



Quarterhill Inc.

Management's Discussion and Analysis
For the three and six months ended September 30, 2022 and 2021
November 10, 2022



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INTRODUCTION

This Management's Discussion and Analysis of Quarterhill Inc. (this "MD&A") is dated November 10, 2022. References in this MD&A to "Quarterhill", "the Company", "we", "us" and "our" refer to Quarterhill Inc. and its consolidated subsidiaries during the periods presented, unless the context requires otherwise. References to "Common Shares" in this MD&A refer to common shares in the capital of Quarterhill. References to "Convertible Debentures" in this MD&A refer to Quarterhill's 6.0% Convertible Unsecured Subordinated Debentures due October 30, 2026.

The Common Shares and Convertible Debentures are listed under the symbols "QTRH" and "QTRH.DB" respectively on the Toronto Stock Exchange (the "TSX") and the Common Shares are listed on the United States OTCQX Best Market (the "OTCQX") under the symbol "QTRHF".

Quarterhill is a growth-oriented Canadian company operating in the intelligent transportation system ("ITS") and intellectual property licensing industries. We are a global leader in ITS that acquires and manages attractive technology companies in the ITS industry and its adjacent markets.

We seek out acquisition opportunities in the ITS industry that provide a foundation for growth and that have reasonable valuations, recurring revenues, predictable cashflows and gross profit, intimate customer relationships and dedicated management teams among other considerations. In appropriate circumstances, we may also divest certain assets if favourable conditions for such a divestiture are presented.

This MD&A provides information for the three and nine months ended September 30, 2022 and up to and including November 10, 2022. This MD&A should be read in conjunction with Quarterhill's interim condensed consolidated financial statements ("financial statements") and the notes thereto for the three and nine months ended September 30, 2022, which have been prepared in accordance with International Financial Reporting Standards ("IFRS") as issued by the International Accounting Standards Board ("IASB").

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

This MD&A has been prepared with reference to National Instrument 51-102 - Continuous Disclosure Obligations of the Canadian Securities Administrators. 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, 2021 (our "AIF"), is available online at www.sedar.com and also on our website at www.Quarterhill.com.

Quarterhill and our operating subsidiaries operate in ever-changing business and competitive economic environments that expose us to a number of risks and uncertainties, many of which are discussed under the heading "Risks and Uncertainties" in this MD&A and/or under the heading "Risk Factors" in our AIF.

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 the Audit Committee of our Board of Directors (the "Board") and, finally, by our Board as a whole.

THIRD QUARTER 2022 BUSINESS HIGHLIGHTS

Business Performance and Future Business Developments

Our ITS segment's revenues for the three and nine months ended September 30, 2022 were \$42,185 and \$119,192 compared to \$24,927 and \$53,520 in the comparative prior year periods, respectively. The growth in revenue is primarily driven by acquisition related growth.

During the quarter, our ITS segment, through our wholly owned subsidiaries, announced that they have won a new long-term customer contract worth approximately \$13.8 million in addition to the \$75 million and \$16 million won in the first and second quarters of 2022, respectively, in lifetime contract value to provide a variety of ITS products, solutions and services to several US government agencies. The initial term of these contracts currently range from two to five years with renewal options to extend services.

Our Licensing segment's revenues for the three and nine months ended September 30, 2022 were \$248 and \$135,625 compared to \$11,416 and \$21,014 in the comparative prior year periods, respectively.

Please refer to the Segmented Results section of this MD&A for further details of the financial performance of our ITS and Licensing segments for the three and nine months ended September 30, 2022.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This MD&A contains forward-looking statements and forward-looking information within the meaning of 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 our 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", "could", 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-IFRS FINANCIAL MEASURES AND NON-IFRS RATIOS

Non-IFRS Financial Measures and Non-IFRS Ratios

Quarterhill uses both IFRS and certain non-IFRS financial measures to assess performance. Non-IFRS financial measures are financial measures disclosed by a company that (a) depict historical or expected future financial performance, financial position or cash flow of a company, (b) with respect to their composition, exclude amounts that are included in, or include amounts that are excluded from the composition of the most directly comparable financial measure disclosed in the primary financial statements of the company, (c) are not disclosed in the financial statements of the company and (d) are not a ratio, fraction, percentage or similar

representation. Non-IFRS ratios are financial measures disclosed by a company that are in the form of a ratio, fraction, percentage or similar representation that has a non-IFRS financial measure as one or more of its components, and that are not disclosed in the financial statements of the company.

These non-IFRS financial measures and non-IFRS ratios are not standardized financial measures under IFRS, and, therefore, are unlikely to be comparable to similar financial measures presented by other companies. Management believes our non-IFRS financial measures and non-IFRS ratios provide transparent and useful supplemental information to help investors evaluate our financial performance, financial condition and liquidity using the same measures as management. These non-IFRS financial measures and non-IFRS ratios should not be considered as a substitute for, or superior to, measures of financial performance prepared in accordance with IFRS.

Adjusted EBITDA - Non-IFRS Financial Measures

In this MD&A, we use the non-IFRS financial measure "Adjusted EBITDA" to mean net (loss) income adjusted for: (i) income taxes, (ii) finance expense or income; (iii) amortization and impairment of intangibles; (iv) other charges and other on-time items; (v) depreciation of right-of-use assets and property, plant and equipment; (vi) stock-based compensation; (vii) foreign exchange (gain) loss; and (viii) other income which includes equity in earnings from joint ventures, and (ix) dividends received 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 loss and cash flows from operations as determined in accordance with IFRS or as a measure of liquidity. The most directly comparable IFRS financial measure is Net (loss) income. See the Reconciliation of Net (Loss) Income to Adjusted EBITDA within the Overall Performance section of this MD&A.

Adjusted EBITDA per share - Non-IFRS ratio

Adjusted EBITDA per share is calculated as Adjusted EBITDA divided by the basic weighted average of Common Shares. Adjusted EBITDA per share is used by our management and investors to analyze cash generated by Quarterhill on a per share basis. The most comparable IFRS measure is earnings per share.

Supplementary Financial Measures

Supplementary financial measures are financial measures disclosed by a company that (a) are, or are intended to be, disclosed on a periodic basis to depict the historical or expected future financial performance, financial position or cash flow of a company, (b) are not disclosed in the financial statements of the company, (c) are not non-IFRS financial measures and (d) are not non-IFRS ratios.

Key supplementary measures disclosed in this MD&A are as follows:

Gross margin %

Calculated as gross profit as a percentage of revenue.

Working capital

Calculated as total current assets minus total current liabilities.

DESCRIPTION OF OUR BUSINESS

Quarterhill is a disciplined acquirer and manager of established ITS companies operating alongside our existing licensing business. Our goal is to pursue an investment strategy that capitalizes on attractive market trends in the ITS industry and its adjacent markets. Additionally, in appropriate circumstances, we may also divest certain assets if favourable conditions for such a divestiture are presented.

