

Management's Discussion and Analysis of Financial Condition and Results of Operations

For the three and nine months ended September 30, 2019 and 2018

November 6, 2019

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## INTRODUCTION

This Management's Discussion and Analysis of Quarterhill Inc. (this "MD&A") is dated November 6, 2019. References in this MD&A to "Quarterhill", "we", "us" and "our" refer to Quarterhill Inc. and its consolidated subsidiaries during the periods presented unless the context requires otherwise and references to "Common Shares" in this MD&A refer to common shares in the capital of Quarterhill.

On April 17, 2017, we announced that our Board of Directors (our "Board") had approved a plan to transform the company into a growth-oriented diversified holding company by acquiring technology businesses that will operate alongside our existing intellectual property licensing company. As part of this transformation, we amalgamated with a number of our subsidiaries and changed our name to Quarterhill Inc. on June 1, 2017 and began trading under the symbol "QTRH" on both the Toronto Stock Exchange (the "TSX") and the Nasdaq Global Select Market (the "Nasdaq") on June 5, 2017.

Quarterhill is a Canadian company focused on being a disciplined acquirer and manager of established technology companies with a diverse offering of products and services worldwide. Our strategy is to acquire and operate financially attractive niche technology companies including those that provide vertical market software and solutions servicing large and stable industries and intelligent industrial systems such as technology-enabled companies serving converging industries including transportation.

We are focusing our business on building a consistently profitable company through the acquisition, management and growth of companies in our dedicated technology areas, with an emphasis on seeking out acquisition opportunities that provide a foundation for profitable growth and that have reasonable valuations, recurring revenues, predictable cashflows and margins, intimate customer relationships and dedicated management teams among other considerations.

Unless otherwise indicated, all financial information in this MD&A is reported in thousands of United States dollars, except for share and earnings per share data which is reported in number of shares and U.S. dollars respectively. The tables and charts included in this document form an integral part of this MD&A.

We have prepared this MD&A with reference to National Instrument 51-102 - Continuous Disclosure Obligations of the Canadian Securities Administrators. Under the U.S./Canada Multijurisdictional Disclosure System, we are permitted to prepare this MD&A in accordance with Canadian disclosure requirements which may differ from U.S. disclosure requirements. This MD&A provides information for the three and nine months ended September 30, 2019 and up to and including November 6, 2019. Additional information filed by us with the Canadian Securities Administrators, including quarterly reports, annual reports and our Annual Information Form for the year ended December 31, 2018 (our "AIF"), is available on-line at [www.sedar.com](http://www.sedar.com) and also on our website at [www.Quarterhill.com](http://www.Quarterhill.com). Our Form 40-F can be found on the United States Securities and Exchange Commission ("SEC") EDGAR website at [www.sec.gov](http://www.sec.gov).

This MD&A should be read in conjunction with Quarterhill's condensed consolidated interim financial statements and the notes thereto for the three and nine months ended September 30, 2019 and September 30, 2018, which have been prepared in accordance with generally accepted accounting principles in the United States of America ("GAAP") and SEC regulations for interim financial information as applicable.

Our management is responsible for establishing appropriate information systems, procedures and controls to ensure that all financial information disclosed externally, including in this MD&A, and used internally by us, is complete and reliable. These procedures include the review and approval of our condensed consolidated financial statements and associated information, including this MD&A, first by our management's Disclosure Committee, then by our Board's Audit Committee (the "Audit Committee") and, finally, by our Board as a whole.

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## CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This MD&A contains forward-looking statements and forward-looking information within the meaning of the United States Private Securities Litigation Reform Act of 1995 and other applicable United States and Canadian securities laws, including such statements relating to:

- assumptions and expectations described in our critical accounting policies and estimates;
- our expectation regarding the adoption and impact of certain accounting pronouncements;
- our expectation regarding the growth rates of our subsidiaries' businesses;
- our estimates regarding our effective tax rate;
- our expectations regarding ability to acquire additional businesses to further our growth; and
- our expectations with respect to the sufficiency of our financial resources.

The words "expect", "anticipate", "estimate", "may", "will", "should", "would", "intend", "believe", "plan", "continue", "project", the negatives of these words or other variations on these words, comparable terms and similar expressions are intended to identify forward-looking statements and forward-looking information. Forward-looking statements and forward-looking information are based on estimates and assumptions made by us in light of our experience and our perception of historical trends, current conditions and expected future developments, as well as other factors that we believe are appropriate in the circumstances.

We provide forward-looking statements and forward-looking information to assist external stakeholders in understanding our management's expectations and plans relating to the future as of the date of this MD&A and such statements and information may not be appropriate for any other purposes. The forward-looking statements and forward-looking information in this MD&A are made as of the date of this MD&A only. We have no intention and undertake no obligation to update or revise any forward-looking statements or forward-looking information, whether as a result of new information, future events or otherwise, except as required by law.

## NON-GAAP DISCLOSURES

Quarterhill has historically used a set of metrics when evaluating our operational and financial performance. We continually monitor, evaluate and update these metrics as required to ensure they provide information considered most useful, in the opinion of our management, to any decision-making based on Quarterhill's performance. **This section defines, quantifies and analyzes the key performance indicators used by our management and referred to elsewhere in this MD&A, which are not recognized under GAAP and have no standardized meaning prescribed by GAAP. These indicators and measures are therefore unlikely to be comparable to similar measures presented by other issuers.**

In this MD&A, we use the Non-GAAP term "Adjusted EBITDA" to mean net income (loss) from continuing operations before: (i) income taxes; (ii) finance expense or income; (iii) amortization and impairment of intangibles; (iv) special charges and other one-time items; (v) depreciation of property, plant and equipment; (vi) effects of deleted deferred revenue; (vii) the effects of fair value step up in inventory acquired; (viii) stock-based compensation; (ix) foreign exchange (gain) loss; and (x) equity in earnings and dividends from joint ventures. Adjusted EBITDA is used by our management to assess our normalized cash generated on a consolidated basis and in our operating segments. Adjusted EBITDA is also a performance measure that may be used by investors to analyze the cash generated by Quarterhill and our operating segments. Adjusted EBITDA should not be interpreted as an alternative to net income and cash flows from operations as determined in accordance with GAAP or as a measure of liquidity.

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## DESCRIPTION OF OUR BUSINESS

In 2017, Quarterhill began a transition away from a singular reliance on our patent monetization business towards becoming, over time, a disciplined acquirer and manager of established technology companies operating alongside the patent monetization business. To this end, in 2017, we reorganized our corporate affairs to create Quarterhill, transferred and assigned all of our patent monetization assets to a separate Wi-LAN Inc. company (“**WiLAN**”), acquired each of VIZIYA Corp. (“**VIZIYA**”) and International Road Dynamics Inc. (“**IRD**”) and their respective businesses.

Today we are continuing this evolution towards our goal of acquiring and operating financially attractive niche technology companies including those in vertical market software and solutions that service large and stable industries and intelligent industrial systems such as technology-enabled companies serving converging industries including transportation.

### Strategy

We are focusing our business on the acquisition, management and growth of companies in our dedicated technology areas, with an emphasis on seeking out acquisition opportunities that provide a foundation for profitable growth and that have reasonable valuations, recurring revenues, predictable cash flows and margins, intimate customer relationships and dedicated management teams among other material considerations.

We believe that if we increase the share of our revenue derived from recurring sources such as annual maintenance renewals, subscription revenue, hosted revenue and longer-term consulting engagements, we will also increase our cash flows and revenue stream predictability which we hope will allow us to better scale our operations to ensure that we meet our strategic mandate of operating profitably regardless of the prevailing economic market conditions and grow both organically and through acquisitions.

Our three current existing businesses are fully described in more detail in our AIF. We have determined that we operate in three business segments providing technology licensing, intelligent system and enterprise software solutions as we currently review our operating results, assess our performance, make decisions about resources and generate discrete financial information for each of these segments. We have called these segments Licensing, Intelligent Systems and Enterprise Software.

