



**Management's Discussion
and Analysis
For the Year Ended December 31, 2018**



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**MANAGEMENT’S DISCUSSION AND ANALYSIS
FOR THE THREE AND TWELVE MONTHS ENDED DECEMBER 31, 2018**

The following discussion and analysis of the operations, results, and financial position of POET Technologies Inc., (the “Company” or “POET”) for the three and twelve months ended December 31, 2018 (the “Period”) should be read in conjunction with the Company’s audited consolidated financial statements for the year ended December 31, 2018 and the related notes thereto, both of which were prepared in accordance with International Financial Reporting Standards (“IFRS”). The effective date of this report is April 29, 2019. All financial figures are in United States dollars (“USD”) unless otherwise indicated. The abbreviation “U.S.” used throughout refers to the United States of America.

Forward-Looking Statements

This management discussion and analysis contains forward-looking statements that involve risks and uncertainties. It uses words such as “may”, “would”, “could”, “will”, “likely”, “expect”, “anticipate”, “believe”, “intend”, “plan”, “forecast”, “project”, “estimate”, and other similar expressions to identify forward-looking statements. Forward-looking statements are subject to a variety of risks and uncertainties which could cause actual events or results to differ from those reflected in the forward-looking statements, including, without limitation, risks and uncertainties relating to the early stage of the Company’s development and the possibility that future development of the Company’s technology and business will not be consistent with management’s expectations, difficulties in achieving commercial production or interruptions in such production if achieved, inherent risks of operating a manufacturing facility, including risks associated with supplier delays, factory uptime, inventory management and other operating uncertainties, the inherent uncertainty of cost estimates and the potential for unexpected costs and expenses, the uncertainty of profitability and cessation of business for failure to obtain adequate financing on a timely basis, amongst other factors. The Company undertakes no obligation to update forward-looking statements if circumstances or Management’s estimates or opinions should change, except to the extent required by law. The reader is cautioned not to place undue reliance on forward-looking statements.

The Company is incorporated under the laws of the Province of Ontario. The Company’s shares trade under the symbol “PTK” on the TSX Venture Exchange in Canada and under the symbol “POETF” on the OTCQX in the U.S.

BUSINESS

Overview

We design, develop, manufacture and sell both discrete and integrated opto-electronic solutions for the sensing, data communications and telecommunications markets. In addition to manufacturing a range of Indium Phosphide (InP)-based light sources, POET has developed and is marketing its proprietary POET Optical Interposer™ platform. The POET Optical Interposer utilizes a novel dielectric waveguide technology that allows the integration of electronic and photonic devices into a single multi-chip module. The integration of devices into a single package is achieved by applying advanced wafer-level semiconductor manufacturing techniques and novel packaging methods developed by POET. POET's "photonics in a package" eliminates costly components, assembly and testing methods employed in conventional photonics solutions. In addition to lowering costs compared to conventional devices, POET's Optical Interposer provides a flexible and scalable platform for a variety of photonics applications ranging from data centers to consumer products.

POET's Optical Interposer is a platform technology upon which multiple applications can be based, including transceivers for data- and tele-communications, integrated photonics on electronic switching devices, low-cost components for the networking and cellular markets, automotive LIDAR and a plethora of sensing and other applications using light as a medium for data transmission. In each case, devices traditionally associated with photonics, such as laser diodes, light emitting diodes, detectors, amplifiers and the associated waveguides and other passive devices are designed specifically in the context of the Optical Interposer to meet the needs and functions of specific applications.

POET has targeted as the first application of the Optical Interposer the development of Optical Engines for transceivers. Transceivers are used to convert digital electronic signals into light signals and to transmit and receive those light signals via fiber optic cables within datacenters and between datacenters and metropolitan centers in a vast data and tele-communications network. We expect to deliver prototypes of certain types of Optical Engines by mid-2019. These prototypes are expected to address a small portion of the market for Optical Engines. Continued development of the prototypes will add several commonly used communication protocols and data speeds, to increase the functionality of the Optical Engine from receive only to transmit and receive, thus improving device capability and performance. Concurrently, we also intend to develop additional applications for the Optical Interposer platform in the telecom, LIDAR and sensing markets.

Research & Development

Virtually all of POET's R&D expenditures in recent years are in some way connected to the Optical Interposer. We expect to continue to spend the large majority of our R&D resources for the foreseeable future on Optical Interposer-based products across a wide variety of potential applications. The only other R&D expenditures that we have or may incur relate to conventional non-interposer-based products that we develop and manufacture for our legacy sensing product lines that represent the majority of our current sales. However, we intend to develop and transition these products to the Optical Interposer, because of the resulting cost and performance advantages that it provides.

POET's Optical Interposer development program consists of over 20 development projects in three areas: 1) Active Component Development, which includes a variety of application-specific Indium Phosphide (InP)-based lasers, detectors and modulators; 2) Passive Component Development, which includes application-specific filters, mux-demux devices, waveguides and spot size converters, all designed and fabricated using POET's proprietary

dielectric materials and processes; and 3) Core Integration Process Development, which includes processes such as assembly, hermetic sealing, flip-chip techniques, reflection management, and wafer-level test. In order to optimize our development resources, we have taken a “building block” approach, beginning with the most fundamental functions needed for the Optical Interposer in each of these three areas. The Optical Interposer is unique in the industry, incorporating several “first time ever” implementations of advanced optics and semiconductor packaging techniques and completely new, novel designs for components. To minimize risk and maximize the probability of successful outcomes, we run parallel development programs, both internal and external. Our external programs engage development partners or subcontractors to provide devices, process expertise or equipment that we do not have internally.

As a platform technology, Optical Interposer development does not have a specific end-point. Each application of the Optical Interposer requires development specific to the application. POET’s product roadmap is currently focused on the development of Optical Engines for optical transceivers. Optical Engines include all of the photonics-related components of a transceiver but does not include several of the electronic devices for a functioning transceiver module nor does it include the external packaging and optical fibers. The electronics include such devices as Trans Inductance Amplifiers (TIA’s), laser drivers, etc. that are produced by major semiconductor manufacturers. However, Optical Engines represent the majority of the cost and value of most optical transceivers.

The “active” components that are included in a POET Optical Engine include lasers, detectors and modulators fabricated on InP substrates. To exploit the unique functionality of the Optical Interposer, each of these devices must be made to a design that integrates spot size converters (“SSCs”) and allows the device to be compatible with a flip-chip assembly process. Our DenseLight subsidiary has been engaged for the past two years in the development of designs and process technologies to build such devices for the Optical Interposer. To accelerate the development process, we have either combined efforts with development partners, purchased wafers to specific designs or licensed technology as a means to supplement our internal development efforts. One of our earliest internal developments is a QuadPIN photodetector, which was introduced to customers for qualification in late 2018 at 25G¹ speeds. We believe the performance of this device can be improved to allow it to be used at 50Gbps speeds, which would be used in 400G transceiver Optical Engines. As we continue that development, we intend to place this device on an Optical Interposer with an integrated thru waveguide in Q2 of 2019, primarily as a means to demonstrate the functionality and versatility of the Optical Interposer platform, rather than as a product for sale. We have supplemented our active component device development with co-development partners and license agreements, including for certain types of lasers and modulators. In particular, we have initiated the development of Optical Interposer-compatible components at Almae, one of our laser development partners. This not only mitigates the risk to internal development and accelerates time to market, but it also ensures a second source of Optical Interposer-compatible active components, a critical part of our strategy going forward.

In parallel to these activities, POET has also directed development programs in the other two areas outside of DenseLight, including Passive Component design and development and Core Integration process development. Passive devices, as mentioned above, include filters, mux-demux devices, waveguides and spot size converters, all designed and fabricated using POET’s proprietary dielectric materials and processes. We recently established a waveguide development lab in Ottawa in association with Mill View Photonics. We plan to expand that effort over time in order to design waveguides for specific applications for the Optical Interposer across several vertical

¹ “G” is an abbreviation for “Giga bits per second”, the rate at which the device transmits or receives data.

markets. The actual fabrication of the passive devices, which are built on 8-inch diameter silicon wafers is performed by our foundry partner, SilTerra Malaysia (“SilTerra”). The devices fabricated at SilTerra represent the base foundational elements of the Optical Interposer on which the active devices are placed. In early 2018 we transferred the basic processes for the deposition and patterning of our proprietary dielectric material from a university lab to SilTerra. We purchased dedicated equipment in order to preserve the intrinsic intellectual property of the processes, and since early 2018 we have continued to improve those processes in order to make them suitable for high volume manufacturing.

The third area, Core Integration Process Development, highlights the fundamental benefits of the Optical Interposer platform as primarily an advanced packaging technology that allows true wafer-scale assembly and test. We do not believe that such true wafer-scale integration has been achieved by any other technology in the photonics industry. We are able to achieve chip-level integration and wafer-scale assembly, test and packaging because all of the active devices include SSCs and are designed to be placed and “matched” to passive device interfaces on the foundational Optical Interposer wafer using pick-and-place assembly techniques. We achieve high levels of coupling efficiency between each device, eliminating the high cost and cumbersome process of testing each component following placement. Once placed and tested at wafer scale, each Optical Interposer device is sealed, the wafer is separated into hundreds of individual die and the final Optical Engine is ready for shipment to the customer. Each of these process steps, from flip-chipping of devices onto the dielectric, pick and place assembly, hermetic sealing and singulation required substantial innovation and development, including several techniques that are unique in the photonics industry.

In late in 2018 we were approached by two large global networking companies that saw promise in using all or part of our Optical Interposer technology for their 400G transceiver development projects. These projects offered the benefits of payment for development, intersection with major companies at the early stage of their development projects for next generation transceivers, the prestige of working with industry-leading companies, and the potential for our Optical Engines to be included as major components of the planned shipments of transceivers by these companies. We took a major decision to reorder our priorities in order to effectively support these companies. We believe that addressing product-specific requirements with willing partners and committed funding is the optimal way to introduce the Optical Interposer technology to the market. Identifying and overcoming individual technical challenges increases the likelihood of success and promotes innovation. We expect that successful implementation of our designs into component prototypes, combined with the cost advantage inherent in Optical Interposer-based solutions, will lead to additional funding for other products, as well as to contracts for the delivery of production devices, once fully qualified.

The immediate consequence of our decision to work with leading industry partners on 400G transceivers was to accelerate the development of higher performance lasers, modulators and detectors needed for 400G, at the expense of similar programs for 100G. Another factor in our decision-making process was the market forecast for 100G transceivers which has flattened in terms of revenue and appears to be maturing much faster than the industry anticipated. Industry total revenue for 100G transceivers in 2019 is expected to be flat or lower than 2018. With unit volume going up, pricing is down and therefore margins are squeezed even more heavily than before.

Our plan to deliver 400G devices is essentially unchanged from prior plans, which targeted the release of TROE

Optical Engine prototypes to customers for qualification² for in the second half of 2019. Our revised plan calls for all of the required active components, waveguides for certain standards, and core integration processes to be far enough along to allow the Company to produce both 400G prototypes and 100G prototypes during the second half of 2019. We expect to be able to introduce the less complex standards, such as DR4 for 400G and Parallel Single Mode 4-fiber (“PSM4”) for 100G earlier in the second half than the more complex FR4 for 400G and Coarse Wavelength Division Multiplexing (“CWDM”) standards. In each case we have multiple parallel programs aimed at these prototype products, utilizing both internal and external development resources.

Further, while we had forecasted the completion of a Receive Only Engine (ROE) for 100G as our first planned prototype, we now expect that there will be little demand for a separate ROE, since customers will be able to qualify a full TROE instead, performing one rather than two qualification cycles for a more complete solution. However, a 100G TROE with a CWDM filter represents the second generation of transceivers being adopted and a standard which is expected to be dominant in the 100G datacom market in China. Early adopters of 100G transceivers in the United States utilized PSM4, a standard that does not incorporate the highly complex CWDM filter.

The inherent cost advantage of an Optical Interposer-based 100G Optical Engines should still allow entry into the 100G market, but the level of penetration will depend on how far pricing will have fallen by year-end and into 2020. Nevertheless, because of the size of the market and the need for transceiver module suppliers to address margin concerns, an offering of a 100G CWDM TROE could still have major impact on POET’s data-communications revenue over the next one to two years. Due to the relatively large amount of NRE in our 2019 forecast, we do not expect to have to revise our guidance for 2019. Overall, we believe that our revised development roadmap represents a sound foundation for growth in 2020 and beyond.

In addition to the new products in the data communications market noted above, POET expects a significant increase in its Sensing product revenue in 2019. Recent trends have been positive. With some existing customers expanding order size and the addition of new customers, we have a strong pipeline of committed orders. Expanded laser product-lines in CW, FP and DFB configurations and in high-value NLW modules which address new and complex applications in the sensing market are in high demand. In addition, by incorporating the packaging innovations developed for the Optical Interposer, we expect that in mid- to late 2019 the Company will be in a position to introduce a differentiated sensing product-line at lower cost and higher performance.

In recent quarters, POET has taken major steps to advance its development of Interposer-based new products, including through the purchase of equipment, improvement of facilities and the strengthening of its engineering team with more highly qualified talent and larger staff, all represented in POET’s consolidated financial statements through additions to fixed assets and increased operating expenses. Certain additional capital equipment may be needed to enhance our development and production capabilities, but we expect only marginal increases in operating expenses over the next 3 to 4 quarters, as we are able to address the needs of our customers with our existing engineering staff and production facilities. The next few quarters will be devoted to the successful

² “Qualification” of new devices or components, demonstrating adherence to both customer specifications and industry standards, is done both by POET and by our individual customers. The period over which device testing occurs may extend from three to six months or longer, depending on the device, the qualification tests required and the customer. We have estimated that the qualification of its “passive” devices, which do not contain “active”, light-emitting components should average approximately three months and that active device-containing components should average approximately six months. However, with any particular device, test or customer, the qualification period may be shorter or longer.

completion of funded development programs, the introduction of new devices into qualification cycles with customers, and preparation for higher production volumes in subsequent quarters. As a result of the recently announced contractual commitments for Optical Interposer sub-assembly prototypes, other anticipated Optical Engine prototype orders in late 2019, increases in Sensing product revenue and improvement of overall gross margins described below, we expect our DenseLight subsidiary to have a material increase in revenues in 2019. Should the Company's structure continue with DenseLight as a subsidiary (see "Potential Sale of DenseLight Subsidiary" below), forecasted revenue would be in the range of approximately \$8 to \$10 million, though we do not expect to reach cash break-even until 2020. Gross Margins should increase as a result of the proportion of higher margin development contracts for Non-Recurring Engineering (NRE) compared to products sales, which utilizes POET's existing engineering and operations staff. In addition, we plan to continue product development with an expansion of opportunities in markets beyond data communications for our Optical Interposer technology, such as telecommunications, Automotive LIDAR, and integration with Application Specific Integrated Circuits (ASICs), including switches and graphics generators.

