

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

For the three and nine months ended September 30, 2018 and 2017

November 7, 2018

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## INTRODUCTION

This Management's Discussion and Analysis of Quarterhill Inc. (this "MD&A") is dated November 7, 2018. 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 manage 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, 2018 and up to, and including, November 7, 2018. This MD&A should be read in conjunction with our unaudited condensed consolidated interim financial statements and notes thereto for the three and nine months ended September 30, 2018 (the "Financial Statements").

The Financial Statements do not include all of the information and notes required under generally accepted accounting principles in the United States of America ("GAAP") for complete financial statements. Accordingly, this MD&A should be read in conjunction with our audited consolidated financial statements and the notes thereto for the years ended December 31, 2017 and December 31, 2016, which have been prepared in accordance with GAAP and SEC regulations for annual financial information as applicable. 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, 2017 (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).

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 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.

## 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 earnings (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 earnings and cash flows from operations as determined in accordance with GAAP or as a measure of liquidity.

## 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 and, effective January 1, 2018, hired Douglas Parker, a seasoned and experienced mergers and acquisitions executive, as our President and Chief Executive Officer to lead our new endeavours.

Today we are continuing this evolution towards our goal of acquiring and managing 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 transportation systems and asset maintenance 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 Technology, Mobility and Factory.

### *Technology Segment*

Our Technology segment focuses on technology licensing as our 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 earned 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.

#### *Mobility Segment*

Our Mobility 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 mobility, 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 ("OEM") 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.

#### *Factory Segment*

We consider companies focused on business operations optimization, predictive maintenance, inventory optimization and health and safety in production environments as operating in a "factory" environment and we classify our related investments in our Factory 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.

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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.

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

The comparative period for the nine months ended September 30, 2017 includes the results of IRD and VIZIYA only for the period from acquisition date through to the end of reporting period.

	Three months ended September 30,		Nine months ended September 30,	
	2018	2017	2018	2017
<b>Revenues</b>				
License	\$ 4,762	\$ 72,158	\$ 12,898	\$ 91,470
Systems	7,885	6,759	19,757	9,826
Services	660	780	2,040	1,494
Recurring	6,272	6,200	17,290	9,296
	<b>19,579</b>	<b>85,897</b>	<b>51,985</b>	<b>112,086</b>
<b>Cost of revenues (excluding depreciation and amortization)</b>				
License	5,927	9,864	19,927	23,706
Systems	5,281	4,740	13,392	6,638
Services	305	500	995	821
Recurring	2,927	3,321	8,399	4,175
	<b>14,440</b>	<b>18,425</b>	<b>42,713</b>	<b>35,340</b>
	<b>5,139</b>	<b>67,472</b>	<b>9,272</b>	<b>76,746</b>
<b>Operating expenses</b>				
Depreciation of property, plant and equipment	372	556	1,155	817
Amortization of intangibles	6,298	7,336	19,491	18,667
Selling, general and administrative expenses	6,871	6,501	20,960	13,117
Research and development expenses	902	1,492	2,694	2,160
Loss on disposal of intangibles	-	15,190	-	15,190
Special charges	2,320	218	2,320	1,512
	<b>16,763</b>	<b>31,293</b>	<b>46,620</b>	<b>51,463</b>
<b>Results from operations</b>	<b>(11,624)</b>	<b>36,179</b>	<b>(37,348)</b>	<b>25,283</b>
<b>Finance income</b>				
Finance income	(140)	(93)	(522)	(545)
<b>Finance expense</b>				
Finance expense	78	970	157	984
<b>Foreign exchange loss (gain)</b>				
Foreign exchange loss (gain)	91	239	(74)	(472)
<b>Other income</b>				
Other income	(247)	(231)	(1,153)	(300)
<b>Income (loss) before taxes</b>	<b>(11,406)</b>	<b>35,294</b>	<b>(35,756)</b>	<b>25,616</b>
<b>Current income tax expense</b>				
Current income tax expense	755	5,309	651	6,883
<b>Deferred income tax expense (recovery)</b>				
Deferred income tax expense (recovery)	(2,880)	3,774	(7,216)	(3,858)
<b>Income tax expense (recovery)</b>	<b>(2,125)</b>	<b>9,083</b>	<b>(6,565)</b>	<b>3,025</b>
<b>Net earnings (loss)</b>	<b>\$ (9,281)</b>	<b>\$ 26,211</b>	<b>\$ (29,191)</b>	<b>\$ 22,591</b>
<b>Net earnings (loss) per share</b>				
Basic	\$ (0.08)	\$ 0.22	\$ (0.25)	\$ 0.19
Diluted	\$ (0.08)	\$ 0.22	\$ (0.25)	\$ 0.19
<b>Weighted average number of common shares</b>				
Basic	118,817,466	118,627,249	118,752,303	118,595,713
Diluted	118,817,466	118,627,249	118,752,303	118,595,713

Consolidated revenues for the quarter ended September 30, 2018 (“Q3 18”) were \$19.6 million as compared to \$85.9 million in 2017 representing a decrease of \$66.3 million or approximately 77%. Revenues derived from the WiLAN subsidiary decreased \$68.1 million or 94% from the prior year and revenues from companies acquired during the prior year totaled \$15.1 million for the period representing an increase of 14% over the same period last year. Recurring revenues, a key focus for us, were \$6.3 million, which is consistent with the comparative period.

