



Altus Group

2019
Management's
Discussion &
Analysis

Altus Group Limited



Management's Discussion & Analysis December 31, 2019

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The following management's discussion and analysis ("MD&A") is intended to assist readers in understanding Altus Group Limited's consolidated business, its business environment, strategies, performance, outlook and applicable risks. References to the "Company" or "Altus Group" are to the consolidated group of entities, and this should be read in conjunction with our consolidated financial statements and accompanying notes (the "financial statements") as at and for the year ended December 31, 2019, which have been prepared on the basis of International Financial Reporting Standards ("IFRS") and reported in Canadian dollars. Unless otherwise indicated herein, references to "\$" are to Canadian dollars.

Unless the context indicates otherwise, all references to "we", "us", "our" or similar terms refer to Altus Group, and, as appropriate, our consolidated operations.

This MD&A is dated as of February 20, 2020.

Forward-Looking Information

Certain information in this MD&A may constitute "forward-looking information" within the meaning of applicable securities legislation. All information contained in this MD&A, other than statements of current and historical fact, is forward-looking information. Forward-looking information includes, but is not limited to, the discussion of our business and operating initiatives, focuses and strategies, our expectations of future performance for our various business units and our consolidated financial results, including the guidance on financial expectations, and our expectations with respect to cash flows and liquidity. Generally, forward-looking information can be identified by use of words such as "may", "will", "expect", "believe", "plan", "would", "could", "remain" and other similar terminology. All of the forward-looking information in this MD&A is qualified by this cautionary statement.

Forward-looking information is not, and cannot be, a guarantee of future results or events. Forward-looking information is based on, among other things, opinions, assumptions, estimates and analyses that, while considered reasonable by us at the date the forward-looking information is provided, inherently are subject to significant risks, uncertainties, contingencies and other factors that may cause actual results, performance or achievements, industry results or events to be materially different from those expressed or implied by the forward-looking information. The material factors or assumptions that we identified and applied in drawing conclusions or making forecasts or projections set out in the forward-looking information include, but are not limited to: engagement and product pipeline opportunities in Altus Analytics will result in associated definitive agreements; settlement volumes in Property Tax will occur on a timely basis and that assessment authorities will process appeals in a manner consistent with expectations; the successful execution of our business strategies; consistent and stable economic conditions or conditions in the financial markets; consistent and stable legislation in the various countries in which we operate; no disruptive changes in the technology environment; the opportunity to acquire accretive businesses; the successful integration of acquired businesses; and the continued availability of qualified professionals.

Inherent in the forward-looking information are known and unknown risks, uncertainties and other factors that could cause our actual results, performance or achievements, or industry results, to differ materially from any results, performance or achievements expressed or implied by such forward-looking information. Those risks, uncertainties and other factors that could cause actual results to differ materially from the forward-looking information include, but are not limited to: general state of the economy; currency; financial performance; financial targets; commercial real estate market; industry competition; acquisitions;

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cloud subscriptions transition; software renewals; professional talent; third party information; enterprise transactions; new product introductions; technological change; intellectual property; technology strategy; information technology governance and security; product pipeline; property tax appeals; legislative and regulatory changes; fixed-price and contingency engagements; appraisal and appraisal management mandates; Canadian multi-residential market; customer concentration and loss of material clients; interest rates; credit; income tax matters; health and safety hazards; contractual obligations; legal proceedings; insurance limits; dividend payments; leverage and financial covenants; share price; capital investment; and issuance of additional common shares, as described in this document under "Key Factors Affecting the Business".

Given these risks, uncertainties and other factors, investors should not place undue reliance on forward-looking information as a prediction of actual results. The forward-looking information reflects management's current expectations and beliefs regarding future events and operating performance and is based on information currently available to management. Although we have attempted to identify important factors that could cause actual results to differ materially from the forward-looking information contained herein, there are other factors that could cause results not to be as anticipated, estimated or intended. The forward-looking information contained herein is current as of the date of this MD&A and, except as required under applicable law, we do not undertake to update or revise it to reflect new events or circumstances. Additionally, we undertake no obligation to comment on analyses, expectations or statements made by third parties in respect of Altus Group, our financial or operating results, or our securities.

Certain information in this MD&A may be considered as "financial outlook" within the meaning of applicable securities legislation including the outlook for Property Tax and the long-term revenue and expected Adjusted EBITDA margin goals for Altus Analytics. The purpose of this financial outlook is to provide readers with disclosure regarding Altus Group's reasonable expectations as to the anticipated results of its proposed business activities for the periods indicated. Readers are cautioned that the financial outlook may not be appropriate for other purposes.

Non-IFRS Measures

We use certain non-IFRS measures as indicators of financial performance. Readers are cautioned that they are not defined performance measures, and do not have any standardized meaning under IFRS and may differ from similar computations as reported by other similar entities and, accordingly, may not be comparable to financial measures as reported by those entities. We believe that these measures are useful supplemental measures that may assist investors in assessing an investment in our shares and provide more insight into our performance.

Adjusted Earnings before Interest, Taxes, Depreciation and Amortization, ("Adjusted EBITDA"), represents profit (loss) before income taxes adjusted for the effects of occupancy costs calculated on a consistent basis to 2018, finance costs (income), amortization of intangibles, depreciation of property, plant and equipment, depreciation of right-of-use assets, acquisition and related transition costs (income), restructuring costs (recovery), share of profit (loss) of associates, unrealized foreign exchange gains (losses), gains (losses) on disposal of property, plant and equipment and intangibles, gains (losses) on investments, impairment charges, non-cash Equity Compensation Plan and Long-Term Equity Incentive Plan costs, gains (losses) on derivatives, gains (losses) on hedging transactions, gains (losses) on equity derivatives net of mark-to-market adjustments on related restricted share units ("RSUs") and deferred share units

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("DSUs") being hedged and other costs or income of a non-operating and/or non-recurring nature. Subsequent to the adoption of IFRS 16, *Leases*, on January 1, 2019, the measurement of Adjusted EBITDA has been modified to reflect occupancy costs on a consistent basis as 2018. Adjusted EBITDA margin represents the percentage factor of Adjusted EBITDA to revenues. Refer to page 26 for a reconciliation of Adjusted EBITDA to our financial statements.

Adjusted Earnings (Loss) per Share, ("Adjusted EPS"), represents basic earnings (loss) per share adjusted for the effects of occupancy costs calculated on a consistent basis to 2018, depreciation of right-of-use assets, finance costs (income), net - leases, amortization of intangibles of acquired businesses, net of changes in fair value of related equity derivatives, acquisition and related transition costs (income), restructuring costs (recovery), unrealized foreign exchange losses (gains), gains (losses) on disposal of property, plant and equipment and intangibles, losses (gains) on investments, interest accretion on contingent consideration payables, impairment charges, non-cash Equity Compensation Plan and Long-Term Equity Incentive Plan costs, gains (losses) on derivatives, losses (gains) on equity derivatives net of mark-to-market adjustments on related RSUs and DSUs being hedged and other costs or income of a non-operating and/or non-recurring nature. The basic weighted average number of shares is adjusted for the effects of weighted average number of restricted shares. All of the adjustments are made net of tax. Refer to page 27 for a reconciliation of Adjusted EPS to our financial statements.

Overview of the Business

Altus Group Limited is a leading provider of software, data solutions and independent advisory services to the global commercial real estate ("CRE") industry. Our businesses, Altus Analytics and Altus Expert Services, reflect decades of experience, a range of expertise, and technology-enabled capabilities. Our solutions empower clients to analyze, gain insight and recognize value on their real estate investments. Headquartered in Canada, we have approximately 2,500 employees around the world, with operations in North America, Europe and Asia Pacific. Our clients include many of the world's largest CRE industry participants. Altus Group pays a quarterly dividend of \$0.15 per share and our shares are traded on the TSX under the symbol AIF.

We have three reporting business segments - Altus Analytics, Commercial Real Estate Consulting ("CRE Consulting") and Geomatics.

Altus Analytics

Our Altus Analytics segment consists of revenues from software sold under the ARGUS brand and from data solutions that are made available to clients through our Appraisal Management solutions, as well as through data subscription products. Altus Analytics clients predominately consist of CRE asset and investment management firms, including large owners, managers and investors of CRE assets and CRE funds, as well as other CRE industry participants including service providers, brokers, and developers.

Our ARGUS software solutions are among the most recognized in the CRE industry and are sold globally. Our product stack for global CRE asset and investment management comprises end-to-end integrated software solutions on our cloud platform that provide visibility at the asset, portfolio and fund level to help clients enhance performance of their CRE investments. Our flagship ARGUS Enterprise ("AE") software is the leading global solution for CRE valuation and portfolio management and is widely recognized as the industry property valuation standard in key CRE markets. AE's suite of functionality enables property valuation and cash flow analysis, property budgeting and strategic planning, investment and fund

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structure forecasting, dynamic reporting capabilities, and scenario sensitivity and risk analysis. As of the third quarter of 2019, we offer AE on a cloud platform while continuing to support the on-premise software. The cloud platform leverages the AE calculation engine and provides clients with cloud-based infrastructure; new analytics capabilities, (such as benchmarking functionality); integrations with other ARGUS products, storage, access and back-up of AE files; and access to new ARGUS applications (such as ARGUS Acquire, a deal management solution for CRE acquisitions; and ARGUS API, an application programming interface). Other ARGUS products include ARGUS Taliance (cloud-based fund solutions for alternative investment firms), ARGUS Voyanta (a cloud-based data management solution), and ARGUS Developer and ARGUS EstateMaster (software for development feasibility analysis). In addition to standard technology services related to education, training and implementation, we also offer advisory and managed services for real estate organizations' front-to-back-office strategies, processes and technology.

Fueled by our ARGUS software solutions, we provide information services on a global basis through our Appraisal Management platform and data subscription products. Our global Appraisal Management solutions combine data and analytics functionality with a managed service delivery to enable institutional real estate investors to perform quarterly performance reviews, benchmarking and attribution analysis of their portfolios. Through this offering we provide an end-to-end valuation management solution for our institutional clients, providing independent oversight and expertise while leveraging our data analytics platform. We primarily offer Appraisal Management solutions in the U.S., and we are expanding into Europe and Asia Pacific. Our Appraisal Management clients primarily consist of open and closed real estate funds, including large pension funds. Altus Analytics also includes a Canadian data subscription product, Altus Data Studio, which provides comprehensive real estate information on the Canadian residential, office, industrial and investment markets with unique data visualization capabilities. Our Canadian data covers new homes, investment transactions and commercial market inventory in key markets, and provides intelligence on the national housing market and consumer home buying and borrowing patterns.

Prior to 2020, the majority of our customers had licensed our AE software products on an on-premise basis, and had either paid on perpetual terms with ongoing maintenance, or on subscription terms. As of the start of 2020, all of our Altus Analytics software products are now being sold only on a subscription-based model. Our software subscription agreements vary in length between one to five years, and the subscription fee primarily depends on the number of users and the applications deployed. We enjoy industry leading retention rates for our AE software maintenance revenues (97% in 2019), calculated as a percentage of maintenance revenue retained upon renewal. In addition to software subscriptions, our software services are charged primarily on a time and materials basis, billed and recognized monthly as delivered. The contractual terms of our Appraisal Management agreements are generally for three years and pricing is primarily based on the number of real estate assets on our platform, adjusted for frequency of valuations and complexity; we enjoy very high contract renewal rates. Our Appraisal Management teams are also engaged from time to time to perform due diligence assignments in connection with CRE transactions.

In 2019, over 70% of Altus Analytics' revenues were comprised of over time recurring revenues, which are targeted to represent upwards of 90% of total revenues by 2021. Recurring revenues represent revenues related to software and data subscriptions where the contract value is recognized ratably over the contract term, maintenance for perpetual licenses, and Appraisal Management contracts that depend on our data analytics tools. Consistent with recurring revenues disclosed in prior years, this depicts the economic value of our renewable contracts.

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Commercial Real Estate Consulting

Our CRE Consulting segment consists of the Property Tax, and the Valuation and Cost Advisory business units. Through our various practice areas, we are well-equipped to serve clients with an end-to-end solution that spans the life cycle of CRE assets - from feasibility, development, acquisition, management and disposition. Our professionals possess extensive industry, market and asset-specific knowledge that contribute to our proprietary internal data systems. We have long-standing relationships with leading CRE market participants - including owner operators, developers, financial institutions, and various CRE asset holders and investors.

Our largest revenue contributor to CRE Consulting is our Property Tax business which operates in Canada, the U.S. and the U.K. Our team of Property Tax professionals help clients minimize the tax burden and reduce the cost of compliance. Our core real estate property tax services include assessment reviews, management and appeals, as well as in the U.S., personal property and state and local tax advisory services. The majority of our Property Tax revenues are derived on a contingency basis, representing a percentage of the savings we achieve for our clients. As such, we recognize contingency revenues when settlements are made, which in some cases could span multiple years. A smaller portion of our fees are based on time and materials basis. Valuation services, which are predominantly provided in Canada, consist of appraisals of real estate portfolios, valuation of properties for transactional purposes, due diligence and litigation and economic consulting. Our Cost Advisory practice, offered in both the private and public sectors in North America and Asia Pacific, provides expert services in the areas of construction feasibility studies, budgeting, cost and loan monitoring and project management. Pricing for our Valuation and Cost Advisory services is primarily based on a fixed fee or time and materials basis. Given the strength of our brand, our independence and quality of our work, we enjoy a high rate of client renewals across all of our CRE Consulting businesses.

Geomatics

Our Geomatics business operates primarily in Western Canada, with a significant number of clients in the oil and gas exploration and development sector. Geomatics is the practice of recording and managing spatially referenced information, including land surveying, geographic information systems, global positioning systems and light detection and ranging. Our Geomatics services, performed by highly qualified certified professionals, include land surveys and mapping for setting of property boundaries, route and corridor selection, land settlement, construction developments, and oil field and well-sites. Our competitive advantages include the depth of our team's experience and specialized training, our strong track record of safety, the timeliness and quality of our work, and our geographic strength in Western Canada. Our Geomatics services are primarily charged on a time and materials fee basis.

Please refer to page 10 for recent disclosure regarding an upcoming transaction for this business unit.

Strategy

Real estate investment allocation continues to steadily rise while CRE asset investment and ownership is becoming more institutionalized, complex and globalized. After years of limited investment in technology, the CRE market is increasingly embracing technology and better utilizing data to optimize assets and mitigate risks. With the increased complexity of the CRE market, there is also a growing need for specialized expert services which industry participants continue to outsource. Altus Group is at the forefront of this opportunity, with analytics solutions and expert services that help clients navigate the

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complexities of the CRE market to make better informed decisions and maximize the value of their real estate assets and investments.