### *Licensing Segment*

Our Licensing segment focuses on technology licensing as its principal business activity. We have an investment in WiLAN, a leading patent licensing company, based in Ottawa, Canada with offices in Orange County and Carlsbad, California. WiLAN has developed and patented inventions that have proven of great value to third-parties and has a history of acquiring patents that it believes hold great value from other inventors. WiLAN also works with patent inventors and owners to unlock the value trapped in patents that their inventors or owners have been unable to obtain, by developing and licensing their patents while sharing with those inventors and assignees both any revenues generated by these patents and much of the financial risk associated with licensing these patents.

Current patent portfolios held by WiLAN include patents relating to 3D television technologies, automotive headlight assemblies, phased loop semiconductor technology, microcontrollers applicable to safety-critical aerospace, semiconductor manufacturing and packaging technologies, medical, industrial and automotive applications, computer gaming, medical stent technologies, intelligent personal assistant technologies, CMOS image sensors, enhanced image processing, streaming video technologies, building automation, non-volatile Flash memory, other memory technologies, semiconductor clocking technologies, smart meter monitoring, LED lighting technologies and many other technologies. WiLAN’s agreements licensing its patents generally take into consideration license rights and releases for past infringement. Related payments may be lump-sum, fixed-price with set payments made over a specified duration or running royalty-based depending on a price per-unit and/or a percentage of product sales or service revenues enjoyed by licensees.

WiLAN's employees have unique skill sets and proven abilities to conclude license agreements. This is important as the strength of asserted patents is only part of what is needed to derive substantial revenues from them; human expertise in the relevant markets, in patent portfolio development and in patent licensing and litigation are as crucial as strong patents.

#### *Intelligent Systems Segment*

Our Intelligent Systems segment includes companies providing systems and services focused on the interconnection of devices for mobile applications. Our first investment in this segment is IRD. Headquartered in Saskatoon, Canada, IRD is one of the world's leading providers of integrated systems and solutions for the global Intelligent Transportation Systems industry (the "ITS Industry"). The ITS Industry is focused on improving the Intelligent Systems, enhancing the safety, increasing the efficiency and reducing the environmental impact of highway and roadway transportation systems. IRD has a network of direct and independent operations and relationships in strategic geographic regions to identify and pursue ITS opportunities around the world.

IRD's core strengths are its national and international sales networks and installed base of systems, its intellectual property (trade names, patents, trademarks and other proprietary knowledge) and its ability to utilize a variety of patented and proprietary and original equipment manufacturer technologies, including IRD's proprietary "Weigh-In-Motion" and vehicle measurement technologies, to detect, classify and weigh vehicles at highway speeds. IRD delivers automated systems for commercial vehicle operations at truck weigh stations, border crossings, highway traffic data collection and highway toll collection systems.

IRD's customers include government transportation agencies, traffic engineering consultants and operators, city and municipal agencies, concessionaires and industrial, mining and transportation service companies worldwide.

IRD's revenue is derived from selling integrated transportation systems, services and products. Integrated systems are made up of a combination of proprietary electronics, software technology, "Weigh-In-Motion" and vehicle measurement products and installation and commissioning services. Service contracts are typically multi-year, renewable arrangements for IRD to maintain and service its installed systems and products for its customers. In addition, IRD enters into recurring revenue service contracts under which they own the equipment providing customer services such as delivery of real time and statistical traffic information and truck weigh station bypass services.

#### *Enterprise Software Segment*

We consider companies that provide software used in large organizations, whether business or government, that is an essential part of a computer-based information system offering business-oriented tools such as automated maintenance management and online billing tools as operating in the Enterprise Software segment. Our first investment in this segment is VIZIYA based in Hamilton, Canada. VIZIYA creates and licenses enterprise asset management software to help organizations with heavy asset businesses optimize asset performance and "uptime", which software is designed to be integrated with major computerized maintenance management systems sold by such providers as Oracle Corporation (including Oracle Cloud, E-Business, PeopleSoft and JD Edwards), SAP SE, International Business Machines Corporation, J.D. Edwards World Solution Company and Infor.

Organizations in industries such as oil and gas, mining, manufacturing, pharmaceuticals, food and beverage, power generation, among others, rely heavily on physical plants containing numerous dedicated pieces of equipment, or physical assets, to run their respective businesses. To manage these physical assets over their predicted lifetimes, dedicated enterprise asset management software solutions are used by the owners of these physical assets to coordinate every aspect of any such physical asset-intensive organization.

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VIZIYA's software solutions work together with these dedicated enterprise asset management software solutions to optimize the performance and "uptime" of physical assets to help VIZIYA's customers achieve production targets, control costs and manage safety and compliance through maximum physical asset utilization.

## **RISKS AND UNCERTAINTIES**

Quarterhill and our operating subsidiaries operate in ever-changing business and competitive economic environments that expose us to a number of risks and uncertainties. This MD&A is qualified in its entirety by the risk factors described in our AIF. The risks and uncertainties discussed in greater detail under the heading "Risk Factors" in our AIF are not, however, the only risks we face. We may also be subject to additional risks and uncertainties that are currently unknown or not currently deemed material to our respective business operations. If any of the risks or uncertainties we and our operating subsidiaries face were to occur, they could materially affect our future operating results and could cause actual events to differ materially from those which we expect or that we have described in our forward-looking statements.

These factors should be considered carefully, and readers should not place undue reliance on our forward-looking statements and forward-looking information. Any of the matters described under this "Risks and Uncertainties" section could have a material adverse effect on our businesses, results of operations and financial condition, in which case the trading price of the Common Shares could decline, and a holder of Common Shares could lose all or a part of their investment. Please also refer to the "Cautionary Note Regarding Forward-Looking Statements" section of this MD&A.

**OVERALL PERFORMANCE**

	Three months ended September 30,		Nine months ended September 30,	
	2019	2018	2019	2018
<b>Revenues</b>				
License	\$ 10,542	\$ 4,762	\$ 64,103	\$ 12,898
Systems	9,532	7,885	25,626	19,757
Services	610	660	1,803	2,040
Recurring	4,685	6,272	16,031	17,290
	<b>25,369</b>	<b>19,579</b>	<b>107,563</b>	<b>51,985</b>
<b>Cost of revenues (excluding depreciation and amortization)</b>				
License	6,584	5,927	31,377	19,927
Systems	5,678	5,281	16,334	13,392
Services	372	305	1,018	995
Recurring	2,465	2,927	7,994	8,399
	<b>15,099</b>	<b>14,440</b>	<b>56,723</b>	<b>42,713</b>
	<b>10,270</b>	<b>5,139</b>	<b>50,840</b>	<b>9,272</b>
<b>Operating expenses</b>				
Depreciation of property, plant and equipment	181	372	921	1,155
Amortization of intangibles	5,134	6,298	15,578	19,491
Selling, general and administrative expenses	7,186	6,871	20,423	20,960
Research and development expenses	1,229	902	3,645	2,694
Special charges	(11,570)	2,320	907	2,320
	<b>2,160</b>	<b>16,763</b>	<b>41,474</b>	<b>46,620</b>
Results from operations	<b>8,110</b>	<b>(11,624)</b>	<b>9,366</b>	<b>(37,348)</b>
Finance income	(378)	(140)	(871)	(522)
Finance expense	62	78	341	157
Foreign exchange loss (gain)	(172)	91	150	(74)
Other income	(119)	(247)	(373)	(1,153)
Income (loss) before taxes	<b>8,717</b>	<b>(11,406)</b>	<b>10,119</b>	<b>(35,756)</b>
Current income tax expense	1,275	755	5,308	651
Deferred income tax recovery	(1,893)	(2,880)	(83)	(7,216)
Income tax expense (recovery)	<b>(618)</b>	<b>(2,125)</b>	<b>5,225</b>	<b>(6,565)</b>
<b>Net income (loss)</b>	<b>\$ 9,335</b>	<b>\$ (9,281)</b>	<b>\$ 4,894</b>	<b>\$ (29,191)</b>
<b>Net income (loss) per share</b>				
Basic	\$ 0.08	\$ (0.08)	\$ 0.04	\$ (0.25)
Diluted	\$ 0.08	\$ (0.08)	\$ 0.04	\$ (0.25)
<b>Weighted average number of common shares</b>				
Basic	118,817,466	118,817,466	118,817,466	118,752,303
Diluted	118,817,466	118,817,466	118,817,466	118,752,303

Consolidated revenues for the quarter ended September 30, 2019 (“Q3 19”) were \$25.4 million as compared to \$19.6 million in 2018 representing an increase of \$5.8 million or approximately 30%. The growth year over year was largely driven by growth in software license revenues generated by VIZIYA, principally as a result of one large license signed late in July and with revenue recognized in September once certain warranty and customer acceptance conditions were fully satisfied.