Industry Background

Since the introduction of the smartphone, people have fundamentally changed the way they communicate, socialize, and interact among themselves and the data around them. Today, smartphones and other such devices allow us to capture, create and communicate enormous amounts of content. The explosion in data, storage and information distribution is driving extraordinary growth in internet traffic and cloud services. The expected growth in the networking and data communication market is the result of many factors, among them being, the growth of wireless and mobile traffic (which will account for 71% of total Internet Provider (IP) traffic by 2022³), social media activity, the progression of video transmission, the emergence of imaging such as virtual/augmented/mixed reality and 3D video, the continued migration to cloud storage, the propagation of sensors feeding the Internet of Things, and the evolution of big data analytics and machine learning/artificial intelligence. These factors will continue to drive a long-term increased demand for more capacity and higher speeds.

Photonics has traditionally been employed to transmit and receive data over long distances because light can carry considerably more content and data at faster speeds than other means of transmission, such as radio waves or copper wires. Optical transmission becomes more energy efficient as compared to electronic alternatives when the transmission length and speed increase. As a natural consequence, optics are systematically replacing copper in many of the data center communication links where speed, bandwidth and energy are at a premium.

Data center operators are increasing the size and scale of their facilities, while simultaneously looking to component suppliers for solutions capable of providing higher data transmission rates. Within data centers, data communications over distances 500 m to 2 km have already been transitioned from inherently lower speed copper cable to optical fibers. Furthermore, short reach communications, either rack-to-rack or within the rack as well as those requiring speeds of up to 100G, are now increasingly being converted from copper to optical cables.

Outside the Data Centers, future 5G build-out of mobile communications will drive speed and capacity requirements closer to the user with significant reduction in latency. Compared to 4G, 5G technology standard offers much faster download and upload speed, minimum delay in data communication and processing, as well as much higher density in device connections. 5G will enable advances in virtual reality, augmented reality,

³ Cisco *Visual Networking Index: Forecast and Methodology, 2017-2022, White Paper*, Executive Summary, Feb. 27, 2019

autonomous driving, high-definition video, and the Internet of Things, among other applications. All of these applications require advanced photonics devices to provide higher speeds and more bandwidth.

Photonics Markets

The two target markets in which we currently sell or plan to sell products near-term are Photonic Sensing and Optical Data Communications.

The Photonic Sensing market (which consists of fiber optic, image, bio-photonic and other sensors for the oil & gas, defense, transportation, energy, healthcare consumer electronics and other industries) is projected to grow to approximately US\$20 billion by 2022, with about a 15% CAGR between 2016 and 2022.⁴ Major segments include the following:

- Test & Measurement - monitoring equipment for communication, components and material testing, as well as sensing equipment such as distributed temperature and strain measurement;
- Structural Health Monitoring - systems to monitor the power grid, and fiber optic-based sensors in rail lines, nuclear facilities, etc.
- Guidance and Navigation - navigational guidance systems, gyrocompasses, and optical-based systems for navigating self-driving automobiles; and
- Medical and Health Care - devices for non-invasive blood glucose monitoring, pulse-oximeter devices, and ophthalmic examination.

Market segments in Photonic Sensing are typically served by large system providers, so component sales of lasers and detectors represents approximately 10% of any given system market segment.

The Optical Communications Market (which includes optical switching equipment, fiber optic transmission systems, transceivers, etc. for all industries) is forecasted to grow at about 9% CAGR over the period from 2017 to 2023, to US\$24 billion from a current US\$15 billion.⁵ System and component growth is driven largely by global Internet Provider (IP) traffic, which is expected to nearly triple from 2017 to 2022, representing a 26% CAGR.⁶ Within the overall Data Communications market, photonic transceivers will represent a \$25 billion market opportunity in 2025, according to *Oculi, llc*.⁷ The primary segments for photonic transceivers are Ethernet, wide area network (WAN) and dense wavelength division multiplexing (DWDM), all of which are predominantly addressed by InP-based optical technologies. Ethernet transceivers are forecasted to grow to \$7.4 billion by 2025 with 100G driving a majority of the growth. Within Ethernet, singlemode transceivers based on InP devices are forecasted to outgrow multimode transceivers based on GaAs devices by a factor of 6:1. Segmented by distance, the majority of growth is expected in the <10km segment (\$4.3 billion by 2025).⁸

Integrated photonic transceivers, incorporating approaches comparable to that of POET, are expected to overtake those using discrete components by 2021, growing from a current \$3.2 billion to \$20 billion in 2025⁹. Within this market, POET is focused on the highest growth segments, including Wavelength Division Multiplexing (WDM) for medium-reach (500m – 2km) Ethernet datacom connections and Wide Area Network protocols for long-reach

⁴ Market Research Future *Photonic Sensors Market Research Report – Global Forecast to 2022*, Feb. 27, 2019

⁵ Market Research Future *Optical Communications Market Research Report – Global Forecast to 2023*, January 2019

⁶ Cisco *VNI*, Forecast Overview, Feb. 27, 2019

⁷ Oculi, llc, *Estimates for 2025 commissioned by POET Technologies, Inc.*, March 2017

⁸ Ibid

⁹ Ibid

or metro applications (2km – 10km). The majority of today’s discrete transceiver suppliers are shipping 100G transceivers in a 4x25G format, having developed assembly methods for placing multiple laser chips on one substrate and coupling the output into one fiber using micro-optic filters and other elements. POET’s approach is to use the Optical Interposer to combine multiple active and passive devices into a single package, or “Optical Engine”, which when combined with control electronics and an outer housing, constitutes a pluggable optical transceiver. We plan to sell our Optical Engines to manufacturers and assemblers of optical transceiver modules. We believe our Optical Engine solution will be cost competitive with conventional modules as well as silicon photonics in the <2km data center market, and it should be scalable to 10km, and support 200G and 400G datacom speeds.

Our Strategy

Our vision is to become a global leader in photonics by deploying an Optical Interposer-based approach to the integration of photonics devices into a wide variety of vertical market applications. Our strategy includes the following key elements:

- *Introduce the Optical Interposer concept to suppliers of transceivers and data center operators and form commercial partnerships for product development.* Because of the magnitude of the cost savings that may be derived from the use of POET’s Optical Engines for transceiver applications, we expect to generate significant interest among both the suppliers of transceiver modules and their ultimate customers, the data center operators. In addition, the POET Optical Interposer provides a straightforward and cost-effective path to higher speed transceivers, including up to 400G and higher, providing a single platform that can span several device generations. We anticipate that several companies will be interested in pursuing commercial partnerships with POET in order to qualify and design-in our Optical Engines.

- *Promote the POET Optical Interposer as a true platform technology across several photonic applications and markets.* The POET Optical Interposer is designed to be a flexible platform for the combination or integration of various photonic and electronic components. The anticipated low cost makes it suitable for applications like automotive LIDAR. The compatibility of the Optical Interposer manufacturing process with standard silicon CMOS processing opens up a wide variety of other applications where high-speed data communications is needed, such as integration with ASICs, graphics generators and high-speed switches.

- *Pursue multiple potential sources of non-product revenue and strategic partnerships.* In addition to product sales, we have been pursuing Non-Recurring Engineering (“NRE”) revenues from end-use customers and/or from strategic partners. In particular, we believe our 100/200/400G transceiver components represent a uniquely attractive opportunity for collaborative development with a strategic partner(s).

- *Continue to invest in our capabilities and infrastructure.* We intend to continue to invest in new products, new technology and our production infrastructure and facilities to maintain and strengthen our competitive position. Our R&D programs in Singapore are partially reimbursed by the Singapore Economic Development Board, whose support will help to defer the costs associated with bringing innovative new products to market.

- *Selectively pursue other opportunities that leverage our existing expertise.* Our expertise in designing and manufacturing photonics devices, both discrete and integrated, positions us well to pursue applications in high growth markets and our Singapore operation is ideally located to support customers in Asia, where much of the growth in photonics is occurring.

· *Pursue complementary strategic alliance or acquisition opportunities.* We intend to evaluate and selectively pursue strategic alliances or acquisition opportunities that we believe will accelerate our penetration of specific applications or vertical markets with our technology or products.

Our Products

- We are currently engaged in the development of 100G and 400G Transmit and Receive Optical Engines (TROE) for 100G and 400G transceiver assemblies.

We expect our InP-based solutions from our DenseLight subsidiary will add to the Company's current and future product portfolio, including:

- Broadband Super-Luminescent LEDs (Light Emitting Diodes)
- Narrow Linewidth Lasers
- DFB (Distributed Feedback) Lasers for Data Communications
- High Power ELEDs (Edge Emitting Light Emitting Diodes)
- Integrated CWDM Solutions

Intellectual Property

We have 62 issued patents and 14 patent applications pending, including six that have been filed since July of 2018. The patents cover device structures, underlying technology, applications of the technology and fabrication processes. We believe these patents provide a significant barrier to entry against competition, along with trade secrets and know-how acquired from DenseLight and BB Photonics and further developed by POET. We intend to continue to apply for additional patents in the future. Currently, we are working on the design of integrated devices, manufacturing processes, and products for data communication applications in the data center market, along with products for photonic sensing markets that employ novel packaging technologies.

Fabrication and Assembly Capabilities

We provide one-stop design and manufacturing solutions, from photonics design and simulation, epitaxial growth, wafer fabrication, chip production, in-line optical coating, sub-mounting, photonic measurements, product testing and screening. We are operationally ready for responsive prototyping and quality production. The 50,000 sq. ft. purpose-built facility in Singapore houses our R&D, product design and manufacturing operations under one roof. Its 15,000 sq. ft. clean room is fully equipped for enabling vertically integrated volume manufacturing, from wafer fabrication to test and packaging. We are ISO9001 certified in Singapore processing Indium Phosphide (InP) and Gallium Arsenide (GaAs) based opto-electronic devices and photonic integrated circuits through our in-house wafer fabrication and assembly & test facilities.

We have an experienced team with deep know-how in GaAs and InP semiconductors wafer processing and we continue to build on this technical base. Together with our operationally ready manufacturing and photonics design center, various ODM and design-in programs can be supported for both discrete and integrated optical components.

Potential Sale of DenseLight Subsidiary

In January 2019, the Company was approached by a third-party interested in purchasing our DenseLight InP fabrication facility in Singapore. We took this offer seriously for several reasons, including the party's financial strength, its interest in investing in both R&D and high-volume manufacturing capacity for InP-based devices, and our desire to invest more of our limited resources in Optical Interposer-based solutions. Our Board of Directors and senior management engaged in a review of the status of our development programs and the areas in which we would need to invest capital and human resources in the coming months and years. As a result of this review, we concluded that there were significant benefits to the Company and its shareholders if we would adopt a "fab-light"¹⁰ strategy, which is a common business model in the semiconductor industry. Such a strategy would allow the Company to invest more in design and development of Optical Interposer-based solutions, expand our marketing and sales presence globally and spend less on capital equipment and maintenance of facilities, enabling a faster path to profitability. Importantly, our review of our development programs concluded that sufficient fundamental work in the development of "active" InP-based devices designed specifically for the Optical Interposer had been completed. Additional development work that might be needed could continue and be completed under contract with DenseLight or others, without the need to own the facility. On February 3 2019, we signed a non-binding Letter of Intent (LOI) for the sale of the capital stock of our Singapore-based DenseLight subsidiary.

As of the publication of this MD&A, we are engaged with the third-party in detailed negotiations on the specific terms of the transaction, including the terms of a supply agreement with DenseLight for custom InP-based devices for the Optical Interposer, as well as a strategic cooperation agreement intended to keep our mutual objectives for the growth of both companies in concert following the divestment and over the longer term. In addition, we are conducting internal reviews of our plans, programs, personnel and budgets for the Company post-divestment. We are now committed to pursuing our "fab-light" strategy and selling our DenseLight subsidiary, if necessary to another of several interested parties if the current negotiations are not successful. As a direct result of this decision, our Financial Statements beginning with Q1 of 2019 will treat DenseLight as "discontinued operations".

MD&A Highlights

Revenue was \$3,888,185 for the year ended December 31, 2018 and gross margin was \$2,412,216 or 62%. Reported revenue and gross margin for corresponding period in 2017 was \$2,794,044 and \$1,451,353, respectively or 52%. Our net loss from operations, before taxes for the period was \$16,620,719 compared to a net loss from operations, before taxes of \$13,095,737 for the corresponding period in 2017.

¹⁰ "Fab-light" does not mean "fab-less", as significant portions of our Intellectual Property are embedded in the processes that we have developed that are themselves integral to the equipment and functioning of the Optical Interposer. By purchasing our own equipment and placing the equipment in a foundry, for example, we are able to preserve confidentiality and ownership of such critical IP. As a result, even with a "fab-light" strategy, we expect to continue to invest in capital equipment, but not at the same level as owning and supporting an entire InP wafer fabrication facility.