Through our industry leading capabilities, we remain competitively positioned to capitalize on the growing demand for a wide range of client needs in CRE technology, data and advisory solutions with a stable revenue base across economic cycles. Our key competitive strengths in the marketplace are comprised of our industry leading mission critical software and data analytics solutions, unique industry expertise across numerous asset classes and markets, our proprietary databases that contribute to successful client outcomes, and the depth and diversity of our offerings. Our global scale, existing client relationships with many of the world's largest CRE companies, and independence from brokers and asset owners/investors are also key differentiators that enhance our reputation.

Strategic Initiatives

Across the business, we continually identify opportunities to maximize the value of all of our business assets. We have a disciplined approach to pursuing investments and prioritize opportunities that support our longer-term growth objectives and help us sustain market leadership in our core segments. While we focus on enhancing every business (specifically through data and technology), we are overweighting investment and innovation focus on our Altus Analytics business to leverage our global operating model and growth runway, while taking advantage of our strategic position with Property Tax to further enhance value.

In 2020, our strategy is focused on the following initiatives:

Altus Analytics

Our long-term objective is to transition Altus Analytics from a collection of high value point solutions to an enterprise-grade software and data analytics market leader that unifies valuation and asset management capabilities into a single, cloud-based platform that integrates numerous key workflows and enhances data-driven insights for the CRE industry. We believe this will drive substantial value for the CRE industry and clients alike, while positioning Altus Group for long-term profitable growth. To achieve this: first, we will continue to expand the global adoption of the AE cloud platform as the foundation for CRE asset and investment management and data integration; second, we will leverage our multi-product technology stack (existing and new future applications) for CRE asset and investment management clients who require end-to-end enterprise solutions; and third, we will continue to lay the groundwork to capitalize on future growth opportunities in CRE data and for products in markets adjacent to our core offerings.

Key priorities for 2020 include:

- Continued execution of our "ARGUS Everywhere" go-to-market plan to drive existing and new customer user and product growth, geographic expansion, and global/multi-product enterprise agreements;
- Continued transition of our customers to cloud-based subscription contracts, with a goal to migrate the vast majority of our existing on-premise customers on to the cloud platform by the end of 2023;
- Continued product innovation, balanced between integration across all of our existing capabilities and developing new cloud applications that support our strategy to move clients to a cloud

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environment, while strategizing for new product opportunities in adjacent market verticals where we currently have limited penetration and in data-driven insights; and

- Continued growth of our Appraisal Management solutions where favourable market trends support organic growth in the U.S. and expansion into Europe and Asia Pacific, while increasingly selling our Appraisal Management solutions as part of AE transactions.

Longer term, we believe our Altus Analytics business is uniquely positioned to capitalize on the opportunity in CRE data and become a leading real estate information services provider. Our leading Altus Analytics products collect valuable and detailed CRE industry data on various asset classes and for many major CRE markets in an automated environment. As ARGUS users increasingly move into a cloud environment, the depth of our data strengthens. This provides us with a unique opportunity to re-purpose and monetize this data to drive differentiation, launch new products and strengthen our recurring revenue streams. The vision is to leverage our ARGUS cloud platform for data collection and integration in a secure environment, through which we would aggregate ARGUS data from multiple organizations, combine it with third-party data through partnerships, and return data back through unique ARGUS workflows that enhance client value, while expanding the use of ARGUS across organizations and providing us with new revenue streams.

Property Tax

Our global Property Tax practice continues to represent an attractive growth area, driven both by solid market fundamentals and our strong competitive position. Our global reach with national scale and regional expertise, plus comprehensive databases on key CRE markets and expert knowledge combine to make us a leader in the industry. Our objective is to continue growing our market share and scale our Property Tax business into a leading, independent global property tax advisory practice that leverages technology and data.

Key priorities for 2020 include:

- Continued organic growth in our core markets driven by increased market share, operational productivity, and higher value contingency contracts;
- Focusing on market expansion in key U.S. and U.K. markets by pursuing organic growth initiatives and financially accretive acquisitions when opportunities arise; and
- Driving digital transformation with technology and data to enhance client value while improving internal efficiencies, modernizing our service delivery and data-enabling business development.

While our Canadian, U.S. and U.K. Property Tax operations all share the same competitive advantages, each national business has established unique strengths and specialties. Over the long term, we plan to leverage the strengths of each national model across all geographies to become a leading property tax advisor globally to the largest CRE owners as well as the mid-market, and to efficiently leverage specialty in our target asset classes.

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Financial and Operating Highlights

Selected Financial Information	Year ended December 31,	
	2019	2018
<i>In thousands of dollars, except for per share amounts</i>		
Revenues	\$ 567,415	\$ 510,429
Canada	39%	41%
U.S.	37%	36%
Europe	18%	17%
Asia Pacific	6%	6%
Adjusted EBITDA	\$ 88,145	\$ 70,904
Adjusted EBITDA margin	15.5%	13.9%
Profit (loss)	\$ 18,194	\$ (18,439)
Earnings (loss) per share:		
Basic	\$0.46	\$(0.48)
Diluted	\$0.45	\$(0.48)
Adjusted	\$1.47	\$1.05
Dividends declared per share	\$0.60	\$0.60

Financial Highlights

- Revenues** were \$567.4 million for the year ended December 31, 2019, up 11.2% or \$57.0 million from \$510.4 million in 2018. Acquisitions represented 2.4% of the 11.2% revenue growth. Exchange rate movements against the Canadian dollar benefitted revenues by 0.3%. The revenue growth was led by a record year in Property Tax and healthy growth from Altus Analytics in a transition year. Property Tax revenues increased by 20.8%, primarily due to the strength of our U.K. business, double-digit growth in the U.S. and strong organic growth in Canada. Altus Analytics grew by 10.1% driven by strong growth from our Appraisal Management solutions, higher software maintenance revenues, and strong software consulting and education services revenues from the acquisition of One11 Advisors, LLC ("One11"), offset by lower perpetual license revenues as the business transitions to a subscription model. Our Valuation and Cost Advisory businesses showed modest growth while revenues from Geomatics declined.
- Adjusted EBITDA** was \$88.1 million for the year ended December 31, 2019, up 24.3% or \$17.2 million from \$70.9 million in 2018. Exchange rate movements against the Canadian dollar benefitted Adjusted EBITDA by 1.5%. Earnings increased primarily as a result of the strong revenue increase in our Property Tax business and improved results from Valuation and Cost Advisory. Altus Analytics provided lower Adjusted EBITDA as a result of the transition to subscription pricing and product investments. Lower Geomatics revenues also impacted earnings.
- Profit (loss)** for the year ended December 31, 2019 was \$18.2 million, up 198.7% or \$36.6 million from \$(18.4) million in 2018. In addition to the impacts on Adjusted EBITDA as discussed above, for the year ended December 31, 2019, profit (loss) improved as a result of lower amortization of intangibles and a lower goodwill impairment charge relating to our Geomatics business, partly offset by incremental depreciation and finance costs on the implementation of IFRS 16, as well as higher income tax expense on higher earnings.

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- For the year ended December 31, 2019, earnings (loss) per share was \$0.46, basic and \$0.45, diluted, as compared to \$(0.48), basic and diluted, in 2018.
- For the year ended December 31, 2019, Adjusted EPS was \$1.47, up 40.0% from \$1.05 in 2018.
- We returned \$24.0 million to shareholders in the year through quarterly dividends of \$0.15 per common share, or \$0.60 per share for the year.
- As at December 31, 2019, our bank debt was \$138.0 million, representing a funded debt to EBITDA leverage ratio of 1.49 times (compared to 1.79 times as at December 31, 2018). As at December 31, 2019, cash and cash equivalents was \$60.3 million (compared to \$48.7 million as at December 31, 2018). Our bank credit facilities mature on April 28, 2020 and hence, have been presented as current liabilities. We have negotiated a draft term sheet with our lenders which is in the process of being approved.

Operating Highlights

Altus Analytics Transition to Subscription Model

Starting in July 2019, we started to sell AE only on subscription terms to new customers (primarily on the cloud platform), while continuing to offer existing clients the option to license the software either on subscription terms (on the cloud or on-premise) or on on-premise perpetual terms until the end of the year. The introduction of the new revenue and pricing model supports our strategy to migrate our current on-premise customers who are currently on maintenance contracts to cloud subscription contracts. As of the start of 2020, all of our Altus Analytics software products are being sold only on a subscription-based model.

ARGUS Enterprise Made Available on the Cloud

In July 2019, we launched AE 12, a new version of AE powered by ARGUS Cloud. AE 12 builds on the strength of our industry leading CRE valuation capabilities and now includes cloud-only deployment and multi-instance support of AE, new benchmarking and dashboard functionality, enhanced workflows through integration with ARGUS Taliance and ARGUS Voyanta, and support for German and French market valuations.

Acquisition of One11 Advisors, LLC

On July 1, 2019, we acquired all the issued and outstanding shares of One11 and its subsidiaries for USD11.0 million (CAD14.4 million) in cash and common shares, subject to closing working capital adjustments of USD0.6 million (CAD0.8 million). As part of the transaction, we entered into non-compete agreements with key members of management of One11. On closing, we paid cash of USD7.7 million (CAD10.1 million). Common shares valued at USD3.3 million (CAD4.3 million) were issued from treasury. The common shares will be held in escrow and released on the fourth anniversary of the closing date, subject to compliance with certain terms and conditions. One11 is a U.S.-based real estate software consulting firm that provides integrated advisory and managed services for real estate organizations' front to back office strategies, processes and technology. The addition of One11, and its 20 employees, strengthens our Altus Analytics software services and managed services offerings.

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Acquisition of Caruthers & Associates, Inc.

On July 1, 2019, we acquired certain operating assets of Caruthers & Associates, Inc. ("Caruthers") for USD4.0 million (CAD5.2 million) in cash, common shares and contingent consideration, subject to working capital adjustments of USD0.1 million (CAD0.2 million). As part of the transaction, we entered into a non-compete agreement with a key member of management of Caruthers. As consideration for these assets, we paid cash of USD2.0 million (CAD2.6 million), and issued common shares valued at USD1.0 million (CAD1.3 million) from treasury. The common shares will be held in escrow and released on the third anniversary of the closing date, subject to compliance with certain terms and conditions. The purchase agreement provides for contingent consideration of USD1.0 million (CAD1.3 million), subject to certain performance targets being achieved over a 30-month period from the closing date. If mutually agreed upon, the contingent consideration may be settled in cash or by the issuance of common shares. Caruthers is a U.S.-based property tax consulting firm. Its team of seven employees based out of Memphis were integrated with our U.S. Property Tax business, expanding our geographic footprint in tax services in the U.S.

Operating Highlights - Subsequent Events

Geomatics Spin-Off

On January 21, 2020, we agreed, subject to definitive documentation, to combine our Geomatics business segment with WSP Global Inc.'s respective geomatics focused business unit. The combined entity will be a leading geomatics firm in Canada, and comprise approximately 750 employees in offices in Western Canada and Ontario. The transaction, which is subject to finalization of definitive documentation, is expected to close in the second quarter of 2020 and will be reflected as discontinued operations starting in the first quarter of 2020.

Altus Data Studio Launch

On February 19, 2020 we announced the launch of Altus Data Studio for our Canadian clients, which combined our legacy RealNet and Altus InSite products into one core platform with significant enhancements to the user experience and introduction of robust data visualization capabilities for our comprehensive coverage on the Canadian residential, office, industrial and CRE investment markets.

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Discussion of Operations

Year and Quarter Ended December 31, 2019

<i>In thousands of dollars</i>	Year ended December 31,		Quarter ended December 31,	
	2019	2018	2019	2018
Revenues	\$ 567,415	\$ 510,429	\$ 148,769	\$ 130,885
Expenses				
Employee compensation	355,320	330,612	94,022	87,048
Occupancy	8,099	21,340	2,161	5,399
Office and other operating	112,262	98,037	31,653	26,903
Depreciation of right-of-use assets	13,440	-	3,218	-
Depreciation and amortization	37,833	49,114	8,723	11,254
Acquisition and related transition costs (income)	188	2,394	(50)	137
Restructuring costs (recovery)	(453)	6,371	-	(87)
(Gain) loss on investments	(276)	(43)	(118)	38
Impairment charge - goodwill	6,400	13,700	6,400	13,700
Finance costs (income), net - leases	2,885	-	725	-
Finance costs (income), net - other	6,567	6,701	1,431	1,845
Profit (loss) before income taxes	25,150	(17,797)	604	(15,352)
Income tax expense (recovery)	6,956	642	332	(633)
Profit (loss) for the period	\$ 18,194	\$ (18,439)	\$ 272	\$ (14,719)

Revenues

Revenues were \$567.4 million for the year ended December 31, 2019, up 11.2% or \$57.0 million from \$510.4 million in 2018. For the quarter ended December 31, 2019, revenues were \$148.8 million, up 13.7% or \$17.9 million from \$130.9 million in the same period in 2018. Acquisitions represented 2.4% of the 11.2% revenue growth for the year and 3.4% of the 13.7% revenue growth for the quarter. For the year and quarter ended December 31, 2019, exchange rate movements against the Canadian dollar impacted revenues by 0.3% and (0.2%), respectively. The increase in revenues for the year was driven by a record revenue and earnings year in our Property Tax business and healthy growth at Altus Analytics. Property Tax performance increased on strong annuity revenues and case settlements from our U.K. business, increased case settlements in Ontario, our largest market in Canada, and double-digit growth in our core regional U.S. markets. Altus Analytics revenue growth was driven by strong growth from our Appraisal Management solutions, higher software maintenance, and strong software services revenues supported by the acquisition of One11 in July. Our Valuation and Cost Advisory businesses showed modest growth, while Geomatics revenues declined.

Employee Compensation

Employee compensation was \$355.3 million for the year ended December 31, 2019, up 7.5% or \$24.7 million from \$330.6 million in 2018. For the quarter ended December 31, 2019, employee compensation was \$94.0 million, up 8.0% or \$7.0 million from \$87.0 million in the same period in 2018. For the year and quarter ended December 31, 2019, the increase in compensation was mainly due to headcount additions within Altus Analytics and Property Tax, increased accruals for variable compensation and acquisitions. For the

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year and quarter ended December 31, 2019, employee compensation as a percentage of revenues was 62.6% and 63.2%, as compared to 64.8% and 66.5% in the corresponding periods in 2018, respectively.