Strategy

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

We believe that if we increase the share of our revenue derived from recurring sources we will also increase the predictability of our revenues and cash flows. This will allow us to better scale our operations to ensure we meet our strategic mandate of operating profitably regardless of the prevailing economic market conditions as we grow both organically and through acquisitions. In appropriate circumstances, we may also divest certain assets if favourable conditions for such a divestiture are presented.

Our existing businesses are fully described in more detail in our AIF. We operate in two business segments 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 ITS and Licensing.

Intelligent Transportation Systems Segment

Our ITS businesses are focused on enhancing safety, mobility, efficiency and environmental performance across road and rail transportation infrastructure by providing intelligent transportation systems, products, solutions and services. Based on market research, we believe the global ITS industry is expected to exceed US\$90 billion by 2025, influenced by major driving factors such as infrastructure spending, public safety, traffic congestion, smart city development and environmental impact. We believe that we are well positioned to capitalize on these trends.

Our current ITS Industry operating subsidiaries are International Road Dynamics (together with its subsidiaries, collectively, "IRD") and Electronic Transaction Consultants, LLC ("ETC").

Our businesses are leading providers of essential ITS products, solutions and services with more than 60 years of combined experience in areas such as commercial vehicle enforcement and tolling. Our customers include government transportation and tolling agencies, traffic engineering operators and industrial, mining and transportation service companies worldwide.

We have predictable and recurring revenue streams derived from selling ITS systems, products and solutions through long-term customer relationships and renewable service contracts. Our businesses offer a portfolio of integrated hardware and software to detect, measure and analyze a variety of transportation metrics which produces a valuable source of analytics and telematics for users. With a variety of product and service offerings throughout our operations in North America, Europe and Latin America, we believe there is an abundance of opportunity to create scale and efficiencies.

Licensing Segment

Our Licensing segment focuses on technology licensing as its principal business activity. We have a wholly owned subsidiary, Wi-LAN Inc. ("WiLAN"), a leading patent licensing company, based in Ottawa, Canada with offices in California and Texas. WiLAN has developed and patented inventions that have proven of great value to third-parties and has a history of acquiring additional patents that it believes hold great value from other inventors.

Both directly and through its wholly owned subsidiaries, WiLAN develops, acquires and commercializes innovative patented technologies that it believes hold value and also works with third party partners to monetize such patents in various ways which often involve sharing revenues and the financial risk associated

with licensing these patents with third party partners. From time to time, WiLAN also sells selected patents as an alternative means of monetization.

Current WiLAN patent portfolios include patents relating to memory interface technologies, semiconductor manufacturing and packaging technologies, automotive applications, computer gaming, intelligent personal assistant technologies, enhanced image processing, streaming video technologies, non-volatile Flash memory, DRAM and other memory technologies as well as semiconductor analog circuitry technologies. WiLAN's license agreements generally grant rights to patents that are relevant to a licensee's products and services as well as granting releases for past sales of relevant products and services. Related license consideration payments may be one-time lump-sum payments, a series of set payments based on fixed-prices made over a specified period or running royalties based on a price per-unit and/or a percentage of product sales or service revenues reported by licensees. The consideration for a license may vary significantly with different licensees because there are many factors that may make different rates and other terms appropriate. Although WiLAN prefers to negotiate license agreements without litigation, to ensure it receives fair consideration for the use of its patented technologies, WiLAN may, in appropriate circumstances, rely on litigation to enforce its patent rights against appropriate infringers with the ultimate goal of signing license agreements.

WiLAN's proven track record, business and technical expertise, as well as its strong reputation in the intellectual property licensing industry has allowed it to continue to be successful. WiLAN continues to access valuable patent portfolios through strategic partnerships with some of the world's largest companies seeking to monetize and protect their patents.

Strategic Review of WiLAN

The Company is conducting a strategic review of WiLAN and has hired Stout as its financial advisor. Stout's IP industry expertise includes structuring numerous IP transactions between technology and licensing companies such as WiLAN as well as the strategic review of licensing programs and large patent portfolio transactions for leading technology companies. Strategic alternatives to be considered may include changes to the corporate structure of WiLAN, the acquisition or disposition of assets, a going private transaction, joint ventures, the sale of WiLAN and alternative operating models, among other potential alternatives. There can be no assurance that this strategic review process will result in the completion of any transaction or other alternative. A special committee of the Board, working closely with management, is overseeing this strategic review.

BUSINESS COMBINATIONS

We remain focused on building robust cash flows and controlling expenses throughout all our businesses to maintain a healthy and sustainable balance sheet capable of supporting both our organic and acquisitive growth strategies. We are well positioned to execute our M&A growth strategy as a result of having a strong balance sheet, the securitization of funds through debt financing and issuing convertible debentures along with the contribution of our business units. As a result of deploying \$160 million of capital in 2021 for acquisitions, we have attracted suitable opportunities in the ITS industry and are actively pursuing targets that are synergistic and accretive to Quarterhill.

OVERALL PERFORMANCE

Interim Condensed Consolidated Statements of (Loss) Income (Unaudited)

	Three months ended September 30,		Nine months ended September 30,	
	2022	2021	2022	2021
Revenues				
Licensing	\$ 248	\$ 11,416	\$ 135,625	\$ 21,014
Intelligent Transportation Systems	42,185	24,927	119,192	53,520
	42,433	36,343	254,817	74,534
Direct cost of revenues				
Licensing	2,976	5,318	56,469	16,041
Intelligent Transportation Systems	30,663	15,612	91,549	33,133
	33,639	20,930	148,018	49,174
Gross profit	8,794	15,413	106,799	25,360
Operating expenses				
Depreciation of right-of-use assets	599	418	1,734	1,001
Depreciation of property, plant and equipment	612	323	1,619	812
Amortization of intangible assets	6,015	5,156	18,561	13,994
Selling, general and administrative expenses	12,242	8,831	40,117	22,242
Research and development expenses	516	728	1,953	1,701
Other charges	1,405	3,666	16,608	4,048
	21,389	19,122	80,592	43,798
Results from operations	(12,595)	(3,709)	26,207	(18,438)
Finance income	(176)	(56)	(671)	(110)
Finance expense	1,878	343	7,385	524
Foreign exchange gain	(1,546)	(637)	(1,806)	(655)
Other income	(1,170)	(661)	(9,427)	(1,847)
(Loss) income before taxes	(11,581)	(2,698)	30,726	(16,350)
Current income tax expense	312	270	1,469	1,044
Deferred income tax (recovery) expense	(2,179)	(965)	6,402	(4,728)
Income tax (recovery) expense	(1,867)	(695)	7,871	(3,684)
Net (loss) income	\$ (9,714)	\$ (2,003)	\$ 22,855	\$ (12,666)
Net (loss) income per share				
Basic	\$ (0.08)	\$ (0.02)	\$ 0.20	\$ (0.11)
Diluted	\$ (0.08)	\$ (0.02)	\$ 0.18	\$ (0.11)

The components of our revenue are as noted below:

ITS	ITS revenues include revenues earned on contracted projects, generally recognized on a percentage of completion basis, service and maintenance contracts and proprietary and OEM products sales.
Licensing	Licensing revenues includes all revenues associated with technology licenses, perpetual software licenses and other revenues characterized as one-time licenses.