Significant Events and Milestones During 2018

In 2018, we continued to execute on our stated strategic plan. We achieved the following significant milestones during the year ended December 31, 2018:

- 1) On January 22, 2018, the Company appointed Don Listwin to the Board of Directors, replacing Todd DeBonis who served on the Board since April 2015. Listwin has over 30 years of technology investing and management experience, highlighted by a decade at Cisco Systems, where he served as executive vice president. During his tenure at Cisco, he built several multibillion-dollar lines of business, including the company's Service Provider line of business that underpins much of today's global Internet infrastructure. Listwin is currently the chief executive officer of iSchemaView, and serves on the boards of Calix, GenoLogics, Openwave Systems, D-Wave Systems, Teradici and Clustrix.
- 2) On January 29, 2018, the Company announced the launch of its Optical Interposer Platform, which facilitates the co-packaging of electronics and optics in a single Multi-Chip Module (MCM). Based on its previously announced Dielectric Waveguide technology, POET's Optical Interposer may provide the ability to run electrical and optical interconnections side-by-side on the same interposer chip at a micrometer scale. The Optical Interposer represents an integral part of POET's hybrid integrated Optical Engine and leverages the manufacturing processes and unique capabilities of its dielectric waveguides.
- 3) On January 30, 2018, the Company successfully demonstrated a high frequency waveguide integrated PIN Photodiode targeting 100G and 400G data center applications. The PIN Photodetector successfully demonstrated a 3dB optical bandwidth of 37GHz, which is a typical requirement for achieving 50GBaud data rates. The achieved native bandwidths are more than capable of supporting the requirements of a 100G Receive Optical Engine (4 lanes at 25Gb/s each), and can be extended to support 200G/400G Optical Engines.
- 4) On March 5, 2018, the Company entered into a Memorandum of Understanding (MOU) for the co-development of products with Accelink Technologies Co., Ltd. ("Accelink"), a leading global supplier of optical components and subsystem products to the datacom, telecom and network access markets. As "Preferred Co-Development Partners" the MOU outlined a path for mutual cooperation with the objective of developing, qualifying and selling a family of transceiver products based on the Company's low cost, high-performance Optical Interposer Platform. More specifically, the MOU is aimed at rapidly commercializing a series of advanced multichannel (100/400G) transmit and receive devices for the datacom markets and low-cost single channel (10/25G) products for telecom applications.
- 5) On March 21, 2018, the Company completed a brokered "bought deal" public offering of 25,090,700 units at a price of \$0.425 (CAD\$0.55) per unit for gross proceeds of \$10,663,548 (CAD\$13,799,885). Each unit consists of one common share and one-half common share purchase warrant. Each whole warrant entitles the holder to purchase one common share of the Company at a price of \$0.58 (CAD\$0.75) per share until March 21, 2020.
- 6) On March 28, 2018, the Company announced the appointment of Peter Charbonneau to its Board of Directors. Charbonneau was a general partner at Skypoint Capital Corporation for almost 15 years, where he was jointly responsible for the placement of \$100 million of capital in early-stage telecommunications and data communication companies. Charbonneau currently serves on the board of directors at Mitel Networks, a leading global provider of cloud and on-site business communications and collaboration solutions, and Teradici Corporation, the creator of PCoIP protocol technology and Cloud Access Software. He previously served as Chairman of the Board of Trustees for the CBC Pension Board and a director on the board of the

Canadian Broadcasting Corporation as well as many technology and networking companies, including March Networks Corporation, TELUS Corporation, Breconridge Corporation and Dragonwave Incorporated.

- 7) On April 9, 2018, the Company announced a master collaboration agreement with SilTerra, a Malaysia-based semiconductor wafer foundry, for the co-development of certain fabrication processes and the manufacturing of POET's Optical Interposer Platform. The partnership is expected to accelerate the path to commercial production of the Optical Interposer, which will enable Optical Engines for single-mode transceiver modules and other high bandwidth devices.
- 8) On June 21, 2018, the Company announced the Company has executed an agreement for the co-development of transmit device solutions with Almae Technologies SAS ("Almae"), a France-based manufacturer of advanced photonic products. The purpose of the agreement is to jointly develop, manufacture and sell a series of laser modules based on the POET Optical Interposer platform into high-speed data communication applications. The companies will collaborate on designs of lasers and modulators to be compatible with POET's Optical Interposer and to provide foundry services for both epitaxial supply and device fabrication.
- 9) On September 20, 2018 the Company announced the appointment of Rich Zoccolillo as Senior Vice President of Strategic Marketing and Product Management. Zoccolillo joined the Company with extensive experience in the photonics industry, including senior management roles at Infinera, Opnext and Lucent Technology's optical networking business.
- 10) On November 12, 2018 the Company announced that it has received its first orders for POET Optical Interposer-based solutions from leading global networking companies targeting data communication applications, which represents a new served market for the Company's products. The orders include sales and development contracts with a value in excess of US\$3 million (CAD\$3.9 million) to purchase current device prototypes, to develop and provide increasingly integrated optical engine components or to systematically address specific customer integration requirements under paid development programs.
- 11) On November 28, 2018 the Company filed a final short form prospectus in which it disclosed that it may from time to time over the next 25 months raise up to \$50,000,000 under the prospectus using various means, including but not limited to the issuance of common shares, debt securities or convertible securities.

Significant Events Subsequent to the Year Ended December 31, 2018

- 1) On February 4, 2019 the Company announced that it signed a non-binding Letter of Intent (LOI) for the sale of the capital stock of its Singapore-based DenseLight subsidiary. Key terms of the non-binding LOI include proposed cash consideration in the range of US\$26 - \$30 million (CAD\$34.5 – CAD\$40 million), including a US\$4 million (CAD\$5.3 million) earn-out provision, no-shop and confidentiality clauses, and an undertaking to enter into key operating agreements, including a preferred supply agreement and a long-term strategic cooperation agreement among the parties. The parties expect to complete the signing of the definitive transaction agreements on or before September 15, 2019.
- 2) On February 5, 2019 the Company announced that samples of its new, advanced Integrated Light Module (ILM), designed specifically for high-performance wind LIDAR and other environmentally-stressed applications, will be available to customers in April in limited quantities. The Company also announced the launch of its 1653 DFB laser and the 1650nm Fabry-Perot (FP) laser. The 1653 DFB laser is designed to target the methane gas sensing markets where the laser will provide a safer and

more effective solution than competitive methods of detecting methane. The 1650nm FP laser is designed for test and measurement applications, targeting the OTDR (Optical Time-Domain Reflectometer) market where the equipment is used to detect faults and understand the losses along a given length of fiber-optic cable in networking and data communications systems.

- 3) On February 21, 2019 the Company announced that it had entered into an agreement with the highly-respected firm, Mill View Photonics, Inc. ("Mill View") to establish a collaborative design center in Ottawa, Ontario, Canada.
- 4) On April 3, 2019, the Company announced that it closed the first tranche of a private placement of convertible debentures that raised gross proceeds of CAD\$1,929,000 (the "Debentures"). The Debentures are unsecured, bear interest at 12% per annum, compounded annually with 1% payable at the beginning of each month and mature on April 3, 2021.
- 5) On April 11, 2019, the Company announced that it entered into a definitive agreement with Espresso Capital Ltd. in which, through a credit facility agreement, Espresso Capital Ltd. will provide a bridge loan that grants the Company access of up to CAD\$6.6 million (US\$5.0 million).

Summary of Quarterly Results

Following are the highlights of financial data of the Company for the most recently completed eight quarters, which have been derived from the Company's consolidated financial statements prepared in accordance with IFRS:

	<u>Dec.31/18</u>	<u>Sep. 30/18</u>	<u>Jun. 30/18</u>	<u>Mar. 28/18</u>	<u>Dec. 31/17</u>	<u>Sep. 30/17</u>	<u>Jun. 30/17</u>	<u>Mar. 31/17</u>
Sales	\$ 1,555,714	\$ 907,044	\$ 752,198	\$ 673,229	\$ 717,692	\$ 715,420	\$ 648,382	\$ 712,550
Cost of sales	509,164	378,688	319,939	268,178	385,456	348,187	320,857	288,191
Research and development	2,531,564	2,087,146	1,899,564	1,638,209	1,661,887	1,078,934	1,186,042	1,147,003
Depreciation and amortization	666,272	640,517	659,820	596,015	616,514	559,334	558,919	540,393
Professional fees	275,267	105,758	188,560	197,766	203,372	98,101	167,726	155,742
Wages and benefits	608,197	617,334	620,696	621,774	698,814	625,676	604,608	645,880
Management and consulting fees	31,242	41,638	32,104	50,185	42,439	42,877	40,330	103,931
Stock-based compensation ⁽¹⁾	1,017,127	1,149,095	1,063,773	792,122	1,032,158	1,088,170	159,783	894,813
General expense, rent and facility	512,771	718,095	500,016	519,381	591,462	567,721	653,933	547,052
Impairment and other loss	(22,058)	178,775	-	-	-	-	-	-
Other (income), including interest	(903,656)	3,757	155,218	(761,109)	(1,599,170)	(4,990)	(142,557)	(19,807)
Net loss before taxes	<u>\$ 3,670,176</u>	<u>\$ 5,013,759</u>	<u>\$ 4,687,492</u>	<u>\$ 3,249,292</u>	<u>\$ 2,915,240</u>	<u>\$ 3,688,590</u>	<u>\$ 2,901,259</u>	<u>\$ 3,590,648</u>
Net loss per share	<u>\$ (0.01)</u>	<u>\$ (0.02)</u>	<u>\$ (0.02)</u>	<u>\$ (0.01)</u>				

- (1) Stock based compensation allocated between General & Administrative and Research & Development issuances are combined for MD&A purposes. For financial statement presentation purposes, stock-based compensation is split between *General & Administrative* and *Research & Development*.

Explanation of Quarterly Results for the three months ended December 31, 2018 (“Q4 2018”) compared to the same three-month period in the prior year (“Q4 2017”)

Net loss before taxes for Q4 2018 was \$3,670,176 compared to a net loss before taxes of \$2,915,240 in Q4 2017, an increase of \$754,936 (26%). The following discusses the significant variances between Q4 2018 and Q4 2017.

During Q4 2018, the Company reported revenue of \$1,555,714 through its DenseLight subsidiary compared to \$717,692 in Q4 2017, a 117% increase driven primarily by an increase in product sales and non-recurring engineering (NRE) revenue. In November 2018 the Company received its first orders for POET Optical Interposer-based solutions from leading global networking companies targeting data communication applications, which represented entry into a new served market for the Company’s products. The increase in sales of \$838,022 contributed to an increase in gross margin from 46% to 67%.

Research and development (“R&D”) increased by \$869,677 (52%) to \$2,531,564 in Q4 2018 from \$1,661,887 in Q4 2017. Since the acquisition of DenseLight and BB Photonics in May and June of 2016 respectively, the Company has systematically increased its R&D activities in an effort to bring new products to market and expand its product portfolio. The increased R&D activity has contributed to the development of the POET Optical Interposer platform utilizing the Company’s proprietary dielectric waveguides. New skilled technical human resources, especially in optics and photonics device testing, represent the largest area of increase in R&D. The increase is consistent with the Company’s budgeted R&D activity.

Professional fees increased by \$71,895 (35%) from \$203,372 in Q4 2017 to \$275,267 in Q4 2018. The increase was a result of professional fees incurred in the preparation and filing of final short form prospectus in November 2018.

Wages and benefits decreased by \$90,617 (13%) to \$608,197 in Q4 2018 from \$698,814 in Q4 2017. In 2017, the Company recorded employer costs related to the exercise of stock options during 2017 and prior years. No stock options were exercised in 2018. In addition, the Company’s compensation was under the minimum threshold for which these employer costs are applicable.

Other (income) loss in Q4 2018 was income of \$903,656 as compared to income of \$1,599,170 in Q4 2017 a decrease of \$695,514 (43%). The Company is entitled to a recovery of certain qualifying expenses from the Economic Development Board (EDB) in Singapore. The recovery in 2017 was the first such accrued recovery for the expenses incurred for the majority of 2017. The recovery recorded in Q4 2018 relates to expenses incurred over a comparatively shorter period since the Company did periodic accruals and filings throughout 2018.

General administrative, rent and facility decreased by \$78,691 (13%) to \$512,771 in Q4 2018 from \$591,462 in Q4 2017. The decrease is a function of lower repairs and maintenance cost to the facility.

Explanation of Results for the twelve months ended December 31, 2018 (the “period”) compared to the same twelve-month period in the prior year (“December 31, 2017”)

Net loss before taxes for the year ended December 31, 2018 was \$16,620,719 as compared to net loss before taxes of \$13,095,737 for the year ended December 31, 2017. The following explains the \$3,524,982 (27%) variance in net loss between December 30, 2018 and December 31, 2017.

The largest increase for the comparative periods was R&D which increased by \$3,082,617 (61%) to \$8,156,483 in 2018 from \$5,073,866 in 2017. Since the acquisition of DenseLight and BB Photonics in May and June of 2016 respectively, the Company has systematically increased its R&D activities in an effort to bring new products to market and expand its product portfolio. The increased R&D activity has contributed to the development of the POET Optical Interposer platform utilizing the Company’s proprietary dielectric waveguides. As a result of

increased R&D spending in the period, the Company successfully demonstrated the functionality of PIN photodetectors targeting 100G to 400G optical transceivers. New skilled technical human resources, especially in optics and photonics device testing, represent the largest area of increase in R&D. The increase is consistent with the Company's budgeted R&D activity. Our expectation is that the R&D activity conducted in 2018 will lead to sales of new products in 2019.

Professional fees in the year increased by \$142,410 (23%) to \$767,351 from \$624,941 in 2017. Professional fees increased in 2018 due to a mandatory requirement to conduct annual audits of EDB filings, the preparation of these audits must be conducted by an independent firm, the cost of which must be borne by the Company. No such audit was conducted in 2017. Additional professional fees, including legal fees, were required as the Company reviewed internal policies for best practices and initiated co-development partnerships and agreements with several counterparties as disclosed in 2018. The Company also incurred professional fees related to the filing of its final short form prospectus filed in November 2018.

Non-cash stock-based compensation increased by \$847,193 (27%) to \$4,022,117 during 2018 from \$3,174,924 in 2017. The valuation of stock options is driven by a number of factors including the number of options granted, the strike price and the volatility of the Company's stock. The stock option expense is dependent on the timing of the stock option grant and the amortization of the options as they vest. The stock options vest in accordance with the policies determined by the Board of Directors at the time of the grant consistent with the provisions of the Stock Option Plan, as amended (the "Plan").

Non-cash depreciation and amortization increased by \$287,464 (13%) to \$2,562,624 in 2018 from \$2,275,160 in 2017. The Company has committed to improving its fabrication facilities in Singapore, and its overall manufacturing capabilities, which includes acquiring new equipment for the Optical Interposer program. The addition of new equipment will result in increased depreciation charges.

Management and consulting fees decreased by \$74,408 (32%) to \$155,169 in 2018 from \$229,577 in 2017. The decrease was a result of the resignation of the former Executive Chairman of Board in 2017, whose compensation was included in management and consulting fees. Management and consulting fees did not include fees for the newly appointed Executive Chairman in 2018, which were instead charged to Wages and Benefits.

Other income in 2018 decreased by \$260,734 (15%) to \$1,505,790 in 2018 from \$1,766,524 in 2017. The Company is entitled to a recovery of certain qualifying expenses from the EDB in Singapore.