Occupancy

Occupancy was \$8.1 million for the year ended December 31, 2019, down 62.0% or \$13.2 million from \$21.3 million in 2018. For the quarter ended December 31, 2019, occupancy was \$2.2 million, down 60.0% or \$3.2 million from \$5.4 million in the same period in 2018. For the year and quarter ended December 31, 2019, the impacts of IFRS 16 decreased occupancy costs by \$13.5 million and \$3.3 million, respectively, and the remaining amounts recognized in occupancy costs pertain to short-term leases, low-value assets, and variable lease payments. Without the impact of IFRS 16, occupancy costs for the year ended December 31, 2019 increased slightly due to acquisitions and increased space needs for Altus Analytics, partly offset by office rationalization in our U.K. operations. For the quarter ended December 31, 2019, occupancy costs were comparable to the prior year. For the year and quarter ended December 31, 2019, occupancy as a percentage of revenues was 1.4% and 1.5%, as compared to 4.2% and 4.1% in the corresponding periods in 2018, respectively. Without the impact of IFRS 16, occupancy as a percentage of revenues would have been 3.8% and 3.7% for the year and quarter ended December 31, 2019, as compared to 4.2% and 4.1% in the corresponding periods in 2018, respectively.

Office and Other Operating Costs

Office and other operating costs were \$112.3 million for the year ended December 31, 2019, up 14.5% or \$14.3 million from \$98.0 million in 2018. For the quarter ended December 31, 2019, office and other operating costs were \$31.7 million, up 17.7% or \$4.8 million from \$26.9 million in the same period in 2018. For the year ended December 31, 2019, the increase in expenses is primarily from acquisitions, subcontractor disbursements for client projects and additional expenditures for corporate software subscriptions. For the quarter ended December 31, 2019, the increase in expenses is primarily from acquisitions. For the year and quarter ended December 31, 2019, office and other operating costs as a percentage of revenues was 19.8% and 21.3%, as compared to 19.2% and 20.6% in the corresponding periods in 2018, respectively.

Depreciation of Right-of-Use Assets

Depreciation of right-of-use assets was \$13.4 million and \$3.2 million for the year and quarter ended December 31, 2019, respectively. This reflects the impact of the adoption of IFRS 16, effective beginning January 1, 2019. Other impacts of IFRS 16 are explained in the "Changes in Significant Accounting Policies and Estimates" section on pages 15, 16 and 36 of this MD&A or Notes 4 and 14 in the financial statements.

Depreciation and Amortization - Other

Depreciation and amortization was \$37.8 million for the year ended December 31, 2019, as compared to \$49.1 million in 2018. For the quarter ended December 31, 2019, depreciation and amortization was \$8.7 million, as compared to \$11.3 million in the same period in 2018. For the year and quarter ended December 31, 2019, the decrease is mainly due to the completion of the amortization period for some acquisition-related intangibles.

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Acquisition and Related Transition Costs (Income)

Acquisition and related transition costs (income) were \$0.2 million for the year ended December 31, 2019, as compared to \$2.4 million in 2018. For the quarter ended December 31, 2019, acquisition and related transition costs (income) were \$(0.1) million, as compared to \$0.1 million in the same period in 2018.

Restructuring Costs (Recovery)

Restructuring costs (recovery) were \$(0.5) million for the year ended December 31, 2019, as compared to \$6.4 million in 2018. During the year ended December 31, 2019, restructuring provisions made in prior years in the amount of \$0.5 million (2018 - \$0.2 million) were released. During the year ended December 31, 2018, total restructuring charges of \$6,371 were recorded pertaining to employee severance and onerous leases in the Property Tax and Geomatics businesses. For the quarter ended December 31, 2019, restructuring costs (recovery) were \$nil, as compared to \$(0.1) million in the same period in 2018.

(Gain) Loss on Investments

(Gain) loss on investments was \$(0.3) million for the year ended December 31, 2019, as compared to \$nil in 2018. For the quarter ended December 31, 2019, (gain) loss on investments was \$(0.1) million, as compared to \$nil in the same period in 2018. The amount represents changes in fair value of our investments in partnerships.

Impairment Charge

For the year and quarter ended December 31, 2019, we had an impairment charge of \$6.4 million related to our Geomatics business, as compared to \$13.7 million in the respective periods in 2018.

Finance Costs (Income), Net

<i>In thousands of dollars</i>	Year ended December 31,			Quarter ended December 31,		
	2019	2018	% Change	2019	2018	% Change
Interest on borrowings	\$ 5,627	\$ 6,013	(6.4%)	\$ 1,363	\$ 1,351	0.9%
Interest on lease liabilities	2,885	-	100%	725	-	100%
Interest on finance leases	-	35	(100%)	-	7	(100%)
Unwinding of discounts	583	684	(14.8%)	22	177	(87.6%)
Change in fair value of interest rate swaps	505	218	131.7%	55	367	(85.0%)
Finance income	(148)	(249)	(40.6%)	(9)	(57)	(84.2%)
Finance costs (income), net	\$ 9,452	\$ 6,701	41.1%	\$ 2,156	\$ 1,845	16.9%

Finance costs (income), net for the year ended December 31, 2019 was \$9.5 million, up 41.1% or \$2.8 million from \$6.7 million in 2018. Our finance costs increased mainly due to the interest expense recorded in 2019 related to the adoption of IFRS 16 beginning January 1, 2019, in addition to the ongoing mark-to-market change in fair value recognized in relation to our \$65.0 million interest rate swap.

For the quarter ended December 31, 2019, finance costs (income), net was \$2.2 million, up 16.9% or \$0.4 million from \$1.8 million in the same period in 2018. Our finance costs increased mainly due to the interest expense recorded in 2019 related to the adoption of IFRS 16 beginning January 1, 2019, in addition to the ongoing mark-to-market change in fair value recognized in relation to our \$65.0 million interest rate swap.

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Income Tax Expense (Recovery)

Income tax expense (recovery) for the year ended December 31, 2019 was \$7.0 million, as compared to \$0.6 million in 2018. The increase was mainly due to higher profit (loss) before income tax from our business operations. Offsetting that is a lower non-deductible goodwill impairment charge relating to our Geomatics business.

For the quarter ended December 31, 2019, income tax expense (recovery) was \$0.3 million, as compared to \$(0.6) million in the same period in 2018. The increase was mainly due to higher profit (loss) before income tax from our business operations. Offsetting that is a lower non-deductible goodwill impairment charge relating to our Geomatics business.

Profit (Loss)

Profit (loss) for the year ended December 31, 2019 was \$18.2 million and \$0.46 per share, basic and \$0.45 per share, diluted, as compared to \$(18.4) million and \$(0.48) per share, basic and diluted, in 2018.

For the quarter ended December 31, 2019, profit (loss) was \$0.3 million and \$0.01 per share, basic and \$0.01 per share, diluted, as compared to \$(14.7) million and \$(0.38) per share, basic and diluted, in the same period in 2018.

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Impact of IFRS 16

Income Statement

A reconciliation of profit (loss) calculated under IFRS 16 and on a basis consistent with 2018 for the year and quarter ended December 31, 2019 is as follows:

<i>In thousands of dollars</i>	Year ended December 31, 2019			Quarter ended December 31, 2019		
	IFRS 16	Basis Consistent with 2018	Impact of IFRS 16	IFRS 16	Basis Consistent with 2018	Impact of IFRS 16
Revenues	\$ 567,415	\$ 567,415	\$ -	\$ 148,769	\$ 148,769	\$ -
Expenses						
Employee compensation	355,320	355,320	-	94,022	94,022	-
Occupancy	8,099	21,598	(13,499)	2,161	5,483	(3,322)
Office and other operating	112,262	112,262	-	31,653	31,653	-
Depreciation of right-of-use assets	13,440	-	13,440	3,218	-	3,218
Depreciation and amortization	37,833	39,038	(1,205)	8,723	8,881	(158)
Acquisition and related transition costs (income)	188	188	-	(50)	(50)	-
Restructuring costs (recovery)	(453)	(453)	-	-	-	-
(Gain) loss on investments	(276)	(276)	-	(118)	(118)	-
Impairment charge - goodwill	6,400	6,400	-	6,400	6,400	-
Finance costs (income), net - leases	2,885	-	2,885	725	-	725
Finance costs (income), net - other	6,567	6,567	-	1,431	1,431	-
Profit (loss) before income taxes	25,150	26,771	(1,621)	604	1,067	(463)
Income tax expense (recovery)	6,956	7,361	(405)	332	435	(103)
Profit (loss) for the period	\$ 18,194	\$ 19,410	\$ (1,216)	\$ 272	\$ 632	\$ (360)

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Balance Sheet Impact

The effect of adopting IFRS 16 on our consolidated balance sheet (increase/(decrease)) as at January 1, 2019 is as follows:

	As Previously Reported December 31, 2018	IFRS 16 Adjustments	After Adoption of IFRS 16 January 1, 2019
Assets			
Trade receivables and other - current	\$ 154,298	\$ (361)	\$ 153,937
Property, plant and equipment	33,197	(1,263)	31,934
Right-of-use assets	-	72,514	72,514
Liabilities			
Trade payables and other - current	117,520	(907)	116,613
Trade payables and other - non-current	29,825	(10,265)	19,560
Borrowings - current	858	(192)	666
Borrowings - non-current	128,509	(74)	128,435
Lease liabilities	-	82,328	82,328

Impact on Bank Covenants

We have agreed with our bank syndicate that our covenants will be calculated under the method prior to the adoption of IFRS 16.

Refer to Notes 4 and 14 in the financial statements for full details of the adoption and impacts.

Management's Discussion & Analysis

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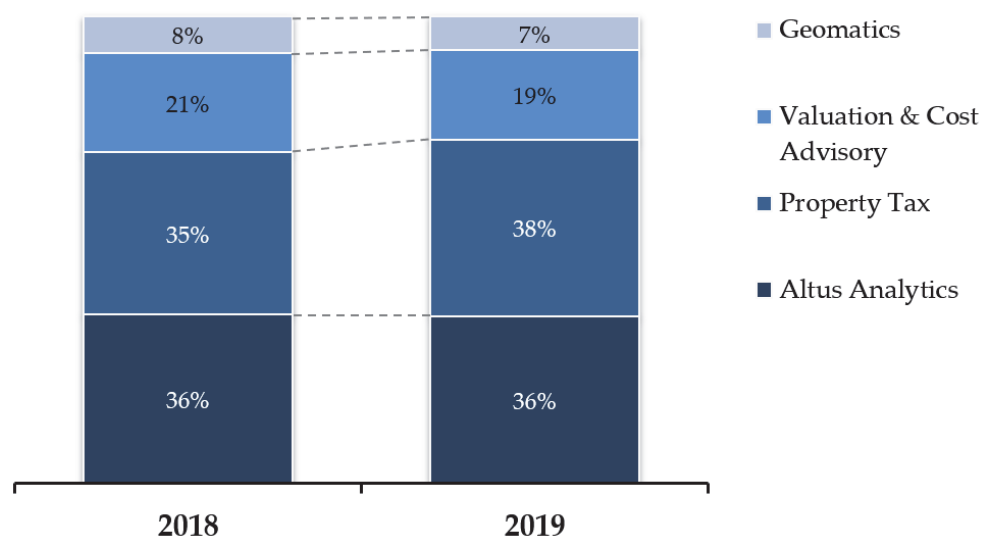


Revenues and Adjusted EBITDA by Business Unit

Revenues <i>In thousands of dollars</i>	Year ended December 31,			Quarter ended December 31,		
	2019	2018	% Change	2019	2018	% Change
Altus Analytics	\$ 201,951	\$ 183,428	10.1%	\$ 54,581	\$ 51,826	5.3%
Expert Services:						
Commercial Real Estate Consulting	324,132	283,948	14.2%	83,947	67,692	24.0%
Geomatics	41,698	43,632	(4.4%)	10,318	11,481	(10.1%)
Intercompany eliminations	(366)	(579)	36.8%	(77)	(114)	32.5%
Total	\$ 567,415	\$ 510,429	11.2%	\$ 148,769	\$ 130,885	13.7%

Adjusted EBITDA <i>In thousands of dollars</i>	Year ended December 31,			Quarter ended December 31,		
	2019	2018	% Change	2019	2018	% Change
Altus Analytics	\$ 36,803	\$ 41,478	(11.3%)	\$ 5,346	\$ 10,276	(48.0%)
Expert Services:						
Commercial Real Estate Consulting	76,083	48,820	55.8%	13,413	2,837	372.8%
Geomatics	3,436	3,598	(4.5%)	641	877	(26.9%)
Corporate	(28,177)	(22,992)	22.6%	4,079	1,131	260.7%
Total	\$ 88,145	\$ 70,904	24.3%	\$ 23,479	\$ 15,121	55.3%

Revenue Contribution:



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Altus Analytics

<i>In thousands of dollars</i>	Year ended December 31,			Quarter ended December 31,		
	2019	2018	% Change	2019	2018	% Change
Revenues	\$ 201,951	\$ 183,428	10.1%	\$ 54,581	\$ 51,826	5.3%
Adjusted EBITDA ⁽¹⁾	\$ 36,803	\$ 41,478	(11.3%)	\$ 5,346	\$ 10,276	(48.0%)
Adjusted EBITDA Margin ⁽¹⁾	18.2%	22.6%		9.8%	19.8%	

⁽¹⁾ Q4 margin includes bonuses which were accrued in quarterly corporate costs in the previous three quarters.

Year End Discussion

Revenues were \$202.0 million for the year ended December 31, 2019, up 10.1% or \$18.6 million from \$183.4 million in 2018. The acquisitions of Taliance Group SAS ("Taliance") and One11 represented 5.9% of the 10.1% revenue growth. The increase in revenues was driven by strong growth from our Appraisal Management solutions, increased software services revenues from the acquisitions of Taliance and One11, and higher maintenance revenues, offset by lower perpetual license revenues as the business transitions to a subscription model. Beginning in the third quarter of 2019, all AE software license sales to new customers were only sold on subscription terms, which contributed to healthy growth in subscription licenses, however on a year-over-year comparative view subscription revenue growth was impacted by a tough compare in 2018. In the second quarter of 2018 we had a sizeable new global subscription license contract, and in the fourth quarter of 2018 we had a significant subscription contract renewal, both of which were deemed "right-of-use" under IFRS 15, and as a result, a portion of those revenues were recognized upfront at the time of delivery rather than ratably over the term of the subscription contract. Changes in foreign exchange benefitted revenues by 1.3%.

In 2019, a significant portion of AE sales came from add-on sales to existing customers, followed by sales to net new customers. Overall, we had healthy growth in AE license sales and consistent with our strategy to move to a subscription model, we achieved a higher mix of license sales on subscription terms. Our maintenance revenues continued to grow, supported by our 97% software maintenance retention rates for AE. During the year we made great progress in selling AE on the cloud to both new customers and to existing customers who converted their maintenance contracts to cloud subscriptions. The strong growth in Appraisal Management solutions was driven by current customers adding more assets on our platform, new customer wins and growing revenues from international markets.

Recurring revenues, as described above in the Overview of the Business, were \$153.6 million for the year ended December 31, 2019, up 18.0% or \$23.5 million from \$130.1 million in 2018.