The financial statement presentation reflects the following components of our revenue:

License	License revenues includes all revenues associated with technology licenses, perpetual software licenses and other revenues characterized as one-time licenses.
Systems	Systems revenues includes revenues earned on contracted projects, generally recognized over time 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 includes 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 2018 third quarter: (1) License revenues were \$4.8 million, reflecting \$3.9 million in technology licenses granted and \$0.9 million in software licenses (please refer to the “Segmented Results” section of this MD&A); (2) Systems revenues generated within our Mobility segment were \$7.9 million; (3) Services revenues were \$0.7 million; and (4) Recurring revenues, on a consolidated basis, were \$6.3 million. A portion of the License revenues, all of the Systems and Services revenues and the majority of Recurring revenues are derived from the businesses acquired in 2017 as part of our overall diversification strategy. Approximately \$15.1 million of revenues in the third quarter of 2018 and \$41.8 million of revenues for the 2018 year to date, were derived from these business acquisitions, which amounts to approximately 80% of consolidated revenues in each period.

Gross margin, calculated as revenues less cost of revenues (excluding depreciation and amortization), for the quarter was \$5.1 million or 26% and reflects the overall gross margin across all our vertical segments. For the third quarter of 2018, our WiLAN business generated a gross margin of (\$1.4) million as compared to \$62.7 million for the comparable period last year. The decrease in gross margin in this segment is a result of lower revenues year on year offset by lower cost of revenue (excluding depreciation and amortization) expenses. The majority of the cost of revenues for the Technology segment consist of employee costs and litigation expenses that do not vary significantly with changes in revenue. Gross margin in the Mobility segment was \$4.2 million or approximately 34%, which is consistent with the preceding quarter as revenues are consistent, and was \$2.3 million, or approximately 87%, in our Factory segment which is generally consistent with the immediately preceding quarter.

Our cost of revenues includes: (i) for our Technology segment, all costs of conducting licensing programs including staffing, litigation, patent ownership related costs and contingent litigation and partner payments; (ii) for our Mobility 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 Factory segment, all staff costs

necessary for the delivery of consulting services.

Our operating expenses at \$16.8 million for the quarter include selling, general and administrative expenses, research and development expenses, depreciation of property, plant and equipment, amortization of intangible assets, loss on disposal of intangibles and special charges. The operating expenses of the companies acquired during fiscal 2017 were \$9.3 million and the operating expenses of WiLAN were \$5.4 million while the operating expenses of Quarterhill were \$2.1 million. Included in operating expenses for the current quarter is \$2.3 million in special charges within the mobility segment which relates to restructuring charges taken during the quarter (see Mobility segment discussion below) which are not expected to recur.

Finance income principally represents interest earned on cash balances held. To the extent we have much lower average cash balances during the quarter as compared to the same period last year, the expected interest income will be reduced from comparative levels. Finance income was \$0.1 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, iCOMS and VIZIYA has bank debt and, as a result, will have finance expense on a normal basis, albeit a relatively small amount.

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 \$0.2 million represents IRD's proportionate share in the profits of its joint venture Xuzhou-PAT Control Technologies Limited ("XPCT") (please refer to the "Mobility segment" section of this MD&A).

Income tax recovery for the quarter was a net \$2.1 million, comprised of \$0.8 million in current income tax expense and \$2.9 million of deferred income tax recovery. We experienced a loss in the third quarter of 2018, a significant component of which was within the WiLAN subsidiary in Canada which gave rise to approximately \$2.1 million in deferred tax recovery. The corporate acquisitions completed in calendar 2017 resulted in acquired intangibles that will generate amortization expense for accounting purposes which will not be deductible for income tax purposes which results in a further \$0.8 million deferred tax recovery in the third quarter. Quarterhill is recovering all of its operating expense from its subsidiaries and as a result, is recording deferred tax expense arising from the utilization of deferred tax assets.

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 loss for the quarter of \$9.3 million or (\$0.08) per basic and diluted Common Share. Our acquired businesses generated a net loss during the quarter of \$1.8 million as compared to a net loss of \$1.8 million for the same period last year.

#### *Reconciliation of Net Loss 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 (\$2.5) million for the quarter as compared to \$60.6 million for the comparative period last 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 2018, 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 mobility segment, related principally to staff reductions undertaken in the quarter, that have been classified as special charges as they are non-recurring in nature. 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. The companies that we acquired in the second quarter of 2017 had a combined \$7.7 million in deferred revenue immediately prior to the completion of our acquisition. 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 was determined to be \$6.4 million resulting in an adjustment reducing the consolidated deferred revenue by \$1.3 million. To evaluate the ordinary course operations of our acquired businesses, we will add back this deleted revenue in the calculation of Adjusted EBITDA. The recovery of this deleted deferred revenue amount is complete by the end of Q3 2018.

In determining the fair value of assets acquired, we recorded a step-up in the value of inventory acquired in the IRD acquisition to reflect the value that we would have had to pay for that inventory if we had purchased it separately outside of a corporate acquisition. This step up increased inventory by approximately \$0.6 million, which increased cost of goods sold reported in 2017 in our Mobility segment as that inventory is consumed in the operations. We view this increased cost of goods sold as solely related to the acquisition and not reflective of the underlying economics of the acquired business. Accordingly, we will deduct this amount in the determination of the Adjusted EBITDA to evaluate the normal course operations of our acquired businesses. No such deduction was made in the three and nine months ended September 30, 2018.