The components of our revenue are as noted below:

License	License revenues include all revenues associated with technology licenses, perpetual software licenses and other revenues characterized as one-time licenses.
Systems	Systems revenues include revenues earned on contracted projects, generally recognized on a percentage completion basis plus proprietary and OEM products sales, which are distributed directly and through a network of distributor/agency relationships. These projects generally result in the delivery of a complete system to the customer.
Services	Services revenues include revenues generated from the provision of professional services sold on a time and material consulting basis.
Recurring	Recurring revenues represents revenues realized under service and maintenance contracts, software maintenance contracts, hosted “software as a service” applications, revenues from running royalties and data analytics services. The underlying contracts included in this category generally range from one to five years. Recurring revenues are recognized on either a percentage completion basis, time and material basis, or ratably over the duration of the contract, depending on contract terms.

For the 2019 third quarter: (1) License revenues were \$10.5 million, reflecting \$3.6 million in technology licenses granted and \$6.9 million in software licenses (please refer to the “Segmented Results” section of this MD&A); (2) Systems revenues generated within our Intelligent Systems Segment were \$9.5 million; (3) Services revenues were \$0.6 million; and (4) Recurring revenues, on a consolidated basis, were \$4.7 million.

Gross margin, calculated as revenues less cost of revenues (excluding depreciation and amortization), for the quarter was \$10.3 million or 41% and reflects the overall gross margin across all of our vertical segments. For the third quarter of 2019, our WiLAN business generated a gross margin of (\$2.8) million as compared to (\$1.4) million for the comparable period last year principally as a result of slightly lower revenues year over year. Gross margin in the Intelligent Systems Segment was \$4.7 million or approximately 36%, which is similar to the preceding quarter. Gross margin in the Enterprise Software Segment was approximately 96% owing in large part to the significant software license revenues recognized at the end of quarter.

Our cost of revenues includes: (i) for our Licensing Segment, all costs of conducting licensing programs including staffing, litigation, patent ownership related costs and contingent litigation and partner payments; (ii) for our Intelligent Systems Segment, all costs of delivering on a project including staff costs, inventory consumption costs, subcontractor costs and costs related to any maintenance and warranty work completed; and (iii) for our Enterprise Software Segment, all staff costs necessary for the delivery of consulting services.

Our operating expenses at \$13.7 million for the quarter include selling, general and administrative expenses, research and development expenses, depreciation of property, plant and equipment and amortization of intangible assets all of which are approximately 5% lower than the comparable period last year. During the quarter we reversed a previous

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accrual for contingent consideration resulting in an \$11.6 million recovery which would be compared to an expense of \$2.3 million recorded in the same period last year. For a discussion on this reversal, see the “Enterprise Software Segment” section of this MD&A.

Finance income principally represents interest earned on cash balances held. To the extent we have much higher average cash balances during the quarter as compared to the same period last year, the expected interest income will be increased from comparative levels. Finance income was \$0.4 million for the quarter as compared to \$0.1 million last year. Finance expense represents interest expense on debt carried within our operating subsidiaries. Each of IRD and VIZIYA has bank debt and, as a result, will have finance expense on a normal basis.

We may finance part of our growth through the issuance of long-term debt, when appropriate, which will have a finance expense component. To the extent we arrange for and draw upon such debt, finance expense can be expected to increase in future periods.

Other expense (income) captures all other expenses or income items not otherwise accounted for elsewhere in our consolidated statement of operations. For the quarter, this income of \$0.1 million represents IRD’s proportionate share in the profits of its joint venture Xuzhou-PAT Control Technologies Limited (“XPCT”) (please refer to the “Intelligent Systems Segment” section of this MD&A).

Income tax expense for the quarter was a net recovery of \$0.6 million, comprised of \$1.3 million in current tax expense offset by deferred income tax recovery of \$1.9 million. We experienced a profit in the third quarter of 2019 (excluding Special charges which are not tax deductible), a significant component of which was within the VIZIYA subsidiary in Canada which gave rise to approximately \$1.0 million in current tax expense. WiLAN’s operating losses during the quarter increased its overall tax loss carryforwards which results in a deferred income tax recovery during the quarter. Quarterhill continues to recover all of its operating expenses from its subsidiaries and as a result, is recording deferred tax expense arising from the utilization of non-capital tax loss carryforwards.

We have assigned probabilities to our expected future taxable income based on significant risk factors, sensitivity analysis and timing of non-capital tax losses. The amount of the deferred income tax asset considered realizable could change materially in the near term, based on future taxable income during the carryforward period.

We reported a net income for the quarter of \$9.3 million or \$0.08 per basic and diluted Common Share. Our acquired businesses generated net income during the quarter of \$4.5 million as compared to a net loss of \$1.8 million for the same period last year principally resulting from higher revenues in the Enterprise Software Segment.

#### *Reconciliation of Net Income to Adjusted EBITDA*

We consider Adjusted EBITDA, a non-GAAP measure, to be a good indicator of performance for the business as it more accurately captures financial performance in a given period related to the operations of Quarterhill and each of our reporting segments.

We reported Adjusted EBITDA of \$2.0 million for the quarter as compared to (\$2.5) million for the comparative period last year representing an increase of \$4.5 million year over year. With the creation of Quarterhill and the adoption of a growth-oriented strategy anchored in acquisitions of technology businesses, we began tracking expenses related to the acquisitions and separately classified them in our condensed consolidated interim statements of operations. For the third quarter of 2019, we did not have any Special charges related to acquisitions, which would generally consist of advisor fees, accounting and valuation fees, due diligence related expenses and legal fees. Although these expenses will recur as we complete additional acquisitions, they are not related to the actual operations of the business and, therefore, will be excluded in the calculation of Adjusted EBITDA. We did have restructuring charges within the Licensing Segment, related principally to leasehold improvement disposals undertaken in the quarter as a result of relocating WiLAN to

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smaller, more cost-effective facilities. This charge was a non-cash charge. We also had a recovery related to the revaluation of contingent consideration payable arising from the acquisition of VIZIYA in 2017 (see discussion under “Enterprise Software Segment” below). The remaining adjustments we have made relate to income tax, foreign exchange, finance income or expense, depreciation and amortization, stock-based compensation, other income, other acquisition related accounting items and other one-time charges.

From time to time, we acquire businesses in purchase transactions that typically result in the recognition of goodwill and other identifiable intangible assets. Acquired goodwill is not amortized but is subject to impairment testing at least annually and as other events and circumstances dictate. Other identifiable intangible assets are typically subject to amortization and therefore will likely increase future expenses. The determination of the value of such intangible assets requires us to make estimates and assumptions. We have ascribed value to identifiable intangible assets other than goodwill in our purchase price allocations including but not limited to backlog, brand and customer and technology related intangible assets. To the extent we ascribe value to identifiable intangible assets that have finite lives, we amortize those values over the estimated useful lives of the assets. We are amortizing customer related intangible assets over a period of seven years and developed software related intangible assets over five years.

Deferred revenue is a key metric of our business because it indicates a level of sales already made that will be recognized as revenue in the future. As required by GAAP, in determining the fair value of the liabilities assumed under purchase accounting, the acquired deferred revenue is to be recorded at fair value to the extent it represents an assumed legal obligation. The estimated fair value of the deferred revenue will likely result in an adjustment reducing the consolidated deferred revenue upon acquisition. To evaluate the ordinary course operations of our acquired businesses, we will add back this deleted revenue in the calculation of Adjusted EBITDA.