The recoverable amount in 2017 was higher than the amount in 2018 in part due to a reduction adjustment in 2018 related to the over accrued recovery for 2017. If the adjustment had not been done, the recovery would have been more comparable year over year.

During the year ended December 31, 2018, management determined that certain property and equipment would not be used to generate future cash flows and committed to a plan to dispose of the property and equipment by December 31, 2018. Management used a market approach to determine the property and equipment's fair value less cost to sell. Key assumptions included the cost of similar assets, the impact of customization and unique use. The fair value less cost to sell was determined to be \$3,000 which is greater than its value in use. The Company recorded an impairment loss of \$156,717 on the property and equipment and reclassified \$3,000 from property and equipment to non-current assets held for sale. The property and equipment was sold in December 2018.

Explanation of Material Variations by Quarter for the Last Eight Quarters

Q4 2018 compared to Q3 2018

Net loss before taxes decreased by \$1,343,583 (27%) in Q4 2018 to \$3,670,176 from a net loss before taxes of \$5,013,759 in Q3 2018.

R&D increased by \$444,418 (21%) to \$2,531,564 in Q4 2018 from \$2,087,146 in Q3 2018. The increase in R&D in Q4 2018 was a result of an annual wage supplement (AWS) accrued for R&D staff in Singapore. The AWS represents an additional months' salary routinely paid to qualifying staff. The Company pays the AWS in order to remain as a competitive employer in Singapore.

Professional fees increased by \$169,509 (160%) to \$275,267 in Q4 2018 from \$105,758 in Q3 2018. The increase was a result of professional fees incurred in the preparation and filing of a final short form prospectus in November 2018.

General administrative, rent and facility decreased by \$205,324 (29%) to \$512,771 in Q4 2018 from \$718,095 in Q3 2018. The decrease is a function of lower repairs and maintenance activity in the facility in Q4 2018.

Non-cash stock-based compensation decreased by \$131,968 (11%) to \$1,017,127 in Q4 2018 from \$1,149,095 in Q3 2018. The valuation of stock options is driven by a number of factors including the number of options granted, the strike price and the volatility of the Company's stock. The stock option expense is dependent on the timing of the stock option grant and the amortization of the options as they vest. The stock options vest in accordance with the policies determined by the Board of Directors at the time of the grant consistent with the provisions of the Plan.

Other income was \$903,656 in Q4 2018 compared to a loss of \$3,757 in Q3 2018. The \$907,413 increase in other income in Q4 2018 was a result of the accrued EDB recoveries recorded in the Q4 2018. The Company did not file an EDB claim in Q3 2018, so no recovery was recorded in that period. Recoveries are reflected in the period in which claims are filed.

Non-cash impairment gain was \$(22,058) in Q4 2018 compared to a non-cash impairment loss of \$178,775 recorded in Q3 2018. The amount recorded in Q4 2018 was an adjustment to the impairment originally assessed in Q3 2018

Q3 2018 compared to Q2 2018

Net loss before taxes increased by \$326,267 (7%) to \$5,013,759 in Q3 2018 compared to net loss before taxes of \$4,687,492 in Q2 2018.

R&D increased by \$187,582 (10%) to \$2,087,146 in Q3 2018 from \$1,899,564 in Q2 2018. Since the acquisition of DenseLight and BB Photonics in May and June of 2016 respectively, the Company has systematically increased its R&D activities in an effort to bring new products to market and expand its product portfolio. The increased R&D activity has contributed to the development of the POET Optical Interposer platform utilizing the Company's proprietary dielectric waveguides. New skilled technical human resources, especially in optics and photonics device testing, represent the largest area of increase in R&D. The increase was consistent with the Company's budgeted R&D activity.

Professional fees decreased by \$82,802 (44%) to \$105,758 in Q3 2018 from \$188,560 in Q2 2018. The Company did not have any significant transactions or activity such as contract negotiations or commercial agreements requiring professional consulting fees in Q3 2018. Professional fees in Q3 2018 was more in the normal course of business.

General administrative, rent and facility increased by \$218,079 (44%) to \$718,095 in Q3 2018 from \$500,016 in Q2 2018. The increase is a function of higher repairs and maintenance cost to the facility in Q3 2018. The expense in Q2 2018 was unusually low.

Other (income) loss, decreased by \$151,461 (98%) to \$3,757 in Q3 2018 from \$155,218 in Q2 2018. Approximately \$150,000 of the loss reported in Q2 2018 was attributable to an adjustment in the amount of EDB recovery reported in a prior period. The adjustment was made in Q2 2018. No adjustment was required for Q3 2018.

Q2 2018 compared to Q1 2018

Net loss before taxes increased by \$1,438,200 (44%) in Q2 2018 to \$4,687,492 as compared to net loss before taxes of \$3,249,292 in Q1 2018. The increased loss was driven primarily by the reduced EDB recovery, increased R&D, increased non-cash depreciation and amortization, and increased non-cash stock-based compensation.

R&D increased by \$261,355 (16%) to \$1,899,564 in Q2 2018 from \$1,638,209 in Q1 2018. Since the acquisition of DenseLight and BB Photonics in May and June of 2016 respectively, the Company has systematically increased its R&D activities in an effort to bring new products to market and expand its product portfolio. The increased R&D activity has contributed to the continued progress of the new POET Optical Interposer platform utilizing the Company's proprietary dielectric waveguides. New skilled technical human resources, especially in optics and photonics device testing, represent the largest area of increase in R&D. The increase is consistent with the Company's budgeted R&D activity.

Non-cash stock-based compensation increased by \$271,651 (34%) to \$1,063,773 during Q2 2018 from \$792,122 in Q1 2018. The valuation of stock options is driven by a number of factors including the number of options granted, the strike price and the volatility of the Company's stock. The stock option expense is dependent on the timing of the stock option grant and the amortization of the options as they vest. The stock options vest in accordance with the policies determined by the Board of Directors at the time of the grant consistent with the provisions of the Plan.

Non-cash depreciation and amortization increased by \$63,805 (11%) to \$659,820 in Q2 2018 to from \$596,015 in Q1 2018. The Company has committed to improving its fabrication facilities in Singapore, and its overall manufacturing capabilities, which includes acquiring new equipment for the Optical Interposer program. The addition of new equipment will result in increased depreciation charges.

Other income (loss) reported in Q2 was (\$155,218) as compared to \$761,109 in Q1. The majority of the loss was attributable to an adjustment in the amount of EDB recovery reported for Q1 of \$761,109 resulting from an audit of the claim by a third-party. The adjustment was made in Q2.

Q1 2018 compared to Q4 2017

Net loss before taxes in Q1 2018 was \$3,249,292 compared to net loss before taxes of \$2,915,240 in Q4 2017. The increased loss was driven primarily by the reduced EDB recovery. The EDB recovery reported in Q4 2017 was \$1,599,170 which represented both amounts collected during that period and an amount accrued and expected to be recovered in 2018. The accrued amount in Q4 2017 was a cumulative amount for most of the recoverable expenses incurred during the entire year of 2017 while the recoverable amount accrued in Q1 2018 was only for the expenses incurred up to March 31, 2018.

Expenses during Q1 2018 were lower than the expenses in Q4 2017. The largest difference was \$240,036 relating to non-cash stock-based compensation which decreased by 23% to \$792,122 in Q1 2018 from \$1,032,158 in Q4 2017.

Wages and benefits decreased by \$77,040 (11%) to \$621,774 in Q1 2018 from \$698,814 in Q4 2017. The Company paid an annual wage supplement in Q4 2017 to its employees in Singapore as part of an initiative to be a more competitive employer. Paying annual wage supplements, while not mandatory, are a standard employment practice in Singapore.

General expenses, rent and facility costs decreased by \$72,081 (12%) to \$519,381 in Q1 2018 from \$591,462 in Q4 2017. The Company had no major instance of repairs and maintenance on equipment in its fabrication facility in Q1 2018 as had occurred in Q4 2017, and as a result, the rent and facility costs were lower in Q1 2018 as compared to Q4 2017.

Q4 2017 compared to Q3 2017

R&D increased by \$582,953 (54%) to \$1,661,887 in Q4 2017 from \$1,078,934 in Q3 2017. Head count and recruitment costs were the largest contributing factors to the period over period increase. As a result of increased R&D spending in Q4 2017, the Company demonstrated the functionality of PIN photodetectors targeting 100G to 400G optical transceivers. Skilled technical human resource represents the largest area of increase in R&D.

Professional fees in Q4 2017 increased by \$105,271 (107%) to \$203,372 from \$98,101 in Q3 2017. Additional professional fees, including legal fees were also required as the Company reviewed internal policies for best practices and initiated co-development partnerships and agreements with several counterparties as disclosed in early 2018.

Wages and benefits increased by \$73,138 (12%) to \$698,814 in Q4 2017 from \$625,676 in Q3 2017. The increase is a result of the new employees and other payroll related obligations as the Company ramped its technical resource and production-related capabilities.

Other income in Q4 2017 was \$1,599,170 as compared to \$4,990 in Q3 2017. The Company is entitled to a recovery of certain qualifying expenses from EDB in Singapore. The increase is a result of both collected recoveries and an amount accrued in 2017 to be received in 2018. Prior to Q4 2017 EDB recoveries were not accrued, as the Company did not have sufficient experience with the EDB process to confidently estimate the amounts to be recovered.

Q3 2017 compared to Q2 2017

Sales increased by \$67,038 (10%) to \$715,420 in Q3 2017 from \$648,382 Q2 2017. The increase is a function of shipping more units in Q3 2017 than in Q2 2017.

Professional fees decreased by \$69,625 (42%) to \$98,101 in Q3 2017 from \$167,726 in Q2 2017. The Company had less professional service activity in Q3 2017 than in Q2 2017, including lower recruitment fees, legal and audit-related expenses.

Non-cash stock-based compensation increased by \$928,387 (581%) to \$1,088,170 in Q3 2017 from \$159,783 in Q2 2017. The departure of employees and consultants who had unvested stock options contributed to the unusually low expense in Q2 2017. The valuation of stock options is driven by a number of factors including the number of options granted, the strike price and the volatility of the Company's stock. The stock option expense is dependent on the timing of the stock option grant and the amortization of the options as they vest. The stock options vest in accordance with the policies determined by the Board of Directors at the time of the grant consistent with the provisions of the Plan.

General expenses, rent and facility decreased by \$86,212 (13%) to \$567,721 in Q3 2017 from \$653,933 in Q2 2017. In Q2 2017, the Company had significant facility and factory maintenance costs. While the company continues to have facility and factory maintenance costs on a period over period basis, the expense was lower in Q3 2017 than Q2 2017.

Q2 2017 compared to Q1 2017

Gross margin was 51% in Q2 2017 as compared to 60% in Q1 2017. The reduced gross margin was a result of lower absorption of factory costs from reduced revenue of \$648,382 in Q2 2017 compared to \$712,550 in Q1 2017. Cost of sales includes certain fixed costs that do not change in a linear fashion with revenue.

Management and consulting fees decreased by \$63,601 (61%) to \$40,330 in Q2 2017 from \$103,931 in Q1 2017. The resignation of Mr. Manocha as Executive Chairman of the Board contributed to the decrease.

Non-cash stock-based compensation decreased by \$735,030 (82%) to \$159,783 in Q2 2017 from \$894,813 in Q1 2017. The departure of employees and consultants who had unvested stock options contributed to the substantial reduction from Q1 2017.

General expenses, rent and facility increased by \$106,881 (20%) to \$653,933 in Q2 2017 from \$547,052 in Q1 2017. In Q2 2017, the Company had additional facility and factory maintenance.

Segment Disclosure

The Company and its subsidiaries operate in a single segment; the design, manufacture and sale of semi-conductor products and services for commercial applications. The Company's operating and reporting segment reflects the management reporting structure of the organization and the manner in which the chief operating decision maker regularly assesses information for decision making purposes, including the allocation of resources. A summary of the Company's operations is below:

ODIS Inc. ("ODIS")

ODIS is the developer of the POET platform semiconductor process IP for fabrication of integrated circuit devices containing both electronic and optical elements on a single die ("monolithic integration") and in a single package ("hybrid integration").

BB Photonics

BB Photonics develops photonic integrated components for the datacenter market utilizing embedded dielectric technology that is intended to enable on-chip athermal wavelength control and lower the total solution cost of datacenter photonic integrated circuits.

DenseLight

DenseLight designs, manufactures, and delivers photonic optical light source products and solutions to the communications, medical, instrumentations, industrial, defense, and security industries. DenseLight processes compound semiconductor-based optoelectronic devices and photonic integrated circuits through its in-house wafer fabrication and assembly & test facilities. The Company operates geographically in the United States, Canada and Singapore. Geographical information is as follows:

2018				
As of December 31,	Singapore	US	Canada	Consolidated
Current assets	\$ 4,283,008	\$ 302,405	\$ 2,302,851	\$ 6,888,264
Property and equipment	9,136,694	162,819	-	9,299,513
Patents and licenses	18,464	448,250	-	466,714
Goodwill and intangible assets	6,718,953	1,764,459	-	8,483,412
Total Assets	\$ 20,157,119	\$ 2,677,933	\$ 2,302,851	\$ 25,137,903
Year Ended December 31,	Singapore	US	Canada	Consolidated

Revenue	\$ 3,888,185	\$ -	\$ -	\$ 3,888,185
Cost of revenue	1,475,969	-	-	1,475,969
Selling, marketing and administration	8,252,278	2,337,342	1,099,584	11,689,204
Research and development	3,533,994	4,706,817	451,993	8,692,804
Impairment loss	156,717	-	-	156,717
Other income including interest income	(1,491,556)	-	(14,234)	(1,505,790)
Net loss from operations before income taxes	\$ 8,039,217	\$ 7,044,159	\$ 1,537,343	\$ 16,620,719

2017

As of December 31,	Singapore	US	Canada	Consolidated
Current assets	\$ 3,190,298	\$ 4,621,318	\$ 139,096	\$ 7,950,712
Property and equipment	8,018,900	259,270	-	8,278,170
Patents and licenses	18,816	437,434	-	456,250
Goodwill and intangible assets	6,756,181	1,764,459	-	8,520,640
Total Assets	\$ 17,984,195	\$ 7,082,481	\$ 139,096	\$ 25,205,772

Year Ended December 31,	Singapore	US	Canada	Consolidated
Revenue	\$ 2,794,044	\$ -	\$ -	\$ 2,794,044
Cost of revenue	1,342,691	-	-	1,342,691
Selling, marketing and administration	4,955,497	4,872,902	1,042,342	10,870,741
Research and development	3,237,713	1,877,966	327,194	5,442,873
Other income including interest income	(1,748,244)	-	(18,280)	(1,766,524)
Net loss from operations before income taxes	\$ 4,993,613	\$ 6,750,868	\$ 1,351,256	\$ 13,095,737

Liquidity and Capital Resources

The Company had working capital of \$3,847,842 on December 31, 2018 as compared to \$7,140,119 on December 31, 2017.