Adjusted EBITDA	Three months ended September 30,		Nine months ended September 30,	
	2018	2017	2018	2017
Net earnings (loss)	\$ (9,281)	\$ 26,211	\$ (29,191)	\$ 22,591
Adjusted for:				
Income tax expense (recovery)	(2,125)	9,083	(6,565)	3,025
Foreign exchange loss (gain)	91	239	(74)	(472)
Finance expense	78	970	157	984
Finance income	(140)	(93)	(522)	(545)
Special charges	2,320	218	2,320	1,512
Amortization of intangibles	6,298	7,336	19,491	18,667
Loss on disposal of intangible	-	15,190	-	15,190
Depreciation of property, plant and equipment	372	556	1,155	817
Effect of deleted deferred revenue	8	374	314	641
Increased costs from inventory step-up	-	444	-	581
Effect of deleted prepaid expenses	-	(10)	-	(10)
Stock-based compensation	114	273	268	452
Other income	(247)	(231)	(1,153)	(300)
<b>Adjusted EBITDA</b>	<b>\$ (2,512)</b>	<b>\$ 60,560</b>	<b>\$ (13,800)</b>	<b>\$ 63,133</b>

*Adjusted EBITDA per share*

Net earnings (loss)	\$ (0.08)	\$ 0.22	\$ (0.25)	\$ 0.19
Adjusted for:				
Income tax expense (recovery)	(0.02)	0.08	(0.06)	0.03
Foreign exchange loss (gain)	-	-	-	-
Finance expense	-	0.01	-	0.01
Finance income	-	-	-	-
Special charges	0.02	-	0.02	0.01
Amortization of intangibles	0.05	0.06	0.16	0.16
Loss on disposal of intangible	-	0.13	-	0.13
Depreciation of property, plant and equipment	-	-	0.01	0.01
Effect of deleted deferred revenue	-	-	-	0.01
Increased costs from inventory step-up	-	-	-	-
Effect of deleted prepaid expenses	-	-	-	-
Stock-based compensation	-	-	-	-
Other income	-	-	(0.01)	-
<b>Adjusted EBITDA per share</b>	<b>\$ (0.03)</b>	<b>\$ 0.50</b>	<b>\$ (0.13)</b>	<b>\$ 0.55</b>

Weighted average number of Common Shares

Basic	118,817,466	118,627,249	118,752,303	118,595,713
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Our cash, cash equivalents and short-term investments, inclusive of any restricted amounts, was \$62.4 million at September 30, 2018 as compared to \$86.6 million at December 31, 2017. During the third quarter of 2018, we consumed \$9.0 million from operations, paid dividends of \$1.1 million, drew on our bank lines in the amount of \$1.0 million and retired patent finance obligations of \$1.4 million. Cash from operations is directly impacted by the net loss reported in the period.

## SEGMENTED RESULTS

Segmented results of operations for the three and nine months ended September 30, 2018 and 2017 (where applicable) are included in this MD&A. Prior to May 4, 2017 we operated in a single segment, technology licensing (formerly WiLAN). With the creation of Quarterhill and the acquisitions of IRD, iCOMS and VIZIYA, we now consider that we operate in three distinct segments.

	For the three months ended September 30, 2018				
	Technology	Mobility	Factory	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					Total
	Technology	Mobility	Factory	Corporate		
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 earnings (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

	For the three months ended September 30, 2017					Total
	Technology	Mobility	Factory	Corporate		
Revenues	\$ 72,592	\$ 11,555	\$ 1,750	\$ -	\$ -	85,897
Cost of revenues (excluding depreciation and amortization)	9,882	8,048	495	-	-	18,425
	62,710	3,507	1,255	-	-	67,472
Selling, general and administrative expenses	1,310	2,530	905	1,756	-	6,501
Research and development expenses	-	853	639	-	-	1,492
Depreciation of property, plant and equipment	82	445	28	1	-	556
Amortization of intangibles	5,473	1,072	791	-	-	7,336
Loss on disposal of intangibles	15,190	-	-	-	-	15,190
Special charges	-	-	-	218	-	218
Results from operations	40,655	(1,393)	(1,108)	(1,975)	-	36,179
Finance income	(76)	(1)	-	(16)	-	(93)
Finance expense	926	43	3	(2)	-	970
Foreign exchange loss (gain)	(131)	409	2	(41)	-	239
Other income	-	(231)	-	-	-	(231)
Income (loss) before taxes	39,936	(1,613)	(1,113)	(1,916)	-	35,294
Current income tax expense (recovery)	5,082	232	(5)	-	-	5,309
Deferred income tax expense (recovery)	(5,369)	(858)	(291)	10,292	-	3,774
Income tax expense (recovery)	(287)	(626)	(296)	10,292	-	9,083
Net earnings (loss)	\$ 40,223	\$ (987)	\$ (817)	\$ (12,208)	\$ -	26,211
Adjusted EBITDA	61,400	707	3	(1,550)	-	60,560
<i>Other reconciling items:</i>						
Effect of deleted deferred revenue	-	82	292	-	-	374
Increased costs from inventory step-up	-	444	-	-	-	444
Stock-based compensation	-	67	-	206	-	273
Effect of deleted prepaid expense	-	(10)	-	-	-	(10)

	For the nine months ended September 30, 2017					Total
	Technology	Mobility	Factory	Corporate		
Revenues	\$ 92,218	\$ 16,203	\$ 3,665	\$ -	\$ -	\$ 112,086
Cost of revenues (excluding depreciation and amortization)	23,644	10,800	896	-	-	35,340
	68,574	5,403	2,769	-	-	76,746
Selling, general and administrative expenses	5,484	3,502	1,781	2,350	-	13,117
Research and development expenses	-	1,161	999	-	-	2,160
Depreciation of property, plant and equipment	261	493	62	1	-	817
Amortization of intangibles	16,097	1,308	1,262	-	-	18,667
Loss on disposal of intangibles	15,190	-	-	-	-	15,190
Special charges	-	-	-	1,512	-	1,512
Results from operations	31,542	(1,061)	(1,335)	(3,863)	-	25,283
Finance income	(467)	(1)	-	(77)	-	(545)
Finance expense	926	54	6	(2)	-	984
Foreign exchange loss (gain)	(516)	695	43	(694)	-	(472)
Other income	-	(300)	-	-	-	(300)
Income (loss) before taxes	31,599	(1,509)	(1,384)	(3,090)	-	25,616
Current income tax expense	6,516	333	34	-	-	6,883
Deferred income tax expense (recovery)	(7,869)	(920)	(485)	5,416	-	(3,858)
Income tax expense (recovery)	(1,353)	(587)	(451)	5,416	-	3,025
Net earnings (loss)	\$ 32,952	\$ (922)	\$ (933)	\$ (8,506)	\$ -	\$ 22,591
Adjusted EBITDA	63,147	1,517	523	(2,054)	-	63,133
<i>Other reconciling items:</i>						
Effect of deleted deferred revenue	-	107	534	-	-	641
Increased costs from inventory step-up	-	581	-	-	-	581
Stock-based compensation	57	99	-	296	-	452
Effect of deleted prepaid expense	-	(10)	-	-	-	(10)

### Technology Segment

Our Technology segment presently comprises the operations of WiLAN.

