



MANAGEMENT'S DISCUSSION & ANALYSIS

Year Ended December 31, 2018
(Expressed in Canadian dollars)

Novra Technologies Inc.

Management's Discussion & Analysis

Year ended December 31, 2018

The following Management's Discussion and Analysis ("MD&A") of Novra Technologies Inc. ("Novra") should be read in conjunction with the audited Consolidated Financial Statements for the years ended December 31, 2018 and 2017, and related notes included therein (the "Consolidated Financial Statements"). The Consolidated Financial Statements have been prepared in accordance with International Financial Reporting Standards ("IFRS"). All information in this MD&A is presented in Canadian dollars, unless otherwise indicated. Tabular dollars are in thousands, except per share amounts. Amounts in tables may not reconcile due to rounding differences.

Throughout this MD&A, "we", "us", "our", "Novra", and "Company" refer to Novra Technologies Inc. and its subsidiaries.

This MD&A is dated as of April 30, 2019 and is current to this date. The MD&A and the Consolidated Financial Statements were approved and authorized for issuance by the Board of Directors on April 30, 2018.

Financial statements, MD&A and other information relating to Novra are available on SEDAR at www.sedar.com.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This MD&A contains "forward-looking statements" within the meaning of applicable Canadian securities laws, concerning but not limited to: our outlook, the expected cost savings from integrating Wegener operations with the Novra Group, proposed acquisition of Westport Research & Associates, anticipated developments in our operations in future periods, the adequacy of Novra's financial resources and other events and conditions that may occur in the future. Forward-looking statements are generally identifiable by words such as "expects", "anticipates", "believes", "intends", "estimates", "predicts", "potential", "targeted", "plans", "possible", and similar expressions, or statements that events, conditions or results "will", "may", "could" or "should" occur or be achieved. As such, forward-looking statements are not historical facts but reflect our current assumptions and expectations regarding future events. These are subject to a number of risks and uncertainties that could cause actual results or events to differ materially from current expectations and assumptions. Some of these risks and uncertainties are described herein under the "Risks and Uncertainties" section of this MD&A.

For the above reasons, readers are cautioned not to place undue reliance on forward-looking statements.

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BUSINESS OVERVIEW

Novra Technologies Inc. (headquartered in Winnipeg, Canada) is a public company on the TSX Venture Exchange ("TSX-V") and trades under the stock symbol "NVI" and is a Class 1 reporting issuer. We have been in the satellite data distribution business since 2000. In 2016, we significantly expanded our product portfolio and global footprint with the acquisition of International Datacasting Corporation ("IDC"), a long-time leader in the same sector (based in Ottawa, Canada). In 2017, Novra acquired a 51.6% controlling interest of Wegener Corporation ("Wegener") to further expand its footprint in digital media management and distribution technologies for applications including digital signage, radio and television. The companies joined together to form the Novra group of companies ("Novra Group") – see our group website at www.novragroup.com.

The three companies have a lot in common and enough differences to be very complementary. Although the historic markets for these companies are mostly adjacent and complementary, they also have a couple of overlaps. By bringing these three companies together, we are going to consolidate the overlaps, expand the adjacencies and use our technologies to enter new emerging vertical markets.

Our competitive advantage is our people and their 30 years of knowledge and experience in developing innovative products along with the deep relationships that we have established with our clients for the past 30 years. These historic relationships with our customers, our extensive engineering experience and our business agility, are invaluable components in our drive for innovation as we develop new advanced products.

Today, the Novra Group is a global business with customers on every continent. We are a technology provider and we offer a comprehensive product portfolio including hardware, software, and services. In addition, our areas of expertise and added value include: encryption and cybersecurity, next-generation hybrid networks (satellite/terrestrial/cloud), and efficient bandwidth utilization.