The Company's balance sheet as of December 31, 2018 reflects assets with a book value of \$25,137,903 compared to \$25,205,772 as of December 31, 2017. Twenty-seven percent (27%) of the book value as of December 31, 2018, or \$6,888,264, was in current assets consisting primarily of cash and other current assets, compared to thirty-two percent (32%), or \$7,950,712 as of December 31, 2017.

The Company's working capital of \$3,847,842 is not sufficient to support its operating and investing activities over the next 12 months. The Company has several sources of financing that it is considering in order to continue as a going concern. These sources of financing include internal cash generation from operations, financing via public offering, assumption of debt or a combination of all three sources.

In order to provide internal financing, the Company negotiated multiple non-recurring engineering (NRE) contracts in excess of US\$3 million with large suppliers of networking and datacom equipment. These NRE contracts extend into 2019 and will generate immediate high margin cash flow as the contracts require substantial upfront deposits.

During 2018, the Company purchased US\$3.6 million of new equipment. The payment terms of the new equipment re-negotiated subsequent to taking possession of the equipment. While the Company took possession of the new equipment, it was permitted to defer a portion of purchase cost without penalty or interest cost to 2019. On November 28, 2018, the Company also filed a preliminary short form base shelf prospectus where it advised shareholders of its intent to raise a maximum US\$50 million through a public offering of either equity securities, debt securities or a combination of both. The Company has met with multiple investment bankers in both Canada and the United States who have expressed an interest in assisting the Company with a capital raise.

On March 21, 2018, the Company strengthened its working capital position relative to December 31, 2017 by completing a “bought deal” public offering of 25,090,700 units at a price of \$0.425 (CAD\$0.55) per unit for gross proceeds of \$10,663,548 (CAD\$13,799,885). Each unit consists of one common share and one-half common share purchase warrant. Each whole warrant entitles the holder to purchase one common share of the Company at a price of \$0.58 (CAD\$0.75) per share until March 21, 2020. The broker was paid a cash commission of \$639,813 (6%) of the gross proceeds and received 1,505,442 compensation options. Each compensation option is exercisable into one compensation unit of the Company at a price of \$0.425 (CAD\$0.55) per compensation unit until March 21, 2020 with each compensation unit comprising one common share and one-half compensation share purchase warrant. Each whole compensation share purchase warrant entitles the broker to purchase one common share of the Company at a price of \$0.425 (CAD\$0.55) per share until March 21, 2020. The Company paid an additional \$492,177 in other costs related to this financing. The Company received \$9,531,558 net of share issue costs. Additionally, the Company raised \$1,116,445 from the exercise of warrants and stock options.

As at December 31, 2018, the Company has accumulated losses of \$(133,195,932) and working capital of \$3,847,842. During the year ended December 31, 2018, the Company had negative cash flows from operations of \$9,288,588. The Company has prepared a cash flow forecast which indicates that it does not have sufficient cash to meet its minimum expenditure commitments and therefore needs to raise additional funds to continue as a going concern.

To address the future funding requirements, management has undertaken the following initiatives:

1. Entered into discussions to secure debt financing.
2. Initiated a strict working capital monitoring program.
3. Continued their focus on maintaining an appropriate level of corporate overheads in line with the Company's available cash resources.
4. Filed a preliminary short-form prospectus to raise a maximum \$50 million through a public offering of either equity securities, debt securities or a combination of both.

In line with its needs for additional financing, on April 3, 2019, the Company closed the first tranche of a private placement of convertible debentures that raised gross proceeds of CAD\$1,929,000 (the "Debentures"). The Debentures are unsecured, bear interest at 12% per annum, compounded annually with 1% payable at the beginning of each month and mature on April 3, 2021.

Additionally, the Company arranged for a credit facility (the “Bridge Loan”) to be provided by Espresso Capital Ltd which will grant the Company access to a maximum US\$5,000,000. The Company signed the loan documents on April 18, 2019 and was advanced US\$2,000,000 on April 23, 2019. In partial consideration of the US\$5,000,000 gross credit facility available to the Company, and in connection with the initial advance of US\$2,000,000, the Company issued to Espresso Capital warrants for the purchase of 3,289,500 common shares at a price of C\$0.35 per share. The Warrants expire on April 18, 2020.

Subsequent Events

On February 1, 2019, the Company signed a non-binding Letter of Intent (LOI) for the sale of all the outstanding shares of DenseLight. Key terms of the LOI include proposed cash consideration in the range of \$26 - \$30 million,

including a \$4 million earn-out provision, no-shop and confidentiality clauses, and an undertaking to enter into key operating agreements, including a preferred supply agreement and a long-term strategic cooperation agreement among the parties. The parties expect to complete the signing of the definitive transaction agreements on or before September 15, 2019. The broad terms of the LOI and the consummation of any transaction are subject to further due diligence, the negotiation of definitive agreements and obtaining required approvals by all parties, including but not limited to the TSX Venture Exchange and a majority of the Company's shareholders.

On February 1, 2019, management committed to a plan to sell its subsidiary, DenseLight. The decision was taken in line with a strategy to focus on the Company's opportunities related to its Optical Interposer. The divestiture of DenseLight will immediately reduce the Company's operating losses and cash burn, while allowing the Company to pursue a "fab-light" strategy with a less capital-intensive business model that is focused on growing the Optical Interposer business through targeted investments in the design, development and sale of vertical market solutions. Consequently, all saleable assets and liabilities relating to DenseLight will be classified as "assets of disposal group held for sale" or "disposal group liabilities".

As at December 31, 2018, the disposal group comprised the following assets and liabilities:

Assets of disposal group held for sale

Accounts receivable	\$	946,944
Prepays and other current assets		2,792,750
Inventories		436,833
Equipment		9,123,459
Intangible assets		106,873
Goodwill		6,630,544
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Assets of disposal group held for sale	\$	20,037,403
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Disposal group liabilities

Accounts payable and accrued liabilities	\$	2,558,805
Deferred liabilities		709,501
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Disposal group liabilities	\$	3,268,306
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On April 1, 2019 the Company announced that it arranged for certain financing required to bridge the Company to the previously announced anticipated sale of its DenseLight subsidiary. That sale is scheduled to be completed in September 2019, subject to certain conditions including shareholder and other approvals. The Company expects to generate cash proceeds of approximately CAD\$34.5 million to CAD\$40 million upon completion of the DenseLight sale.

The first component of the financing consists of the issuance of up to CAD\$14 million principal amount of 12% convertible unsecured debentures (the "Convertible Debentures") of the Company. The Convertible Debentures will be sold in multiple tranches over upcoming months, as needed, on a brokered private placement basis through the Company's financial advisors, IBK Capital. The Company closed the first tranche of Convertible Debentures,

for gross proceeds of CAD\$1,929,000 on April 3, 2019. Further indications of interest amounting to approximately CAD\$1.6 million from parties who could not participate in the first tranche are expected to be included in subsequent tranches.

The Debentures are unsecured, bearing interest at 12% per annum, compounded annually with 1% payable at the beginning of each month and mature on April 3, 2021. The Debentures are convertible at the option of the holders thereof into units at any time after October 31, 2019 at a conversion price of CAD\$0.40 per unit for a total 4,822,500 units of the Company. Each unit will consist of one common share and one common share purchase warrant. Each common share purchase warrant will entitle the holder to purchase one common share of the Company at a price of CAD\$0.50 per share for a period of two years from the date upon which the convertible debenture is converted into units. In the event that the sale of the Company's DenseLight subsidiary is completed, holders of Debentures have the right to cause the Company to repurchase the Debentures at face value, subject to certain restrictions. The Debentures are governed by a trust indenture dated April 3, 2019 between the Company and TSX Trust Company as trustee.

Insiders of the Company subscribed for 37% or \$710,000 of the first tranche of Convertible Debentures, including the Company's board of directors and senior management team. Insiders of IBK Capital subscribed for 10% or \$200,000 of this first tranche. Successive tranche closings in the coming months are each subject to approval by the TSX Venture Exchange.

The second component of the financing consists of a credit facility (the "Bridge Loan") to be provided by Espresso Capital Ltd which will grant the Company access to a maximum US\$5,000,000. The Company signed the loan documents on April 18, 2019 and was advanced US\$2,000,000 on April 23, 2019. In partial consideration of the US\$5,000,000 gross credit facility available to the Company, and in connection with the initial advance of US\$2,000,000, the Company issued to Espresso Capital warrants for the purchase of 3,289,500 common shares at a price of C\$0.35 per share. The Warrants expire on April 18, 2020.

Use of Finance Proceeds

On March 21, 2018, the Company completed a "bought deal" public offering of 25,090,700 units at a price of \$0.425 (CAD\$0.55) per unit for gross proceeds of \$10,663,548 (CAD\$13,799,885). The Company received \$9,470,404 after deducting associated financing costs. The following compares the intended use of proceeds reported in the prospectus dated March 14, 2018 to the actual use of proceeds:

Use of Proceeds	Intended Use of Proceeds (\$)	Actual Use of Proceeds (\$)	Variance (\$)
R&D and capital equipment purchases	6,629,000	6,660,600	31,600
General operations and intellectual property	2,841,404	2,889,757	48,353

The Company spent more on its R&D, capital requirements, general operations and intellectual property than projected because the development of the Optical Interposer platform and related devices is on-going. The Company used the financial resources it had prior the financing to further product development and fund its operations.

All of the R&D and capital expenditures incurred by the Company were directed to the design and development of devices, components, processes, techniques and methods associated with the POET Optical Interposer. The Company has used all the net proceeds from the financing for its intended purposes.

Related Party Transactions

Compensation to key management personnel (Executive Chairman, CEO, CFO, President and General Manager of DenseLight) was as follows for the year ended December 31,:

	2018	2017
Salaries	\$ 1,216,250	\$ 932,133
Share-based payments ⁽¹⁾	2,449,683	2,110,773
Total	\$ 3,665,933	\$ 3,042,906

(1) Share-based payments are the fair value of options granted to key management personnel and expensed during the various years as calculated using the Black-Scholes model.

The Company paid or accrued \$115,740 in fees for the year ended December 31, 2018 (2017 - \$115,660) to a law firm (Stikeman Keeley Spiegel LLP), of which a former director (John O'Donnell), is counsel, for legal services rendered to the Company. Mr. O'Donnell resigned from the Board of Directors effective December 31, 2018 and will continue as a consultant to the Company on an unpaid basis until the next Annual General Meeting.

All transactions with related parties have occurred in the normal course of operations and are measured at the exchange amounts, which are the amounts of consideration established and agreed to by the related parties.

Critical Accounting Estimates

Accounts receivable

Accounts receivable are amounts due from customers from the sale of products or services in the ordinary course of business. Accounts receivables are classified as current (on the consolidated statements of financial position) if payment is due within one year of the reporting period date and are initially recognized at fair value and subsequently measured at amortized cost.

In determining a default provision, the Company utilizes a provision matrix, as permitted under the simplified approach to measure expected credit losses. In doing so we considered historical credit losses, forward-looking factors specific to our debtors and other macro-economic factors to arrive at expected default rates. The default rates are then applied to the Company's aging to determine expected credit losses. The carrying amount of trade receivables is reduced by the expected credit losses. If the financial conditions of these customers were to deteriorate and the Company determines that no recovery of a trade receivable is possible, the amount is deemed irrecoverable and subsequently written-off.

Inventory

Inventory consists of raw material inventory, work in process, and finished goods and are recorded at the lower of cost and net realizable value. Cost is determined on a first in first out basis and includes all costs of purchase, costs of conversion and other costs incurred in bringing the inventory to its present condition.

An assessment is made of the net realizable value of inventory at each reporting period. Net realizable value is the estimated selling price less the estimated cost of completion and the estimated costs necessary to make the sale. When circumstances that previously caused inventory to be written down no longer exist or when there is clear evidence of an increase in net realizable value because of changed economic circumstances, the amount of any write down previously recorded is reversed so that the new carrying amount is the lower of the cost and the revised net realizable value. Raw materials are not written down unless the goods in which they are incorporated are

expected to be sold for less than cost, in which case, they are written down by reference to replacement cost of the raw materials, as this is the best indicator of net realizable value.

Property and equipment

Property and equipment are recorded at cost. Depreciation is calculated based on the estimated useful life of the asset using the following method and useful lives:

Machinery and equipment	Straight Line, 5 years
Leasehold improvements	Straight Line, 5 years or life of the lease, whichever is less
Office equipment	Straight Line, 3 - 5 years

Patents and licenses

Patents and licenses are recorded at cost and amortized on a straight-line basis over 12 years. Ongoing maintenance costs are expensed as incurred.

Intangible assets

Internally generated intangible assets are recorded at cost and will be amortized on a straight-line basis based on the best estimate of the useful life of the asset developed from the point at which the asset is ready for use. Internally generated intangible assets are tested for impairment whenever events or changes indicate that its carrying amount may not be recoverable. Externally acquired intangible assets are amortized on a straight-line basis over 5 years commencing when the asset is ready for use. Externally generated intangible assets are tested for impairment whenever events or changes indicate that its carrying amount may not be recoverable.

Stock-based Compensation

Stock options and warrants awarded to non-employees are accounted for using the fair value of the instrument awarded or service provided, whichever is considered more reliable. Stock options and warrants awarded to employees are accounted for using the fair value method. The fair value of such stock options and warrants granted is recognized as an expense on a proportionate basis consistent with the vesting features of each tranche of the grant. The fair value is calculated using the Black-Scholes option-pricing model with assumptions applicable at the date of grant.

Other stock-based payments

The Company accounts for other stock-based payments based on the fair value of the equity instruments issued or service provided, whichever is more reliable.

Cumulative Translation Adjustment

IFRS requires certain gains and losses such as certain exchange gains and losses arising from the translation of the financial statements of a self-sustaining foreign operation to be included in comprehensive income.