Consolidated revenues for the three and nine months ended September 30, 2022 were \$42,433 and \$254,817 compared to \$36,343 and \$74,534 in the comparative prior year periods, respectively. The primary reason for the increase in consolidated revenue was due to the size and timing of completion of licensing agreements in the first quarter, as well as acquisitions that were not present in prior year periods. Licensing revenues for the three and nine months ended September 30, 2022 were \$248 and \$135,625, compared to \$11,416 and \$21,014 in the comparative prior year periods, respectively. Licensing revenues are generally one-time in nature which can result in significant fluctuations in revenue, gross profit and Adjusted EBITDA when the volume or dollar value of licenses changes from one period to the next. For the three and nine months ended September 30, 2022 our ITS revenues were \$42,185 and \$119,192 compared to \$24,927 and \$53,520 in the comparative prior year periods, respectively, as a result of the expansion of our ITS segment with the addition of VDS Verkehrstechnik GmbH ("VDS") in April 2021 and ETC in September 2021.

Gross profit, calculated as revenues less direct cost of revenues for the three and nine months ended September 30, 2022 was \$8,794, or 21% and \$106,799, or 42% (please refer to the *Supplementary Financial Measures* section of this MD&A), compared to \$15,413, or 42%, and \$25,360, or 34%, for the comparative prior year periods, respectively. For the current quarter, our Licensing segment generated \$(2,728) in gross profit compared to \$6,098 in the comparative prior year period. The decrease in gross profit for the three months ended September 30, 2022 compared to the prior year period is due to the lack of significant contracts closing in the current period. For the nine months ended September 30, 2022, Licensing gross margin was significantly higher due to the closing of one significant agreement. For the three and nine months ended September 30, 2022, our ITS segment generated \$11,522 and \$27,643 in gross margin as compared to \$9,315 and \$20,387 in the comparative prior year periods, respectively. The increase in the three and nine months ended September 30, 2022 is primarily due to the acquisition of ETC in September 2021. Margins can vary depending on the particular projects underway and level of product sales delivered in a particular period.

Direct cost of revenues includes: (i) for our Licensing segment, patent licensing expenses which include royalty obligations, cost of patents if purchased from third parties, employee costs, costs incurred in conducting license negotiations, contingent partner and legal fee payments and other licensing and litigation expenses as well as all costs associated with the ownership, maintenance and management of the related patents; and (ii) for our ITS segment, costs related to inventory solutions and all costs of delivering on a project or service including employee costs, inventory consumption costs, subcontractor costs and costs related to any maintenance and warranty work completed

Consolidated operating expenses are comprised of depreciation, amortization of intangible assets, selling, general and administrative costs, research and development costs ("R&D") and other charges. Total operating expenses for the three and nine months ended September 30, 2022 were \$21,389 and \$80,592, compared to \$19,122 and \$43,798 in the comparative prior year periods, respectively. The increase in operating expenses for the three months ended September 30, 2022 was primarily driven by the acquisition of ETC. The increase in the nine months ended September 30, 2022 was primarily driven by the acquisitions of VDS and ETC.

Selling, general and administrative costs are primarily comprised of management, sales and administrative personnel costs, sales and marketing expenses, occupancy costs, and professional advisory and regulatory fees. R&D costs are primarily composed of salary and materials costs associated with our various R&D activities, net of government grants and investment tax credits. Selling, general and administrative and R&D expenses for the three and nine months ended September 30, 2022 was \$12,758 and \$42,070 compared to \$9,559 and \$23,943 for the comparative prior year periods, respectively. The variance is primarily attributable to the additional costs from the acquisitions.

Reconciliation of Net (Loss) Income to Adjusted EBITDA

Management considers Adjusted EBITDA, a non-IFRS measure, to be a useful indicator for the business to capture financial performance in a given period related to the operations of Quarterhill and each of our reporting segments.

We reported Adjusted EBITDA of \$(2,657) and \$66,987 for the three and nine months ended September 30, 2022, compared to \$7,576 and \$4,149 for the comparative prior year periods, respectively. The decrease in Adjusted EBITDA for the three months ended September 30, 2022, compared to the prior year period is due to the changes in revenue and expenses from the ITS segment as a result of the seasonality of certain North American projects, as well as lower margins in newer business currently in the implementation stages. For the nine months ended September 30, 2022, the increase in Adjusted EBITDA is driven by the significantly larger contracts closed in our Licensing segment as compared to the prior year period. Other charges generally consist of advisor fees, accounting and valuation fees, due diligence related expenses and legal fees, restructuring charges, and other one-time items. Although these expenses may recur as we complete additional acquisitions, they are not fundamental to the actual operations of our businesses and, therefore, have been excluded in the calculation of Adjusted EBITDA. The remaining adjustments we have made relate to finance income or expense, foreign exchange gain or loss, depreciation and amortization, impairment loss on intangibles, non-cash stock-based compensation, other income which includes equity earnings from joint ventures, dividends received from joint ventures, other acquisition related accounting items and other one-time charges.

From time to time, we may 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, trade name, non-competition agreements, customer and technology related intangible assets. To the extent we ascribe values to identifiable intangible assets that have finite lives, we amortize those values over the estimated useful lives of the assets.