Our core product lines are:

- *Video distribution:* products and systems for providing end-to-end solutions for traditional and non-traditional video networks. Our video products target the following key market niches:
 - Broadcast video networks of all sizes
 - Digital program insertion (for targeted advertising, regionalization, and blackout management)
 - Live and file-based video content distribution
 - Digital signage
- *Broadcast Radio:* we are a leading provider of end-to-end infrastructure solutions to broadcast radio networks small, medium, and large. We have a reputation for reliable, cost-effective delivery of high-quality audio via satellite, terrestrial, or hybrid networks. The radio product line includes uplink and receive site equipment as well as network management, encryption, and targeted regionalization/ad insertion options.
- *Data distribution:* our broadband multimedia distribution technology is ideally suited for networks requiring fast, ultra reliable, secure delivery of data via satellite. In addition to providing the hardware infrastructure (transmit and receive), we offer an advanced content distribution network (CDN) software solution (Datacast XD) for ultra-reliable and secure file broadcasting.
- *Digital cinema:* we provide leading digital cinema networks with their core distribution infrastructure (uplink equipment, content management, and network management) and high-

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end appliances for cinemas as well as decoders for live events and alternative content (entertainment and sports) in 2D and 3D. Additionally, we offer a digital cinema distribution software solution for integration onto commercially available servers and third-party equipment.

- *Satellite and terrestrial broadband receivers:* we offer a line of cost-effective, reliable DVB and ATSC compliant receivers for the expanding broadband communications network market.

OVERALL PERFORMANCE

The reader must keep in mind that the financial highlights below are consolidated with Wegener's operating results for 2018, subsequent to the acquisition of the 51.6% controlling interest of Wegener (the "Wegener Acquisition") on December 29, 2017. However, none of Wegener's 2017 operating results are reflected in the 2017 comparison figures.

The significant variation in the expense side of the annual financial highlights below are driven by the acquisition of Wegener.

Q4 2018 vs. Q4 2017:

- Net income was \$535 thousand, compared to a loss of \$145 thousand in Q4 2017
- Total revenue of \$3.4 million, an increase of 89%
- Gross profit at \$1.9 million was 54.4% of total revenue, compared to \$0.9 million or 51.0%
- Operating expenses were \$1.6 million, compared to 1.0 million from prior year
- Adjusted EBITDA of \$647 thousand, compared to Adjusted EBITDA of \$41 thousand (this is a non-IFRS financial measure - refer to "Discussion of Operations" section below for further details)
- Included in the Q4 results, and reducing net income, is approximately \$227 of amortization expenses for intangibles assets associated with the purchases of IDC and 51% of Wegener

Year 2018 vs. 2017:

- Total revenue of \$10.6 million, an increase of 12%
- Gross profit at \$5.6 million was 52.5% of total revenue, compared to \$4.8 million or 50.4%
- Operating expenses were \$6.4 million, compared to \$3.9 million
- Adjusted EBITDA was \$319 thousand, compared to Adjusted EBITDA of \$1.4 million
- Operating cash flows were \$2.7 million, compared to \$2.5 million
- Working capital was \$2.4 million, a 48% increase from December 31, 2017
- As of Dec 31, 2018 we had \$2.1 million in deferred revenue
- Included our Year-End results, and reducing net income, is approximately \$906 thousand of amortization expenses for intangible assets associated with the purchase of IDC and the 51% of Wegener.

As expected, and previously discussed in our quarterly discussion and analyses, our 2018 consolidated financials were negatively affected by Wegener's Net Income losses, which were \$366 thousand for the year. Despite Wegener not being wholly-owned by Novra, the accounting standards require us to consolidate 100% of Wegener's operating results. However, the consolidated net loss for the year attributable to Novra shareholders was \$486 thousand, which is less than the total net loss of \$663 thousand that is reported in our financials.

Our drive for synergies and efficiencies with the acquisition of Wegener has resulted in annualized operational savings of over \$400,000 which will be fully reflected second half of 2019. We expect additional cost reductions as we further merge and streamline our operations including restructuring our manufacturing vendors.