Recent Accounting Pronouncements

IFRS 15, Revenue from Contracts with Customers ("IFRS 15"). The IASB issued IFRS 15, which is effective for annual periods beginning on or after January 1, 2018. The standard contains a single model that applies to contracts with customers and two approaches to recognizing revenue: at a point in time and over time. The model features a contract-based five-step analysis of transactions to determine whether, how much and when revenue is recognized. New estimates and judgmental thresholds have been introduced, which will affect the amount and/or timing of revenue recognized. The Company adopted the policy using the modified retrospective method.

IFRS 9, Financial Instruments, replaces IAS 39, Financial Instruments: Recognition and Measurement. The new standard requires entities to classify financial assets as being measured either at amortized cost or fair value through profit or loss or fair value through other comprehensive income depending on the business model and

contractual cash flow characteristics of the asset. Financial liabilities are generally classified and measured at fair value at initial recognition and subsequently measured at amortized cost. The Company adopted IFRS 9 on January 1, 2018 using the retrospective approach. IFRS 9 includes a new "expected credit loss" model which impacted accounts receivable in the current year. The adoption of IFRS 9 did not impact the carrying amounts of the Company's financial assets or liabilities on the adoption date.

The following is a summary of recent accounting pronouncements that may affect the Company:

IFRS 16, Leases ("IFRS 16") sets out the principles for the recognition, measurement, presentation and disclosure of leases for both parties to a contract, the customer (lessee) and the supplier (lessor). This will replace IAS 17, Leases ("IAS 17") and related Interpretations. IFRS 16 provides revised guidance on identifying a lease and for separating lease and non-lease components of a contract. IFRS 16 introduces a single accounting model for all lessees and requires a lessee to recognize right-of-use assets and lease liabilities for leases with terms of more than 12 months, unless the underlying asset is of low value, and depreciation of lease assets is reported separately from interest on lease liabilities in the income statement. Under IFRS 16, lessor accounting for operating and finance leases will remain substantially unchanged. IFRS 16 is effective for annual periods beginning on or after January 1, 2019, with earlier application permitted for entities that apply IFRS 15, Revenue from Contracts with Customers. The Company intends to adopt this new standard using the modified retrospective method. The adoption of this new standard will result in a right of use asset and liability of approximately \$890,000 applicable to leases that will be renewed in 2019. Due to the near term expiry of the Company's current leases 2018 carrying values will not be impacted. The adoption of the new standard will have no impact on the Company's cash flows.

Financial Instruments and Risk Management

The Company's financial instruments consist of cash and cash equivalents, non-current assets held for sale, accounts receivable, and accounts payable and accrued liabilities. Unless otherwise noted, it is management's opinion that the Company is not exposed to significant interest risk arising from these financial instruments. The Company estimates that the fair value of these instruments approximates fair value due to their short-term nature.

The Company has classified financial assets and (liabilities) as follows:

	December 31, 2018	December 31, 2017
Fair value through profit or loss, measured at amortized cost: Cash and cash equivalents	\$2,567,868	\$4,974,478
Accounts receivable, measured at amortized cost: Accounts receivable	946,944	493,925
Other liabilities, measured at amortized cost: Accounts payable and accrued liabilities	(3,040,422)	(810,593)

Exchange Rate Risk

The functional currency of each of the entities included in the accompanying consolidated financial statements is the local currency where the entity is domiciled. Functional currencies include the US, Singapore and Canadian dollar. Most transactions within the entities are conducted in functional currencies. As such, none of the entities included in the consolidated financial statements engage in hedging activities. The Company is exposed to a foreign currency risk with the Canadian and Singapore dollar. A 10% change in the Canadian and Singapore dollar would increase or decrease other comprehensive loss by \$386,391.

Interest Rate Risk

Cash equivalents bear interest at fixed rates, and as such, are subject to interest rate risk resulting from changes in fair value from market fluctuations in interest rates. The Company does not depend on interest from its investments to fund its operations.

Credit Risk

The Company is exposed to credit risk associated with its accounts receivable. The Company has accounts receivable from both governmental and non-governmental agencies. Credit risk is minimized substantially by ensuring the credit worthiness of the entities with which it carries on business. Credit terms are provided on a case by case basis. The Company has not experienced any significant instances of non-payment from its customers.

The Company's accounts receivable ageing was as follows:

	December 31, 2018	December 31, 2017
Current	\$ 892,343	\$ 330,731
31 - 60 days	34,331	56,094
61 - 90 days	60,885	-
> 90 days	-	107,100
Expected credit losses ⁽¹⁾	(40,615)	
	\$ 946,944	\$ 493,925

(1) The Company applies IFRS 9 simplified approach to measuring expected credit losses using a lifetime expected credit loss allowance for trade receivables.

The allowance is included in selling, general and administrative expenses in the consolidated statements of operations and deficit. Amounts charged to the loss allowance account are generally written off when there is no reasonable expectation of recovery.

In prior years, the impairment of trade receivables was assessed based on the incurred loss model and determined by management in accordance with its assessment of recoverability. Receivables for which an impairment provision was recognized were written off against the provision when there was no expectation of recovering additional cash.

World Economic Risk

Like many other companies, the world economic climate could have an impact on the Company's business and the business of many of its current and prospective customers. A slump in demand for electronic-based devices, due to a world economic crisis, may impact any anticipated licensing revenue.

Obsolescence Risk

The Company designs, manufactures and sells various highly technological electronic products that could become obsolete should lower priced competitors or new technology enter the market. This would expose the company to obsolescence risk in inventory balances, but also a risk of obsolescence in the product offering. The redesign of the product offering could take significant time or could never occur.

Liquidity Risk

The Company predominately relies on equity funding for liquidity to meet current and foreseeable financial requirements. The Company currently does not maintain credit facilities. The Company's existing cash and cash resources are not considered sufficient to fund operating and investing activities beyond one year from the issuance of these consolidated financial statements. The Company will need to seek additional financing to continue as a going concern.

Strategy and Outlook

There are a number of projects that the Company expects will address the short-term and long-term growth plans of the Company including, but not limited to the following:

- *Introduce the Optical Interposer concept to suppliers of transceivers and data center operators and form commercial partnerships for product development;*
- *Promote the POET Optical Interposer as a true platform technology across several photonic applications and markets;*
- *Pursue multiple potential sources of non-product revenue and strategic partnerships;*
- *Continue to invest in our capabilities and infrastructure;*
- *Selectively pursue other opportunities that leverage our existing expertise; and*
- *Pursue complementary strategic alliance or acquisition opportunities.*

Outstanding Share Data

Common Shares

Total common shares of the Company outstanding at December 31, 2018 and April 29, 2019 were 288,082,303.

Stock Options, Warrants and Compensation Options

Total warrants outstanding to purchase common shares of the Company at December 31, 2018 and April 29, 2019 respectively, were 44,744,850 priced between CA\$0.52 and CA\$0.75 per common share and 48,034,350 priced between CA\$0.35 and CA\$0.75 per common share.

Total compensation units due to brokers as at December 31, 2018 and April 29, 2019 were 1,505,442, priced at CA\$0.55. Each compensation unit is convertible into one common share and one-half common share purchase warrant.

Total stock options outstanding as at December 31, 2018 and April 29, 2019 respectively, were 44,463,729 and 44,803,729 priced between CA\$0.20 and CA\$1.99 per common share.

Additional detailed share data information is available in the Company's Notes to Consolidated Financial Statement.

Off-Balance Sheet Arrangements

The Company has not entered into any off-balance sheet arrangements.

Key Business Risks and Uncertainties

We have a history of large operating losses. We may not be able to achieve or sustain profitability in the future and as a result we may not be able to maintain sufficient levels of liquidity.

We have historically incurred losses and negative cash flows from operations since our inception. As of December 31, 2018, we had an accumulated deficit of \$133,195,932. For the years ended December 31, 2017 and December 31, 2016, we incurred net losses before income taxes of \$13,095,737 and \$13,431,941 respectively.

As of December 31, 2018, we held \$2,567,868 in cash and cash equivalents, and we had working capital of \$3,847,842.

The Company is not currently in a position to cover its annual operations and liabilities as they come due, as we continue to sustain considerable operating losses. The Company may need to seek debt or equity financing to fund its operations. Although the Company has been successful in obtaining such financings in the past, there is no assurance that it will be able to do so in the future. If the Company is unable to obtain such financing, the Company may not be able to continue operations.

Consistent with its need for additional financing, the Company did the following:

On March 21, 2018, the Company completed a “bought deal” public offering of 25,090,700 units at a price of \$0.425 (CAD\$0.55) per unit for gross proceeds of \$10,663,548 (CAD\$13,799,885). Additionally, the Company raised \$1,116,445 from the exercise of warrants and stock options.

On April 3, 2019, the Company closed the first tranche of a private placement of convertible debentures that raised gross proceeds of CAD\$1,929,000 (the “Debentures”). The Debentures are unsecured, bear interest at 12% per annum, compounded annually with 1% payable at the beginning of each month and mature on April 3, 2021.

Additionally, the Company arranged for a credit facility (the “Bridge Loan”) to be provided by Espresso Capital Ltd which will grant the Company access to a maximum US\$5,000,000. The Company signed the loan documents on April 18, 2019 and was advanced US\$2,000,000 on April 23, 2019. In partial consideration of the US\$5,000,000 gross credit facility available to the Company, and in connection with the initial advance of US\$2,000,000, the Company issued to Espresso Capital warrants for the purchase of 3,289,500 common shares at a price of C\$0.35 per share. The Warrants expire on April 18, 2020.

The optical data communications industry is subject to significant operational fluctuations. In order to remain competitive, we incur substantial costs associated with research and development, qualification, production capacity and sales and marketing activities in connection with products that may be purchased, if at all, long after we have incurred such costs. In addition, the rapidly changing industry in which we operate, the length of time between developing and introducing a product to market, frequent changing customer specifications for products, customer cancellations of products and general down cycles in the industry, among other things, make our prospects difficult to evaluate. As a result of these factors, it is possible that we may not (i) generate sufficient positive cash flow from operations; (ii) raise funds through the issuance of equity, equity-linked or convertible debt securities; or (iii) otherwise have sufficient capital resources to meet our future capital or liquidity needs. There are no guarantees we will be able to generate additional financial resources beyond our existing balances.

We have agreed in principle to divest our major operating asset, have adopted a new “fab-light” strategy, and plan to focus on the Optical Interposer as our main business, any or all of which may have a material adverse effect on the results of our operations, financial position and cash flows, and pose further risks to the successful operation of our business over the short and long-term, as well as to the interpretation of our financial results by shareholders and our share price.

There are substantial risks associated with our proposed sale of our DenseLight business located in Singapore and adoption of a “fab-light” strategy, including the immediate loss of all or a substantial part of our revenue, the loss of control over an internal development asset, and the loss of key technical knowledge available from personnel who will no longer be employed by the Company, whom we may have to replace.

At the present time we have executed a non-binding Letter of Intent (LOI) for the DenseLight sale and are in the process of negotiating definitive agreements. We cannot guarantee that we will reach a final agreement and any material renegotiation of the terms represented in the LOI may result in significant write-offs, including those related to goodwill and other intangible assets, which may have a material adverse effect on our results of operations and financial position. The negotiation process itself is a diversion of management’s attention from other business concerns, which also may have a material adverse effect on the business. If we do not reach agreement with the current potential buyer, we have committed to seek other buyers as part of our “fab-light” strategy, which would be a time-consuming process that may continue to divert management’s attention from other business concerns and which we cannot guarantee would be successful. If we are not successful in selling DenseLight or if there is material delay in the sale or a substantial reduction in the price at which it can be sold, then our financial position and cash flows will be adversely affected, we may have to repay any borrowings on the secured credit facility (see next risk factor) or absorb a substantial increase in interest cost, and may not be able to sustain operations at their current levels or at all.

We have some previous experience with managing development without an internal development resource under a similar “fab-light” strategy which was not successful, and there is no guarantee that our new approach to operating a company with our chosen strategy will be successful. Further, our strategy will be solely dependent on the future market acceptance and sale of Optical Interposer-based solutions, which are not yet fully developed and which no customer has yet adopted in a production product.

We cannot guarantee that the measures we have taken to protect POET’s intellectual property in the Optical Interposer while performing development activities at our DenseLight facility have been effective or that some or all of the proprietary information and know-how on which the Optical Interposer is based has not been learned by the engineers working on Optical Interposer related projects. Following divestment, we will have little or no control over any leakage of such proprietary information or know-how either within or outside the DenseLight operation. In addition, we anticipate engaging with DenseLight to complete certain development projects, which will further expose our intellectual property to parties that we cannot control. Further, we cannot guarantee that DenseLight or any other third-party that we rely on to perform development, manufacturing, packaging or testing services will perform as expected and produce the devices we will need to grow our Optical Interposer business.

As “discontinued operations” our reported financial statements will immediately reflect the fact that all of our sales have been produced from our DenseLight operating unit. We may elect not to allocate any revenue to POET based on our current interpretation of the LOI and shareholders and analysts may form a poor opinion about the future prospects of the Company based on having little no revenue. If our development projects and discussions with customers for the adoption of all or portions of our Optical Interposer solutions are not successful, we may report little or no revenue for some period of time following the divestment of DenseLight. These and other factors may have a material adverse effect on the results of our operations and our share price.

There can be no assurance that we will be successful in addressing these or any other significant risks we may encounter in the divestment of DenseLight, the adoption of a “fab-light” strategy or the focus of our business solely on the Optical Interposer.

We may not be able to generate sufficient cash to service our recently acquired debt obligations.

We recently sold unsecured convertible debentures and secured financing with a bridge lender in the form of a secured credit facility. Our ability to make payments on our debt will depend on our financial and operating performance, which may fluctuate significantly from quarter to quarter, and is subject to prevailing economic conditions and financial, business and other factors, many of which are beyond our control. In addition, we have certain covenants in the secured credit facility that if not met would result in a significant increase in our interest cost and there are conditions which if not met would prevent us from accessing any additional funds from this facility. We cannot assure you that we will be able to generate sufficient cash flow or that we will be able to borrow funds from another source in amounts sufficient to enable us to service our debt or to meet our working capital requirements. If we are not able to generate sufficient cash flow from operations or to borrow sufficient funds to service our debt, we may be required to sell equity or assets, reduce expenditures, refinance all or a portion of our existing debt or obtain additional financing. We cannot assure you that we will be able to refinance our debt, sell assets or equity or borrow more funds on terms acceptable to us, if at all.