Technology Segment	For the three months ended,		For the nine months ended,	
	September 30, 2018	September 30, 2017	September 30, 2018	September 30, 2017
Revenues	\$ 4,445	\$ 72,592	\$ 10,188	\$ 92,218
Cost of revenues (excluding depreciation and amortization)	5,877	9,882	19,797	23,644
	(1,432)	62,710	(9,609)	68,574
Selling, general and administrative expenses	761	1,310	1,999	5,484
Depreciation of property, plant and equipment	62	82	209	261
Amortization of intangibles	4,581	5,473	14,297	16,097
Loss on disposal of intangibles	-	15,190	-	15,190
Results from operations	(6,836)	40,655	(26,114)	31,542
Finance income	(3)	(76)	(3)	(467)
Finance expense	-	926	1	926
Foreign exchange loss (gain)	(223)	(131)	334	(516)
Income (loss) before taxes	(6,610)	39,936	(26,446)	31,599
Current income tax expense	912	5,082	1,137	6,516
Deferred income tax recovery	(2,103)	(5,369)	(6,928)	(7,869)
Income tax recovery	(1,191)	(287)	(5,791)	(1,353)
Net earnings (loss)	\$ (5,419)	\$ 40,223	\$ (20,655)	\$ 32,952
Adjusted EBITDA	\$ (2,178)	\$ 61,400	\$ (11,582)	\$ 63,147

For the three months ended September 30, 2018 revenues were \$4.4 million as compared to \$72.6 million for the same period last year representing a decline of \$68.2 million resulting from fewer technology licenses signed in the quarter. In the comparative period last year, WiLAN signed a significant license agreement resulting in a single customer generating more than 10% of revenues for that quarter and for the nine months then ended. 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 not entered into from one period to the next.

Revenues in this segment are generally derived from five principal sources: (i) running royalty agreements pursuant to which licensees pay WiLAN royalties based on either a percentage of the net selling price of licensed products or a fixed fee per licensed product sold; (ii) fixed fee royalties consisting of a set quarterly or annual amount for all licensed products sold by licensees; (iii) one-time lump sum fees to cover the sale of all licensed products by a particular licensee, subject to certain limitations; (iv) licensing patents on behalf of WiLAN's partners; or (v) brokerage which provides the acquirer exclusive rights to the technology. License agreements are generally for a five to eight-year period but can be significantly longer or covering the entire life of the underlying licensed patents.

Under ASC606 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.

Historically, under ASC605, revenue was earned when there was persuasive evidence of an arrangement, all obligations that needed to be performed were fulfilled in accordance with the terms of the license agreement, including delivery and acceptance, the revenue amount was fixed or determinable and collection was reasonably assured.

If ASC606 had not become effective in the first quarter, the Technology segment would have reported revenues of \$5.8 million in the third quarter of 2018. We recognized an unbilled revenue adjustment of \$6.4 million on January 1, 2018 as a result of the adoption of ASC606. This amount represented the present value of the expected future cash flows to be collected in 2018 related to fixed fee patent licenses executed in prior fiscal years. These amounts have now been fully collected.

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 and nine months ended September 30, 2018 was \$5.9 million and \$19.8 million as compared to \$9.9 million and \$23.6 million for the same periods last year. The variability in cost of revenues from quarter to quarter is principally a result of litigation expenses inclusive of contingent litigation. For the three and nine months ended September 30, 2018, WiLAN incurred litigation expenses of \$3.4 million and \$9.7 million respectively as compared to \$3.9 million and \$8.2 million for the same periods last year. Litigation expenses have increased with the number of active litigations that WiLAN is pursuing and the respective stages of those litigations. The remainder of the cost of revenue expenses have largely been consistent throughout the reporting periods.

Operating expenses are generally considered selling, general and administration type expenses and include all

overheads for WiLAN operations in addition to depreciation, amortization expense and any loss on disposal or impairment losses. For the three and nine months ended September 30, 2018 operating expenses within this segment were \$5.4 million and \$16.5 million which included \$4.6 million and \$14.5 million in depreciation and amortization respectively. Cash expenses in this category were \$0.8 million in the third quarter of 2018 which is comparable to prior reporting periods.

Income tax expense for the quarter was a recovery of \$1.2 million and was comprised of current tax expense of \$0.9 million and a deferred income tax 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. The majority of the loss before income taxes of \$6.6 million reported by the Technology segment was incurred in Canada where we generally record deferred tax assets and as such, we have a recovery in the period.

There is a valuation allowance of \$15.3 million as at September 30, 2018 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. As a result, we expect the provision for deferred income tax expense to be disproportionately higher when compared to our estimated average annual rate or other operating segments of Quarterhill.

### *Mobility Segment*

Our Mobility segment consists of IRD's operations which also includes iCOMS as its wholly-owned subsidiary.

