issued an aggregate of 324,000 options to purchase shares of the Company's Common Stock to certain members of the Company's Board of Directors in return for their service on the Board from January 1, 2018 through December 31, 2018. Such options vest at the rate of 27,000 options per month on the last day of each month during the 2018 year. The options have an exercise price of \$1.75 per share and a term of 10 years. Pursuant to this issuance, the Company recorded compensation expense of approximately \$320,000 during the year ended December 31, 2018 based on the grant-date fair value of the options determined using the Black-Scholes option-valuation model.

Stock-based Compensation

Stock-based compensation related to equity options has been classified as follows in the accompanying consolidated statements of operations (in thousands):

	Year Ended December 31,	
	2018	2017
Cost of revenue	\$ 19	\$ 19
General and administrative	840	655
Sales and marketing	216	220
Research and development	197	200
Total	\$ 1,272	\$ 1,094

Common Stock Reserved for Future Issuance

The following table summarizes the Common Stock reserved for future issuance as of December 31, 2018:

	Common Stock
Convertible preferred stock – Series A, Series B and Series C	42,626,029
Stock options outstanding	7,227,248
Warrants outstanding	1,813,856
Authorized for future grant under stock option plans	730,677

16. EMPLOYEE BENEFIT PLAN

During 1995, the Company adopted a defined contribution 401(k) retirement plan (the "Plan"). All U.S. based employees aged 21 years and older are eligible to become participants after the completion of 60 day's employment. The Plan provides for annual contributions by the Company of 50% of employee contributions not to exceed 8% of employee compensation. Effective April 1, 2009, the Plan was amended to provide for Company contributions on a discretionary basis. Participants may contribute up to 100% of the annual contribution limitations determined by the Internal Revenue Service.

Employees are fully vested in their share of the Company's contributions after the completion of five years of service. In 2017, the Company authorized contributions of approximately \$154,000 for the 2017 plan year of which \$115,000 were paid prior to December 31, 2017. In 2018, the Company authorized contributions of approximately \$166,000 for the 2018 plan year of which \$128,000 were paid prior to December 31, 2018.

[Table of Contents](#)**17. PENSION PLAN**

One of the Company's dormant foreign subsidiaries maintains a defined benefit pension plan that provides benefits based on length of service and final average earnings. The following table sets forth the benefit obligation, fair value of plan assets, and the funded status of the Company's plan; amounts recognized in the Company's consolidated financial statements; and the assumptions used in determining the actuarial present value of the benefit obligations as of December 31:

(\$ in thousands)	<u>2018</u>	<u>2017</u>
Change in benefit obligation:		
Benefit obligation at beginning of year	\$ 3,830	\$ 3,540
Service cost	—	—
Interest cost	72	64
Actuarial (gain) loss	(34)	(167)
Effect of exchange rate changes	(174)	473
Effect of curtailment	—	—
Benefits paid	(84)	(80)
Benefit obligation at end of year	<u>3,610</u>	<u>3,830</u>
Change in plan assets:		
Fair value of plan assets at beginning of year	1,806	1,645
Actual return of plan assets	82	7
Company contributions	13	12
Benefits paid	(84)	(80)
Effect of exchange rate changes	(83)	222
Fair value of plan assets at end of year	<u>1,734</u>	<u>1,806</u>
Funded status	(1,876)	(2,024)
Unrecognized actuarial loss (gain)	1,542	1,629
Unrecognized prior service (benefit) cost	—	—
Additional minimum liability	(1,542)	(1,629)
Unrecognized transition (asset) liability	—	—
Net amount recognized	<u>\$ (1,876)</u>	<u>\$ (2,024)</u>
Components of net periodic benefit cost are as follows:		
Service cost	\$ —	\$ —
Interest cost on projected benefit obligations	72	64
Expected return on plan assets	(56)	(70)
Amortization of prior service costs	—	—
Amortization of actuarial loss	102	104
Net periodic benefit costs	<u>\$ 118</u>	<u>\$ 98</u>
The weighted average assumptions used to determine net periodic benefit cost for the years ended December 31, were		
Discount rate	2.0%	1.9%
Expected return on plan assets	3.2%	3.2%
Rate of pension increases	2.0%	2.0%
Rate of compensation increase	N/A	N/A
The following discloses information about the Company's defined benefit pension plan that had an accumulated benefit obligation in excess of plan assets as of December 31,		
Projected benefit obligation	\$ 3,610	\$ 3,830
Accumulated benefit obligation	\$ 3,610	\$ 3,830
Fair value of plan assets	\$ 1,733	\$ 1,806

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As of December 31, 2018, the following benefit payments are expected to be paid as follows (in thousands):

2019	\$	82
2020	\$	83
2021	\$	97
2022	\$	99
2023	\$	106
2024 — 2028	\$	679

The Company made contributions to the plan of approximately \$13,000 during the year ended December 31, 2018, and \$12,000 during the year ended December 31, 2017. The company anticipates to make contributions at similar levels during the next fiscal year.

In accordance with the Company's adoption of ASU 2017-07, the components of net periodic pension expense is shown in the Company's Consolidated Statement of Operations for the years ended December 31, 2018 and 2017 under the caption "Other components of net periodic pension expense".