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We did not have a significant sales backlog going into 2018 and that is reflected in our week first half of 2018. However, our second half of 2018 ended on a strong note with new customer orders and a healthy opportunities funnel looking into 2019.

RECENT DEVELOPMENTS

The developments listed in this section span all of 2018 and also include some recent developments in early 2019.

We are starting 2019 on a strong note as our sales, bookings and our sale funnel are healthy as we see opportunities in every one of our vertical markets. Last quarter of 2018 and into first quarter 2019 we saw strong sales from radio networks and on March 19th, 2019, we announce that our (Q4/Q1) radio orders were over \$4.0 Million from either existing clients or New Radio clients. These orders came from North America, Central America, Europe and Asia which demonstrates a non-dependency on a geographical domain.

The following is a sample of the scope of our product development, engineering and sales activities for 2018 and early 2019.

- We released four new Novra Group products at the NAB 2019 show. We submitted two of our products and both were nominated for the prestigious NAB Product of the Year award. One of these products—the iPump 762 Pro, targeting the digital signage and enterprise video markets, won the prestigious award for Hardware Infrastructure.
- We expanded our suite of products for video applications including broadcast, OTT and IPTV networks. We integrated Broadpeak's nanoCDN technology into the S400 Pro data receiver in early 2019 to enable OTT delivery to multiscreen environments.
- We joined the SRT Alliance and are integrating the SRT (Secure Reliable Transport) technology for improved broadcast quality over internet into our products.
- In the radio market, we also launched a next-generation audio receiver platform, MAP Pro Audio, as well as a high-performance audio encoder in partnership with Digigram in 2019.
- We received strong follow on orders from existing customers for our Digital Signage products including a new order from the Wellness Network in early 2019 with excellent potential for follow-on orders
- We have developed our first joint IDC/Wegener product: The Edgecaster Pro for digital program insertion, combining the sophisticated SCTE-35 targeting and blocking capabilities of IDC's Laser with video decoding and graphics overlay features of Wegener's respected iPump line. We have recently received our first order from a prestigious broadcaster in Mexico.
- Won a competitive tender in 2018 Q4 with Radiotelevisión Española (RTVE) with our partner Aicox to provide 348 IRDs across the Americas (an expansion to a previous order from last year)
- We experienced steady follow-on orders for ongoing government projects including orders for IP encapsulators, receivers, and encryption products
- We received initial orders in 2018 for a new Digital Cinema network that is expected to expand significantly in second half of 2019. We were successful for this opportunity because we were able to demonstrate an innovating method for highspeed satellite file transfer by combining IDC and Novra technologies. This new service is for the Asian Pacific region.

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- In Q3, we received and shipped a large US military order of about \$1.0M CDN for a next generation data broadcast system, with follow-on orders received in early 2019.
- A European radio network service provider selected IDC to provide the technology to upgrade their client's radio stations with an initial order.
- Deployed a new MISTiQ trial with a major North American broadcast customer.
- We shipped over 1,700 of our S300 receivers to a major US Bank for their in-branch Digital Signage.
- A radio network in Mexico became the first network with hybrid satellite and terrestrial—MISTiQ—capabilities.
- Reached an agreement with a major international radio broadcaster to launch a hybrid MISTiQ platform, they have taken delivery of their first batch of receivers with more orders expected.
- Some of our new technology breakthroughs – Working with clients we demonstrated in the field new leading-edge technologies and features, including:
 - Successful Proof of Concept (POC) in Asia for digital signage over a DVB-T2 network
 - Successful POC for seamless protection switching for digital cinema live events
 - Successful POC for dual transponder operation of ultra-high-speed file transfer technologies.

OUTLOOK

With the acquisition of 51.6% controlling interest of Wegener Communications in December 2017, we are executing on our vision to bring great companies with complementary technologies together to capitalize on market opportunities by consolidating and refocusing engineering to provide world-class leading-edge products and services to our clients.