Reconciliations of Net (Loss) Income to Adjusted EBITDA

	Three months ended September 30,			
	2022		2021	
	\$	Per Share ^[2]	\$	Per Share
Net loss from continuing operations	\$ (9,714)	\$ (0.08)	\$ (2,003)	\$ (0.02)
Adjusted for:				
Income tax expense (recovery)	(1,867)	(0.02)	(695)	(0.01)
Foreign exchange loss (gain)	(1,546)	(0.01)	(637)	(0.01)
Finance expense, net	1,702	0.01	287	—
Other charges	1,405	0.01	3,666	0.04
Depreciation and amortization	7,226	0.06	5,897	0.06
Stock based compensation (recovery) expense	589	0.01	374	—
Dividends received from joint venture	718	0.01	1,348	0.01
Other income	(1,170)	(0.01)	(661)	(0.01)
Adjusted EBITDA^[1]	\$ (2,657)	\$ (0.02)	\$ 7,576	\$ 0.06

[1] Refer to Adjusted EBITDA - Non-IFRS Financial Measures

[2] Refer to Adjusted EBITDA per share - Non-IFRS ratio

Weighted average number of Common Shares

Basic 114,601,779 113,756,329

Reconciliations of Net Income (Loss) to Adjusted EBITDA

	Nine months ended September 30,			
	2022		2021	
	\$	Per Share ^[2]	\$	Per Share
Net income (loss) from continuing operations	\$ 22,855	\$ 0.20	\$ (12,666)	\$ (0.11)
Adjusted for:				
Income tax expense (recovery)	7,871	0.07	(3,684)	(0.03)
Foreign exchange gain	(1,806)	(0.02)	(655)	—
Finance expense, net	6,714	0.06	414	—
Other charges	16,608	0.15	4,048	0.04
Depreciation and amortization	21,914	0.19	15,807	0.15
Stock based compensation (recovery) expense	1,540	0.01	1,384	0.01
Dividends received from joint venture	718	0.01	1,348	0.01
Other income	(9,427)	(0.08)	(1,847)	(0.02)
Adjusted EBITDA^[1]	\$ 66,987	\$ 0.59	\$ 4,149	\$ 0.05

[1] Refer to Adjusted EBITDA - Non-IFRS Financial Measures

[2] Refer to Adjusted EBITDA per share - Non-IFRS ratio

Weighted average number of Common Shares

Basic 114,305,328 114,109,298

SEGMENTED RESULTS

(Unaudited)

Segmented results of operations for the three and nine months ended September 30, 2022 and 2021 are included in this MD&A.

	Three months ended September 30, 2022			
	Licensing	Intelligent Transportation Systems	Corporate	Total
Revenues	\$ 248	\$ 42,185	\$ —	\$ 42,433
Direct cost of revenues	2,976	30,663	—	33,639
Gross (loss) profit	(2,728)	11,522	—	8,794
Depreciation and amortization	3,399	3,780	47	7,226
Selling, general and administrative expenses	997	9,909	1,336	12,242
Research and development expenses	—	516	—	516
Other charges	—	—	1,405	1,405
Results from operations	(7,124)	(2,683)	(2,788)	(12,595)
Finance (income) expense, net	(263)	1,089	876	1,702
Foreign exchange loss (gain)	613	707	(2,866)	(1,546)
Other income	—	(305)	(865)	(1,170)
(Loss) income before taxes	(7,474)	(4,174)	67	(11,581)
Income tax (recovery) expense	(2,745)	(1,055)	1,933	(1,867)
Net loss	\$ (4,729)	\$ (3,119)	\$ (1,866)	\$ (9,714)

	Three months ended September 30, 2021			
	Licensing	Intelligent Transportation Systems	Corporate	Total
Revenues	\$ 11,416	\$ 24,927	\$ —	\$ 36,343
Direct cost of revenues	5,318	15,612	—	20,930
Gross profit	6,098	9,315	—	15,413
Depreciation and amortization	3,137	2,713	47	5,897
Selling, general and administrative expenses	850	5,511	2,470	8,831
Research and development expenses	—	728	—	728
Other charges	—	3,538	128	3,666
Results from operations	2,111	(3,175)	(2,645)	(3,709)
Finance expense (income), net	12	295	(20)	287
Foreign exchange loss (gain)	306	(620)	(323)	(637)
Other (income) loss	—	(655)	(6)	(661)
Income (loss) before taxes	1,793	(2,195)	(2,296)	(2,698)
Income tax (recovery) expense	(214)	(855)	374	(695)
Net income (loss)	\$ 2,007	\$ (1,340)	\$ (2,670)	\$ (2,003)

	Nine months ended September 30, 2022			
	Licensing	Intelligent Transportation Systems	Corporate	Total
Revenues	\$ 135,625	\$ 119,192	\$ —	\$ 254,817
Direct cost of revenues	56,469	91,549	—	148,018
Gross profit	79,156	27,643	—	106,799
Depreciation and amortization	9,957	11,822	135	21,914
Selling, general and administrative expenses	3,428	28,953	7,736	40,117
Research and development expenses	—	1,953	—	1,953
Impairment losses of intangible assets	—	—	—	—
Other charges	601	2	16,005	16,608
Results from operations	65,170	(15,087)	(23,876)	26,207
Finance (income) expense, net	(213)	2,547	4,380	6,714
Foreign exchange loss (gain)	863	648	(3,317)	(1,806)
Other income	—	(1,439)	(7,988)	(9,427)
Income (loss) before taxes	64,520	(16,843)	(16,951)	30,726
Income tax expense (recovery)	6,459	(3,644)	5,056	7,871
Net income (loss)	\$ 58,061	\$ (13,199)	\$ (22,007)	\$ 22,855

	Three months ended September 30, 2021			
	Licensing	Intelligent Transportation Systems	Corporate	Total
Revenues	\$ 21,014	\$ 53,520	\$ —	\$ 74,534
Direct cost of revenues	16,041	33,133	—	49,174
Gross profit	4,973	20,387	—	25,360
Depreciation and amortization	9,318	6,334	155	15,807
Selling, general and administrative expenses	2,976	11,638	7,628	22,242
Research and development expenses	—	1,701	—	1,701
Impairment losses on intangible assets	—	—	—	—
Other charges	—	3,733	315	4,048
Results from operations	(7,321)	(3,019)	(8,098)	(18,438)
Finance expense (income), net	55	394	(35)	414
Foreign exchange gain	(82)	(460)	(113)	(655)
Other (income) loss	—	(1,850)	3	(1,847)
Loss income before taxes	(7,294)	(1,103)	(7,953)	(16,350)
Income tax (recovery) expense	(2,987)	(1,132)	435	(3,684)
Net (loss) income	\$ (4,307)	\$ 29	\$ (8,388)	\$ (12,666)

Intelligent Transportation Systems Segment

	Three months ended September 30,		Nine months ended September 30,	
	2022	2021	2022	2021
Revenues	\$ 42,185	\$ 24,927	\$ 119,192	\$ 53,520
Direct cost of revenues	30,663	15,612	91,549	33,133
Gross profit	11,522	9,315	27,643	20,387
Depreciation and amortization, net	3,780	2,713	11,822	6,334
Selling, general and administrative expenses	9,909	5,511	28,953	11,638
Research and development expenses	516	728	1,953	1,701
Other charges	—	3,538	2	3,733
Results from operations	(2,683)	(3,175)	(15,087)	(3,019)
Finance expense, net	1,089	295	2,547	394
Foreign exchange loss (gain)	707	(620)	648	(460)
Other income	(305)	(655)	(1,439)	(1,850)
Loss before taxes	(4,174)	(2,195)	(16,843)	(1,103)
Income tax recovery	(1,055)	(855)	(3,644)	(1,132)
Net (loss) income	\$ (3,119)	\$ (1,340)	\$ (13,199)	\$ 29

Adjusted EBITDA	\$ 1,914	\$ 4,469	\$ (2,077)	\$ 8,583
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Other reconciling items:

Stock-based compensation	\$ 99	\$ 45	\$ 468	\$ 187
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The ITS segment's revenues for the three and nine months ended September 30, 2022 were \$42,185 and \$119,192 compared to \$24,927 and \$53,520 in the prior year comparative periods, respectively, primarily due to the expansion of our ITS segment with the acquisitions of VDS and ETC.