Adjusted EBITDA was \$36.8 million for the year ended December 31, 2019, down 11.3% or \$4.7 million from \$41.5 million in 2018. The decline in earnings was mainly due to a higher mix of subscription revenues and higher development costs. Although investments in product development were higher in 2019 compared to the prior year, towards the end of the year investment spending started to level off on a sequential quarter basis. Changes in foreign exchange benefitted Adjusted EBITDA by 2.6%.

We met our annual financial guidance, which targeted total Altus Analytics revenue growth between 7% and 12% (and 16% to 19% recurring revenue growth) to achieve annual revenues between \$197 to \$205 million, with Adjusted EBITDA margins between 17% and 20%.

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Quarterly Discussion

Revenues were \$54.6 million for the quarter ended December 31, 2019, up 5.3% or \$2.8 million from \$51.8 million in the same period in 2018. The acquisition of One11 represented 7.5% of the 5.3% revenue growth. On a comparative view, the fourth quarter of 2018 included a significant multi-year subscription contract renewal that was deemed "right-of-use" under IFRS 15, and as a result, a portion of that revenue was recognized upfront at the time of delivery rather than ratably over the term of the subscription contract. This tough compare muted the growth of the business, which continued to benefit from sustained growth from our Appraisal Management solutions, as well as robust maintenance revenues and overall growth in license sales. In addition, consistent with our expectations, our fourth quarter results were also impacted by lower perpetual license revenues as the business transitions to a subscription model. Movements in the exchange rate against the Canadian dollar impacted revenues by (0.1%).

Recurring revenues, as described above in the Overview of the Business, were \$40.9 million for the quarter ended December 31, 2019, up 21.1% or \$7.2 million, all on an organic basis, from the same period in 2018.*

Adjusted EBITDA was \$5.3 million for the quarter ended December 31, 2019, down 48.0% or \$5.0 million from \$10.3 million in the same period in 2018. Adjusted EBITDA declined on lower perpetual license revenues and higher level of expenses, including higher product development expenditures compared to the prior year. Changes in foreign exchange benefitted Adjusted EBITDA by 0.8%.

Outlook

Our Altus Analytics business continues to represent an attractive growth area, supported by favourable market trends of growing global demand for CRE-related technology and data solutions. We expect year over year revenue growth in 2020 from both our ARGUS Software business, as well as our Data & Appraisal Management solutions. Our financial performance expectations for 2020 are consistent with our aspirational long-term goal to achieve Altus Analytics revenues of \$400 million for full year 2023, with an associated Adjusted EBITDA margin at over 30%.

As of the start of 2020, all software licenses are being sold on subscription terms, with an increasing portion sold on our cloud platform (compared to 2019 when a high majority of license sales were still sold for on-premise software on perpetual terms with a maintenance component or on-premise subscription terms but where a high portion of the subscription revenue was recognized at a point in time). Growth in software revenues is expected to be primarily driven by continued sales into existing customers for additional capacity, solution upgrades and additional functionality, as well as new customer wins and continued geographic expansion into Europe and Asia Pacific. The ongoing migration of existing customers to cloud subscription contracts is expected to be a moderate contributor to revenue growth in 2020. Increasing the volume and value of enterprise transactions for multi-product and/or global deals with our top 200 clients has the potential for a more meaningful acceleration in revenue growth in 2020, although these types of contracts have longer sales cycles. Our product roadmap will continue to prioritize integration across all of our capabilities, cloud functionality, and standard software upgrades to our existing solutions. While we continue to invest in product innovation, our product development costs started to flatten at the end of 2019 following a period of higher investment spending for the cloud transition; although we still expect to grow our development costs in balance with revenue growth, expense growth is planned to be less than what it was in 2019.

*Reflects recurring revenues for the fourth quarter of 2018 of \$33.7 million (amended).

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Consistent with past years, we expect that growth from our Appraisal Management solutions will continue to be driven by current customers increasing the number of assets on our platform and new client additions, both in the U.S. and in international markets. We continue to have opportunities for organic growth in the U.S. by expanding our penetration with closed funds and pension funds (both with current and new clients), and by expanding our work with our global clients abroad, namely in Europe and Asia Pacific.

Commercial Real Estate Consulting

<i>In thousands of dollars</i>	Year ended December 31,			Quarter ended December 31,		
	2019	2018	% Change	2019	2018	% Change
Revenues						
Property Tax	\$ 213,483	\$ 176,734	20.8%	\$ 54,234	\$ 39,110	38.7%
Valuation and Cost Advisory	110,649	107,214	3.2%	29,713	28,582	4.0%
Revenues	\$ 324,132	\$ 283,948	14.2%	\$ 83,947	\$ 67,692	24.0%
Adjusted EBITDA						
Property Tax	\$ 62,746	\$ 36,029	74.2%	\$ 9,874	\$ 324	2,947.5%
Valuation and Cost Advisory	13,337	12,791	4.3%	3,539	2,513	40.8%
Adjusted EBITDA ⁽¹⁾	\$ 76,083	\$ 48,820	55.8%	\$ 13,413	\$ 2,837	372.8%
Adjusted EBITDA Margin ⁽¹⁾	23.5%	17.2%		16.0%	4.2%	

⁽¹⁾ Q4 margin includes bonuses which were accrued in quarterly corporate costs in the previous three quarters.

Year End Discussion

Revenues were \$324.1 million for the year ended December 31, 2019, up 14.2% or \$40.2 million from \$283.9 million in 2018. The growth in revenues was driven by a record year from our Property Tax business. Property Tax revenues increased by 20.8%, primarily due to sustained strong performance in the U.K., double-digit growth in the U.S., as well as strong organic growth in Canada. In the U.K., we benefitted from continuing settlement of 2017 list cases from our healthy backlog as well as higher annuity billings in the second quarter. In the U.S., we experienced growth in our core regional markets, as well as building a healthy pipeline of work in emerging regions such as California. In Canada, the growth in revenues was driven by a rebound of case settlements in Ontario towards the second half of the year, as well as robust performance in Alberta and Manitoba in the first half of the year. Our Valuation and Cost Advisory revenues increased by 3.2%, primarily due to better performance from our Canadian Cost practice. Changes in exchange rates impacted CRE Consulting revenues by (0.3%).

Adjusted EBITDA was \$76.1 million for the year ended December 31, 2019, up 55.8% or \$27.3 million from \$48.8 million in 2018. Earnings improved on the revenue increase from our Property Tax business. There was no impact from exchange rate changes.

Quarterly Discussion

Revenues were \$83.9 million for the quarter ended December 31, 2019, up 24.0% or \$16.2 million from \$67.7 million in the same period in 2018. The growth in revenues was driven by our Property Tax business. Property Tax revenues increased 38.7% benefitting from strong double-digit revenue growth across all geographies, the U.K., U.S. and Canada. The U.K. benefitted from an increased volume of case settlements on the 2017 list cases. Canada saw an increased level of settlement values in Ontario and Manitoba. In the U.S., we experienced growth in our largest revenue jurisdictions, including Texas and California. Our

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Valuation and Cost Advisory businesses both had modest growth. Changes in exchange rates impacted CRE Consulting revenues by (0.3%).

Adjusted EBITDA was \$13.4 million for the quarter ended December 31, 2019, up 372.8% or \$10.6 million from \$2.8 million in the same period in 2018. The healthy increase in earnings resulted from our strong revenue increases in the Property Tax business. Changes in exchange rates benefitted CRE Consulting Adjusted EBITDA by 1.2%.

Outlook

Our Property Tax business continues to represent an attractive growth area for our company driven by a steady demand for our specialized services. We expect 2020 to be another record revenue year for our Property Tax practice with healthy organic full year revenue growth from all three of our national markets, the U.K., U.S., and Canada. Two of our biggest markets, the U.K. and Ontario (Canada), will be in their final years of their respective four-year cycles which typically represent peak revenue potential as case settlement volumes typically pick up. Also, in the U.K., the last year of the cycle experiences the highest annuity billings of the entire cycle. While it's common to see an acceleration of settlement activities in the final years of a cycle, there is always a continuation of settlement activities that spill over into the following years of the new cycles. Given the nature of the Property Tax business as discussed in more detail in the seasonal and cyclical variations, we expect to experience typical quarterly variability in our financial performance, including the second quarter being our strongest quarter of the year. Looking ahead to the first quarter, we expect that our Canadian revenues will face a modest headwind in B.C. and experience a delay due to a change in pre-roll assessments, however we expect that to be offset by stronger performance in Ontario and Manitoba on a year-over-year comparative view.

Our Valuation and Cost Advisory practices enjoy significant market share and, as a result, are expected to continue growing modestly. Growth is expected to be driven by operating leverage, enhanced efficiency and productivity from technology, and improved cross-selling across the organization.

Geomatics

<i>In thousands of dollars</i>	Year ended December 31,			Quarter ended December 31,		
	2019	2018	% Change	2019	2018	% Change
Revenues	\$ 41,698	\$ 43,632	(4.4%)	\$ 10,318	\$ 11,481	(10.1%)
Adjusted EBITDA ⁽¹⁾	\$ 3,436	\$ 3,598	(4.5%)	\$ 641	\$ 877	(26.9%)
Adjusted EBITDA Margin ⁽¹⁾	8.2%	8.2%		6.2%	7.6%	

⁽¹⁾ Q4 margin includes bonuses which were accrued in quarterly corporate costs in the previous three quarters.

Year End Discussion

Revenues were \$41.7 million for the year ended December 31, 2019, down 4.4% or \$1.9 million from \$43.6 million in 2018. Revenues were impacted by reduced activity levels in the oil and gas sector, a key market for this business unit.

Adjusted EBITDA was \$3.4 million for the year ended December 31, 2019, down 4.5% or \$0.2 million from \$3.6 million in 2018. Earnings were down on reduced revenues, partly offset by improved operational cost efficiencies.

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Quarterly Discussion

Revenues were \$10.3 million for the quarter ended December 31, 2019, down 10.1% or \$1.2 million from \$11.5 million in the same period in 2018. Revenues were down on reduced activity.

Adjusted EBITDA was \$0.6 million for the quarter ended December 31, 2019, down 26.9% or \$0.3 million from \$0.9 million in the same period in 2018. Earnings declined on reduced revenues, partly offset by improved operational cost efficiencies.

Outlook

Starting in the first quarter of 2020, our Geomatics performance will be reflected as discontinued operations, as we have agreed, subject to definitive documentation, to combine our Geomatics business segment with WSP Global Inc.'s respective geomatics focused business unit.

Corporate Costs

Year End Discussion

Corporate costs (recovery) were \$28.2 million for the year ended December 31, 2019, as compared to \$23.0 million in 2018. Corporate costs increased on higher accrual of variable compensation costs and various corporate initiatives to scale the business for growth. For the year ended December 31, 2019, corporate costs as a percentage of revenues was 5.0%, as compared to 4.5% in 2018.

Quarterly Discussion

Corporate costs (recovery) were \$(4.1) million for the quarter ended December 31, 2019, as compared to \$(1.1) million in the same period in 2018. In the first three quarters of the year, variable compensation costs for the business units were accrued in the Corporate segment, subject to the overall finalization at year-end. In the fourth quarter, the accrued costs were allocated to the business units. These accrued costs were higher in 2019 as a result of stronger performance and led to a greater recovery in the Corporate segment over the comparable period.

Liquidity and Capital Resources

Cash Flow	Year ended December 31,	
	2019	2018
<i>In thousands of dollars</i>		
Net cash related to operating activities	\$ 52,425	\$ 49,491
Net cash related to financing activities	(20,791)	(42,971)
Net cash related to investing activities	(18,430)	10,976
Effect of foreign currency translation	(1,680)	3,172
Change in cash position during the year	\$ 11,524	\$ 20,668
Dividends paid	\$ 19,199	\$ 18,798

We expect to fund operations with cash derived from operating activities. Deficiencies arising from short-term working capital requirements and capital expenditures may be financed on a short-term basis with bank indebtedness or on a permanent basis with offerings of securities. Significant erosion in the general state of the economy could affect our liquidity by reducing cash generated from operating activities or by limiting access to short-term financing as a result of tightening credit markets.

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Cash from Operating Activities

Working Capital		
<i>In thousands of dollars</i>	December 31, 2019	December 31, 2018
Current assets	\$ 246,069	\$ 209,535
Current liabilities	283,607	125,180
Working capital	\$ (37,538)	\$ 84,355

Current assets are composed primarily of cash and cash equivalents, trade receivables and other and income taxes recoverable. Current liabilities are composed primarily of trade payables and other, income taxes payable, lease liabilities and borrowings. The increase in current liabilities is largely due to bank credit facilities of \$138.0 million being included in current liabilities as at December 31, 2019, as they mature on April 28, 2020. We have negotiated a draft term sheet with our lenders which is in the process of being approved.

As at December 31, 2019, trade receivables, net and unbilled revenue on customer contracts net of deferred revenue was \$129.4 million, up 22.1% or \$23.5 million from \$105.9 million as at December 31, 2018. As a percentage of the trailing 12-month revenues, trade receivables and unbilled revenue on customer contracts net of deferred revenue, was 22.5% as at December 31, 2019, as compared to 20.6% as at December 31, 2018.

Our Days Sales Outstanding ("DSO") was 76 days as at December 31, 2019, as compared to 74 days as at December 31, 2018. We calculate DSO by taking the five-quarter average balance of trade receivables, net and unbilled revenue on customer contracts net of deferred revenue and the result is then divided by the trailing 12-month revenues plus any pre-acquisition revenues, as applicable, and multiplied by 365 days. Our method of calculating DSO may differ from the methods used by other issuers and, accordingly, may not be comparable to similar measures used by other issuers. We believe this measure is useful to investors as it demonstrates our ability to convert revenue into cash.

Current and long-term liabilities include amounts owing to the vendors of acquired businesses on account of excess working capital, deferred purchase price payments and other closing adjustments. As at December 31, 2019, the amounts owing to the vendors of acquired businesses were \$8.5 million, as compared to \$14.2 million as at December 31, 2018. We intend to satisfy the payments with the revolving term facility (as described below) or cash on hand.

Except for our bank credit facilities, which we expect to renew prior to maturity, we expect to satisfy the balance of our current liabilities through the realization of our current assets.

Cash from Financing Activities

Our revolving term facility is a senior secured revolving term facility used for general corporate purposes that will mature on April 28, 2020. In June 2018, we increased our borrowing capacity under the revolving term facility from \$200.0 million to \$220.0 million in accordance with certain provisions of the agreement. The borrowing capacity can be further increased to \$250.0 million. All other terms of the bank credit facilities remain the same.

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As at December 31, 2019, our total borrowings on our revolving term facility amounted to \$138.0 million, an increase of \$8.8 million from December 31, 2018. Our bank credit facilities mature on April 28, 2020 and hence, have been presented as current liabilities. We have negotiated a draft term sheet with our lenders which is in the process of being approved.