Adjusted EBITDA	Three months ended September 30,		Nine months ended September 30,	
	2019	2018	2019	2018
Net income (loss)	\$ 9,335	\$ (9,281)	\$ 4,894	\$ (29,191)
Adjusted for:				
Income tax expense (recovery)	(618)	(2,125)	5,225	(6,565)
Foreign exchange loss (gain)	(172)	91	150	(74)
Finance expense	62	78	341	157
Finance income	(378)	(140)	(871)	(522)
Special charges	(11,570)	2,320	907	2,320
Amortization of intangibles	5,134	6,298	15,578	19,491
Depreciation of property, plant and equipment	181	372	921	1,155
Effect of deleted deferred revenue	-	8	-	314
Stock-based compensation	194	114	603	268
Other income	(119)	(247)	(373)	(1,153)
<b>Adjusted EBITDA</b>	<b>\$ 2,049</b>	<b>\$ (2,512)</b>	<b>\$ 27,375</b>	<b>\$ (13,800)</b>

Adjusted EBITDA per share

Net income (loss)	\$ 0.08	\$ (0.08)	\$ 0.04	\$ (0.25)
Adjusted for:				
Income tax expense (recovery)	(0.01)	(0.02)	0.03	(0.06)
Foreign exchange loss (gain)	-	-	-	-
Finance expense	-	-	-	-
Finance income	-	-	-	-
Special charges	(0.10)	0.02	-	0.02
Amortization of intangibles	0.04	0.05	0.12	0.16
Depreciation of property, plant and equipment	-	-	-	-
Effect of deleted deferred revenue	-	-	-	-
Stock-based compensation	-	-	-	-
Other income	-	-	-	-
<b>Adjusted EBITDA per share</b>	<b>\$ 0.01</b>	<b>\$ (0.03)</b>	<b>\$ 0.19</b>	<b>\$ (0.13)</b>

Weighted average number of Common Shares

Basic	118,817,466	118,817,466	118,817,466	118,752,303
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Our cash, cash equivalents and short-term investments, inclusive of any restricted amounts, was \$72.1 million at September 30, 2019 as compared to \$67.3 million at December 31, 2018. During the third quarter of 2019, we used \$9.8 million from operations, paid dividends of \$1.1 million and purchased \$0.3 million in property and equipment. Cash used in operations is directly impacted by an increase in accounts receivable, a significant portion of which was collected after the end of the quarter, and a decrease in accounts payable and accrued liabilities principally in our Licensing Segment.

## SEGMENTED RESULTS

Segmented results of operations for the three and nine months ended September 30, 2019 and 2018 are included in this MD&A.

	For the three months ended September 30, 2019					Total
	Licensing	Intelligent Systems	Enterprise Software	Corporate		
Revenues	\$ 3,765	\$ 12,853	\$ 8,751	\$ -	\$ -	\$ 25,369
Cost of revenues (excluding depreciation and amortization)	6,584	8,143	372	-	-	15,099
	(2,819)	4,710	8,379	-	-	10,270
Selling, general and administrative expenses	481	2,512	2,114	2,079	-	7,186
Research and development expenses	-	572	657	-	-	1,229
Depreciation of property, plant and equipment	9	129	39	4	-	181
Amortization of intangibles	3,424	953	757	-	-	5,134
Special charges	7	-	-	(11,577)	-	(11,570)
Results from operations	(6,740)	544	4,812	9,494	-	8,110
Finance income	(147)	(9)	-	(222)	-	(378)
Finance expense	-	61	1	-	-	62
Foreign exchange loss (gain)	114	(221)	(13)	(52)	-	(172)
Other income	-	(119)	-	-	-	(119)
Income (loss) before taxes	(6,707)	832	4,824	9,768	-	8,717
Current income tax expense	4	222	1,049	-	-	1,275
Deferred income tax expense (recovery)	(2,058)	(203)	42	326	-	(1,893)
Income tax expense (recovery)	(2,054)	19	1,091	326	-	(618)
Net income (loss)	\$ (4,653)	\$ 813	\$ 3,733	\$ 9,442	\$ -	\$ 9,335
Adjusted EBITDA	(3,291)	1,648	5,622	(1,930)	-	2,049
<i>Other reconciling items:</i>						
Stock-based compensation	9	22	14	149	-	194

	For the nine months ended September 30, 2019					Total
	Licensing	Intelligent Systems	Enterprise Software	Corporate		
Revenues	\$ 56,633	\$ 36,977	\$ 13,953	\$ -	\$ -	\$ 107,563
Cost of revenues (excluding depreciation and amortization)	31,360	24,328	1,035	-	-	56,723
	25,273	12,649	12,918	-	-	50,840
Selling, general and administrative expenses	1,506	7,602	5,132	6,183	-	20,423
Research and development expenses	-	1,780	1,865	-	-	3,645
Depreciation of property, plant and equipment	80	723	106	12	-	921
Amortization of intangibles	10,468	2,839	2,271	-	-	15,578
Special charges	1,836	-	-	(929)	-	907
Results from operations	11,383	(295)	3,544	(5,266)	-	9,366
Finance income	(204)	(15)	-	(652)	-	(871)
Finance expense	-	337	3	1	-	341
Foreign exchange loss (gain)	(254)	26	35	343	-	150
Other income	(3)	(370)	-	-	-	(373)
Income (loss) before taxes	11,844	(273)	3,506	(4,958)	-	10,119
Current income tax expense	3,951	307	1,050	-	-	5,308
Deferred income tax expense (recovery)	1,790	(1,160)	(461)	(252)	-	(83)
Income tax expense (recovery)	5,741	(853)	589	(252)	-	5,225
Net income (loss)	\$ 6,103	\$ 580	\$ 2,917	\$ (4,706)	\$ -	\$ 4,894
Adjusted EBITDA	23,766	3,346	5,964	(5,701)	-	27,375
<i>Other reconciling items:</i>						
Stock-based compensation	(1)	79	43	482	-	603

	For the three months ended September 30, 2018				
	Licensing	Intelligent Systems	Enterprise Software	Corporate	Total
Revenues	\$ 4,445	\$ 12,439	\$ 2,695	\$ -	\$ 19,579
Cost of revenues (excluding depreciation and amortization)	5,877	8,208	355	-	14,440
	(1,432)	4,231	2,340	-	5,139
Selling, general and administrative expenses	761	2,211	1,828	2,071	6,871
Research and development expenses	-	534	368	-	902
Depreciation of property, plant and equipment	62	275	32	3	372
Amortization of intangibles	4,581	960	757	-	6,298
Special charges	-	2,320	-	-	2,320
Results from operations	(6,836)	(2,069)	(645)	(2,074)	(11,624)
Finance income	(3)	(2)	-	(135)	(140)
Finance expense	-	72	4	2	78
Foreign exchange loss (gain)	(223)	108	32	174	91
Other income	-	(247)	-	-	(247)
Loss before taxes	(6,610)	(2,000)	(681)	(2,115)	(11,406)
Current income tax expense (recovery)	912	(41)	(116)	-	755
Deferred income tax recovery	(2,103)	(504)	(264)	(9)	(2,880)
Income tax recovery	(1,191)	(545)	(380)	(9)	(2,125)
Net loss	\$ (5,419)	\$ (1,455)	\$ (301)	\$ (2,106)	\$ (9,281)
Adjusted EBITDA	(2,178)	1,442	158	(1,934)	(2,512)
<i>Other reconciling items:</i>					
Effect of deleted deferred revenue	-	8	-	-	8
Stock-based compensation	15	(52)	14	137	114