Our ITS revenue streams consist of revenues earned on contracted projects, which are generally recognized over time, product sales, hardware and software system implementations, and service and maintenance contracts. Service and maintenance projects generally range from one to five year terms but can be renewed with some contracts that could reach up to ten years or more. For project based work, revenues will routinely vary significantly depending on the timing and nature of the specific projects underway in each reporting period.

The ITS segment's gross profit as a value and as a percentage of revenues may be subject to significant variance in each reporting period due to the nature and type of contract and service work currently in process, currency volatility and competitive factors, among other things.

Total operating expenses are comprised of selling, general and administrative costs, R&D costs, depreciation, amortization of intangible assets and other charges. Total operating expenses for the three and nine months ended September 30, 2022 were \$14,205 and \$42,730 compared to \$12,490 and \$23,406 in the prior year comparative periods, respectively. The general increase compared to the prior period generally reflects the addition to the operating expenses of our new acquisitions.

We are committed to continual investments in R&D to enhance our current products and advance the availability of new products within the ITS industry. For the three and nine months ended September 30, 2022, net R&D spending levels were approximately 1.2% and 2% of segment revenue, respectively. The increase in R&D expenses compared to the prior year comparative period was primarily due to government grants not present in the current period.

Income tax recovery for the three and nine months ended September 30, 2022 were \$1,055 and \$3,644 compared to a recovery of \$855 and \$1,132 for the three and nine months ended September 30, 2021. This was caused primarily by the decline in profit, due to the timing and nature of projects, as well as lower margins in newer business currently in the implementation stages.

Our ITS segment is exposed to foreign exchange risk primarily relating to its revenue, operating and capital expenditures, net assets held in foreign currencies, and embedded derivative portions of unearned revenue on certain U.S. dollar denominated sales contracts in its North America and Latin America markets. This is more fully described in the Risks and Uncertainties section.

Other income includes IRD's share of income in its joint venture, Xuzhou-PAT Control Technologies Limited ("XPCT"). XPCT has two business divisions that provide products and services to the ITS industry and construction equipment manufacturers. For the three and nine months ended September 30, 2022, IRD's share of XPCT's income was \$284 and \$1,283 compared to \$587 and \$1,774 for the three and nine months ended September 30, 2021.

Licensing Segment

	Three months ended September 30,		Nine months ended September 30,	
	2022	2021	2022	2021
Revenues	\$ 248	\$ 11,416	\$ 135,625	\$ 21,014
Direct cost of revenues	2,976	5,318	56,469	16,041
Gross (loss) profit	(2,728)	6,098	79,156	4,973
Depreciation and amortization	3,399	3,137	9,957	9,318
Selling, general and administrative expenses	997	850	3,428	2,976
Other charges	—	—	601	—
Results from operations	(7,124)	2,111	65,170	(7,321)
Finance expense (income), net	(263)	12	(213)	55
Foreign exchange loss (gain)	613	306	863	(82)
Loss before taxes	(7,474)	1,793	64,520	(7,294)
Income tax (recovery) expense	(2,745)	(214)	6,459	(2,987)
Net income (loss)	\$ (4,729)	\$ 2,007	\$ 58,061	\$ (4,307)
Adjusted EBITDA	\$ (3,672)	\$ 5,389	\$ 75,963	\$ 2,704

Other reconciling items:

Stock-based compensation	\$ 53	\$ 141	\$ 235	\$ 707
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For the three and nine months ended September 30, 2022, Licensing segment revenues were \$248 and \$135,625 compared to \$11,416 and \$21,014 in the comparative prior year periods, respectively. The decrease in revenues for the three months ended September 30, 2022 is largely due to the general one-time nature of WiLAN's licenses, as the current period did not see any significant contracts close. Accordingly, significant fluctuations in revenue, gross profit, and Adjusted EBITDA will occur when volume or dollar value of licenses change from one period to the next. The increase in revenue in the nine months ended September 30, 2022 was directly attributable to the closure of a significantly large licensing contract in the first quarter of 2022.

Patent licenses are considered a promise to provide the right to use patented technologies and revenue is recognized when the patent right is effective. An exception to this guidance is related to revenue generated from sales or usage-based royalties promised in exchange for a patent license. In these circumstances, 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.

Direct cost of revenues for the three and nine months ended September 30, 2022 were \$2,976 and \$56,469 compared to \$5,318 and \$16,041 for the prior year comparative periods, respectively. The decrease in direct costs of revenues for the three months ended September 30, 2022 was directly attributed to the decrease in contracts closed. For the nine months ended September 30, 2022 revenue significantly increased compared to the prior year periods resulting in a significant increase in the related contingent expenses incurred. Contingent litigation and contingent partner expenses can vary based on the arrangements negotiated with each contingent partner for each specific contract licensed in a quarter as well as the extent of licensing in a period.

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 and any loss on disposal of assets or impairment losses. For the three and nine months ended September 30, 2022, operating expenses were \$4,396 and \$13,986 as compared to \$3,987 and \$12,294 in the comparative prior year period primarily driven by an increase in other charges as a result of non-recurring termination costs.

Income tax recovery for the three months ended September 30, 2022 was \$2,745 as compared to an income tax recovery of \$214 for the three months ended September 30, 2021. The increase was due to the higher operating

losses as a result of fewer significant contracts being closed in the current year. For nine months ended September 30, 2022, income tax increased from an income tax recovery in the prior period primarily from the significant revenue and profitability increases over the same comparative period. Current tax expenses for the reported periods consist of deferred income tax expenses and current tax expenses which consist of accrued corporate tax expenses as well as foreign taxes withheld on payments received from licensees in foreign tax jurisdictions for which there is no treaty relief.