We also have outstanding letters of credit under our bank credit facilities in the total amount of \$1.1 million (December 31, 2018 - \$0.8 million).

The cost of our bank credit facilities is tied to the Canadian Prime rates, Canadian Bankers' Acceptance rates, U.S. Base rates or LIBOR rates. As at December 31, 2019, \$65.0 million was subject to interest rate swap agreements to fix the interest rate. We are obligated to pay the counterparty to the swap agreements an amount based upon a fixed interest rate of 1.48% per annum and the counterparty is obligated to pay us an amount equal to the Canadian Bankers' Acceptance rate. These agreements expire on May 15, 2020. These interest rate swaps are not designated as cash flow hedges. The effective annual rate of interest for the year ended December 31, 2019 on our bank credit facilities was 3.61%, as compared to 3.48% in 2018.

We have agreed with our bank syndicate that our covenants will be calculated under the method used prior to the adoption of IFRS 16.

As at December 31, 2019, we were in compliance with the financial covenants of our bank credit facilities, which are summarized below:

	December 31, 2019
Funded debt to EBITDA (maximum of 3.00:1)	1.49:1
Fixed charge coverage (minimum of 1.20:1)	9.68:1
Funded debt to capitalization (maximum of 55%)	25%

Other than long-term debt and letters of credit, we are subject to other contractual obligations, such as leases and amounts owing to the vendors of acquired businesses as discussed above.

Contractual Obligations ⁽¹⁾	Payments Due by Period (undiscounted)				
	Total	Less than 1 year	1 to 3 years	4 to 5 years	Over 5 years
<i>In thousands of dollars</i>					
Bank credit facilities	\$ 138,000	\$ 138,000	\$ -	\$ -	\$ -
Leasehold improvement loans	419	74	148	148	49
Lease obligations	85,794	14,894	26,951	23,198	20,751
Contingent consideration payables	7,919	5,409	2,510	-	-
Other liabilities	101,366	87,214	7,744	1,080	5,328
Total contractual obligations	\$ 333,498	\$ 245,591	\$ 37,353	\$ 24,426	\$ 26,128

⁽¹⁾ Contractual obligations exclude aggregate unfunded capital contributions of \$0.7 million to certain partnerships as the amount and timing of such payments are uncertain.

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Cash from Investing Activities

We invest in property, plant and equipment and intangible assets to support the activities of the business. Capital expenditures for accounting purposes include property, plant and equipment in substance and in form, and intangible assets.

Capital expenditures are reconciled as follows:

Capital Expenditures	Year ended December 31,	
<i>In thousands of dollars</i>	2019	2018
Property, plant and equipment additions	\$ 5,786	\$ 11,545
Intangibles additions	155	826
Proceeds from disposal of property, plant and equipment and intangibles	(147)	(271)
Capital expenditures	\$ 5,794	\$ 12,100

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Reconciliation of Adjusted EBITDA to Profit (Loss)

The following table provides a reconciliation between Adjusted EBITDA and profit (loss):

<i>In thousands of dollars</i>	Year ended December 31,		Quarter ended December 31,	
	2019	2018	2019	2018
Adjusted EBITDA	\$ 88,145	\$ 70,904	\$ 23,471	\$ 15,121
Additional occupancy expense calculated on a similar basis prior to the adoption of IFRS 16 ⁽¹⁾	13,499	-	3,321	-
Depreciation - right-of-use assets	(13,440)	-	(3,218)	-
Depreciation and amortization - other	(37,833)	(49,114)	(8,723)	(11,254)
Acquisition and related transition (costs) income	(188)	(2,394)	50	(137)
Unrealized foreign exchange gain (loss) ⁽²⁾	(994)	981	385	405
Gain (loss) on disposal of property, plant and equipment and intangibles ⁽²⁾	(274)	(1,617)	68	(473)
Non-cash Equity Compensation Plan and Long-Term Equity Incentive Plan costs ⁽³⁾	(5,895)	(5,867)	(1,387)	(1,560)
Gain (loss) on equity derivatives net of mark-to-market adjustments on related RSUs and DSUs being hedged ⁽³⁾	1,109	(1,276)	(1,138)	(300)
Gain (loss) on derivatives ⁽²⁾	-	268	-	-
Restructuring (costs) recovery	453	(6,371)	-	87
Gain (loss) on investments ⁽⁴⁾	276	43	118	(38)
Impairment charge - leases	(69)	-	-	-
Impairment charge - goodwill	(6,400)	(13,700)	(6,400)	(13,700)
Other non-operating and/or non-recurring income (costs) ⁽⁵⁾	(3,787)	(2,953)	(3,787)	(1,658)
Earnings (loss) before finance costs and income taxes	34,602	(11,096)	2,760	(13,507)
Finance (costs) income, net - leases	(2,885)	-	(725)	-
Finance (costs) income, net - other	(6,567)	(6,701)	(1,431)	(1,845)
Profit (loss) before income taxes	25,150	(17,797)	604	(15,352)
Income tax (expense) recovery	(6,956)	(642)	332	633
Profit (loss) for the period	\$ 18,194	\$ (18,439)	\$ 272	\$ (14,719)

⁽¹⁾ Management's use of the non-GAAP lease expense calculated on a similar basis prior to the adoption of IFRS 16 is used when analyzing operating performance. Management believes that the non-GAAP measure provides useful information to both management and investors in measuring our financial performance. Refer to pages 15 and 16 for a schedule showing the impacts and adjustments of our consolidated financial statements for the adoption of IFRS 16.

⁽²⁾ Included in office and other operating expenses in the consolidated statements of comprehensive income (loss).

⁽³⁾ Included in employee compensation expenses in the consolidated statements of comprehensive income (loss).

⁽⁴⁾ Gain (loss) on investments for the year ended December 31, 2019 and 2018 relates to changes in fair value of investments in partnerships.

⁽⁵⁾ Other non-operating and/or non-recurring income (costs) for the year ended December 31, 2019 relate to (i) costs related to the departure of a senior executive, (ii) legal, advisory, and other consulting costs related to a Board strategic initiative, and (iii) transaction and other related costs. Other non-operating and/or non-recurring income (costs) for the year ended December 31, 2018 relate to (i) non-recurring legal matters and related costs, (ii) transactional costs for tax planning and restructuring of legal entities within the group, and (iii) costs related to the departures of certain senior executives. These are included in office and other operating expenses in the consolidated statements of comprehensive income (loss).

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Adjusted Earnings (Loss) Per Share

<i>In thousands of dollars, except for per share amounts</i>	Year ended December 31,		Quarter ended December 31,	
	2019	2018	2019	2018
Profit (loss) for the period	\$ 18,194	\$ (18,439)	\$ 272	\$ (14,719)
Additional occupancy expense calculated on a similar basis prior to the adoption of IFRS 16	(13,499)	-	(3,321)	-
Depreciation - right-of-use assets	13,440	-	3,218	-
Finance costs (income), net - leases	2,885	-	725	-
Amortization of intangibles of acquired businesses	29,455	38,816	6,981	8,547
Unrealized foreign exchange loss (gain)	994	(981)	(385)	(405)
Loss (gain) on disposal of property, plant and equipment and intangibles	274	1,617	(68)	473
Non-cash Equity Compensation Plan and Long-Term Equity Incentive Plan costs	5,895	5,867	1,387	1,560
Loss (gain) on equity derivatives net of mark-to-market adjustments on related RSUs and DSUs being hedged	(1,109)	1,276	1,138	300
Interest accretion on contingent consideration payables	467	648	3	155
Restructuring costs (recovery)	(453)	6,371	-	(87)
Loss (gain) on hedging transactions, including currency forward contracts and interest expense (income) on swaps	505	(50)	55	367
Acquisition and related transition costs (income)	188	2,394	(50)	137
Impairment charge - leases	69	-	-	-
Impairment charge - goodwill	6,400	13,700	6,400	13,700
Loss (gain) on investments	(276)	(43)	(118)	38
Other non-operating and/or non-recurring costs (income)	3,787	2,953	3,787	1,658
Tax impact on above	(8,638)	(13,260)	(2,773)	(3,871)
Adjusted earnings (loss) for the period	\$ 58,578	\$ 40,869	\$ 17,251	\$ 7,853
Weighted average number of shares - basic	39,460,603	38,763,613	39,787,438	38,968,108
Weighted average number of restricted shares	374,102	310,751	368,989	298,926
Weighted average number of shares - adjusted	39,834,705	39,074,364	40,156,427	39,267,034
Adjusted earnings (loss) per share	\$1.47	\$1.05	\$0.43	\$0.20

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Summary of Quarterly Results

In thousands of dollars, except for per share amounts	2019					2018				
	Fiscal 2019	Dec 31	Sep 30	Jun 30	Mar 31	Fiscal 2018	Dec 31	Sep 30	Jun 30	Mar 31
Results of Operations										
Revenues	\$ 567,415	\$ 148,769	\$ 136,994	\$ 153,654	\$ 127,998	\$ 510,429	\$ 130,885	\$ 120,636	\$ 134,218	\$ 124,690
Adjusted EBITDA	\$ 88,145	\$ 23,479	\$ 19,820	\$ 30,970	\$ 13,884	\$ 70,904	\$ 15,121	\$ 16,504	\$ 23,771	\$ 15,508
Adjusted EBITDA margin	15.5%	15.8%	14.5%	20.2%	10.8%	13.9%	11.6%	13.7%	17.7%	12.4%
Profit (loss) for the period	\$ 18,194	\$ 272	\$ 5,036	\$ 13,321	\$ (435)	\$ (18,439)	\$ (14,719)	\$ (1,723)	\$ 330	\$ (2,327)
Earnings (loss) per share:										
Basic	\$0.46	\$0.01	\$0.13	\$0.34	\$(0.01)	\$(0.48)	\$(0.38)	\$(0.04)	\$0.01	\$(0.06)
Diluted	\$0.45	\$0.01	\$0.12	\$0.33	\$(0.01)	\$(0.48)	\$(0.38)	\$(0.04)	\$0.01	\$(0.06)
Adjusted	\$1.47	\$0.43	\$0.30	\$0.52	\$0.23	\$1.05	\$0.20	\$0.22	\$0.40	\$0.23
Weighted average number shares ('000s):										
Basic	39,461	39,787	39,643	39,318	39,084	38,764	38,968	38,879	38,700	38,500
Diluted	40,084	40,653	40,411	39,770	39,084	38,764	38,968	38,879	39,085	38,500

Certain segments of our operations are subject to seasonal and cyclical variations which may impact overall quarterly results. For instance:

- Our Altus Analytics business (which made up approximately 36% of total consolidated revenues in 2019) experiences some modest seasonality. ARGUS software products sold as perpetual licenses tend to have a stronger fourth quarter in revenues, a trend that is common in many other software companies. Also, our Appraisal Management solutions could experience some seasonal patterns around the second and fourth quarters, associated with some clients' practices of bi-annual and annual appraisals. It should also be noted that our Altus Analytics revenues may exhibit revenue variability as a result of our revenue recognition under IFRS 15. Under IFRS 15 accounting, for on-premise ARGUS software solutions that are sold on a subscription basis in a right to use license arrangement, a portion of the revenues will be recognized at the time of delivery of the distinct license rather than ratably over the term of the subscription. This results in more variability in revenues based on the timing of contracts and their associated renewals. All AE sales to new customers are expected to be on the cloud platform and therefore are for a right to access; those revenues will continue to be recognized ratably over the term of the subscription. Revenue recognition may vary based on contract specific terms.
- Our global Property Tax practice (which made up approximately 38% of total consolidated revenues in 2019) can experience significant fluctuations on a quarterly basis as a result of the timing of contingency settlements and other factors, such as the wide-ranging variety of tax cycles across our various jurisdictions (which range from annual to seven year cycles). We also experience some seasonal peaks in the U.K. and U.S. markets. In the U.K., the second quarter benefits from annuity billing starting the second year of a new cycle, and in the U.S. we tend to experience higher volumes of settlements in the second and third quarters. Continuing from 2018, following the integration of CVS, we implemented annuity billing in the U.K. for a significant number of our contracts that occur each April of the second, third and fourth year of the cycle. The revenues from the annuity billings are expected to grow cumulatively over the cycle as more cases are settled and as the volume of billable clients increases concurrent with case settlements. It should also be noted that since a higher portion of our

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revenues come from contingency contracts, the front-end of a cycle typically requires a ramp-up period in preparation for the appeals and therefore tends to have lower earnings than later in the cycles when more settlements are made and those revenues flow directly to the bottom line.

- Our Cost Advisory practice (which made up approximately 11% of total consolidated revenues in 2019) experiences some cyclicity associated with its significant exposure to the CRE construction and development activities in the key markets that we serve. For instance, revenues will generally be higher in periods of economic prosperity and expansion in our key markets in Canada and Asia Pacific.
- Our Geomatics business (which made up approximately 7% of total consolidated revenues in 2019) engages in projects that tend to be on remote undeveloped land in Western Canada, which is most accessible in the winter and summer months and least accessible in the spring months when ground conditions are soft and wet. Revenues for Geomatics tend to peak in the third and fourth quarters of the year in line with higher activity levels during these periods. Also, given Geomatics' significant client exposure to the oil and gas sector, revenues will be impacted by cyclical trends related to that sector, specifically driven by capital spending.

Selected Annual Information

Selected Financial Information		For the year ended December 31,		
<i>In thousands of dollars, except for per share amounts</i>	2019	2018	2017 ⁽¹⁾	
Operations				
Revenues	\$ 567,415	\$ 510,429	\$ 476,562	
Adjusted EBITDA	\$ 88,145	\$ 70,904	\$ 80,645	
Adjusted EBITDA margin	15.5%	13.9%	16.9%	
Profit (loss)	\$ 18,194	\$ (18,439)	\$ 109,417	
Earnings (loss) per share:				
Basic	\$0.46	\$(0.48)	\$2.88	
Diluted	\$0.45	\$(0.48)	\$2.83	
Adjusted	\$1.47	\$1.05	\$1.11	
Dividends declared per share	\$0.60	\$0.60	\$0.60	

Balance Sheet		At December 31,		
	2019	2018	2017 ⁽¹⁾	
Total assets	\$ 735,125	\$ 658,182	\$ 726,115	
Long-term liabilities (excluding deferred income taxes)	79,950	158,334	180,557	

⁽¹⁾ Restated for the impact of IFRS 15.

Revenues were \$567.4 million for the year ended December 31, 2019, up 11.2% from 2018, of which approximately 2.4% was from acquisitions. Adjusted EBITDA was \$88.1 million for the year, a margin of 15.5%, up 24.3% from 2018, and profit (loss) for the year was \$18.2 million.