	For the nine months ended September 30, 2018				
	Licensing	Intelligent Systems	Enterprise Software	Corporate	Total
Revenues	\$ 10,188	\$ 32,510	\$ 9,287	\$ -	\$ 51,985
Cost of revenues (excluding depreciation and amortization)	19,797	21,789	1,127	-	42,713
	(9,609)	10,721	8,160	-	9,272
Selling, general and administrative expenses	1,999	7,497	5,130	6,334	20,960
Research and development expenses	-	1,593	1,101	-	2,694
Depreciation of property, plant and equipment	209	849	91	6	1,155
Amortization of intangibles	14,297	2,923	2,271	-	19,491
Special charges	-	2,320	-	-	2,320
Results from operations	(26,114)	(4,461)	(433)	(6,340)	(37,348)
Finance income	(3)	(9)	-	(510)	(522)
Finance expense	1	144	10	2	157
Foreign exchange loss (gain)	334	(164)	51	(295)	(74)
Other income	-	(884)	(269)	-	(1,153)
Loss before taxes	(26,446)	(3,548)	(225)	(5,537)	(35,756)
Current income tax expense (recovery)	1,137	158	(645)	1	651
Deferred income tax expense (recovery)	(6,928)	(1,138)	(749)	1,599	(7,216)
Income tax expense (recovery)	(5,791)	(980)	(1,394)	1,600	(6,565)
Net income (loss)	\$ (20,655)	\$ (2,568)	\$ 1,169	\$ (7,137)	\$ (29,191)
Adjusted EBITDA	(11,582)	1,891	2,101	(6,210)	(13,800)
<i>Other reconciling items:</i>					
Effect of deleted deferred revenue	-	166	148	-	314
Stock-based compensation	26	94	24	124	268

### Licensing Segment

Our Licensing Segment presently comprises the operations of WiLAN.

Licensing Segment	For the three months ended September 30,		For the nine months ended September 30,	
	2019	2018	2019	2018
Revenues	\$ 3,765	\$ 4,445	\$ 56,633	\$ 10,188
Cost of revenues (excluding depreciation and amortization)	6,584	5,877	31,360	19,797
	(2,819)	(1,432)	25,273	(9,609)
Selling, general and administrative expenses	481	761	1,506	1,999
Depreciation of property, plant and equipment	9	62	80	209
Amortization of intangibles	3,424	4,581	10,468	14,297
Special charges	7	-	1,836	-
Results from operations	(6,740)	(6,836)	11,383	(26,114)
Finance income	(147)	(3)	(204)	(3)
Finance expense	-	-	-	1
Other income	-	-	(3)	-
Foreign exchange loss (gain)	114	(223)	(254)	334
Income (loss) before taxes	(6,707)	(6,610)	11,844	(26,446)
Current income tax expense	4	912	3,951	1,137
Deferred income tax expense (recovery)	(2,058)	(2,103)	1,790	(6,928)
Income tax expense (recovery)	(2,054)	(1,191)	5,741	(5,791)
Net income (loss)	\$ (4,653)	\$ (5,419)	\$ 6,103	\$ (20,655)
Adjusted EBITDA	\$ (3,291)	\$ (2,178)	\$ 23,766	\$ (11,582)

For the three months ended September 30, 2019 revenues of \$3.8 million were relatively consistent with \$4.4 million for the same period in the prior year. Virtually all of WiLAN's licenses are one-time in nature and accordingly significant fluctuations in revenue, gross margin, and Adjusted EBITDA will result when similar volume or dollar value of licenses are entered into from one period to the next.

Under U.S. GAAP patent licenses are considered licenses to functional intellectual property. The standard specifically outlines that patents, underlying highly functional items, are considered functional intellectual property ("IP"). Licenses to functional IP are considered satisfied at a point in time (i.e. when the license becomes effective) and all the revenue is recognized at that point in time. The one exception to this guidance is related to revenue generated from sales or usage-based royalties promised in exchange for a license of IP. Customers generally report their royalty obligations one quarter in arrears and accordingly, we will estimate the expected royalties to be reported for a particular accounting period, with a true up to the actual royalties reported in the following financial reporting period.

Cost of revenues (excluding depreciation and amortization) is comprised of patent licensing expenses which includes royalty obligations, cost of patents sold through brokerage activities (if any), employee-related costs and other costs incurred in conducting license negotiations, contingent partner and legal fee payment and other litigation expenses as well as all costs associated with the ownership and management of WiLAN's patent portfolio. Many of these costs are directly related to the size and breadth of the patent portfolio and, therefore, as WiLAN adds or reduces patents, these costs would be expected to increase or decrease accordingly.

Cost of revenues (excluding depreciation and amortization) for the three months ended September 30, 2019 were \$6.6 million as compared to \$5.9 million for the same period last year representing an increase of \$0.7 million. The variability in cost of revenues from quarter to quarter is principally a result of litigation expenses inclusive of contingent litigation and contingent partner payments. Total litigation expenses have increased principally from contingent litigation and contingent partner payments which have increased from \$0.6 million for the three months ended September 30, 2018 to \$2.3 million for the three months ended September 30, 2019. This was result of the type of licenses signed in the third quarter of 2019 in comparison to the third quarter of 2018. For the three months ended September 30, 2019, WiLAN incurred relatively consistent non-contingent litigation expenses of \$2.3 million in comparison to \$2.6 million for the

same period last year. The remainder of the cost of revenue expenses have decreased year over year given the restructurings undertaken in fiscal 2018.

Operating expenses are generally considered selling, general and administration type expenses and include all overheads for WiLAN operations in addition to depreciation and amortization expense. For the three months ended September 30, 2019 operating expenses within this segment were \$3.9 million which included \$3.4 million in depreciation and amortization. Selling, general and administrative expenses were \$0.5 million in the third quarter of 2019 which is comparable to prior reporting periods.

Income tax expense for the quarter was a recovery of \$2.1 million and was comprised almost entirely of a deferred income tax expense recovery of \$2.1 million. Current income tax expense for all reported periods consisted of foreign taxes withheld on payments received from licensees in foreign tax jurisdictions for which there is no treaty relief. A significant portion of the loss before income taxes of \$6.7 million reported by the Licensing Segment was incurred in Canada where we generally record deferred tax assets. We therefore have a deferred income tax expense recovery in the period resulting from increasing the loss carryforward tax assets.

There is a valuation allowance of \$13.9 million as at September 30, 2019 against deferred tax assets for certain of WiLAN's Canadian and all of its U.S. subsidiaries. A valuation allowance is established for any portion of deferred tax assets for which management believes it is more likely than not that WiLAN will be unable to utilize the assets to offset future taxes. We expect WiLAN to continue to utilize certain previously recognized Canadian loss carryforwards which will result in deferred income tax expense. Until such time as WiLAN's licensing programs in certain of its Canadian and U.S. subsidiaries generate sufficient taxable income, we expect to continue to maintain a full valuation allowance against deferred tax assets for these Canadian and U.S. subsidiaries.

### Intelligent Systems Segment

Our Intelligent Systems Segment consists of IRD's operations.

Intelligent Systems Segment	For the three months ended September 30,		For the nine months ended September 30,	
	2019	2018	2019	2018
Revenues	\$ 12,853	\$ 12,439	\$ 36,977	\$ 32,510
Cost of revenues (excluding depreciation and amortization)	8,143	8,208	24,328	21,789
	4,710	4,231	12,649	10,721
Selling, general and administrative expenses	2,512	2,211	7,602	7,497
Research and development expenses	572	534	1,780	1,593
Depreciation of property, plant and equipment	129	275	723	849
Amortization of intangibles	953	960	2,839	2,923
Special charges	-	2,320	-	2,320
Results from operations	544	(2,069)	(295)	(4,461)
Finance income	(9)	(2)	(15)	(9)
Finance expense	61	72	337	144
Foreign exchange loss (gain)	(221)	108	26	(164)
Other income	(119)	(247)	(370)	(884)
Income (loss) before taxes	832	(2,000)	(273)	(3,548)
Current income tax expense (recovery)	222	(41)	307	158
Deferred income tax recovery	(203)	(504)	(1,160)	(1,138)
Income tax expense (recovery)	19	(545)	(853)	(980)
Net income (loss)	\$ 813	\$ (1,455)	\$ 580	\$ (2,568)
Adjusted EBITDA	\$ 1,648	\$ 1,442	\$ 3,346	\$ 1,891

IRD revenue streams are categorized as either Systems or Recurring. Systems revenues comprises revenues earned on

contracted projects, generally recognized over time, plus proprietary and OEM products sales, which are distributed directly and through its network of distributor/agency relationships. Recurring revenues represent revenue realized under service and maintenance contracts and generally ranges from one to five year terms. Recurring revenues are recognized either over time or on a time and material basis, depending on contract terms.