We may not be able to obtain additional capital when desired, on favorable terms or at all.

We operate in a market that makes our prospects difficult to evaluate and, to remain competitive, we will be required to make continued investments in capital equipment, facilities and technology. We expect that substantial capital will be required to continue technology and product development, to expand our manufacturing capacity if we need to do so and to fund working capital for anticipated growth. If we do not generate sufficient cash flow from operations or otherwise have the capital resources to meet our future capital needs, we may need additional financing to implement our business strategy.

If we raise additional funds through the issuance of our common stock or convertible securities, the ownership interests of our stockholders could be significantly diluted. These newly issued securities may have rights, preferences or privileges senior to those of existing stockholders. Additional financing may not, however, be available on terms favorable to us, or at all, if and when needed, and our ability to fund our operations, take advantage of unanticipated opportunities, develop or enhance our infrastructure or respond to competitive pressures could be significantly limited. If we cannot raise required capital when needed, including under our short form prospectus filed with the Canadian Securities Exchange and the U.S. SEC in October 2016 and subsequently refreshed in November 2018, we may be unable to continue technology and product development, meet the demands of existing and prospective customers, adversely affecting our sales and market opportunities and consequently our business, financial condition and results of operations.

The process of developing new, technologically advanced products in semiconductor manufacturing and photonics products is highly complex and uncertain, and we cannot guarantee a positive result.

The development of new, technologically advanced products is a complex and uncertain process requiring frequent innovation, highly-skilled engineering and development personnel and significant capital, as well as the accurate anticipation of technological and market trends. We cannot assure you that we will be able to identify, develop, manufacture, market or support new or enhanced products successfully or on a timely basis. Further, we cannot assure you that our new products will gain market acceptance or that we will be able to respond effectively to product introductions by competitors, technological changes or emerging industry standards. We also may not be able to develop the underlying core technologies necessary to create new products and enhancements, license these technologies from third parties, or remain competitive in our markets.

Customer demand is difficult to forecast accurately and, as a result, we may be unable to match production with customer demand.

We make planning and spending decisions, including determining the levels of business that we will seek and accept, production schedules, component procurement commitments, personnel needs and other resource requirements, based on our estimates of product demand and customer requirements. Our products are typically

sold pursuant to individual purchase orders. While our customers may provide us with their demand forecasts, they are typically not contractually committed to buy any quantity of products beyond firm purchase orders. Furthermore, many of our customers may increase, decrease, cancel or delay purchase orders already in place without significant penalty. The short-term nature of commitments by our customers and the possibility of unexpected changes in demand for their products reduce our ability to accurately estimate future customer requirements. If any of our customers decrease, stop or delay purchasing our products for any reason, we will likely have excess manufacturing capacity or inventory and our business and results of operations would be harmed.

If our customers do not qualify our products for use on a timely basis, our results of operations may suffer.

Prior to the sale of new products, our customers typically require us to “qualify” our products for use in their applications. At the successful completion of this qualification process, we refer to the resulting sales opportunity as a “design win.” Additionally, new customers often audit our manufacturing facilities and perform other evaluations during this qualification process. The qualification process involves product sampling and reliability testing and collaboration with our product management and engineering teams in the design and manufacturing stages. If we are unable to accurately predict the amount of time required to qualify our products with customers, or are unable to qualify our products with certain customers at all, then our ability to generate revenue could be delayed or our revenue would be lower than expected and we may not be able to recover the costs associated with the qualification process or with our product development efforts, which would have an adverse effect on our results of operations.

The markets in which we operate are highly competitive, which could result in lost sales and lower revenues.

The market for optical components and modules is highly competitive and this competition could result in our existing customers moving their orders to our competitors. We are aware of a number of companies that have developed or are developing optical component products, including LEDs, lasers, pluggable components, modules and subsystems, photonic integrated circuits, among others, that compete (or may in the future compete) directly with our current and proposed product offerings.

Some of our current competitors, as well as some of our potential competitors, have longer operating histories, greater name recognition, broader customer relationships and industry alliances and substantially greater financial, technical and marketing resources than we do. We may not be able to compete successfully with our competitors and aggressive competition in the market may result in lower prices for our products and/or decreased gross margins. Any such development could have a material adverse effect on our business, financial condition and results of operations.

Our products, including those sold by predecessor company, OPEL Solar, could contain defects that may cause us to incur significant costs or result in a loss of customers or subject us to claims for which we may not be fully insured.

Our predecessor company, Opel Solar, sold solar systems and products between 2007 and 2012, and some of those products may still be under warranty. We have not undertaken to quantify the size of that warranty obligation and it is not recorded on our balance sheet because it is not determinable. Although we carry product liability insurance, this insurance may not adequately cover our costs arising from defects or warranty claims related to those products.

Our current products sold by DenseLight are complex and undergo quality testing as well as formal qualification by our customers. Our customers’ testing procedures are limited to evaluating our products under likely and foreseeable failure scenarios and over varying amounts of time. For various reasons, such as the occurrence of performance problems that are unforeseeable in testing or that are detected only when products age or are operated under peak stress conditions, our products may fail to perform as expected long after customer acceptance. Failures

could result from faulty components or design, problems in manufacturing or other unforeseen reasons. As a result, we could incur significant costs to repair or replace defective products under warranty, particularly when such failures occur in installed systems. Our products are typically embedded in, or deployed in conjunction with, our customers' products, which incorporate a variety of components, modules and subsystems and may be expected to interoperate with modules produced by third parties. As a result, not all defects are immediately detectable and when problems occur, it may be difficult to identify the source of the problem. We will continue to face this risk going forward because our products are widely deployed in many demanding environments and applications worldwide. In addition, we may in certain circumstances honor warranty claims after the warranty has expired or for problems not covered by warranty to maintain customer relationships. Any significant product failure could result in litigation, damages, repair costs and lost future sales of the affected product and other products, divert the attention of our engineering personnel from our product development efforts and cause significant customer relations problems, all of which would harm our business. Although we carry product liability insurance, this insurance may not adequately cover our costs arising from defects in our products or otherwise.

The business that we acquired did not have a history of profitable operations. Our ability to successfully manage our manufacturing operations is essential to our overall success, and if we fail to do so, our financial results will suffer.

At the time of the acquisition of DenseLight Semiconductors, Pte. Ltd. in May of 2016, the company had been operating at a loss for several years and was at a minimum staffing level. Since the acquisition, we have committed substantial capital and management attention to improving the operation, increasing sales and driving to profitability. Even though substantial changes in the management and personnel have been made, the results to date have been less than anticipated and more improvement will be required in order to make the DenseLight operation profitable. We cannot guarantee that our efforts to improve the DenseLight operation will be successful, and if they are not, the operation will continue to need capital and attention from the senior management of the company and our financial results may suffer as a result.

If we encounter manufacturing problems or if manufacturing at our Singapore operation is discontinued for any reason, including an industrial or workplace accident, we may lose sales and damage our customer relationships, or be subject to claims for which we may not be fully insured.

We may experience delays, disruptions or quality control problems in our manufacturing operations. These and other factors may cause less than acceptable yields at our wafer fabrication facility. Manufacturing yields depend on a number of factors, including the quality of available raw materials, the degradation or change in equipment calibration and the rate and timing of the introduction of new products. Changes in manufacturing processes required as a result of changes in product specifications, changing customer needs and the introduction of new products may significantly reduce our manufacturing yields, resulting in low or negative margins on those products. In addition, because of our wafer size, we use equipment that is not readily available on the open market and for which spare parts and qualified service people may not be available. If any of our key equipment were to be damaged or destroyed for any reason, our manufacturing process would be severely disrupted. Any such manufacturing problems would likely delay product shipments to our customers, which would negatively affect our sales, competitive position and reputation.

Our operations in Singapore are subject to government regulations that protect the workplace safety of employees. We strive to maintain an accident-free workplace, but we cannot guarantee that industrial accidents will not take place, or that we will not be subject to liability for these and other workplace related claims. We have obtained insurance policies to protect the company against claims for workplace related claims, but we cannot guarantee that these and other insurance policies carried by the Company will be sufficient to cover the full costs of such claims, which could have a material adverse effect on the Company.

We have limited operating history in the datacom market, and our business could be harmed if this market does not develop as we expect.

The initial target market for our Optical Interposer-based optical engine is the datacom market and we have no experience in selling products in this market. We may not be successful in developing a product for this market and even if we do, it may never gain widespread acceptance by large data center operators. If our expectations for the growth of the datacom market are not realized, our financial condition or results of operations may be adversely affected.

We depend on a limited number of suppliers and key contract manufacturers who could disrupt our business and technology development activities if they stopped, decreased, delayed or were unable to meet our demand for shipments of their products or manufacturing of our products.

We depend on a limited number of suppliers of epitaxial wafers and contract manufacturers for our Indium Phosphide (“InP”) development and production activities. Some of these suppliers are sole source suppliers. We typically have not entered into long-term agreements with our suppliers. As a result, these suppliers generally may stop supplying us materials and other components at any time. Our reliance on a sole supplier or limited number of suppliers could result in delivery problems, reduced control over technology development, product development, pricing and quality, and an inability to identify and qualify another supplier in a timely manner. Some of our suppliers that may be small or under-capitalized may experience financial difficulties that could prevent them from supplying us materials and other components. In addition, our suppliers, including our sole source suppliers, may experience manufacturing delays or shut downs due to circumstances beyond their control such as earthquakes, floods, fires, labor unrest, political unrest or other natural disasters. A change in supplier could require technology transfer that could require multiple iterations of test wafers. This could result in significant delays in resumption of production.

Any supply deficiencies relating to the quality or quantities of materials or equipment we use to manufacture our products could materially and adversely affect our ability to fulfill customer orders and our results of operations. Lead times for the purchase of certain materials and equipment from suppliers have increased and, in some cases, have limited our ability to rapidly respond to increased demand, and may continue to do so in the future. To the extent we introduce additional contract manufacturing partners, introduce new products with new partners and/or move existing internal or external production lines to new partners, we could experience supply disruptions during the transition process. In addition, due to our customers’ requirements relating to the qualification of our suppliers and contract manufacturing facilities and operations, we cannot quickly enter into alternative supplier relationships, which prevent us from being able to respond immediately to adverse events affecting our suppliers.

Our international business and operations expose us to additional risks.

Products shipped to customers located outside Canada and the United States account for a majority of our revenues. In addition, we have significant tangible assets located outside the United States, including manufacturing facilities which are located in Singapore. Conducting business outside Canada and the United States subjects us to a number of additional risks and challenges, including:

- periodic changes in a specific country's or region's economic conditions, such as recession;
- licenses and other trade barriers;
- the provision of services may require export licenses;
- environmental regulations;
- certification requirements;

- fluctuations in foreign currency exchange rates;
- inadequate protection of intellectual property rights in some countries;
- preferences of certain customers for locally produced products;
- potential political, legal and economic instability, foreign conflicts, and the impact of regional and global infectious illnesses in the countries in which we and our customers, suppliers and contract manufacturers are located;
- Canadian and U. S. and foreign anticorruption laws;
- seasonal reductions in business activities in certain countries or regions; and
- fluctuations in freight rates and transportation disruptions.

These factors, individually or in combination, could impair our ability to effectively operate one or more of our foreign facilities or deliver our products, result in unexpected and material expenses, or cause an unexpected decline in the demand for our products in certain countries or regions. Our failure to manage the risks and challenges associated with our international business and operations could have a material adverse effect on our business.

If we fail to attract and retain key personnel, our business could suffer.

Our future success depends, in part, on our ability to attract and retain key personnel, including executive management. Competition for highly skilled technical personnel is extremely intense and we may face difficulty identifying and hiring qualified engineers in many areas of our business. We may not be able to hire and retain such personnel at compensation levels consistent with our existing compensation and salary structure. Our future success also depends on the continued contributions of our executive management team and other key management and technical personnel, each of whom would be difficult to replace. The loss of services of these or other executive officers or key personnel or the inability to continue to attract qualified personnel could have a material adverse effect on our business.

Our prior acquisitions created a large amount of goodwill, which may be impaired in the future and as a result may adversely affect our financial results. In addition, past and any future acquisitions involve numerous risks and may adversely affect our financial condition and results of operations.

As part of our business strategy, we have in the past and may in the future pursue acquisitions of companies that we believe could enhance or complement our current product portfolio, augment our technology roadmap or diversify our revenue base. Acquisitions involve numerous risks, any of which could harm our business, including:

- difficulties integrating the acquired business;
- unanticipated costs, capital expenditures, liabilities or changes to product development efforts;
- difficulties integrating the business relationships with suppliers and customers of the acquired business with our existing operations;
- acts or omissions by the acquired company prior to the acquisition that may subject us to unknown risks or liabilities;
- risks associated with entering markets in which we have little or no prior experience;

- potential loss of key employees, particularly those of the acquired organizations; and
- diversion of financial and management resources from our existing business;

Our prior acquisitions have resulted, and future acquisitions may result in the recording of goodwill and other intangible assets subject to potential impairment in the future, adversely affecting our operating results. We may not achieve the anticipated benefits of an acquisition if we fail to evaluate it properly, and we may incur costs in excess of what we anticipate. A failure to evaluate and execute an acquisition appropriately or otherwise adequately address these risks may adversely affect our financial condition and results of operations.

Our predecessor company received and our current subsidiaries receive and expect to receive in the future subsidies and other types of funding from government agencies in the locations in which we operate. The funding agreements stipulate that if we do not comply with various covenants, including eligibility requirements, and/or do not achieve certain pre-defined objectives, those government agencies may reclaim all or a portion of the funding provided. If this were to occur, we would either not be in a position to repay the claimed amounts or could have to borrow large sums, which would adversely affect our financial condition.

Our subsidiary ODIS received research and development grants from the United States Air Force and from NASA; our recently acquired subsidiary, DenseLight Semiconductor, Pte, Ltd. receives funding for new product development activities conducted in Singapore from the Economic Development Board; and we expect that our recently acquired subsidiary BB Photonics UK. Ltd., may also apply for certain grants to defer the cost of development in the UK. The rules for eligibility vary widely across government agencies, are complex and may be subject to different interpretations. Furthermore, some of the grants set pre-defined development or spending objectives, which we may not achieve. We cannot guarantee that one or more agencies will not seek repayment of all or a portion of the funds provided, and if this were to occur, we would have to borrow large sums or *otherwise raise the necessary funds (assuming we would even be able to do so)*, in order to make the repayments, which would adversely affect our financial.