Mobility Segment	For the three months ended,		For the nine months ended,	
	September 30, 2018	September 30, 2017	September 30, 2018	September 30, 2017
Revenues	\$ 12,439	\$ 11,555	\$ 32,510	\$ 16,203
Cost of revenues (excluding depreciation and amortization)	8,208	8,048	21,789	10,800
	4,231	3,507	10,721	5,403
Selling, general and administrative expenses	2,211	2,530	7,497	3,502
Research and development expenses	534	853	1,593	1,161
Depreciation of property, plant and equipment	275	445	849	493
Amortization of intangibles	960	1,072	2,923	1,308
Special charges	2,320	-	2,320	-
Results from operations	(2,069)	(1,393)	(4,461)	(1,061)
Finance income	(2)	(1)	(9)	(1)
Finance expense	72	43	144	54
Foreign exchange loss (gain)	108	409	(164)	695
Other income	(247)	(231)	(884)	(300)
Loss before taxes	(2,000)	(1,613)	(3,548)	(1,509)
Current income tax expense (recovery)	(41)	232	158	333
Deferred income tax recovery	(504)	(858)	(1,138)	(920)
Income tax recovery	(545)	(626)	(980)	(587)
Net loss	\$ (1,455)	\$ (987)	\$ (2,568)	\$ (922)
Adjusted EBITDA	\$ 1,442	\$ 707	\$ 1,891	\$ 1,517

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. Revenues for the comparative year to date reflect only amounts realized since we acquired IRD on June 1, 2017.

Segment revenue from Systems for the three and nine months ended September 30, 2018 was \$7.9 million and \$19.8 million respectively (2017 - \$6.8 and \$9.8 million). The increase in third quarter revenues compared to the prior year reflects successful delivery on several large value contracted projects underway in Canada and the United States and various product sales distributed to both domestic and international markets in the quarter.

Recurring revenue for the three and nine months ended September 30, 2018 was \$4.5 million and \$12.7 million, respectively (2017 - \$4.8 and 6.4 million). The small decline in recurring revenue compared to the prior year quarter is reflective of normal variation in delivery of service work which is often performed on a time and materials basis. Throughout 2018, IRD has achieved a near 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 increased over the prior year quarter reflecting the quality of current contract and service works and the leverage effect of fixed capacity expenses included in cost of revenues. Gross margins are subject to significant variance each reporting period due to factors such as changes in product mix, currency volatility and competitive factors. Over a full fiscal year, gross margin percentages generally will approximate 30% to 33%.

Operating expenses, consisting of research and development expenses (“R&D”) and selling, general and administrative expenses, for the three and nine months ended September 30, 2018 are generally 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 and nine months ended September 30, 2018 net R&D spending levels were 4.3% and 4.9% of segment revenue. Net spending for the three and nine months ended September 30, 2018 of \$0.5 million and \$1.6 million, respectively, reflect the continued investment in new product developments and enhancements, including VectorSense® Tire Sensor Suite and the related Vehicle Information-In-Motion™ (VI<sup>2</sup>M™) Traffic Intelligence system. Total R&D expenses in the quarter were offset, in part, by certain grant recoveries and estimated investment tax credits on eligible scientific research expenditures in Canadian operations. 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 decrease in costs incurred for the three months ended September 30, 2018 compared to the prior year quarter reflects the benefits of reduced operating costs arising from the business reorganization initiatives noted below which were undertaken at the beginning of the quarter.

Special charges incurred in the quarter of \$2.3 million represent certain business reorganization costs arising from Management’s decision to align operating costs with current revenue/margin expectations. The majority of costs relate to IRD’s Canada and India locations and comprise direct salary severance costs, payout on contract obligations, and certain legal and other transition costs to reduce operating costs in these locations. Special charges also include a provision of \$0.3 million for write down of all remaining India non-cash assets, due to uncertainty of realization.

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 on certain U.S. dollar denominated sales contracts in its Latin America and Mexico markets. IRD has exposure to the

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U.S. dollar, Euro, Indian rupee, Chilean peso, Mexican peso and Chinese yuan.

For the three months ended September 30, 2018, IRD recorded foreign exchange losses of \$0.1 million (year to date gains of \$0.2 million) primarily 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 and nine months ended September 30, 2018, IRD recorded its share of XPCT's income of \$0.2 million and \$0.9 million respectively due to continued strong performance in XPCT's wire harness division.

The effective tax rate can vary from the Canadian statutory tax rate of approximately 26.5% applied to earnings (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, 2018, 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. No income tax recovery is recorded in IRD's India subsidiary due to uncertainty that sufficient future earnings will be generated to offset current and prior years' available tax losses prior to their expiry date.

### Factory Segment

Our Factory segment comprises VIZIYA's operations for the three and nine months ended September 30, 2018 and 2017.

Factory Segment	For the three months ended,		For the nine months ended,	
	September 30, 2018	September 30, 2017	September 30, 2018	September 30, 2017
Revenues	\$ 2,695	\$ 1,750	\$ 9,287	\$ 3,665
Cost of revenues (excluding depreciation and amortization)	355	495	1,127	896
	2,340	1,255	8,160	2,769
Selling, general and administrative expenses	1,828	905	5,130	1,781
Research and development expenses	368	639	1,101	999
Depreciation of property, plant and equipment	32	28	91	62
Amortization of intangibles	757	791	2,271	1,262
Results from operations	(645)	(1,108)	(433)	(1,335)
Finance expense	4	3	10	6
Foreign exchange loss	32	2	51	43
Other income	-	-	(269)	-
Loss before taxes	(681)	(1,113)	(225)	(1,384)
Current income tax expense (recovery)	(116)	(5)	(645)	34
Deferred income tax recovery	(264)	(291)	(749)	(485)
Income tax recovery	(380)	(296)	(1,394)	(451)
Net earnings (loss)	\$ (301)	\$ (817)	\$ 1,169	\$ (933)
Adjusted EBITDA	\$ 158	\$ 3	\$ 2,101	\$ 523

Revenues recorded in this segment for the third quarter were \$2.7 million consisting of \$0.9 million in software licenses, \$0.7 million in services revenues and \$1.1 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 \$3.0 million in the quarter mainly consist of research and development expenses of approximately \$0.4 million which is principally employee costs and \$1.8 million in selling, general and administrative costs. Selling, general and administrative expenses in Q3 18 included \$0.2 million in allowance for doubtful accounts. Excluding this amount, operating expenses increased approximately \$0.4 million or 16% year over year, largely as a result of increased sales activities related to a number of potential new customers.