Segment revenue from Systems for the three months ended September 30, 2019 was \$9.5 million as compared to \$7.9 million for the prior year comparative period. The increase in third quarter revenues compared to the prior year reflects successful delivery on several large value contracted projects underway in the United States and overseas international markets in the quarter.

Recurring revenue for the three months ended September 30, 2019 was \$3.3 million as compared to \$4.6 million in the prior year comparative period representing a decrease of 27%. The decrease in recurring revenue compared to the prior year quarter is reflective of significant system upgrades that occurred in the prior year which are a component of service contracts performed on a time and materials basis. Throughout 2019, IRD has achieved a 100% renewal rate on all term maintenance contracts and continues to see strong levels of service activity to meet customer demands, primarily in the U.S. market.

Gross margin as a percentage of revenue realized in the third quarter was 37%, an increase of 3% over the prior year quarter arising from the profitability of several larger projects underway in 2019. Gross margins are subject to significant variance each reporting period due to factors such as changes in product mix, currency volatility, competitive factors, and utilization of fixed capacity expenses included in cost of revenues. Over a full fiscal year, gross margin percentages generally will approximate 32% to 34%.

Operating expenses, consisting of selling, general and administrative expenses, research and development expenses (“R&D”) and depreciation and amortization expenses for the three months ended September 30, 2019 remained within expectations as further outlined below.

IRD is committed to continual investments in research and development to enhance its current products and advance the availability of new products. For the three months ended September 30, 2019, net R&D spending levels were \$0.6 million or 4.4% of segment revenue representing a slight increase year over year. Current investments reflect the priority of ensuring full development of the Vehicle Information-In-Motion™ (VI<sup>2</sup>M™) Traffic Intelligence system as well as several other new product developments and enhancements. Total R&D expenses have been offset, in part, by certain government grant recoveries that have enabled IRD to accelerate its R&D activities particularly in the area of data analytics and new non-intrusive sensor technologies. Estimated investment tax credits accruing on eligible scientific research expenditures in Canadian operations are recorded as a reduction of income tax expense under U.S. GAAP. The value of accrued investment tax credits will vary from period to period based on the estimated portion of R&D costs considered eligible scientific research expenditures under Canadian tax rules.

Selling, general and administrative expenses comprise the operating costs of IRD and its subsidiary businesses in support of its selling, marketing and administrative activities. The increase in costs incurred for the three months ended September 30, 2019 compared to the prior year quarter reflects additional investments in sales and marketing initiatives undertaken in 2019 and commission payments on certain international sales as compared to the third quarter of last year.

Certain operations equipment was fully depreciated by the end of the second quarter of 2019, resulting in a reduction in depreciation charges in the current quarter as compared to the prior year comparative period.

IRD is exposed to foreign exchange risk primarily relating to sales revenue, operating and capital expenditures, net assets held in foreign currencies, forward exchange contracts and embedded derivative portions of unearned revenue

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on certain U.S. dollar denominated sales contracts in its North America, Latin America and Mexico markets. IRD has exposure to the U.S. dollar, Euro, Indian rupee, Chilean peso, Mexican peso and Chinese yuan.

For the three months ended September 30, 2019, IRD recorded foreign exchange gains of \$0.2 million reflecting the change in the value of the U.S. dollar relative to the Canadian dollar and Chilean peso, which increases or decreases the carrying value of U.S. dollar net assets. IRD partially reduces its exposure to the U.S. dollar foreign exchange volatility relative to the Canadian dollar, its functional currency, by maintaining a portion of its bank indebtedness in U.S. funds.

Foreign exchange translation gains or losses arising on consolidation of IRD's subsidiaries in Chile, Mexico, Belgium and India and its joint venture in China are recorded as accumulated other comprehensive income, which is a component of shareholders' equity.

Finance costs are comprised of interest charges on bank indebtedness and long-term debt. Interest costs will vary from month to month depending on the level of bank indebtedness and changes in interest rates.

Other income is comprised of IRD's share of income in its joint venture, XPCT, of which IRD owns a 50% joint venture interest. XPCT has two business divisions providing products and services to both the ITS Industry and construction equipment manufacturers. For the three months ended September 30, 2019, IRD recorded its share of XPCT's income of \$0.1 million, attributable to the positive contribution of the wire harness division.

The effective tax rate can vary from the Canadian statutory tax rate of approximately 26.5% applied to loss before income taxes because of different rates of tax on foreign income, XPCT net earnings and foreign currency translation gains or losses on consolidation of foreign subsidiaries. As a result, the consolidated effective tax rate is not representative of income tax rates effective in the jurisdictions in which IRD operates.

As at September 30, 2019, IRD has recorded estimated income taxes payable or receivable in each of its Canada, United States and Chile entities based on statutory rates applicable to those jurisdictions, adjusted for non-taxable or non-deductible items and net of applied investment tax credit balances available to offset income taxes otherwise payable in the Canadian corporate entity.

### Enterprise Software Segment

Our Enterprise Software Segment comprises VIZIYA's operations for the three and nine months ended September 30, 2019 and 2018.

Enterprise Software Segment	For the three months ended September 30,		For the nine months ended September 30,	
	2019	2018	2019	2018
Revenues	\$ 8,751	\$ 2,695	\$ 13,953	\$ 9,287
Cost of revenues (excluding depreciation and amortization)	372	355	1,035	1,127
	8,379	2,340	12,918	8,160
Selling, general and administrative expenses	2,114	1,828	5,132	5,130
Research and development expenses	657	368	1,865	1,101
Depreciation of property, plant and equipment	39	32	106	91
Amortization of intangibles	757	757	2,271	2,271
Results from operations	4,812	(645)	3,544	(433)
Finance expense	1	4	3	10
Foreign exchange (gain) loss	(13)	32	35	51
Other income	-	-	-	(269)
Income (loss) before taxes	4,824	(681)	3,506	(225)
Current income tax expense (recovery)	1,049	(116)	1,050	(645)
Deferred income tax expense (recovery)	42	(264)	(461)	(749)
Income tax expense (recovery)	1,091	(380)	589	(1,394)
Net income (loss)	\$ 3,733	\$ (301)	\$ 2,917	\$ 1,169
Adjusted EBITDA	\$ 5,622	\$ 158	\$ 5,964	\$ 2,101

Revenues recorded in this segment for the third quarter were \$8.8 million consisting of \$6.9 million in software licenses, \$0.6 million in services revenues and \$1.3 million in software maintenance revenues. License revenues are one-time non-recurring in nature with little to no additional cost necessary to deliver the software license. Accordingly, one or more software licenses concluded in a financial reporting period could have significant impact on revenues, gross margin and Adjusted EBITDA.

VIZIYA's product sales are generally to asset intensive companies including those operating in the oil and gas, mining and heavy metals industries. These industries have generally been depressed over the past five to eight years which has made them more hesitant to make capital investments in new technologies such as those VIZIYA sells. Despite these economic difficulties, VIZIYA has been able to generate new product licenses, incremental services revenues and increased related recurring maintenance revenue streams. VIZIYA is also seeing increased interest from their customers for the provision of their software through a subscription model which, when adopted, is expected to increase recurring revenue streams as we have defined them.

Cost of revenues (excluding depreciation and amortization) principally relates to the services revenues recorded and consists principally of employee costs for those employed in the provision of professional services. Operating expenses amounting to \$3.6 million in the quarter mainly consist of research and development expenses of approximately \$0.7 million which is principally employee costs and \$2.1million in selling, general and administrative costs. Operating expenses increased year over year with increased investment in research and development aimed at significantly increasing product breadth and increased selling costs associated with the license agreements signed in the quarter. Amortization of intangibles in the quarter of \$0.8 million relates to the customer, brand and developed software identified intangible assets arising from the acquisition of VIZIYA. We add these expenses back in the determination of the Adjusted EBITDA as they relate solely to the acquisition and would not normally have been incurred in the operation of this software business. As a result, Adjusted EBITDA is \$5.6 million for the quarter as compared to \$0.2 million for the same period last year. The increase in Adjusted EBITDA is principally related to the significantly higher license revenues.