SELECTED CONSOLIDATED QUARTERLY RESULTS

(Unaudited)

Quarter ended	Revenues \$ 000s	Net income (loss) \$ 000s	Net income (loss) per share (basic) \$	Adjusted EBITDA * \$ 000s	Adjusted EBITDA per share *(basic) \$
September 30, 2022	42,433	(9,714)	(0.08)	(2,657)	(0.02)
June 30, 2022	43,879	(24,332)	(210.00)	(9,454)	(0.07)
March 31, 2022	168,505	56,387	0.49	79,098	0.69
December 31, 2021	51,161	(9,517)	(0.08)	878	0.01
September 30, 2021	36,343	(2,003)	(0.02)	7,576	0.06
June 30, 2021	18,875	(6,376)	(0.06)	(3,019)	(0.03)
March 31, 2021	19,316	(4,287)	(0.04)	(408)	0.00
December 31, 2020	18,092	(10,201)	(0.09)	(6,080)	(0.05)

Adjusted EBITDA and the respective per share amounts are non-IFRS measures; please refer to "Non-IFRS Financial Measures and Non-IFRS Ratios" 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 due to the portion of consolidated revenues derived from the general one-time nature of WiLAN's licenses as well as the fluctuation occurring in the ITS business due to seasonality. 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 risk factors affecting our revenue and results, many of which are outside of our control, include those set out under the heading "Risk Factors" in our AIF.

CAPITAL AND LIQUIDITY

The Company's capital management objectives are to maintain financial flexibility in order to pursue its strategy of organic and acquisitive growth, and, from time to time, pay dividends and, from time to time, return capital to shareholders. The Company defines its capital as cash, the aggregate of cash and cash equivalents, short-term investments, restricted short-term investments, long-term debt, Convertible Debentures and shareholders' equity. The Company manages its capital structure in accordance with changes in economic conditions. To maintain or adjust its capital structure, the Company may purchase Common Shares for cancellation pursuant to one or more normal course issuer bids and/or substantial issuer bids, issue new Common Shares, issue Convertible Debentures or raise or retire our debts.

Our cash, cash equivalents and short-term investments, exclusive of any restricted amounts, totaled \$76,025 at September 30, 2022 compared to \$72,597 at December 31, 2021 representing an increase of \$3,428, primarily due to normal working capital fluctuations. At September 30, 2022, we had sufficient working capital of \$112,770 to cover short and long-term obligations. Our cash position remains very strong, however, due to the nature of our business segment activities, operating cash flows may vary significantly between periods due to changes in working capital balances.

Our cash resources are generally used to fund our operations, provide working capital to any of our subsidiaries if needed and to acquire additional businesses. 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/or other securities to the public.

We have a revolving credit facility through Canadian Imperial Bank of Commerce ("CIBC") available in the amount of \$8,000 (or the equivalent in US dollars) for general corporate purposes and a further \$2,000 for a foreign exchange facility. Canadian dollar or US 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 US base rate plus 1.0% per annum as may be applicable. Borrowings under this facility are collateralized by a general security agreement over our cash and cash equivalents, receivables and present and future personal property of the Quarterhill holding company and the Licensing segment. As at and during the quarter ended September 30, 2022, we had no borrowings under this facility.

In connection with the ETC acquisition in the prior year, we entered into a credit agreement to receive senior secured credit facilities from HSBC Bank Canada and Royal Bank of Canada consisting of a revolving credit facility in the maximum amount of \$18,794 (US\$15,000) and a term credit facility of \$62,926 (US\$50,000). These facilities replaced all previously existing credit facilities we had with HSBC Bank Canada. The interest rate as at September 30, 2022 was 5.96% and both facilities have a maturity date of August 31, 2026 with a general security agreement over all of the assets in North America of IRD, ETC and its parent holding company, Quarterhill USA, Inc. The carrying value of these assets as at September 30, 2022 was \$240,898. As at September 30, 2022, we had no borrowings drawn from the revolving credit facility.

In October 2021, we filed and obtained a receipt for a short form base shelf prospectus for an aggregate offering amount of up to \$200 million over 25 months and subsequently entered into a \$57.5 million bought-deal financing of Convertible Debentures with a syndicate of underwriters pursuant to a prospectus supplement. The remaining balance of available capital that we can raise through our base shelf prospectus is approximately \$142 million which we can use to support our M&A strategy and provide additional working capital to support the operations of our businesses.

CONTRACTUAL OBLIGATIONS

Discounted contractual obligations relating to bank indebtedness, accounts payable and accrued liabilities, long-term debt, and lease liabilities as at September 30, 2022 are as follows:

	Total	Less than 1 year	2 - 3 years	4 - 5 years	Thereafter
Accounts payable and accrued liabilities	\$ 38,218	\$ 38,218	\$ —	\$ —	\$ —
Long-term debt	30,813	3,424	13,694	13,695	—
Lease liabilities	9,872	2,270	3,874	3,392	336
	\$ 78,903	\$ 43,912	\$ 17,568	\$ 17,087	\$ 336

OUTSTANDING COMMON SHARE DATA

We are authorized to issue an unlimited number of Common Shares, 6,351 special preferred, redeemable, retractable, non-voting shares and an unlimited number of preferred shares, issuable in series. As at September 30, 2022, there were 114,639,700 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 9.5% of our issued and outstanding Common Shares from time to time which was, as at September 30, 2022, up to 10,890,772 Common Shares. As at September 30, 2022, we had options granted to purchase up to 8,821,908 Common Shares.

Also pursuant to the Plan the Company has granted restricted stock units ("RSUs") to certain employees which may be settled in cash or Common Shares issued from treasury on a one-to-one basis in six tranches, with the first tranche vested at the grant date and each subsequent tranche vesting upon the Company coming out of its regular quarterly blackout for the fiscal quarters ending June 30 and December 31, in 2022, 2023, and 2024 until fully vested. The Company granted 556,721 RSUs on March 15, 2021, valued using the most recent TSX

closing price for the Common Shares on the grant date of \$2.59 for a total of \$1,441. The Company granted 196,417 RSUs on May 13, 2022, valued using the most recent TSX closing price for the Common Shares on the grant date of \$2.14 for a total of \$420. The Company granted 150,000 RSUs on June 6, 2022, valued using the most recent TSX closing price for the Common Shares on the grant date of \$2.09 for a total of \$314. For the three and nine months ended September 30, 2022, the Company has recognized \$270 and \$715, respectively, in stock-based compensation expense as a result.

OFF-BALANCE SHEET ARRANGEMENTS

As at September 30, 2022, IRD has an outstanding 100% guarantee to XPCT, for a loan in the amount of 15,000 Chinese yuan or \$2,892 (December 31, 2021 - \$3,008); IRD has the right to seek recourse against its joint venture partner for any amount greater than IRD's proportionate share of the liability. The amount owing represents the maximum amount available to be drawn under this facility.