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 \$0.2 million for the quarter.

## 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 license 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. As discussed elsewhere in this MD&A, the volatility in quarterly revenues will be more pronounced under new revenue recognition rules that commenced January 1, 2018. 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 earnings (loss) \$ 000's	Net earnings (loss) per share (Basic) \$	Adjusted EBITDA * \$ 000's	Adjusted EBITDA per share * (Basic) \$
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
September 30, 2017	85,897	26,211	0.22	60,560	0.50
June 30, 2017	18,611	3,609	0.03	4,760	0.04
March 31, 2017	7,578	(7,229)	(0.06)	(2,187)	(0.02)
December 31, 2016	30,186	8,627	0.07	17,601	0.14

\*Adjusted EBITDA and the respective per share amounts are non-GAAP measures, please refer to "Non GAAP Disclosures" and "Reconciliation of 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 \$62.4 million at September 30, 2018 as compared to \$86.6 million at December 31, 2017 representing a decrease of \$24.2 million. During the nine months ended September 30, 2018 we increased bank debt in the amount of \$2.1 million, repaid patent finance obligations of \$4.2 million and paid dividends of \$3.5 million, in addition to consuming \$17.9 million in operations.

At September 30, 2018, we had working capital of \$64.1 million and long-term debt of \$0.3 million.

Quarterhill has 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 and nine months ended September 30, 2018, 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 \$2.3 million. As at September 30, 2018 approximately \$2.6 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, 2018 of \$22.6 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, 2018, 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, 2018, there were 118,817,466 Common Shares and no special or preferred shares issued and outstanding. At our annual and special meeting of shareholders held on April 18, 2018, Quarterhill’s shareholders approved the adoption of our 2018 Equity Incentive Plan (the “**Equity Incentive Plan**”) and the related terminations of our “2001 Share Option Plan” (the “**Option Plan**”) and “Deferred Stock Unit Plan for Directors and Designated Employees” (the “**DSU Plan**”). We also maintain an Employee Share Purchase Plan. Under the Equity Incentive Plan and the Employee Share Purchase Plan collectively, we can issue a maximum of 10% of our issued and outstanding Common Shares from time to time which was, as at September 30, 2018, 11,881,746 Common Shares combined. The Common Shares authorized for issuance under the Employee Share Purchase Plan are limited to 800,000, of which, at September 30, 2018, we had issued 667,100 Common Shares. As at September 30, 2018, we had options to purchase up to 7,029,141 Common Shares outstanding. Upon adoption of the Equity Incentive Plan, all options outstanding under the Option Plan are now governed by the Equity Incentive Plan and all deferred stock units outstanding under the DSU Plan were exercised for Common Shares on July 18, 2018 so no deferred stock units remain outstanding.

## **OFF-BALANCE SHEET ARRANGEMENTS**

There are no off-balance sheet arrangements.

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## PROPOSED TRANSACTIONS

There are no proposed transactions.

## CHANGES IN ACCOUNTING POLICIES INCLUDING INITIAL ADOPTION

### Adoption of Accounting Standards

#### **Adoption of ASU 2016-16 Intra-entity Transfers of Assets Other Than Inventory**

In October 2016, the FASB issued Accounting Standards Update (“ASU”) 2016-16 “Income taxes on intra-entity transfers of assets other than inventory” to improve the accounting on income taxes on intra-entity transfers. The ASU requires that an entity recognize the income tax consequences of an intra-entity transfer of an asset other than inventory when the transfer occurs, rather than defer the income tax effect under previous guidance. We adopted this ASU on a modified retrospective basis in the first quarter of 2018. The cumulative effect of the adoption is an increase to shareholders’ equity of \$2.9 million due to the adjustment to the accumulated deficit.

#### **Adoption of ASU 2014-09 Revenue from Contracts with Customers**

In May 2014, the FASB issued ASU 2014-09 “Revenue from Contracts with Customers” (“ASC 606”). ASC 606 supersedes the revenue recognition requirements in ASC 605 “Revenue Recognition,” and requires entities to recognize revenue when control of the promised goods or services is transferred to customers at an amount that reflects the consideration to which the entity expects to be entitled to in exchange for those goods or services.

We adopted ASC 606 using the modified retrospective method applied to those contracts that were not yet complete as of January 1, 2018. Results for reporting periods beginning after January 1, 2018 are presented under ASC 606, while prior period amounts are not adjusted and continue to be reported in accordance with our historic accounting under ASC 605.

With respect to our Technology segment, under ASC 605, licensing companies reported revenue from per-unit royalty-based arrangements one quarter in arrears. Under the new guidance, we are expected to estimate per-unit royalty-based revenue. The new standard also significantly impacted the timing of revenue recognition associated with our fixed fee arrangements where under the new standard we recognize revenues at the time of signing a license agreement rather than over the period of periodic payments.

With respect to our Mobility segment, we will, for the majority of our long-term contracts, continue to recognize revenue and earnings over time as the work progresses because of the continuous transfer of control to the customer. The adoption of this standard has impacted revenue recognition in relation to the allocation of contract revenues between installations, maintenance agreements, and warranty on some long-term fixed price contracts.