In connection with the acquisition of VIZIYA on May 4, 2017, subject to the terms of the acquisition agreement, we agreed to pay the former owners of VIZIYA up to an additional \$11.9 million if VIZIYA achieved certain earnings before interest, taxes and amortization (“Eligible Earnings”) targets for the period from April 1, 2017 to July 31, 2019. This amount would have consisted of cash consideration of up to \$6.0 million and the issuance of up to 3,647,417 additional Common Shares. Additionally, subject to the terms of the acquisition agreement, if VIZIYA achieved cumulative Eligible Earnings during that period exceeding \$11.9 million, then we would be required to pay 50% of that excess Eligible Earnings as additional contingent consideration until that cumulative Eligible Earnings reached a cap of \$24 million. The liability associated with the anticipated payment of the contingent consideration obligation was preliminarily valued at \$6.45 million at the acquisition date. This estimate was calculated using the Monte Carlo simulations model. We had subsequently revalued this contingent liability downward to \$929 based on actual results to March 31, 2019 and our estimate of expected Eligible Earnings through to July 31, 2019.

On July 31, 2019, VIZIYA management represented to us that it had entered into two agreements for the sale of perpetual software licenses which may have qualified as Eligible Earnings pursuant to the acquisition agreement for purposes of the contingent consideration earn-out payment. As these revenue contracts were entered into subsequent to June 30, 2019 but prior to the issuance of the second quarter interim financial statements, we were required to consider these contracts in estimating the fair value of the contingent consideration liability and recognized a liability of \$11,577 with a corresponding acquisition-related compensation expense of \$10,648 within “Special charges”.

During the quarter ended September 30, 2019, however, we determined that revenue under the contracts could not be recognized as at July 31, 2019 and that VIZIYA did not achieve the minimum amount of cumulative Eligible Earnings required as at July 31, 2019. As such, we have reversed the total accrual for contingent consideration recognizing a gain in the three months ended September 30, 2019 of \$11,577.

The former shareholders of VIZIYA may not agree with our determination of Eligible Earnings and they may require arbitration of that calculation as permitted pursuant to the terms of the acquisition agreement. The results of any arbitration may, or may not, result in a determination that the former shareholders may be entitled to be paid some or all of the earn out under the acquisition agreement.

## SELECTED CONSOLIDATED QUARTERLY RESULTS

(Unaudited)

Historically, our quarterly revenues were affected by the amount and timing of fixed payment-based licenses, the amount of running royalty-based licenses and any new lump sum payment-based licenses signed in a quarter. Given these factors, quarterly revenues have fluctuated and have been difficult to predict. The creation of Quarterhill as a disciplined acquirer and manager of established technology companies with a diverse offering of products and services worldwide provides a diversification that we believe may assist in mitigating the variability in our quarterly revenues. We do not have sufficient operating history in this diversified business to be able to identify any significant trends.

Quarter ended	Revenues \$ 000's	Net income (loss) \$ 000's	Net income (loss) per share (Basic) \$	Adjusted EBITDA * \$ 000's	Adjusted EBITDA per share * (basic) \$
September 30, 2019	25,369	9,335	0.08	2,049	0.01
June 30, 2019	42,356	(4,470)	(0.04)	12,866	0.09
March 31, 2019	39,838	29	0.00	12,460	0.09
December 31, 2018	25,416	(19,929)	(0.17)	3,163	0.02
September 30, 2018	19,579	(9,281)	(0.08)	(2,512)	(0.03)
June 30, 2018	20,397	(7,865)	(0.07)	(3,951)	(0.04)
March 31, 2018	12,009	(12,045)	(0.10)	(7,337)	(0.06)
December 31, 2017	22,625	(12,365)	(0.10)	1,484	0.01

\*Adjusted EBITDA and the respective per share amounts are non-GAAP measures, please refer to "Non GAAP Disclosures" and "Reconciliation of Net Income to Adjusted EBITDA" sections of this MD&A

Historically, our operating results have fluctuated on a quarterly basis and we expect that quarterly results will continue to fluctuate in the future. The operating results for interim periods should not be relied upon as an indication of the results to be expected or achieved in any future period or any fiscal year as a whole. The factors affecting our revenue and results, many of which are outside of our control, include the factors set out in our AIF.

## CAPITAL AND LIQUIDITY

Our cash, cash equivalents and short-term investments, inclusive of any restricted amounts, totaled \$72.1 million at September 30, 2019 as compared to \$67.3 million at December 31, 2018 representing an increase of \$4.8 million. During the three months ended September 30, 2019 we used \$9.8 million from operations, paid dividends of \$1.1 million, and made minor investments in capital assets.

At September 30, 2019, we had working capital of \$77.1 million and long-term debt of \$0.2 million.

We have a revolving credit facility available in the amount of CDN\$8.0 million or the equivalent in U.S. dollars for general corporate purposes and a further CDN\$2.0 million for foreign exchange facility. Canadian dollar or U.S. dollar amounts advanced under this credit facility are payable on demand and bear interest at the bank's Canadian prime rate plus 1.0% per annum or U.S. base rate plus 1.0% per annum. Borrowings under this facility are collateralized by a general security agreement over our cash and cash equivalents, receivables and present and future personal property. As at and during the three months ended September 30, 2019, we had no borrowings under this facility.

IRD has a credit facility through HSBC Bank Canada ("HSBC") which may be borrowed against by way of banker's acceptances at prevailing market rates to a maximum of CDN\$9.5 million or by way of U.S. dollar advances to a maximum of U.S. \$7.6 million. Borrowings on this facility are restricted to the lesser of \$7.6 million and the margin total

on the following assets in Canada and the U.S., 90% of secured and government accounts receivable less than 120 days and 50% of inventory to a maximum of CDN\$3.0 million. As at September 30, 2019 approximately \$3.6 million was available to be drawn.

IRD's credit facility and demand term loans with HSBC are secured by a general security agreement on IRD's assets held in Canada having a carrying value at September 30, 2019 of \$20.6 million. In addition, IRD's subsidiaries in the United States, Chile and India have provided corporate guarantees as security.

IRD is subject to covenants on its credit facility and long-term debt with HSBC as follows: current ratio greater than 1.2 to 1 (tested quarterly); debt to tangible net worth less than 2.5 to 1 (tested quarterly); and debt service coverage ratio greater than 1.25 to 1 (tested annually) based on IRD's financial results. At September 30, 2019, IRD is in compliance with these covenants.

VIZIYA has a credit facility through TD Canada Trust ("TD") in the form of an operating line of credit in the amount of CDN \$0.5 million. This facility is secured by a general security agreement over VIZIYA and a floating charge on accounts receivable of VIZIYA and is renewed annually. This facility bears interest at TD's prime rate plus 2.0%, as well as a standby charge for any undrawn funds.

We plan to use our cash resources to fund our operations, provide incremental financing to any of our subsidiaries if needed and to acquire additional businesses. Operating cash flows may vary significantly between periods due to changes in working capital balances. We may also fund our ongoing cash requirements through the use of additional short-term and long-term debt and, if desirable based on market conditions, by selling Common Shares and debt securities to the public.

## **OUTSTANDING COMMON SHARE DATA**

We are authorized to issue an unlimited number of Common Shares, 6,350.9 special preferred, redeemable, retractable, non-voting shares and an unlimited number of preferred shares, issuable in series. As at September 30, 2019, there were 118,817,466 Common Shares and no special or preferred shares issued and outstanding. We also maintain the Quarterhill Inc. 2018 Equity Incentive Plan (the "Plan"). Under the Plan, we can issue a maximum of 10% of our issued and outstanding Common Shares from time to time which was, as at September 30, 2019, 11,881,747 Common Shares combined. As at September 30, 2019, we had options granted to purchase up to 5,407,170 Common Shares and performance stock units convertible, upon the achievement of certain performance conditions, into up to 1,051,020 Common Shares.