CONTINGENT LIABILITIES

In connection with Quarterhill's original acquisition of VIZIYA in 2017, the Company agreed to pay VIZIYA's former shareholders up to an additional US\$11,900 in cash and common shares pursuant to the terms of the acquisition agreement if VIZIYA achieved certain targets for its earnings before interest, taxes and amortization ("Eligible Earnings") between at least US\$6,750 and US\$11,850 for the period from April 1, 2017 to July 31, 2019. Additionally, if VIZIYA achieved cumulative Eligible Earnings during that period exceeding US\$11,850, the Company would be required to pay 50% of the amount of those excess Eligible Earnings as additional contingent consideration until that cumulative Eligible Earnings reached a cap of US\$23,700. In 2019, Quarterhill determined that VIZIYA did not achieve the minimum amount of cumulative Eligible Earnings for its former shareholders to be paid any additional amounts. In 2019, VIZIYA's former shareholders initiated arbitration of the Eligible Earnings and additional payment calculations pursuant to the terms of the acquisition agreement. This arbitration and a related litigation matter were fully and finally settled in July 2022 including by way of Quarterhill making a \$14,600 (approximately US\$11,300) payment in cash; all other details of this settlement are confidential. The Company has recognized this payment through "Other charges".

On February 3, 2022, the United States District Court for the District of Delaware issued a decision that WiLAN be required to pay an award of attorney fees and related costs upon the issuance of an order in respect of litigation before that Court. On April 29, 2022, the United States District Court for the District of Delaware issued orders instructing WiLAN to pay US\$3,146 to Sharp Electronics Corporation and US\$1,032 to Vizio, Inc., representing a total amount of US\$4,179. WiLAN filed appeals of these orders with the United States Court of Appeal for the Federal Circuit on May 31, 2022 and as at June 30, 2022, it was determined that it is not more likely than not that a legal liability exists as to these matters and, therefore, no provision has been made in the Company's financial statements related thereto.

PROPOSED TRANSACTIONS

There are no proposed transactions.

CRITICAL ESTIMATES

Key areas involving estimation, uncertainty and critical judgments include the following:

Business combinations

Purchase prices related to business combinations are allocated to the underlying acquired assets and liabilities based on their estimated fair value at the time of acquisition. The determination of fair value requires the Company to make assumptions, estimates and judgments regarding cash flow projects, valuation techniques, economic risk, weighted average cost of capital and future events. Significant judgments, estimates and assumptions are also required by management in estimating the amount of contingent consideration payable. As a result, the purchase price allocation impacts the Company's reported assets and liabilities, including the amounts allocated to intangible assets and goodwill, and future earnings due to the impacts of amortization expense and impairment testing.

Revenue recognition

Contract revenue, contract costs, contract liabilities and contract assets relating to the ITS segment are based on estimates and judgments used in determining the progress of a contract. Estimates include amounts derived to measure the progress of the contract. Progress towards completion is measured by comparing the actual costs incurred to the total estimated costs for the contract. In determining the estimated costs to complete the contracts, assumptions and estimates are required to evaluate issues related to schedule, material and labour costs, changes in contract scope and subcontractor costs. Due to the nature of project contracts, estimates may change significantly between accounting periods. Changes in estimates are reflected in the period in which the circumstances that gave rise to the change became known and affect the Company's revenue, contract assets, and contract liabilities.

Asset Impairments and Impairment Reversals

Quarterhill's estimate of the recoverable amount for the purpose of impairment testing requires management to make assumptions regarding estimates of the present value of future cash flows including growth opportunities, economic risk, and the discount rate. These same assumptions are also used when assessing recoverability of impairments previously recognized.

Income taxes and deferred taxes

Quarterhill is subject to income taxes in Canada and foreign jurisdictions. The calculation of income taxes in many cases, however, requires significant judgment in interpreting tax rules and regulations. The Company's tax filings are subject to audits which could materially change the amount of current and deferred income taxes and liabilities. Additionally, estimation of the income tax provision includes evaluating the recoverability of deferred tax assets based on the assessment of the Company's ability to use the underlying future tax deductions before they expire against future taxable income. The assessment is based on existing tax laws, estimates of future profitability and tax planning strategies. If the future taxable results of the Company differ significantly from those expected, the Company would be required to increase or decrease the carrying value of the deferred tax assets with a potentially material impact on the Company's consolidated statements of financial position and consolidated statements of comprehensive income. The carrying amount of deferred tax assets is reassessed at each reporting period and reduced to the extent that it is no longer probable that sufficient taxable income will be available to utilize all or part of the deferred tax assets. Unrecognized deferred tax assets are recognized to the extent that it is more likely than not that taxable income will be available against which deferred tax assets can be utilized.

FUTURE ACCOUNTING PRONOUNCEMENTS

Listed below are the standards, amendments and interpretations that the Company reasonably expects to be applicable at a future date and intends to adopt when they become effective.

Amendment to IAS 1, Presentation of Financial Statements - Classification of Liabilities as Current or Non-Current

In January 2020, the IASB issued amendments to paragraphs 69-76 of IAS 1 to clarify the requirements for classifying liabilities as current or non-current. The amendments specify that the conditions which exist at the end of a reporting period are those which will be used to determine if a right to defer settlement of a liability exists. The amendments also clarify the situations that are considered a settlement of a liability. The amendments are effective January 1, 2023, with early adoption permitted. The amendments are to be applied retrospectively. Management is currently assessing the impact of this amendment.

Amendments to IAS 8, Definition of Accounting Estimates

In February 2021, the IASB issued amendments to IAS 8, in which it introduces a definition of 'accounting estimates'. The amendments clarify the distinction between changes in accounting estimates and changes in accounting policies and the correction of errors. Also, they clarify how entities use measurement techniques and inputs to develop accounting estimates. The amendments are effective January 1, 2023, with early adoption permitted. Management is current assessing the impact of these amendments.

Amendments to IAS 1 and IFRS Practice Statement 2

In February 2021, the IASB issued amendments to IAS 1 and IFRS Practice Statement 2 Making Materiality Judgements, in which it provides guidance and examples to help entities apply materiality judgements to

account policy disclosures. The amendments aim to help entities provide accounting policy disclosures that are more useful by replacing the requirement for entities to disclose their "significant" accounting policies with a requirement to disclose their "material" accounting policies and adding guidance on how entities apply the concept of materiality in making decisions about accounting policy disclosures. The amendments are applicable January 1, 2023, with early adoption permitted. Management is currently assessing the impact of these amendments.

RISKS AND UNCERTAINTIES

Quarterhill and its operating subsidiaries operate in dynamic business and competitive economic environments that expose it to a number of risks and uncertainties. This MD&A is qualified in its entirety by the risk factors described under the heading "Risk Factors" 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.

In addition to items identified in the AIF, we may be exposed to other risks as follows:

Credit Risk

Credit risk is the risk of financial loss to the Company if a licensee or counter-party to a financial instrument fails to meet its contractual obligations. Financial instruments that potentially subject us to concentrations of credit risk consist primarily of cash and cash equivalents, short-term investments, restricted short-term investments and accounts receivable.