As a result of these acquisitions, Novra has significantly evolved into a strong, scalable global company in the growing multimedia broadband content distribution business. Our goal is to move from being an engineering-centric to client-centric company – our product development will be driven by identifying client requirements and real market trends. Our clients are looking for cost effective solutions with built-in flexibility to enable them to deliver their services with the lowest operational costs, not only today but over the life-span of our products. Only offering hardware and software is not adequate in this technological dynamic environment. We want to offer to our clients complete solutions and would like for them to consider Novra as their technology partner that they can depend on to help them solve their engineering challenges.

We take these challenges very seriously and all of us at the Novra Group of companies are committed and determined in achieving these very important goals for our clients and our shareholders.

Our high priority goals for 2019 are:

- Continue to drive costs efficiencies as we bring Wegener into the Novra group of companies. Some costs efficiencies have been achieved in 2018 and some additional efficiencies are expected in the first half of 2019.
- In the past year we have achieved operational efficiencies by merging our Marketing, Finance and Engineering divisions across the three companies, In 2019 we shift our integration focus to merging our manufacturing and customer support divisions and implementing a common financial system across the three companies.

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- Continue to develop new and innovative products by taking the best features from our existing product lines to create flexible, modular and cost-effective solutions that will meet market demand and increase our market share. New products using this approach have already been announced and more are expected throughout 2019.
- Through our new modular upgradeable products, provide our clients with protection of their investment even if in the future their requirements change to meet new operational needs. This will give us a competitive advantage and, in many cases, shorten the technology selection process that clients currently go through.
- Manage, refocus and energize our global re-seller network to enable them to offer a wider range of products and solutions to their clients.
- Position Novra for additional acquisitions, over the next 12-18 months, of companies with complementary technologies that will increase our sales and profitability.

SELECTED ANNUAL INFORMATION

The following table provides a summary of financial data derived from our audited Consolidated Financial Statements for the past three years:

	2018	2017	2016
Revenue	\$ 10,630	\$ 9,532	\$ 5,043
Net income (loss)	\$ (553)	\$ 778	\$ (796)
Basic earnings per share ("EPS")	\$ (0.02)	\$ 0.02	\$ (0.03)
Diluted EPS	\$ (0.02)	\$ 0.02	\$ (0.03)
Total assets	\$ 10,874	\$ 9,060	\$ 8,069
Total non-current liabilities	\$ 3,663	\$ 2,995	\$ 1,371

Factors causing significant fluctuations for the above years were as follows:

2018 vs. 2017:

- The Wegener acquisition contributed to growth in revenue, along with significant growth in expenses.
- The change from net income to net loss was driven entirely by losses at Wegener and amortization of intangible assets related to the acquisition of IDC and Wegener.

2017 vs. 2016:

- The merger with IDC contributed to the significant growth in our revenue.
- The change from net loss to net income was driven primarily by the merger synergies with IDC, coupled with winning a \$3 million radio network order and a \$1.3 million encryption system order from a U.S. defence contractor in the second half of 2016 with the bulk of the delivery taking place in 2017. Additionally, we also won several significant orders from U.S. defence contractors in 2017.
- Total assets increased largely due to the Wegener Acquisition.
- The increase in non-current liabilities was driven mainly by the assumption of Wegener's line of credit as part of our controlling interest acquisition on December 29, 2017. This was partially offset by partial repayments on related party promissory notes and the conversion of a convertible note to equity.

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DISCUSSION OF OPERATIONS

The following table sets selected information from our Consolidated Financial Statements, including a reconciliation of IFRS to non-IFRS measures, for the period indicated:

<i>(in thousands)</i>	Three months Ended December 31,			Year Ended December 31,		
	2018	2017	% Chg	2018	2017	% Chg
Revenue by type:						
Products	\$ 2,714	\$ 1,398	94%	\$ 8,208	\$ 8,183	0%
Services	692	403	72%	2,422	1,349	80%
Total revenue	3,406	1,801	89%	10,630	9,532	12%
Gross profit	1,854	918	102%	5,579	4,804	16%
<i>Gross margin</i>	<i>54.4%</i>	<i>51.0%</i>		<i>52.5%</i>	<i>50.4%</i>	
Operating expenses	1,603	1,010	59%	6,411	3,853	66%
Operating income (loss)	252	(93)	NM	(831)	952	NM
Other income (expenses)	284	(52)	NM	279	(174)	NM
Net income (loss) as reported under IFRS	\$ 535	\$ (145)	NM	\$ (553)	\$ 778	NM
<i>Adjustments:</i>						
Finance income	-	(3)	NM	(2)	(7)	-71%
Finance costs	18	17	5%	72	109	-34%
Depreciation and amortization	256	95	170%	1,125	380	196%
Tax expense (recovery)	-	(1)	NM	-	-	NM
EBITDA - non-IFRS measure	809	(37)	NM	642	1,260	-49%
Loss (gain) on foreign exchange	(188)	(10)		(349)	38	
Share-based compensation	25	19		25	67	
Acquisition-related costs	-	20		-	20	
Loss (gain) on Wegener options	-	49		-	32	
Adjusted EBITDA - non-IFRS measure	\$ 647	\$ 41	NM	\$ 319	\$ 1,417	-77%

NM - Not meaningful

Revenue and Gross Margin

Q4 2018 vs. Q4 2017:

Total revenue increased 89% to \$3.4 million. The revenue increase was primarily attributable to significant product shipments and services delivered by Wegener during the quarter.

Gross margin was 54.4% for the current quarter, a 3.4 percentage point increase over the comparable quarter in 2017. The increase in gross margin was driven by increased services sales, changes in product mix and the elimination of low margin sales to Wegener on consolidation.

Year 2018 vs. 2017:

Total revenue for the full year increased 12% to \$10.6 million. This growth was entirely in services, where services revenue from Wegener increased the total for the group. Increases in product sales that resulted from the Wegener acquisition were offset by the higher than usual product revenue for IDC in 2017 that was not repeated in 2018.

For 2018, our top 10 customers accounted for 63% of total revenue with the first and second largest accounting for 24% and 8% respectively or \$3.4M in aggregate. For the same period last year Novra's Top

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10 customers accounted for 68% of total revenue with 27% and 13% respectively or \$3.8M in aggregate. No other customer accounted for more than 10% of total revenue.

While our revenue may be concentrated on a few customers quarterly, with approximately 2,000 customers in over 100 countries, including over 200,000 installations since inception, we have a well-established customer base to provide diversification in our revenue base. The following table summarizes the geographic distribution of our revenues for the year.

Twelve Months Ended December 31,					
	2018	% of Total	2017	% of Total	
Canada	\$ 940	9%	\$ 2,994	31%	
Americas ex-Canada	8,070	76%	4,822	51%	
EMEA	1,068	10%	1,213	13%	
APAC	552	5%	504	5%	
	\$ 10,630	100%	\$ 9,533	100%	

Gross margin was 52.5% for 2018, a 2.1 percentage point increase over 2017. The increase in gross margin was driven by increased services revenue, changes in product mix and the elimination of low margin Novra sales to Wegener on consolidation.

Operating Expenses

(in thousands)	Three months Ended December 31,			Year Ended December 31,		
	2018	2017	% Chg	2018	2017	% Chg
General and administrative ("G&A")	\$ 401	\$ 291	38%	\$ 1,629	\$ 773	111%
Sales and marketing ("S&M")	359	266	35%	1,273	1,276	0%
Research and development, net ("R&D")	841	453	86%	3,508	1,805	94%
Total operating expenses	\$ 1,602	\$ 1,010	59%	\$ 6,411	\$ 3,854	66%

Total OPEX increased by 66% during the year of 2018 compared to 2017, primarily due to the increase in personnel, depreciation and occupancy costs relating to the acquisition of Wegener. For financial reporting purposes, we allocate facility costs to OPEX (G&S, S&M, R&D) and cost of revenue.

General and administrative ("G&A") expenses consist primarily of compensation paid to the corporate, IT, and finance staff as well as professional fees and public company related costs.