The adoption of ASC 606 does not have a significant impact on how revenue is recognized within the Factory segment.

We opted to use the following practical expedients:

1. For contracts that were modified before implementation we have considered the aggregate effect of all modifications when identifying the satisfied and unsatisfied performance obligations, determining the transaction price, and allocating the transaction price to satisfied and unsatisfied performance obligations.
2. We will not adjust the promised amount of consideration for the effects of a significant financing component if the entity expects, at contract inception, that the period between when the entity transfers a promised good or service to the customer and when the customer pays for that good or service will be one year or less.

The cumulative effect of the changes made to our consolidated January 1, 2018 balance sheet for the adoption of ASU 2016-16 and ASU 2014-09 was as follows:

	Balances as at December 31, 2017	ASU 2016-16	Adjustments arising from implementation of ASU 2014-09		Balances as at January 1, 2018
			Technology	Mobility	
<b>Assets</b>					
Unbilled revenue	\$ 3,045	\$ -	\$ 6,376	\$ (565)	\$ 8,856
Deferred income tax assets	20,195	2,949	-	150	23,294
<b>Liabilities</b>					
Deferred income tax liabilities	7,291	-	1,689	-	8,980
<b>Equity</b>					
Deficit	(206,939)	2,949	4,687	(415)	(199,718)

The following table discloses the impact of adoption, by segment, on our condensed consolidated interim statement of operations for the three months ended September 30, 2018:

	As reported	For the three months ended September 30, 2018 Adjustments arising from implementation of ASU 2014-09		Balances without ASU 2014-09
		Technology	Mobility	
<b>Revenues</b>				
License	\$ 4,762	\$ 1,878	\$ -	\$ 6,640
Systems	7,885	-	(21)	7,864
Services	660	-	-	660
Recurring	6,272	556	142	6,970
<b>Costs and expenses</b>				
Deferred income tax expense (recovery)	(2,880)	645	32	(2,203)
Net loss	(9,281)	1,789	89	(7,403)

The following table discloses the impact of adoption, by segment, on our condensed consolidated interim statement of operations for the nine months ended September 30, 2018:

	As reported	For the Nine months ended September 30, 2018 Adjustments arising from implementation of ASU 2014-09		Balances without ASU 2014-09
		Technology	Mobility	
<b>Revenues</b>				
License	\$ 12,898	\$ 5,563	\$ -	\$ 18,461
Systems	19,757	-	(221)	19,536
Services	2,040	-	-	2,040
Recurring	17,290	814	62	18,166
<b>Costs and expenses</b>				
Deferred income tax expense (recovery)	(7,216)	1,690	(42)	(5,568)
Net loss	(29,191)	4,687	(117)	(24,621)

The following table discloses the impact of adoption, by segment, on our condensed consolidated interim balance sheet as at September 30, 2018:

	As reported	Adjustments arising from implementation of ASU 2014-09		Balances without ASU 2014-09
		Technology	Mobility	
<b>Assets</b>				
Unbilled revenue	\$ 6,647	\$ -	\$ 406	\$ 7,053
Deferred income tax assets	26,913	-	(108)	26,805
<b>Liabilities</b>				
Deferred income tax liabilities	5,315	-	-	5,315
<b>Equity</b>				
Deficit	(232,378)	-	298	(232,080)

Significant changes to our accounting policies as a result of adopting ASU 2014-09 are discussed below:

#### Revenue Recognition

We recognize revenue when control of the promised goods or services is transferred to customers at an amount that reflects the consideration to which the entity expects to be entitled to in exchange for those goods or services. The following paragraphs describe the specific revenue recognition policies for each of our significant types of revenue by segment.

#### **Technology Segment**

Under ASC 606, patent licenses will be 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. Payments are due either immediately or within 30 days. 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 now need to 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. Payment is due upon the submission of the royalty report.

#### **Mobility Segment**

##### *Contracted Projects*

The majority of sales of integrated systems are delivered as contracted projects that span a time period of less than 1 year to more than 5 years. The governments and private enterprises control all of the work in progress as the intelligent transportation systems are being developed and installed. Our contract types include fixed price and time and materials contracts. Contract revenue includes amounts expected to be received in exchange for the good or services plus any contract amendments that are expected to be received. Payment terms are based on completion of milestones throughout the project life for fixed price contracts and monthly for time and materials projects.

Many of these projects have distinct performance obligations typically encompassing one or more of the following: installation, maintenance, and warranty. A contract’s transaction price is allocated to each distinct performance obligation using the best estimate of the standalone selling price of each distinct good or service in the contract. The primary method used to estimate standalone selling price is the expected cost-plus margin approach. Revenue is recognized when or as the performance obligation is satisfied.

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Revenue for fixed price contracts are recognized over time using the cost-to-cost input method. Because control is transferred over time, revenue is recognized based on the extent of progress towards completion of the performance obligation. We review and update the contract related estimates regularly. Determining the contract costs and estimates to complete requires significant judgment. Adjustments are recognized in profit on contracts under the cumulative catch-up method in the period the adjustment is identified. If we anticipate the estimated remaining costs to completion will exceed the value allocated to the performance obligation, the resulting loss will be recognized immediately.

For time and materials contracts, labour and material rates are established within the contract. Revenues from time and materials contracts are recognized progressively on the basis of costs incurred during the period plus the estimated margin earned.

#### *Services Revenue*

Services revenue from the mobility segment are considered recurring revenues. These service contracts are typically time and materials but some are fixed price. Revenues are earned similar to contracted projects discussed above. Services are billed on a monthly basis and collected shortly thereafter.