Revenues were \$510.4 million for the year ended December 31, 2018, up 7.1% from 2017, of which approximately 2.1% was from acquisitions. Adjusted EBITDA was \$70.9 million for the year, a margin of 13.9%, down 12.1% from 2017, and profit (loss) for the year was \$(18.4) million.

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Revenues were \$476.6 million for the year ended December 31, 2017, up 7.6% from 2016, of which approximately 1.8% was from acquisitions. Adjusted EBITDA was \$80.6 million for the year, a margin of 16.9%, up 8.9% from 2016, and profit (loss) for the year was \$109.4 million.

In each of the past three years we have declared and paid quarterly dividends totaling \$0.60 annually, per common share to the shareholders.

Selected Highlights for 2018

Acquisition of New Market Real Estate Group, LLC

On January 1, 2018, we acquired certain operating assets of New Market Real Estate Group, LLC ("New Market") for \$1.0 million in common shares. Based in Maryland and founded in 2001, New Market offers a full range of CRE services throughout the United States including research, valuation, acquisition, investment analysis and consulting services. New Market was integrated into our Appraisal Management business, part of our Altus Analytics advisory practice.

Acquisition of Aspect Property Consultants LLP

On February 14, 2018, we acquired certain operating assets of Aspect Property Consultants LLP ("Aspect") for GBP4.3 million (CAD7.4 million) in cash, common shares and contingent consideration. As consideration for these assets, we paid cash of GBP1.8 million (CAD3.1 million) and common shares of GBP0.6 million (CAD1.1 million) and we estimated contingent consideration of GBP1.9 million (CAD3.3 million). The purchase agreement provides for maximum contingent consideration of GBP2.6 million, subject to certain performance targets being achieved over a two-year period from the closing date. With offices located in London, Heathrow and Basingstoke, U.K. and founded in 2009, Aspect is a commercial property consultancy firm specializing in the South East U.K. business space market with a particular focus on the West London warehouse market. This business was integrated into our U.K. Property Tax group.

Acquisition of Taliance Group SAS

On July 1, 2018, we acquired all the issued and outstanding shares of Taliance for EUR20.0 million (CAD30.7 million) in cash and common shares, subject to closing adjustments. On closing, EUR2.2 million (CAD3.3 million) of common shares were issued from treasury and the remainder of the purchase price was drawn from the revolving term facility. Taliance provides cloud-based collaborative business solutions to alternative investment firms globally allowing them to improve their modelling, forecasting and risk management processes in real time. Based in Paris, Taliance also has offices in London and New York. The addition of Taliance, which can be deployed and integrated with AE, allows us to expand our position in Europe and to deliver cloud software solutions with a comprehensive investment management capability that provides flexibility and transparency to manage the most complex investment structures and scenarios. Taliance also provides a foundation for growth in the fund management segment of the market globally. Taliance is currently sold as a stand-alone offering, ARGUS Taliance, under our Altus Analytics banner.

Restructuring Activities

In Q1 of 2018, we undertook and completed restructuring activities in Geomatics to reduce costs. In connection with these restructuring activities, a total of \$2.9 million in restructuring costs was recorded in 2018. These charges related primarily to employee severance costs and onerous leases.

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In Q2 of 2018, we initiated restructuring activities in our Property Tax practice as a result of our integration efforts in the U.K. following the acquisition of CVS. This was completed in Q4 of 2018. In connection with these restructuring activities, a total of \$3.6 million in restructuring costs was recorded in 2018. These charges related primarily to employee severance costs and onerous leases.

Sale of Investment in Real Matters Inc.

In September 2018, we sold our shares related to our investment in Real Matters Inc. ("Real Matters") for net proceeds of \$54.2 million. The loss included in other comprehensive income (loss) up to the date of disposition of \$70.8 million was transferred to retained earnings. In October 2018, the proceeds were used to reduce the borrowings under the bank credit facilities.

Selected Highlights for 2017

Altus Analytics New Product Launches and Upgrades

In the first quarter of 2017, we launched AE 11.6 ("AE 11.6"), an upgraded version of our industry-leading CRE and investment management platform. Enhancements in AE 11.6 included improved user experience (simplified for key transaction and valuation roles), advanced user productivity features, and more powerful reporting capabilities.

In the second quarter of 2017, we launched ARGUS Developer 7.7, an upgraded version of our industry leading software that models, forecasts, manages, analyzes and reports on development project costs and cash flows. Enhancements included increased language functionality through the addition of German and Spanish languages, as well as other user improvements.

Acquisition of Axiom Cost Consulting Inc.

On February 1, 2017, we acquired all the issued and outstanding shares of Axiom Cost Consulting Inc. ("Axiom") for \$0.9 million in cash and common shares, subject to working capital adjustments. With operations in Calgary, Edmonton and Vancouver, Axiom specializes in cost management and loan monitoring. Axiom was integrated with our Cost Consulting practice under our Valuation and Cost Advisory segment.

Acquisition of EstateMaster Group Holdings Pty Limited

On March 1, 2017, we acquired all the issued and outstanding shares of EstateMaster Group Holdings Pty Limited ("EstateMaster") and its subsidiaries for \$20.1 million in cash and common shares, subject to working capital adjustments. EstateMaster is an Australian-based property development feasibility and management software provider. With a leading market position in Australia and the Middle East, the EstateMaster Development Feasibility software is the accepted market standard for the production of feasibility reports in the Australian property markets. The acquisition of EstateMaster broadens our product offerings with software solutions complementary to our ARGUS Developer product, while adding market share in our growth regions, including Australia and the Middle East. The EstateMaster software has been subsequently rebranded ARGUS EstateMaster and is sold as part of the Altus Analytics suite of software solutions.

Strategic Investment in Waypoint Building Group

Consistent with our strategy of building and scaling our technology and data offerings through partnerships and direct investments, on March 17, 2017, we advanced USD3.0 million to Waypoint Building

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Group, Inc. ("Waypoint") in the form of a promissory note, with simple interest accrued at a rate of 5% and payable on maturity, 24 months from the date of issuance. The promissory note includes conversion features which are applicable on maturity or upon the occurrence of certain events such as an equity financing or corporate transaction.

Waypoint is an early-stage data analytics company. Founded in 2009, Waypoint is a San Francisco-based CRE technology company that provides real-time local market operating expense information and benchmarking solutions to the North American CRE market.

Early Redemption of Outstanding 6.75% Convertible Debentures

The outstanding 6.75% convertible debentures ("2012 convertible debentures") were redeemed by the Company on May 3, 2017, in accordance with the terms of the convertible debenture indenture and have been delisted from the Toronto Stock Exchange. The aggregate principal amount of the 2012 convertible debentures outstanding as of December 31, 2016 was \$6.1 million, of which \$5.7 million was converted into 570,900 common shares issued from treasury at a conversion price of \$10.00 per common share. The remaining principal amount of \$0.4 million of the 2012 convertible debentures was redeemed using available cash on hand.

Investment in Real Matters

On May 11, 2017, Real Matters completed its initial public offering at \$13.00 per common share. As a result, our equity interest in Real Matters was diluted to 12.0%. The partial deemed disposition of our investment and re-measurement of our retained interest resulted in an accounting gain of \$115.7 million in the second quarter. At that time, the ongoing accounting treatment of our investment in Real Matters changed from equity accounting to an available-for-sale investment. Since then, gains or losses from mark-to-market adjustments were reflected directly in other comprehensive income (loss). Certain items such as dividends and impairment losses were recognized in profit or loss. When our investment was derecognized as a result of a sale or impairment, the cumulative gain or loss previously recognized in other comprehensive income (loss) was reclassified to profit or loss.

Restructuring Activities

In the first quarter of 2017, we undertook company-wide restructuring activities under a corporate program to further optimize operations. This restructuring plan was completed in Q2 of 2017. In connection with these restructuring activities, a total of \$4.7 million in restructuring costs was recorded for the year ended December 31, 2017. These charges related primarily to employee severance costs.

Acquisition of Commercial Valuers & Surveyors Limited

On November 1, 2017, we acquired CVS, a property tax service provider in the U.K. that specializes in business rates services. The acquisition of CVS positions Altus Group as the largest business rates advisor in the U.K. based on volume of appeals filed, and more than doubles the size of our legacy business in the U.K. CVS's team of approximately 230 professionals were added to our U.K. Property Tax division, strengthening our business rates expertise. As the acquisition provides us with greater scale and synergistic opportunities, it positions us for growth and expands our database on comparable property information in a key real estate market, allowing us to better serve our clients in appeals and lease negotiations.

Altus Group paid a total of GBP30.3 million (CAD51.6 million) in cash on closing with an additional GBP6.0 million (CAD10.2 million) payable in two years from the closing date, subject to compliance with certain

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terms and conditions. On closing, GBP25.3 million (CAD43.1 million) was from cash on hand and GBP5.0 million (CAD8.5 million) was drawn from our revolving term facility. Based on the estimated Adjusted EBITDA to be derived from the 2017 assessment cycle, the average Adjusted EBITDA multiple for this transaction was estimated at 5.5 times. Given the annuity revenue model of this business, revenue is expected to grow in a compounding manner as appeals are settled over the four-year term of the cycle, and likewise earnings contribution increases throughout the cycle as majority of the revenues are on a contingency basis.

Share Data

As at February 17, 2020, 39,844,138 common shares were outstanding and are net of 364,864 treasury shares. These treasury shares are shares held by Altus Group, which are subject to restrictive covenants and may or may not vest for employees. Accordingly, these shares are not included in the total number of common shares outstanding for financial reporting purposes and are not included in basic earnings per share calculations.

As at December 31, 2019, there were 1,579,283 share options outstanding (December 31, 2018 - 1,518,670 share options outstanding) at a weighted average exercise price of \$28.98 per share (December 31, 2018 - \$27.96 per share) and 545,728 share options were exercisable (December 31, 2018 - 495,894). All share options are exercisable into common shares on a one-for-one basis.

Shareholders who are resident in Canada may elect to automatically reinvest quarterly dividends in additional Altus Group common shares under our Dividend Reinvestment Plan ("DRIP").

Pursuant to the DRIP, and in the case where common shares are issued from treasury, cash dividends will be reinvested in additional Altus Group common shares at the weighted average market price of our common shares for the five trading days immediately preceding the relevant dividend payment date, less a discount, currently set at 4%. In the case where common shares will be purchased on the open market, cash dividends will be reinvested in additional Altus Group common shares at the relevant average market price paid in respect of satisfying this reinvestment plan.

For the year ended December 31, 2019, 179,572 common shares (2018 - 158,481 common shares) were issued under the DRIP.

Financial Instruments and Other Instruments

Financial instruments held in the normal course of business included in our consolidated balance sheet as at December 31, 2019 consist of cash and cash equivalents, trade receivables and other (excluding deferred costs to obtain customer contracts and prepayments), trade payables and other (excluding contract liabilities), income taxes recoverable and payable, investments, borrowings and derivative financial instruments. We do not enter into financial instrument arrangements for speculative purposes.

The fair values of the short-term financial instruments approximate their carrying values. The fair values of borrowings are not significantly different than their carrying values, as these instruments bear interest at rates comparable to current market rates. The fair values of other long-term assets and liabilities, promissory notes receivable and contingent consideration payables are measured using a discounted cash flow analysis of expected cash flows in future periods. The investments in equity instruments are measured

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based on valuations of the respective entities. Investments in partnerships are measured in relation to the fair value of assets in the respective partnerships.

The fair value of the liabilities for the DSU and RSU plans as at December 31, 2019 was approximately \$15.1 million, based on the published trading price on the TSX for our common shares.

We are exposed to interest rate risk in the event of fluctuations in the Canadian Prime rates, Canadian Bankers' Acceptance rates, U.S. Base rates or LIBOR rates, as the interest rates on the bank credit facilities fluctuate with changes in these rates.

To mitigate our exposure to interest rate fluctuations, we have entered into interest rate swap agreements in connection with our bank credit facilities.

In 2015, we entered into interest rate swap agreements for a total notional amount of \$65.0 million and a fixed interest rate of 1.48% per annum. This agreement expires on May 15, 2020. As at December 31, 2019, we have a total notional amount of \$65.0 million outstanding and the fair value of these swaps were \$0.1 million in our favor.

We are exposed to price risk as the liabilities for cash-settled plans are classified as fair value through profit or loss, and linked to the price of our common shares.

Since 2014, we entered into equity derivatives to manage our exposure to changes in the fair value of RSUs and DSUs, issued under their respective plans, due to changes in the fair value of our common shares. Changes in the fair value of these derivatives are recorded as employee compensation expense and offset the impact of mark-to-market adjustments on the RSUs and DSUs that have been accrued.

As at December 31, 2019, we have equity derivatives relating to RSUs and DSUs outstanding with a notional amount of \$11.3 million. The fair value of these derivatives is \$7.3 million in our favor.

We are exposed to credit risk with respect to our cash and cash equivalents, trade receivables and other and derivative financial instruments. Credit risk is not concentrated with any particular customer. In certain parts of Asia, it is often common business practice to pay invoices over an extended period of time and/or at the completion of the project. The risk of non-collection of trade receivables is greater in Asia Pacific compared to North American or European countries.

Liquidity risk is the risk that we will not be able to meet our financial obligations as they become due. We manage liquidity risk through the management of our capital structure and financial leverage. We also manage liquidity risk by continuously monitoring actual and projected cash flows, taking into account the seasonality of our revenues and receipts and maturity profile of financial assets and liabilities. Our Board of Directors reviews and approves our operating and capital budgets, as well as any material transactions outside the ordinary course of business, including proposals on mergers, acquisitions or other major investments.

Contingencies

From time to time, we or our subsidiaries are involved in legal proceedings, claims and litigation in the ordinary course of business with customers, former employees and other parties. Although it is not possible

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to determine the final outcome of such matters, based on all currently available information, management believes that liabilities, if any, arising from such matters will not have a material adverse effect on our financial position or results of operations and have been adequately provided for in the financial statements.

In the ordinary course of business, we are subject to tax audits from various government agencies relating to income and commodity taxes. As a result, from time to time, the tax authorities may disagree with the positions and conclusions we made in our tax filings, which could lead to assessments and reassessments. These assessments and reassessments may have a material adverse effect on our financial position or results of operations.

Critical Accounting Estimates and Judgments

The preparation of the consolidated financial statements requires management to make estimates and assumptions concerning the future. It also requires management to exercise its judgment in applying our accounting policies. Estimates and judgments are continually evaluated and are based on historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances. Accounting estimates will, by definition, seldom equal the actual results. The following discussion sets forth management's most significant estimates and assumptions in determining the value of assets and liabilities and the most significant judgments in applying accounting policies.