## **OFF-BALANCE SHEET ARRANGEMENTS**

There are no off-balance sheet arrangements.

## **PROPOSED TRANSACTIONS**

There are no proposed transactions.

## CHANGES IN ACCOUNTING POLICIES INCLUDING INITIAL ADOPTION

### Adoption of Accounting Standards

#### Leases

In February 2016, the FASB issued Accounting Standards Update No. 2016-02 (ASU 2016-02) "Leases" (ASC 842) to increase transparency and comparability among organizations by requiring the recognition of Right-of-use ("ROU") assets and lease liabilities on the balance sheet. Most prominent among the changes in the standard is the recognition of ROU assets and liabilities by lessees for those leases classified as operating leases. Under the standard, disclosures are required to meet the objective of enabling users of financial statements to assess the amount, timing, and uncertainty of cash flows arising from leases.

We adopted ASC 842 using the modified retrospective method applied to leases that were in effect on January 1, 2019. Results for reporting periods beginning after January 1, 2019 are presented under topic ASC 842 while leases in existence at the prior period are not adjusted and continue to be reported in accordance with our historic accounting under ASC 840. We elected to not recognize right-of-use assets and right-of-use lease liabilities arising from short term leases, not reassess whether any expired or existing contracts are or contain leases, did not reassess the lease classification for any expired or existing leases, and did not reassess initial direct costs for any existing leases. We also elected to use hindsight in determining the lease term and in assessing impairment of the entity's right-of-use assets.

The standard had a material impact on the condensed consolidated interim balance sheet with the recognition of right-of-use assets and liabilities but did not have an impact on the condensed consolidated interim statement of operations.

The cumulative effect of the changes made to our consolidated January 1, 2019 balance sheet, by segment, for the adoption of ASU 2016-02 were as follows:

	Balances as at December 31, 2018	Adjustments arising from implementation of ASU 2016-02				Balances as at January 1, 2019
		Licensing	Intelligent Systems	Enterprise Software	Corporate	
<b>Assets</b>						
Prepaid expenses and deposits	\$ 2,332	\$ (69)	\$ (113)	\$ -	\$ -	\$ 2,150
Right-of-use assets	-	323	2,133	246	216	2,918
<b>Liabilities</b>						
Right-of-use lease liabilities, current	-	230	470	84	39	823
Right-of-use lease liabilities, long-term	-	24	1,550	162	177	1,913

The following table discloses the impact of adoption, by segment, on our condensed consolidated interim balance sheet as at September 30, 2019

	As reported	Adjustments arising from implementation of ASU 2016-02				Without adoption of ASU 2016-02
		Licensing	Intelligent Systems	Enterprise Software	Corporate	
<b>Assets</b>						
Prepaid expenses and deposits	\$ 1,993	\$ (31)	\$ 113	\$ -	\$ -	\$ 2,075
Right-of-use assets	3,714	(1,534)	(1,805)	(187)	(188)	-
<b>Liabilities</b>						
Right-of-use lease liabilities, current	732	(122)	(478)	(91)	(41)	-
Right-of-use lease liabilities, long-term	2,897	(1,443)	(1,211)	(96)	(147)	-

Significant changes to our accounting policies as a result of adopting this ASU are discussed below.

We determine if an arrangement is a lease at inception. Operating leases are included in right-of-use assets and right-of-use lease liabilities in the consolidated balance sheets. We currently do not have any finance leases.

ROU assets represent our right to use an underlying asset for the lease term and right-of-use lease liabilities represent our obligation to make lease payments arising from the lease. Operating lease ROU assets and liabilities are recognized at commencement date based on the present value of lease payments over the lease term. As most of our leases do not provide an implicit rate, we use our incremental borrowing rate based on the information available at commencement date in determining the present value of lease payments. We will use the implicit rate when readily determinable. The operating lease ROU asset also includes any lease payments made and excludes lease incentives. Our lease terms may include options to extend or terminate the lease and when it is reasonably certain that we will exercise that option, the effects of that exercise are considered in determining the ROU asset and liabilities. Lease expense for lease payments is recognized on a straight-line basis over the lease term.

We use judgment in determining whether a contract contains a lease, the interest used to discount the present value of fixed payments in accounting for the lease liability and corresponding right-of-use asset and in determining whether it is likely that a lease will be extended.

We have elected to account for lease and non-lease components embedded in our leases as a single lease component.

### Future Accounting Pronouncements

#### *Credit Losses on Financial Instruments*

In June 2016, the FASB issued ASU 2016-13 "Financial Instruments – Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments", which requires measurement and recognition of expected credit losses for financial assets held. ASU 2016-13 is effective for the third quarter of our fiscal year ending December 31, 2021, with earlier adoption permitted beginning in the third quarter of our fiscal year ending December 31, 2020. We are currently assessing the impact of this new standard.

#### *Fair Value Measurement*

In August 2018 the FASB issued Accounting Standards Update 2018-13 "Fair Value Measurement (Topic 820): Disclosure Framework – Changes to the Disclosure Requirements for Fair Value Measurement" that has been issued as part of the FASB's disclosure framework project. The amendments in this update modify the disclosure requirements on fair value

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measurement based on concepts in the FASB Concept Statement, Conceptual Framework for Financial Reporting – Chapter 8: Notes to Financial Statements and are effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2019. We are currently assessing the impact of this new standard.

*Intangibles – Goodwill and Other- Internal-Use Software*

In August 2018 the FASB issued Accounting Standards Update 2018-15 – Intangibles – Goodwill and Other – Internal-Use Software (Subtopic 350-40): Customer’s Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That is a Service Contract that provides guidance on a customer’s accounting for implementation, set-up, and other upfront costs incurred in a cloud computing arrangement that is hosted by the vendor, i.e. a service contract. Under the new guidance, customers will apply the same criteria for capitalizing implementation costs as they would for an arrangement that has a software license. The new guidance also prescribes the balance sheet, income statement, and cash flow classification of the capitalized implementation costs and related amortization expense and requires additional quantitative and qualitative disclosures. The ASU is effective for fiscal years beginning after December 15, 2019 and interim periods within those fiscal years. We are currently assessing the impact of this new standard.

## **DISCLOSURE CONTROLS AND PROCEDURES AND INTERNAL CONTROL OVER FINANCIAL REPORTING**

All control systems, no matter how well designed, have inherent limitations. Accordingly, even disclosure controls and procedures and internal controls over financial reporting determined to be effective can only provide reasonable assurance of achieving their control objectives with respect to financial statement preparation and presentation.

### **DISCLOSURE CONTROLS AND PROCEDURES**

Our management, under the supervision of our Acting Chief Executive Officer and our Interim Chief Financial Officer, is responsible for establishing and maintaining disclosure controls and procedures (as defined by the SEC in Rule 13a-15(e) under the Securities Exchange Act of 1934, as amended (the “**Exchange Act**”)) for Quarterhill to ensure that material information relating to us, including our consolidated subsidiaries, that is required to be made known to our Acting Chief Executive Officer and our Interim Chief Financial Officer by others within Quarterhill and disclosed by us in reports filed or furnished by us under the Exchange Act is (i) recorded, processed, summarized and reported within the time periods specified in the SEC’s rules and forms; and (ii) accumulated and communicated to our management, including our Acting Chief Executive Officer and our Interim Chief Financial Officer, to allow timely decisions regarding required disclosure.

We, including our Acting Chief Executive Officer and our Interim Chief Financial Officer, have evaluated the effectiveness of Quarterhill’s disclosure controls and procedures as of September 30, 2019 and have concluded that our disclosure controls and procedures were effective as of that date.

### **CHANGES IN INTERNAL CONTROL OVER FINANCIAL REPORTING**

During the three months ended September 30, 2019, there were no significant changes in Quarterhill’s internal control over financial reporting, or any other factors that could significantly affect such internal control, that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

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