#### *Product Sales*

Product sales revenue is recognized when control transfers to the customer which depends on the individual terms which can vary between when the product leaves our warehouse and when it is received at the customer's warehouse. For some international shipments, when the buyer has no right of return, transfer occurs upon loading the goods onto the relevant carrier at the port of the seller. Customers are billed when transfer of control occurs and payments are typically due within 30 days.

### **Factory Segment**

#### *Software Licenses*

The factory segment provides bolt-on software products to enhance ERP-based asset maintenance systems. These software licenses contain up to five separate performance obligations: the license; implementation services; training services; post-contract customer support ("PCS"); and customization of software. Customers obtain access to licenses through online software and each additional component is added incrementally at the stand-alone market price which represents the price allocated to each performance obligation. Payment for licenses and services is received prior to delivery of product code for software or software keys for PCS.

When selling the licensed software, we are providing the customer with the right to use our intellectual property and does not provide significant modifications or updates therefore revenue is recognized at the point in time when the customer gains control of the license, typically at contract inception.

Implementation and training services, PCS, and customization of software are recognized over time based on time lapsed as this best represents the value transferred to the customer based on the specifications for each within the contract.

#### Unbilled Revenue

Unbilled Revenue includes unbilled amounts typically resulting from sales under long-term contracts when the cost-to-cost method of revenue recognition is utilized and revenue recognized exceeds the amount billed to the customer accounted for under ASC 606. At any given period-end, a large portion of the balance in this account represents the accumulation of labor, materials and other costs that have not billed due to timing, whereby the accumulation of each month's costs and earnings are administratively billed in subsequent months. Also included in the account are amounts that will become billable according to contract terms, which usually require the consideration of the passage of time, achievement of milestones or completion of the project.

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### Deferred Revenue

Deferred revenue is comprised of cash collected from customers and billings to customers on contracts in advance of work performed, advance payments negotiated as a contract condition, including billings in excess of costs and estimated earning on uncompleted contracts accounted for under ASC 606. We record provisions for estimated losses on uncompleted contracts in the period in which such losses become known. The cumulative effects of revisions to contract revenues and estimated completion costs are recorded in the accounting period in which the amounts become evident and can be reasonably estimated. These revisions can include such items as the effects of change orders and claims, warranty claims, liquidated damages or other contractual penalties and adjustments for contract closeout settlements.

### **Future Accounting Pronouncements**

#### *Leases*

In February 2016, the FASB issued ASU 2016-2, “Leases (Topic 842)” and issued subsequent amendments to the initial guidance during 2018, collectively referred to as “Topic 842.” The guidance requires companies to include lease obligations in their balance sheets, including a dual approach for lessee accounting under which a lessee would account for leases as finance leases or operating leases. Both finance leases and operating leases will result in the lessee recognizing a right-of-use (“ROU”) asset and a corresponding lease liability. For finance leases the lessee would recognize interest expense and amortization of the ROU asset, and for operating leases, the lessee would recognize a straight-line total lease expense. Topic 842 can be applied either (i) retrospectively to each prior reporting period presented with the option to elect certain practical expedients; or (ii) retrospectively with the cumulative effect recognized at the date of initial application and requiring certain additional disclosures (the “cumulative effect approach”). The guidance is effective for interim and annual periods beginning after December 15, 2018, with earlier adoption permitted. We continue to assess all potential impacts of the new standard and we expect to record an increase in both assets and liabilities due to the recognition of a ROU asset and a corresponding lease liability. Additional disclosures on lease arrangements will also be required. We believe we will use the cumulative effect approach in the first quarter of 2019.

#### *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 first quarter of our fiscal year ending December 31, 2021, with earlier adoption permitted beginning in the first quarter of our fiscal year ending December 31, 2020. We are currently assessing the impact of this new standard.

#### *Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income*

In February 2018 the FASB issued ASU 2018-02 “Income Statement – Reporting Comprehensive Income (Topic 220)” that gives companies the option to reclassify stranded tax effects resulting from the newly enacted Tax Cuts and Jobs Act from accumulated other comprehensive income to retained earnings. A company will need to disclose if it elects not to adopt the ASU. The ASU will be effective for fiscal years beginning after December 15, 2018 and interim periods within the fiscal year. Early adoption will be permitted, including adoption in any interim period, for financial statements that have not yet been issued or made available for issuance. Entities will have the option to apply the amendments retrospectively or to record the reclassification as of the beginning of the period of adoption. We are currently assessing the impact of this new standard.

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*Share-based payment awards*

In June 2018, the FASB issued ASU 2018-07 – “Compensation – Stock Compensation (Topic 718): Improvements to Nonemployee Share-Based Payment Accounting.” The guidance largely aligns the accounting for share-based payment awards issued to employees and non-employees. Under previous GAAP, the accounting for non-employee share-based payments differed from that applied to employee awards, particularly with regard to the measurement date and the impact of performance conditions. Under the new guidance, the existing employee guidance will apply to non-employee share-based transactions (as long as the transaction is not effectively a form of financing), with the exception of specific guidance related to the attribution of compensation cost. The cost of non-employee awards will continue to be recorded as if the grantor had paid cash for the goods or services. In addition, the contractual term will be able to be used in lieu of an expected term in the option-pricing model for nonemployee awards. The ASU is effective for fiscal years beginning after December 15, 2018, including interim periods within that fiscal year. 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 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.

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## **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 Chief Executive Officer and our 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 Chief Executive Officer and our 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 Chief Executive Officer and our Chief Financial Officer, to allow timely decisions regarding required disclosure.

We, including our Chief Executive Officer and our Chief Financial Officer, have evaluated the effectiveness of Quarterhill’s disclosure controls and procedures as of September 30, 2018 and have concluded that our disclosure controls and procedures were effective as of September 30, 2018.

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

During the nine months ended September 30, 2018, 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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