Revenue recognition and determination and allocation of the transaction price

We estimate variable consideration for contingency arrangements on a project-by-project basis. Variable consideration is not constrained only to the extent that it is highly probable that the amount will not be subject to significant reversal when the uncertainty is resolved, which is when savings are realized by the customer, unless the contractual terms provide for an enforceable right to payment for performance completed.

The transaction price is allocated on the basis of the relative standalone selling prices for contracts with more than one performance obligation. Estimation of the standalone selling price involves reasonably available data points, market conditions, entity-specific factors and information about the customer or class of customer and to similar customers as evidence of the standalone selling price for each performance obligation; however when one is not available, the standalone selling price is estimated. Where the observable price is not available, based on the specific facts and circumstances, either the adjusted market assessment or expected cost plus a margin approach is applied. The determination of the standalone selling prices requires significant judgment.

Impairment of trade receivables and contract assets

The impairment provisions for trade receivables and contract assets determined under IFRS 9, *Financial Instruments*, are based on assumptions about risk of default and expected loss rates. We use judgment in making these assumptions and selecting the inputs to the impairment calculation based on our past history, existing market conditions and forward-looking estimates at the end of each reporting period. Such estimates and judgments could impact trade receivables, contract assets for unbilled revenue on customer contracts and office and other operating expenses.

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Estimated impairment of goodwill

We test at least annually whether goodwill is subject to any impairment. Goodwill impairment is evaluated between annual tests upon the occurrence of events or changes in circumstances. Goodwill is allocated to cash-generating units ("CGUs") for the purpose of impairment testing. The allocation is made to those CGUs or group of CGUs that are expected to benefit from synergies of the business combination in which the goodwill arose. Goodwill is tested for impairment in the groups of CGUs for which it is monitored by management. An impairment loss is recognized for the amount by which the asset's carrying amount exceeds its recoverable amount. The recoverable amount for any CGU is determined based on the higher of fair value less costs to sell and value in use. Both of the valuation approaches require the use of estimates. Significant erosion in the general state of the economy could result in increased impairment losses. For the year ended December 31, 2019, a goodwill impairment charge of \$6.4 million was recorded (2018 - \$13.7 million).

Determination of purchase price allocations and contingent consideration

Estimates are made in determining the fair value of assets and liabilities, including the valuation of separately identifiable intangibles acquired as part of an acquisition. Further, estimates are made in determining the value of contingent consideration payments that should be recorded as part of the consideration on the date of acquisition and changes in contingent consideration payable in subsequent reporting periods. Contingent consideration payments are generally based on acquired businesses achieving certain performance targets. The estimates are based on our best assessment of the related inputs used in the valuation models, such as future cash flows and discount rates. Future performance results that differ from our estimates could result in changes to liabilities recorded, which are recorded as they arise through profit or loss.

Income taxes

We are subject to income taxes in numerous jurisdictions. Significant judgment is required in determining the provision for income taxes. Where the final tax outcome of these matters is different from the amounts that were initially recorded, such differences will impact the current and deferred income taxes in the period in which such determination is made.

Changes in Significant Accounting Policies and Estimates

Adoption of Recent Accounting Pronouncements

We initially applied IFRS 16 from January 1, 2019. A number of other new standards are also effective from January 1, 2019 but do not have a material effect on our consolidated financial statements.

IFRS 16, Leases

IFRS 16 supersedes International Accounting Standard ("IAS") 17, *Leases*, IFRIC 4, *Determining whether an Arrangement contains a Lease*, SIC-15, *Operating Leases - Incentives* and SIC-27, *Evaluating the Substance of Transactions Involving the Legal Form of a Lease*. The standard sets out the principles for the recognition, measurement, presentation and disclosure of leases and requires lessees to account for most leases under a single on-balance sheet model.

Lessor accounting under IFRS 16 is substantially unchanged from IAS 17. Lessors will continue to classify leases as either operating or finance leases using similar principles as in IAS 17. Therefore, IFRS 16 did not have an impact for leases where we are the sublessor.

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We applied IFRS 16 using the modified retrospective approach, under which the cumulative effect of initially applying the standard is recognized at the date of initial application of January 1, 2019. Accordingly, the comparative information for 2018 is not restated, but presented under IAS 17 and related interpretations.

We elected to use the transition practical expedient allowing the standard to be applied only to contracts that were previously identified as leases applying IAS 17 and IFRIC 4 at the date of initial application. We also elected to use the recognition exemptions for lease contracts that, at the commencement date, have a remaining lease term of 12 months or less and do not contain a purchase option ("short-term leases"), and lease contracts for which the underlying asset is of low value ("low-value assets").

For further discussion of the adoption of IFRS 16 and its impact on the financial statements, refer to Notes 4 and 14 in the notes to financial statements and pages 15 and 16 of this MD&A.

IFRIC Interpretation 23, Uncertainty over Income Tax Treatment

The Interpretation addresses the accounting for income taxes when tax treatments involve uncertainty that affects the application of IAS 12, *Income Taxes*. It does not apply to taxes or levies outside the scope of IAS 12, nor does it specifically include requirements relating to interest and penalties associated with uncertain tax treatments. The Interpretation specifically addresses the following:

- Whether an entity considers uncertain tax treatments separately;
- The assumptions an entity makes about the examination of tax treatments by taxation authorities;
- How an entity determines taxable profit (tax loss), tax bases, unused tax losses, unused tax credits and tax rates; and
- How an entity considers changes in facts and circumstances.

An entity has to determine whether to consider each uncertain tax treatment separately or together with one or more other uncertain tax treatments. The approach that better predicts the resolution of the uncertainty needs to be followed.

We apply significant judgment in identifying uncertainties over income tax treatments. Since we operate in a complex multinational environment, we assessed whether the Interpretation had an impact on our consolidated financial statements.

Upon adoption of the Interpretation, we considered whether we have any uncertain tax positions, particularly those relating to transfer pricing. Our tax filings in different jurisdictions include deductions related to transfer pricing and the taxation authorities may challenge those tax treatments. We determined, based on our tax compliance and transfer pricing study, that it is probable that our tax treatments (including those for the subsidiaries) will be accepted by the taxation authorities. The Interpretation did not have a material impact on our consolidated financial statements.

IAS 12, Income Taxes

The amendments apply for annual reporting periods beginning on or after January 1, 2019 and clarify that the income tax consequences of dividends are linked more directly to past transactions or events that generated distributable profits than to distributions to owners. Therefore, an entity recognizes the income

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tax consequences of dividends in profit or loss, other comprehensive income (loss) or equity according to where it originally recognized those past transactions or events.

Since our current practice is in line with this amendment, it had no impact on our consolidated financial statements.

Other accounting pronouncements and amendments

Other accounting pronouncements, and amendments proposed as part of the Annual Improvements 2015-2017 Cycle that are assessed to have no impact on the consolidated financial statements are:

- *Amendments to IFRS 9: Prepayment Features with Negative Compensation*
- *Amendments to IAS 19: Plan Amendment, Curtailment or Settlement*
- *Amendments to IAS 28: Long-term Interests in Associates and Joint Ventures*
- *IFRS 3, Business Combinations*
- *IFRS 11, Joint Arrangements*
- *IAS 23, Borrowing Costs*

Future Accounting Pronouncements

We have not early adopted any other standard, interpretation or amendment that has been issued but is not yet effective.

Amendments to IFRS 3, Business Combinations

In October 2018, the IASB issued amendments to the guidance in IFRS 3, *Business Combinations*, that revises the definition of a business. To be considered a business, an acquisition would have to include an input and a substantive process that together significantly contribute to the ability to create outputs. The new guidance provides a framework to evaluate when an input and a substantive process are present. To be a business without outputs, there will now need to be an organized workforce. Under the new standard, the changes to the definition of a business will likely result in more acquisitions being accounted for as asset acquisitions.

The amendments to IFRS 3 are effective for business combinations and asset acquisitions for which the acquisition date is on or after the first annual reporting periods beginning on or after January 1, 2020. We will assess the impact of this standard on a case-by-case basis upon future acquisitions performed beginning January 1, 2020.

Amendments to IAS 1 and IAS 8: Definition of Material

In October 2018, the IASB issued amendments to IAS 1, *Presentation of Financial Statements* and IAS 8, *Accounting Policies, Changes in Accounting Estimates and Errors* to align the definition of "material" across the standards and to clarify certain aspects of the definition. The new definition states that, "Information is material if omitting, misstating or obscuring it could reasonably be expected to influence decisions that the primary users of general purpose financial statements make on the basis of those financial statements, which provide financial information about a specific reporting entity."

The amendments to the definition of material are not expected to have a significant impact on our consolidated financial statements.

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Disclosure Controls and Procedures and Internal Controls over Financial Reporting

Management is responsible for establishing and maintaining disclosure controls and procedures ("DC&P") and internal controls over financial reporting ("ICFR"), as those terms are defined in National Instrument 52-109 - Certification of Disclosure in Issuers' Annual and Interim Filings ("NI 52-109").

Management has caused such DC&P to be designed under its supervision to provide reasonable assurance that our material information, including material information of our consolidated subsidiaries, is made known to our Chief Executive Officer and our Chief Financial Officer for the period in which the annual and interim filings are prepared. Further, such DC&P are designed to provide reasonable assurance that information we are required to disclose in our annual filings, interim filings or other reports we have filed or submitted under securities legislation is recorded, processed, summarized and reported within the time periods specified in applicable securities legislation.

Management has caused such ICFR to be designed under its supervision using the framework established in Internal Control - Integrated Framework (2013) published by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO") to provide reasonable assurance regarding the reliability of financial reporting and the preparation of the financial statements for external purposes in accordance with IFRS.

Section 3.3(1)(b) of NI 52-109 allows an issuer to limit its design of DC&P and ICFR to exclude controls, policies and procedures of a business that the issuer acquired not exceeding 365 days from the date of acquisition.

Management has limited the scope of the design of DC&P and ICFR, consistent with previous practice, to exclude controls, policies and procedures of One11 acquired on July 1, 2019 and Caruthers acquired on July 1, 2019.

Financial information of the businesses acquired is summarized below.

Income statement data for One11:

<i>In thousands of dollars</i>	Period ended December 31, 2019
Revenues	\$ 7,953
Expenses	7,742
Profit (loss)	211
Adjusted EBITDA	752

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Income statement data for Caruthers:

<i>In thousands of dollars</i>	Period ended December 31, 2019	
Revenues	\$	735
Expenses		845
Profit (loss)		(110)
Adjusted EBITDA		180

Management has caused to be evaluated under its supervision the effectiveness of its DC&P as of December 31, 2019 and has concluded that the design and effectiveness of these controls and procedures provide reasonable assurance that material information relating to Altus Group, including our consolidated subsidiaries, was made known to management on a timely basis to ensure adequate disclosure.

Management has caused to be evaluated under its supervision the effectiveness of its ICFR as of December 31, 2019 using the COSO framework. Management has concluded that the overall design and effectiveness of these controls provide reasonable assurance of the reliability of financial reporting and the preparation of the consolidated financial statements for external purposes in accordance with IFRS.

There have been no significant changes in our internal controls over financial reporting that occurred for the quarter ended December 31, 2019, the most recently completed interim period, that have materially affected, or are reasonably likely to materially affect, our internal controls over financial reporting.

We implemented internal controls to ensure we adequately evaluated our contracts and properly assessed the impact of the new accounting standards related to IFRS 16 on our financial statements to facilitate its adoption on January 1, 2019. There were no other significant changes to our internal control over financial reporting.

The audit committee and our Board of Directors have reviewed and approved this MD&A and the financial statements as at and for the year ended December 31, 2019.

Key Factors Affecting the Business

The risks and uncertainties that could significantly affect our financial condition and future results of operations are summarized below.

General state of the economy

The businesses we operate are affected by general economic conditions, including international, national, regional and local economic conditions, all of which are outside of our control. Economic slowdowns or downturns, adverse economic conditions, cyclical trends, increases in interest rates, variations in currency exchange rates, reduced client spending and other factors could have a material adverse effect on our business, financial condition and results of operations. Although our operations are functionally and geographically diversified with a high degree of revenue stability protected from CRE market cyclicality, significant erosion in levels of activity in any segment in which we operate could have a negative impact on our business, financial condition and results of operations.

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Currency

Our reporting currency is the Canadian dollar.

We have operations in Canada, the U.S., the U.K., Australia and various countries throughout Asia. Our exposure to foreign currency risk is primarily in the following areas:

- Profit (loss) generated by operations in foreign countries, which are translated into Canadian dollars using the average exchange rate;
- Net assets of foreign subsidiaries, which are translated into Canadian dollars using the period end exchange rate with any gains or losses recorded under accumulated other comprehensive income (loss) within shareholders' equity; and
- Non-Canadian dollar denominated monetary assets and liabilities, which are translated into Canadian dollars using the period end exchange rate with any gains or losses recorded through profit (loss).

The exchange rate between the Canadian dollar and the U.S. dollar ranged from \$1.3630 at December 31, 2018 to \$1.3016 at December 31, 2019. The exchange rate between the Canadian dollar and the British pound ranged from \$1.7357 at December 31, 2018 to \$1.7161 at December 31, 2019. The exchange rate between the Canadian dollar and the Australian dollar ranged from \$0.9613 at December 31, 2018 to \$0.9128 at December 31, 2019.

Financial performance

Our ability to achieve revenue growth and sustain profitability in future periods depends on our ability to execute our strategic plan and effectively manage our growth. A failure to do so could have a material adverse effect on our business, financial condition and results of operations. Also, our revenue, cash flow, operating results and profitability may experience fluctuations from quarter to quarter, based on project terms and conditions for billing and rendering of services.

Financial targets

Our long range financial targets are predicated on certain assumptions, including revenue growth and operating margin improvement expectations, that we may fail to achieve, which could reduce our expected earnings and cause us to fail to meet the expectations of analysts and investors and cause the price of our securities to decline.

CRE market

Although we are broadly diversified, geographically and by business offering with a high degree of revenue stability protected from CRE market cyclicality, the businesses we operate are affected by the state of CRE as an investment asset class. Prolonged economic slowdowns triggered by credit liquidity, interest rates, regulatory policy, tax policy, etc., could negatively impact the market and result in fewer CRE Consulting service engagements and software sales. This could have a material adverse effect on our business, financial condition, liquidity and results of operations.

Industry competition

We face competition from other service, software and data analytics providers. Competition for our professional services includes a broad mix of competitors, ranging from smaller, locally-based professional service firms to national, multi-regional professional service providers and to large engineering, accounting and law firms. Software providers also compete with us in real estate asset management, valuation, budgeting, forecasting, reporting and lease management solutions. There are also new companies entering

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the market with competitive data analytics solutions. These competitive forces could result in a material adverse effect on our business, financial condition and results of operations by reducing our relative share in the markets we serve.