The Company's German pension plan is funded by insurance contract policies whereby the insurance company guarantees a fixed minimum return. The Company has determined that the pension assets are more appropriately classified within Level 3 of the fair value hierarchy because they are valued using actuarial valuation methodologies which approximate cash surrender value. Accordingly, the Company has reclassified the classification level of the pension plan insurance contracts to Level 3 for all periods presented. Such pension plan insurance contracts were previously classified by the Company as Level 1. All plan assets are managed in a policyholder pool in Germany by outside investment managers. The investment manager is responsible for the investment strategy of the insurance premiums that Company submits and does not hold individual assets per participating employer. The German Federal Financial Supervisory oversees and supervises the insurance contracts.

The measurement date used to determine the benefit information of the plan was January 1, 2019.

18. ACCUMULATED OTHER COMPREHENSIVE LOSS

Accumulated other comprehensive loss is the combination of the additional minimum liability related to the Company's defined benefit pension plan, recognized pursuant to ASC 715-30, "*Compensation - Retirement Benefits - Defined Benefit Plans - Pension*" and the accumulated gains or losses from foreign currency translation adjustments. The Company translates foreign currencies of its German, Canadian and Mexican subsidiaries into U.S. dollars using the period end exchange rate. Revenue and expense were translated using the weighted-average exchange rates for the reporting period. All items are shown net of tax.

As of December 31, 2018 and 2017, the components of accumulated other comprehensive loss were as follows:

(\$ in thousands)	<u>2018</u>	<u>2017</u>
Additional minimum pension liability	\$ (1,144)	\$ (1,353)
Foreign currency translation adjustment	(284)	(311)
Ending balance	<u>\$ (1,428)</u>	<u>\$ (1,664)</u>

19. SUBSEQUENT EVENTS

Subsequent to December 31, 2018, the Company issued 286,834 shares of its Common Stock pursuant to the exercise of 286,834 options and received aggregate proceeds of approximately \$106,000.

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

As independent registered public accountants, we hereby consent to the incorporation by reference in Registration Statement No. 333-180809 on Form S-8 and Registration Statement No. 333-201442 and 333-214124 on Forms S-3, of our reports dated March 27, 2019, relating to the consolidated financial statements of ImageWare Systems, Inc. ("Company") (which includes explanatory paragraphs related to the change in the method of accounting for revenue, and the uncertainty of the Company's ability to continue as a going concern), and the effectiveness of ImageWare Systems, Inc.'s internal control over financial reporting, included in this Annual Report on Form 10-K for the year ended December 31, 2018.

/s/ Mayer Hoffman McCann P.C.
San Diego, California
March 27, 2019

Exhibit 31.1

**Certification pursuant to 18 U.S.C. Section 1350 as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
and pursuant to Rule 13a-14(a) and Rule 15d-14 under the Securities Exchange Act of 1934**

I, S. James Miller, Jr., Chief Executive Officer of the Company, certify that:

1. I have reviewed this Annual Report on Form 10-K of ImageWare Systems, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c. Evaluated the effectiveness of the registrant's disclosure and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluations; and
 - d. Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
- b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 27, 2019

ImageWare Systems, Inc.

By: /s/ S. James Miller, Jr.
S. James Miller, Jr.
Chief Executive Officer
(Principal Executive Officer)

Exhibit 31.2

**Certification pursuant to 18 U.S.C. Section 1350 as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
and pursuant to Rule 13a-14(a) and Rule 15d-14 under the Securities Exchange Act of 1934**

I, Wayne Wetherell, Chief Financial Officer of the Company, certify that:

1. I have reviewed this Annual Report on Form 10-K of ImageWare Systems, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c. Evaluated the effectiveness of the registrant's disclosure and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluations; and
 - d. Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 27, 2019

ImageWare Systems, Inc.

By: /s/ Wayne Wetherell
Wayne Wetherell
Chief Financial Officer
(Principal Financial Officer)

Exhibit 32

CERTIFICATION

S. James Miller, Chief Executive Officer of ImageWare Systems, Inc. (the “*Company*”), and Wayne Wetherell, Chief Financial Officer of the Company, each hereby certifies pursuant to the requirement set forth in Rule 13a-14(b) of the Securities Exchange Act of 1934, as amended (the “*Exchange Act*”), and Section 1350 of Chapter 63 of Title 18 of the United States Code (18 U.S.C. Section 1350) that, to the best of his knowledge:

1. The Annual Report on Form 10-K of the Company for the year ended December 31, 2018 fully complies with the requirements of Section 13(a) or 15(d) of the Exchange Act; and

2. The information contained in the Annual Report on Form 10-K of the Company for the year ended December 31, 2018 fairly presents, in all material respects, the financial condition of the Company at the end of the year covered by the Annual Report and the results of operations of the Company for the period covered by the Annual Report.

IN WITNESS WHEREOF, the undersigned have set their hands hereto as of the 27th day of March, 2019.

/s/ S. James Miller
S. James Miller
Chief Executive Officer

/s/ Wayne Wetherell
Wayne Wetherell
Chief Financial Officer
(Principal Financial and Accounting Officer)

A signed original of this written statement required by Section 906 has been provided to ImageWare Systems, Inc. and will be retained by ImageWare Systems, Inc. and furnished to the Securities and Exchange Commission or its staff upon request.