Our Sales and Marketing ("S&M") costs include compensation, including sales commissions, paid to our sales team, as well as tradeshow, promotion and travel and entertainment costs.

Research and Development (R&D) costs will continue to be a significant component of our total operating expenses as we continue to develop innovative products and solutions to remain competitive in our industry. R&D costs include primarily compensation paid to engineering personnel and prototype costs. R&D costs are expensed as incurred; we do not capitalize development costs. Notably, expenses related to amortization of intangible assets from acquisitions of IDC and Wegener are also included in R&D costs. This amortization of about \$226 thousand per quarter (\$906 thousand for the year) distorts our R&D expenditures as a percentage of revenue and it has an impact on our net operating results. R&D product development costs are expensed as incurred; we do not capitalize development costs.

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Foreign Exchange Gain (Loss)

Although we generate a significant portion of our revenue outside of Canada, denominated in USD and Euro currencies, we have determined Novra's functional currency to be Canadian dollars. Additionally, most sales in Canada are also denominated in USD currency. Further, the procurement for most of our raw materials is denominated in USD currency; however, our domestic operating costs are denominated in CAD currency. Accordingly, Novra's financial position and operating results are significantly exposed to foreign currency movements. We actively manage our foreign currency risk and may also enter speculative currency positions based on management's best judgement.

Additional earnings volatility arises from the translation of monetary assets and liabilities denominated in foreign currencies at the rate of exchange on each date of the Consolidated Financial Position; the impact of which is reported as a foreign exchange gain or loss.

In 2018, we realized a foreign exchange gain of \$348 thousand, compared to a loss of \$37 thousand in 2017. A net unrealized loss of \$110 thousand is related to the translation of Wegener's financial statements and recorded in Other Comprehensive Income (Loss).

At December 31, 2018, the foreign currency denominated assets and liabilities, subject to remeasurement, are as follows:

<i>(in thousands)</i>	USD	Euro
Assets	\$ 3,455	€ 74
Liabilities	(826)	(11)
Net assets before hedging	\$ 2,629	€ 63
Currency derivative contracts	-	-
Net assets -unhedged	\$ 2,629	€ 63
Impact on Novra's earnings if 5% change in foreign exchange rates	\$ 131	€ 3

At December 31, 2018, if the Canadian dollar had weakened/strengthened by 5% against the U.S. dollar and Euro with all other variables held constant, the resulting change to Novra's consolidated net loss would have been \$183 thousand. The above excludes Wegener's assets and liabilities which are denominated in USD.

Finance Costs

Finance costs were \$18 thousand for Q4 2018, a 5% increase over last year's Q4. For calendar year 2018, finance costs were \$72 thousand, a 34% reduction over 2017, primarily due to reduction in interest expense. In 2018 we had reduced bank borrowings on our RBC credit facilities, compared to 2017, and we made payments to reduce balances on the Crocus loan and the \$US floating rate IMT promissory note. Also, in June 2017 IMT converted the Convertible Note to shares, reducing interest costs on this in 2017 and completely eliminating them for 2018.

Depreciation and Amortization

The significant increase in depreciation and amortization costs for the year 2018 over 2017 was due to the acquisition of Wegener in 2017. We acquired \$50 thousand of equipment and \$2.9 million of intangible assets. These assets are being depreciated over their respective useful lives. This depreciation is primarily included in as part of R&D operating expenses.

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Tax Expense

Due to the net operating loss in Q4 2018, there was no current tax provision to recognize. While we earned a taxable income for the full year 2018, we used non-capital loss carry forwards to eliminate the corporate income tax liability associated with the taxable income. Accordingly, we did not record a tax provision for 2018.

Despite the significant non-capital loss carry forwards and available investment tax credits (see Note 19 of the Consolidated Financial Statements) to shelter future taxable income from income taxes, we have not recognized deferred tax asset at December 31, 2018 and 2017 because management concluded it was not probable to realize this benefit in the foreseeable future. In making this determination, management considered the uncertainties in projecting future taxable income, the uncertainties related to the technology industry and competition in which we operate, and the lack of available income tax planning strategies.