Acquisitions

We intend to make acquisitions as part of our strategy to grow our business. Acquisitions may increase the size of our operations, as well as increase the amount of indebtedness that we may have to service. The successful integration and management of acquired businesses involve numerous risks and there is no assurance that we will be able to successfully integrate our acquisitions. Such failure could adversely affect our business, financial condition and results of operations.

Cloud subscriptions transition

We are transitioning our Altus Analytics business to a higher mix of recurring revenues by moving our on-premise customers to the cloud and offering all of our software solutions on over time subscription contracts, compared to our historic reliance on perpetual term contracts for on-premise software. As of July 2019, the majority of our subscription contracts to new customers will be recognized ratably over the term of the subscription while under an on-premise perpetual license, revenue is generally recognized upon purchase, and for customers who still deploy the software on-premise but on a subscription contract, we will continue to recognize a high portion of the transaction upfront. This has adversely affected, and may continue to adversely affect, our revenue and earnings in the transition period and contribute to quarterly variability, while making predicting our revenue and earnings more difficult during the transition. Additionally, our ability to move our customers to a cloud environment may take longer than we anticipate, or if customers do not adopt cloud licenses in the timeframe that we expect, our revenues and earnings may not achieve expected levels.

Software renewals

Although our software solutions are designed to increase the number of customers that purchase our solutions as subscriptions and create a recurring revenue stream that increases and is more predictable over time, our customers are not required to renew their subscriptions for our solutions and they may elect not to renew when or as we expect. Customer renewal rates may decline or fluctuate due to a number of factors, including offering pricing, competitive offerings, customer satisfaction, and reductions in customer spending levels or customer activity due to economic downturns, the adverse impact of import tariffs, or other market uncertainty. If our customers do not renew their subscriptions when or as we expect, or if they renew on less favorable terms, our revenues and earnings may be adversely impacted.

Professional talent

Our success and ability to grow are dependent on the expertise, experience and efforts of our professionals, and our ability to attract and retain qualified professionals. Competition for employees with the qualifications we desire, particularly with CRE and CRE technology experience, is intense and puts upward pressure on compensation costs. We expect that competition for qualified professionals will continue to increase, thereby causing compensation costs to escalate. Should we be unable to attract and retain professionals that meet the desired level of skills and ability, our business may be jeopardized.

Third party information

The quality of our databases supporting certain of our products and service engagements depends substantially on information provided by a number of sources, including CRE brokers, agents and property

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owners, trade associations, tax assessors, deed recorders, municipal planners, corporate web sites, the business and trade press, and selected third party vendors of business information. If we are unable to collect information from a significant number of these sources this could negatively affect certain of our products and may potentially result in subscriber cancellations and failure to acquire new subscribers.

Enterprise transactions

The ability to meet revenue targets for our Altus Analytics business is becoming more dependent on large enterprise transactions which have longer and less predictable sales cycles. The presence or absence of one or more of these transactions may have a material positive or negative effect on anticipated revenue in any given period.

New product introductions

As new products are developed and introduced to the marketplace, client adoption may not achieve anticipated levels. As a result, revenue expectations may not be achieved. If cash flows from new products do not reach sufficient levels, asset impairments may need to be taken on any capitalized costs related to the development of the products.

Technological change

Our ability to generate future revenues from software is dependent upon meeting the changing needs of the CRE market and evolving industry standards through new product introductions and product enhancements that respond to the technological change of our clients and the CRE industry. In order to maintain or enhance product market share over the long-term, it is imperative to anticipate and develop products that meet client and industry needs. In the short to medium term, the ability to complete product developments on a timely basis is important to achieving revenue and cost targets.

Intellectual property

We rely on protecting our intellectual property rights including copyrights, trademarks, trade secrets, databases and methodologies, which have been important factors in maintaining our competitive position. Despite our efforts to protect our proprietary rights, unauthorized parties may attempt to obtain and use information that we regard as proprietary. There can be no assurance that we will be successful in protecting our proprietary rights and, if we are not, our business, financial condition, liquidity and results of operations could be materially adversely affected. Additionally, we may be subject to claims by third parties regarding technology infringement. Responding to such claims could result in substantial expense and may result in damages or injunctive relief. We may also be required to indemnify customers pursuant to our indemnification obligations, enter into licensing agreements on unfavourable terms or redesign or stop selling affected products, which could materially disrupt the conduct of our business.

Technology strategy

Our business relies on the use of information technology systems to deliver expert services, data and software solutions to our clients. If we are unable to effectively implement our information technology strategies or adopt new technologies and technology-enabled processes relevant to our offerings in a timely or cost-effective manner, or if our employees fail to adopt in an effective and timely manner new technologies or technology-enabled processes, then our ability to deliver services and solutions that meet client needs or our ability to remain competitive in the market may be materially impaired.

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Information technology governance and security

In the ordinary course of our business, we collect, store, process and/or transmit sensitive data belonging to clients, partners, vendors, employees and contractors as well as our own proprietary business information and intellectual property. The secure processing, maintenance and transmission of this information is critical to our workflow operations and delivery of products and services to our clients. Despite the robust security measures we've implemented, our data, systems and infrastructure may be vulnerable to cyber attacks or breached due to employee error, malfeasance or other disruptions. These security breaches could materially compromise our information, disrupt our business operations or cause us to breach our client obligations thereby exposing us to liability, reputational harm and/or significant remediation costs. A theft, loss, corruption, exposure, fraudulent use or misuse of client information whether by third parties or as a result of employee malfeasance could result in significant remediation and other costs, fines, litigation or regulatory actions against us, as well as cause reputational harm, negatively impact our competitive position and affect our financial results. We are increasingly relying on third-party data storage providers, including cloud storage solution providers, resulting in less direct control over our data and system processing. Such third parties may also be vulnerable to security breaches for which we may not be indemnified and which could cause materially adverse harm to our reputation and competitive position and affect our financial results.

Product pipeline

Our forecast is built on a pipeline of client opportunities at varying stages within the sales process. Our ability to achieve the forecast is dependent on completion of the sales cycle and client acceptance of mutually agreeable terms. Certain factors are beyond our control, including our clients' evaluation of our offerings, budgetary constraints, timing of their approval processes, etc. Our pipeline of opportunities may not close on terms and timing in line with our forecast. This may have a material positive or negative effect on anticipated revenue in any given period.

Property tax appeals

Our Property Tax practice is significantly influenced by property tax assessment regulators and their appeal settlement processes. The timing and volume of appeals processed and whether the outcomes are favourable may cause fluctuations on a quarterly and annual basis, in addition to spillover effects outside any particular valuation cycle. This may have a material positive or negative effect on anticipated revenue in any given period.

Legislative and regulatory changes

Changes to any of the laws, rules, regulations or policies affecting our business would have an impact on our business. Certain elements of our business are influenced by the regulatory environment of our clients, such as the requirement for pension fund managers to obtain property valuations on an annual basis. In addition, elements of our business, such as our Property Tax practice area, are significantly influenced by the regulatory regime and any changes thereto. Any change to laws, rules, regulations or policies may significantly and adversely affect our operations and financial performance.

Fixed-price and contingency engagements

A portion of our revenues comes from fixed-price engagements. A fixed-price engagement requires us to either perform all or a specified part of work under the engagement for a specified lump sum payment. Fixed-price engagements expose us to a number of risks not inherent in cost-plus engagements, including underestimation of costs, ambiguities in specifications, unforeseen or changed costs or difficulties,

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problems with new technologies, delays beyond our control, failures of subcontractors to perform and economic or other changes that may occur during the term of engagement. Increasing reliance on fixed-price engagements and/or increases in the size of such engagements would increase the exposure to this risk. Economic loss under fixed-price engagements could have a material adverse effect on our business.

We are also engaged to provide services on a contingency basis at our Property Tax business, meaning that we receive our fees only if certain results are achieved. We may experience adverse financial effects from having devoted professional and other resources to a project, which, due to a failure to meet the contingency goals, are not recouped through fees.

Appraisal and appraisal management mandates

Some clients rotate their appraisal mandates to different service providers. As a result, we may be rotated out of an appraisal engagement.

Canadian multi-residential market

A significant part of the Canadian Cost practice area's annual revenues are derived from the rental apartment and condominium sectors of the multi-residential development market. Any significant decline in the multi-unit residential development market could have a material adverse effect on our Cost practice's operating results.

Customer concentration and loss of material clients

Although we are not dependent on one or a small number of clients, certain of our business segments have significant clients. Loss of any significant client that contributes a substantial portion to that business segments' revenues could have a negative impact on our revenues and could impact our ability to attract and retain other clients.

Interest rates

We are exposed to fluctuations in interest rates under our borrowings. Increases in interest rates may have an adverse effect on our earnings.

Credit

We may be materially and adversely affected if the collectability of our trade receivables is impaired for any reason. In certain parts of Asia, it is often common business practice to pay invoices over an extended period of time and/or at the completion of the project. This practice increases the risk and likelihood of future bad debts. In addition, the risk of non-collection of trade receivables is greater in Asia Pacific compared to North American or European countries.

Income tax matters

In the ordinary course of business, we may be subject to audits by tax authorities. While management anticipates that our tax filing positions will be appropriate and supportable, it is possible that tax matters, including the calculation and determination of revenue, expenditures, deductions, credits and other tax attributes, taxable income and taxes payable, may be reviewed and challenged by the authorities. If such challenge were to succeed, it could have a material adverse effect on our tax position. Further, the interpretation of and changes in tax laws, whether by legislative or judicial action or decision, and the administrative policies and assessing practices of tax authorities, could materially adversely affect our tax position.

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Health and safety hazards

Our employees are sometimes required to attend client worksites, including construction worksites in the case of both Cost and Geomatics and remote, wilderness areas in the case of Geomatics. The activities at these worksites may involve certain operating hazards that can result in personal injury and loss of life. We have implemented health and safety policies and procedures as well as provide required employee health and safety training programs. Despite these programs, there can be no assurance that our insurance will be sufficient or effective under all circumstances or against all claims or hazards to which we may be subject or that we will be able to continue to obtain adequate insurance protection. A successful claim for damage resulting from a hazard for which it is not fully insured could adversely affect our results of operations.

Contractual obligations

Our success depends largely on our ability to fulfill our contractual obligations and ensure client satisfaction. If we fail to properly define the scope of our work, communicate the boundaries or use of the advice and reports we provide, define the limits of our liability, satisfactorily perform our obligations, or make professional errors in the advice or services that we provide, clients could terminate projects, refuse payment for our services or take legal action for the loss or harm they suffer, thereby exposing us to legal liability, loss of professional reputation, enhanced risk of loss and/or reduced profits.

Legal proceedings

We are threatened from time to time with, or are named as a defendant in, or may become subject to various legal proceedings in the ordinary course of conducting our business, including lawsuits based upon professional errors and omissions. A significant judgment against us, or the imposition of a significant fine or penalty as a result of a finding that we have failed to comply with laws, regulations, contractual obligations or other arrangements or professional standards, could have a significant adverse impact on our financial performance. Should any indemnities made in our favor in respect of certain assignments fail to be respected or enforced, we may suffer material adverse financial consequences.

Insurance limits

Management believes that our professional errors and omissions insurance coverage and directors' and officers' liability insurance coverage address all material insurable risks, provide coverage that is similar to that which would be maintained by a prudent operator of a similar business and are subject to deductibles, limits and exclusions, which are customary or reasonable given the cost of procuring insurance and current operating conditions. However, there can be no assurance that such insurance will continue to be offered on an economically affordable basis, that all events that could give rise to a loss or liability are insurable or that the amounts of insurance will at all times be sufficient to cover each and every loss or claim that may occur involving our assets or operations.

Dividend payments

Our ability to pay dividends is dependent on our operations and assets, and is subject to various factors including our financial performance, our obligations under applicable bank credit facilities, fluctuations in our working capital, the sustainability of our margins and our capital expenditure requirements.

Leverage and financial covenants

Our ability to pay dividends or make other payments or advances is subject to applicable laws and contractual restrictions contained in the instruments governing any indebtedness owed by us or our subsidiaries (including the bank credit facilities). The degree to which we are leveraged could have

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important consequences to our shareholders. For example, our ability to obtain additional financing for working capital, capital expenditures or acquisitions in the future may be limited; a significant portion of our cash flow from operations may be dedicated to the payment of principal and interest on our indebtedness, thereby reducing funds available for future operations; certain of our borrowings will be subject to variable rates of interests, which exposes us to the risk of increased interest rates; and we may be more vulnerable to economic downturns and be limited in our ability to withstand competitor pressures.

The bank credit facilities contain numerous financial covenants that limit the discretion of our management with respect to certain business matters. These covenants place significant restrictions on, among other things, our ability to create liens or other encumbrances, to pay dividends or make certain other payments, investments, loans and guarantees and to sell or otherwise dispose of assets and merge or consolidate with another entity. In addition, the bank credit facilities contain a number of financial covenants that require us to meet certain financial ratios and financial condition tests. Failure to comply with the obligations provided in the bank credit facilities could result in a default which, if not cured or waived, could result in the termination of dividends paid by us and accelerate the repayment of the relevant indebtedness. If repayments of indebtedness under the bank credit facilities were to be accelerated, there can be no assurance that our assets would be sufficient to repay the relevant indebtedness in full. There can be no assurance that future borrowings or equity financing will be available to us or available on acceptable terms, in an amount sufficient to fund our needs. If we are unable to obtain financing on the expiration of the bank credit facilities or are unable to obtain financing on favourable terms, our ability to pay dividends may be adversely affected.

Share price

Our common shares do not necessarily trade at prices determined by reference to the underlying value of our business and cannot be predicted. The market price of the common shares may be subject to significant fluctuations in response to variations in quarterly operating results and other factors. In addition, securities markets have experienced significant price and volume fluctuations from time to time in recent years that are often unrelated or disproportionately related to the operating performance of particular issuers. These broad fluctuations may adversely affect the market price of our common shares.

Capital investment

The timing and amount of capital expenditures made by us or any of our subsidiaries indirectly affects the amount of cash available for investments, debt payments or dividend payments. Dividends may be reduced, or even eliminated, at times when we deem it necessary to make significant capital or other expenditures.

Issuance of additional common shares

We are authorized to issue an unlimited number of common shares for such consideration and on such terms and conditions as may be determined by the Board of Directors without shareholder approval, except as required by the TSX. An issuance such as this may dilute the interests of current shareholders.

Management's Discussion & Analysis

December 31, 2019



Additional Information

Additional information relating to Altus Group Limited, including our Annual Information Form, is available on SEDAR at www.sedar.com and on our corporate website at www.altusgroup.com under the Investors tab.

Our common shares trade on the Toronto Stock Exchange under the symbol "AIF".



Altus Group

LISTINGS

Toronto Stock Exchange
Stock trading symbol: AIF

AUDITORS

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