We may be subject to disruptions or failures in information technology systems and network infrastructures that could have a material adverse effect on our business and financial condition.

We rely on the efficient and uninterrupted operation of complex information technology systems and network infrastructures to operate our business. A disruption, infiltration or failure of our information technology systems as a result of software or hardware malfunctions, system implementations or upgrades, computer viruses, third-party security breaches, employee error, theft or misuse, malfeasance, power disruptions, natural disasters or accidents could cause a breach of data security, loss of intellectual property and critical data and the release and misappropriation of sensitive competitive information and partner, customer, and employee personal data. Any of these events could harm our competitive position, result in a loss of customer confidence, cause us to incur significant costs to remedy any damages and ultimately materially adversely affect our business and financial condition.

If we fail to protect, or incur significant costs in defending, our intellectual property and other proprietary rights, our business and results of operations could be materially harmed.

Our success depends on our ability to protect our intellectual property and other proprietary rights. We rely on a combination of patent, trademark, copyright, trade secret and unfair competition laws, as well as license agreements and other contractual provisions, to establish and protect our intellectual property and other proprietary rights. We have applied for patent registrations in the U.S. and in foreign countries, some of which have been issued. We cannot guarantee that our pending applications will be approved by the applicable governmental authorities. Moreover, our existing and future patents and trademarks may not be sufficiently broad to protect our proprietary rights or may be held invalid or unenforceable in court. A failure to obtain patents or trademark

registrations or a successful challenge to our registrations in the U.S. or foreign countries may limit our ability to protect the intellectual property rights that these applications and registrations intended to cover.

Policing unauthorized use of our technology is difficult and we cannot be certain that the steps we have taken will prevent the misappropriation, unauthorized use or other infringement of our intellectual property rights. Further, we may not be able to effectively protect our intellectual property rights from misappropriation or other infringement in foreign countries where we have not applied for patent protections, and where effective patent, trademark, trade secret and other intellectual property laws may be unavailable or may not protect our proprietary rights as fully as Canadian or U.S. law. We may seek to secure comparable intellectual property protections in other countries. However, the level of protection afforded by patent and other laws in other countries may not be comparable to that afforded in Canada and the U.S.

We also attempt to protect our intellectual property, including our trade secrets and know-how, through the use of trade secret and other intellectual property laws, and contractual provisions. We enter into confidentiality and invention assignment agreements with our employees and independent consultants. We also use non-disclosure agreements with other third parties who may have access to our proprietary technologies and information. Such measures, however, provide only limited protection, and there can be no assurance that our confidentiality and non-disclosure agreements will not be breached, especially after our employees end their employment, and that our trade secrets will not otherwise become known by competitors or that we will have adequate remedies in the event of unauthorized use or disclosure of proprietary information. Unauthorized third parties may try to copy or reverse engineer our products or portions of our products, otherwise obtain and use our intellectual property, or may independently develop similar or equivalent trade secrets or know-how. If we fail to protect our intellectual property and other proprietary rights, or if such intellectual property and proprietary rights are infringed or misappropriated, our business, results of operations or financial condition could be materially harmed.

In the future, we may need to take legal actions to prevent third parties from infringing upon or misappropriating our intellectual property or from otherwise gaining access to our technology. Protecting and enforcing our intellectual property rights and determining their validity and scope could result in significant litigation costs and require significant time and attention from our technical and management personnel, which could significantly harm our business. We may not prevail in such proceedings, and an adverse outcome may adversely impact our competitive advantage or otherwise harm our financial condition and our business.

We may be involved in intellectual property disputes in the future, which could divert management's attention, cause us to incur significant costs and prevent us from selling or using the challenged technology.

Participants in the markets in which we sell our products have experienced frequent litigation regarding patent and other intellectual property rights. There can be no assurance that third parties will not assert infringement claims against us, and we cannot be certain that our products would not be found infringing on the intellectual property rights of others. Regardless of their merit, responding to such claims can be time consuming, divert management's attention and resources and may cause us to incur significant expenses. Intellectual property claims against us could result in a requirement to license technology from others, discontinue manufacturing or selling the infringing products, or pay substantial monetary damages, each of which could result in a substantial reduction in our revenue and could result in losses over an extended period of time.

If we fail to obtain the right to use the intellectual property rights of others that are necessary to operate our business, and to protect their intellectual property, our business and results of operations will be adversely affected.

From time to time, we may choose to or be required to license technology or intellectual property from third parties in connection with the development of our products. We cannot assure you that third party licenses will be available to us on commercially reasonable terms, if at all. Generally, a license, if granted, would include payments

of up-front fees, ongoing royalties or both. These payments or other terms could have a significant adverse impact on our results of operations. Our inability to obtain a necessary third-party license required for our product offerings or to develop new products and product enhancements could require us to substitute technology of lower quality or performance standards, or of greater cost, either of which could adversely affect our business. If we are not able to obtain licenses from third parties, if necessary, then we may also be subject to litigation to defend against infringement claims from these third parties. Our competitors may be able to obtain licenses or cross-license their technology on better terms than we can, which could put us at a competitive disadvantage.

If we fail to maintain effective internal control over financial reporting in the future, the accuracy and timing of our financial reporting may be adversely affected.

Preparing our consolidated financial statements involves a number of complex manual and automated processes, which are dependent upon individual data input or review and require significant management judgment. One or more of these elements may result in errors that may not be detected and could result in a material misstatement of our consolidated financial statements. The Sarbanes-Oxley Act in the U.S. requires, among other things, that as a publicly traded company we disclose whether our internal control over financial reporting and disclosure controls and procedures are effective. As long as we qualify as an “emerging growth company” under the JOBS Act, we will not have to provide an auditor’s attestation report on our internal controls. During the course of any evaluation, documentation or attestation, we or our independent registered public accounting firm may identify weaknesses and deficiencies that we may not otherwise identify in a timely manner or at all as a result of the deferred implementation of this additional level of review.

Our internal controls cannot guarantee that no accounting errors exist or that all accounting errors, no matter how immaterial, will be detected because a control system, no matter how well designed and operated, can provide only reasonable, but not absolute assurance that the control system’s objectives will be met. If we are unable to implement and maintain effective internal control over financial reporting, our ability to accurately and timely report our financial results could be adversely impacted. This could result in late filings of our annual and quarterly reports under the *Securities Act* (Ontario) and the Securities Exchange Act of 1934, or the Exchange Act, restatements of our consolidated financial statements, a decline in our stock price, suspension or delisting of our common stock by the TSX Venture Exchange, or other material adverse effects on our business, reputation, results of operations or financial condition.

Our ability to use our net operating losses and certain other tax attributes may be limited.

As of December 31, 2018, we had accumulated net operating losses (“NOLs”), of approximately \$133 million. For the year ended December 31, 2018 we have incurred additional losses for accounting purposes from operations of \$16.6 million. Varying jurisdictional tax codes have restrictions on the use of NOLs, if a corporation undergoes an “ownership change,” the Company’s ability to use its pre-change NOLs, R&D credits and other pre-change tax attributes to offset its post-change income may be limited. An ownership change is generally defined as a greater than 50% change in equity ownership. Based upon an analysis of our equity ownership, we do not believe that we have experienced such ownership changes and therefore our annual utilization of our NOLs is not limited. However, should we experience additional ownership changes, our NOL carry forwards may be limited.

We are subject to governmental export and import controls that could subject us to liability or impair our ability to compete in international markets.

We are subject to export and import control laws, trade regulations and other trade requirements that limit which raw materials and technology we can import or export and which products we sell and where and to whom we sell our products. Specifically, the Bureau of Industry and Security of the U.S. Department of Commerce is responsible for regulating the export of most commercial items that are so called dual-use goods that may have both commercial and military applications. A limited number of our products are exported by license under certain

classifications. Export Control Classification requirements are dependent upon an item's technical characteristics, the destination, the end-use, and the end-user, and other activities of the end-user. Should the regulations applicable to our products change, or the restrictions applicable to countries to which we ship our products change, then the export of our products to such countries could be restricted. As a result, our ability to export or sell our products to certain countries could be restricted, which could adversely affect our business, financial condition and results of operations. Changes in our products or any change in export or import regulations or related legislation, shift in approach to the enforcement or scope of existing regulations, or change in the countries, persons or technologies targeted by such regulations, could result in delayed or decreased sales of our products to existing or potential customers. In such event, our business and results of operations could be adversely affected.

Our manufacturing operations are subject to environmental regulation that could limit our growth or impose substantial costs, adversely affecting our financial condition and results of operations.

Our properties, operations and products are subject to the environmental laws and regulations of the jurisdictions in which we operate and sell products. These laws and regulations govern, among other things, air emissions, wastewater discharges, the management and disposal of hazardous materials, the contamination of soil and groundwater, employee health and safety and the content, performance, packaging and disposal of products. Our failure to comply with current and future environmental laws and regulations, or the identification of contamination for which we are liable, could subject us to substantial costs, including fines, cleanup costs, third-party property damages or personal injury claims, and make significant investments to upgrade our facilities or curtail our operations. Identification of presently unidentified environmental conditions, more vigorous enforcement by a governmental authority, enactment of more stringent legal requirements or other unanticipated events could give rise to adverse publicity, restrict our operations, affect the design or marketability of our products or otherwise cause us to incur material environmental costs, adversely affecting our financial condition and results of operations.

We are exposed to risks and increased expenses and business risk as a result of Restriction on Hazardous Substances, or RoHS directives.

Following the lead of the European Union, or EU, various governmental agencies have either already put into place or are planning to introduce regulations that regulate the permissible levels of hazardous substances in products sold in various regions of the world. For example, the RoHS directive for EU took effect on July 1, 2006. The labeling provisions of similar legislation in China went into effect on March 1, 2007. Consequently, many suppliers of products sold into the EU have required their suppliers to be compliant with the new directive. We anticipate that our customers may adopt this approach and will require our full compliance, which will require a significant amount of resources and effort in planning and executing our RoHS program, it is possible that some of our products might be incompatible with such regulations. In such events, we could experience the following consequences: loss of revenue, damages reputation, diversion of resources, monetary penalties, and legal action.

Failure to comply with the U.S. Foreign Corrupt Practices Act could subject us to penalties and other adverse consequences.

We are subject to the U.S. Foreign Corrupt Practices Act, which generally prohibits companies operating in the U.S. from engaging in bribery or other prohibited payments to foreign officials for the purpose of obtaining or retaining business. In addition, we are required to maintain records that accurately and fairly represent our transactions and have an adequate system of internal accounting controls. Non-U.S. companies, including some that may compete with us, may not be subject to these prohibitions, and therefore may have a competitive advantage over us. If we are not successful in implementing and maintaining adequate preventative measures, we may be responsible for acts of our employees or other agents engaging in such conduct. We could suffer severe penalties and other consequences that may have a material adverse effect on our financial condition and results of operations.

Natural disasters or other catastrophic events could harm our operations.

Our operations in the U.S., Canada and Singapore could be subject to significant risk of natural disasters, including earthquakes, hurricanes, typhoons, flooding and tornadoes, as well as other catastrophic events, such as epidemics, terrorist attacks or wars. For example, our wafer fabrication facility in Singapore is in an area that is susceptible to hurricanes. Any disruption in our manufacturing facilities arising from these and other natural disasters or other catastrophic events could cause significant delays in the production or shipment of our products until we are able to arrange for third parties to manufacture our products. We may not be able to obtain alternate capacity on favorable terms or at all. Our property insurance coverage with respect to natural disaster is limited and is subject to deductible and coverage limits. Such coverage may not be adequate or continue to be available at commercially reasonable rates and terms. The occurrence of any of these circumstances may adversely affect our financial condition and results of operation.

Uncertainties in the interpretation and application of the 2017 Tax Cuts and Jobs Act could materially affect our tax obligations and effective tax rate.

On December 22, 2017, the U.S. Tax Cuts and Jobs Act of 2017, or the “2017 Tax Act,” was signed into law and includes several key tax provisions that affected us, including a reduction of the statutory corporate tax rate from 35% to 21% effective for tax years beginning after December 31, 2017, elimination of certain deductions, and changes to how the United States imposes income tax on multinational corporations, among others. The 2017 Tax Act requires complex computations to be performed that were not previously required in U.S. tax law, significant judgments to be made in interpretation of the provisions of the 2017 Tax Act, significant estimates in calculations, and the preparation and analysis of information not previously relevant or regularly produced. The U.S. Treasury Department, the IRS, and other standard-setting bodies will continue to interpret or issue guidance on how provisions of the U.S. Tax Act will be applied or otherwise administered. As future guidance is issued, we may make adjustments to amounts that we have previously recorded that may materially impact our financial statements in the period in which the adjustments are made

A significant disruption in, or breach in security of, our information technology systems or violations of data protection laws could materially adversely affect our business and reputation.

In the ordinary course of business, we collect and store confidential information, including proprietary business information belonging to us, our customers, suppliers, business partners and other third parties and personally identifiable information of our employees. We rely on information technology systems to protect this information and to keep financial records, process orders, manage inventory, coordinate shipments to customers, and operate other critical functions. Our information technology systems may be susceptible to damage, disruptions or shutdowns due to power outages, hardware failures, telecommunication failures and user errors. If we experience a disruption in our information technology systems, it could result in the loss of sales and customers and significant incremental costs, which could materially adversely affect our business. We may also be subject to security breaches caused by computer viruses, illegal break-ins or hacking, sabotage, or acts of vandalism by disgruntled employees or third parties. The risk of a security breach or disruption, particularly through cyberattack or cyber intrusion, including by computer hackers, foreign governments and cyber terrorists, has increased as the number, intensity and sophistication of attempted attacks and intrusions from around the world have increased. Our information technology network and systems have been and, we believe, continue to be under constant attack. Accordingly, despite our security measures or those of our third-party service providers, a security breach may occur, including breaches that we may not be able to detect. Security breaches of our information technology systems could result in the misappropriation or unauthorized disclosure of confidential information.

The Company may experience these factors in the future and these factors may have a material adverse effect on the Company’s business, operating results and financial condition.

Please refer to the Company's Annual Information Forms filed on SEDAR for a detailed discussion of Risks and Uncertainties most recently filed on May 9, 2018.

Additional Information

Additional information relating to the Company is available on SEDAR at www.sedar.com including the information contained in the Company's Annual Information Form filed on SEDAR on May 9, 2018.



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