Our cash and cash equivalents and short-term investments consist primarily of deposit investments that are held primarily with Canadian chartered banks. Management does not expect any counter-parties to fail to meet their obligations.

We recognize a loss allowance provision using the simplified approach based on lifetime expected credit losses. Our exposure to credit risk with our accounts receivable from customers is influenced mainly by the individual characteristics of each customer. Our operating subsidiaries' customers are for the most part, large multinational companies or government organizations which do not have a history of non-payment. Credit risk from accounts receivable encompasses the default risk of customers. Prior to entering into transactions with new customers, we assess the risk of default associated with the particular customer. In addition, on an ongoing basis, management monitors the level of accounts receivable attributable to each customer and the length of time taken for amounts to be settled and where necessary, takes appropriate action to follow up on those balances considered overdue. We have had no material bad debts for any periods presented.

None of the amounts outstanding have been challenged by the respective counterparties and we continue to conduct business with them on an ongoing basis.

We review financial assets on an ongoing basis with the objective of identifying potential matters which could delay the collection of funds at an early stage. Once items are identified as being past due, contact is made with the respective customer to determine the reason for the delay in payment and to establish an agreement to rectify the breach of contractual terms.

Liquidity Risk

Liquidity risk is the risk that we will not be able to meet our financial obligations as they fall due. Our objective in managing liquidity risk is to ensure that we have sufficient liquidity available to meet our liabilities when due. We manage our liquidity needs through various sources including cash generated through operations, cash reserves, various revolving credit facilities, long-term debt, convertible debentures and the issuance of Common Shares. Additionally, implementation of certain projects by our operating subsidiaries often requires the subsidiary and/or the Company to obtain significant guarantees (or bonds) from financial institutions and/or insurance companies to secure the subsidiary's obligations under bids and/or possible warranty claims. All such bonds are in line with standard industry practice.

Market Risk

Market risk is the risk that the fair value of future cash flows from our financial instruments will fluctuate due to changes in interest rates and foreign currency exchange rates.

Interest Rate Risk

The financial instruments that expose the Company to interest rate risk are its cash and cash equivalents, short-term investments, bank indebtedness and long-term debt. The Company's objectives of managing its cash and cash equivalents and short-term investments are to ensure sufficient funds are maintained on hand at all times to meet day-to-day requirements and to place any amounts that are considered in excess of day-to-day requirements on short-term deposit with the Company's banks so that they earn interest. When placing amounts of cash and cash equivalents into short-term investments, the Company only places investments with Canadian chartered banks and ensures that access to the amounts placed can be obtained on short notice. A one percent increase or decrease in interest rates would not have resulted in a material increase or decrease in interest income or expense during the three and nine months ended September 30, 2022.

Currency Risk

Portions of the Company's revenues and operating expenses are denominated in U.S. dollars, Chilean pesos, Mexican pesos, Euros and Chinese yuan. Because these financial statements are reported in Canadian dollars, the Company's operating results are subject to changes in the exchange rate of the foreign currencies (primarily U.S. dollars) relative to the Canadian dollar. For instance, a decrease in the value of the US dollar relative to the Canadian dollar has an unfavourable impact on US dollar denominated revenues and a favourable impact on U.S. dollar denominated direct cost of revenues and operating expenses. Approximately 76% of the Company's cash and cash equivalents and short-term investments are denominated in US dollars and are subject to changes in the exchange rate of the Canadian dollar relative to the U.S. dollar.

The COVID-19 Pandemic

Since the onset of the COVID-19 Pandemic and the impacts of this crisis on the global economy, our businesses continue to evolve as we adapt to manage, operate, and sustain these businesses during these uncertain times.

Some countries or states in which we operate remain in COVID-19-related lockdowns of some degree and/or have imposed restrictions on non-essential business activities. As a result, each of our business segments has undertaken a number of steps to protect their employees while continuing their respective business operations. Since the onset of the pandemic, we have continued to employ proactive measures including closing offices, making provision for employees working from home, eliminating travel and closely following the guidelines issued by health and regulatory authorities. Our human resource policies have evolved to respond to questions or concerns from our employees while continuing to explore opportunities to return to "in office" work environments where necessary. As a result of our proactive measures, our business units remain in full operation and continue to execute on the delivery of existing customer mandates, while also working to build and sustain business pipelines and advance new opportunities through their respective sales cycles.

Our business has not been immune to the impacts of the COVID-19 Pandemic, however, the majority of the work within each business unit remains ongoing, and in the case of the ITS business segment, certain work in our ITS segment has been deemed "essential" by applicable governing authorities. There remains risk, however, that certain project work or license sales will be deferred or restricted and new orders delayed, particularly in jurisdictions outside of Canada and the United States such as Latin America. In addition, we are experiencing some work inefficiencies due mainly to travel restrictions and also some delay in supply chain deliveries.

Diversification is central to Quarterhill's business model and, as such, revenues are not highly concentrated within any geography, business, or client base. During this period of uncertainty, we are prudently managing costs and safeguarding the strength of our balance sheet to support the resiliency of our business.

All risk 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.

DISCLOSURE CONTROLS AND PROCEDURES AND INTERNAL CONTROL OVER FINANCIAL REPORTING

Our Chief Executive Officer and Chief Financial Officer have designed or caused to be designed under their supervision, disclosure controls and procedures which provide reasonable assurance that material information regarding Quarterhill is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer in a timely manner.

In addition, our Chief Executive Officer and Chief Financial Officer have designed or caused to be designed under their supervision internal controls over financial reporting ("ICFR") to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements. The control framework used to design our ICFR is the "Internal Control - Integrated Framework (2013)" published by the Committee of Sponsoring Organizations of the Treadway Commission.

As of December 31, 2021, an evaluation was performed on the effectiveness of ICFR to provide reasonable assurance regarding the reliability of financial reporting and financial statement compliance with IFRS. Based on the evaluation performed at that time, the Chief Executive Officer and Interim Chief Financial Officer concluded they were able to certify that the design and operating effectiveness of ICFR were effective.

The Company has implemented certain internal control procedure changes to our ICFR related to the restatement noted in note 17 to the interim consolidated financial statements for the three and nine months ended September 30, 2022.

There were no changes to our ICFR during the three and nine months ended September 30, 2022 that have materially affected, or are reasonably likely to materially affect, our ICFR.

A control system, no matter how well designed, can provide only reasonable, not absolute, assurance that its objectives are met. Due to inherent limitations in all such systems, no evaluations of controls can provide absolute assurance that all control issues, if any, within a company have been detected. Accordingly, our disclosure controls and procedures and our internal controls over financial reporting are effective in providing reasonable, not absolute, assurance that the objectives of our control systems have been met.