EBITDA and Adjusted EBITDA

EBITDA and Adjusted EBITDA are non-IFRS measures. EBITDA is defined as earnings before income tax expense, net financing costs, depreciation and amortization. Adjusted EBITDA is defined as EBITDA adjusted for foreign exchange gain or loss, acquisition-related costs, gain or loss on Wegener options, share-based compensation, restructuring charges, material write-down of inventories, and any other material impairment charges.

Management believes that EBITDA and Adjusted EBITDA provide important financial measures of Novra's operating performance because they allow management, investors, and other stakeholders to evaluate and compare Novra's core operating results from period to period by removing the impact of its capital structure (interest expense), asset base (depreciation and amortization), and tax consequences. Because EBITDA and Adjusted EBITDA do not have any standardized meanings prescribed by IFRS, other companies may calculate these non-IFRS measures differently, and therefore our EBITDA and Adjusted EBITDA may not be comparable to similar titled measures of other companies. Accordingly, *readers are cautioned to not place undue reliance on these financial measures and encouraged to read all IFRS accounting disclosures presented in the audited Consolidated Financial Statements.*

Adjusted EBITDA for Q4 and calendar year 2018 was \$647 thousand and \$319 thousand, respectively, compared to an Adjusted EBITDA of \$41 thousand and \$1,417 thousand for the same periods in 2017, respectively. The decrease in full year EBITDA was primarily driven by the significant increase in operating expenses and the Net Income losses attributable to Wegener.

SELECTED QUARTERLY FINANCIAL INFORMATION

(dollars in thousands, except per share data)

The following table sets out selected financial information for our current and eight most recently completed quarters.

	Dec 31 2018	Sep 30 2018	Jun 30 2018	Mar 31 2018	Dec 31 2017	Sep 30 2017	Jun 30 2017	Mar 31 2017	Dec 31 2016
Revenue	\$ 3,406	\$ 3,558	\$ 1,594	\$ 2,072	\$ 1,801	\$ 2,048	\$ 3,261	\$ 2,422	\$ 3,056
Gross profit	1,854	2,087	758	880	918	946	1,810	1,130	1,350
Operating expenses	1,603	1,527	1,582	1,699	1,010	815	1,074	953	979
Foreign exchange gain (loss)	188	(37)	90	109	10	(20)	(32)	5	24
Net income (loss) as reported under IFRS	535	467	(791)	(763)	(145)	43	639	242	344
Adjusted EBITDA income (loss)	647	862	(592)	(598)	41	244	860	274	464
Earnings (loss) per share - diluted	\$ 0.016	\$ 0.012	\$ (0.024)	\$ (0.023)	\$ (0.004)	\$ 0.001	\$ 0.021	\$ 0.008	\$ 0.012
Weighted average shares outstanding	33,467	33,348	33,348	33,336	33,308	33,285	30,369	29,079	29,077

We occasionally receive large orders from customers and partners which can provide revenue visibility for future quarters. However, a large portion of Novra's quarterly revenues are generated from orders received in the quarter rather than from order backlog going into the quarter. As a result, Novra's revenue, profitability and cash flows are difficult to predict and may fluctuate significantly from quarter to quarter.

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We expect continued significant volatility in revenue from quarter to quarter due to particular timing of orders from existing customers, continued economic instability in certain geographic regions and significant unpredictability in the length of sales cycles with new and existing customers in the sales pipeline. The result of limited order visibility is that revenue and, accordingly, profitability and cash flows, will be difficult to predict and will fluctuate.

LIQUIDITY

Quick Ratio

Our principal liquidity requirements are for working capital, capital expenditures and for pending acquisitions as previously announced. Management measures liquidity based on Novra's unrestricted cash and accounts receivable. The following table shows our total liquid assets at December 31, 2018 and 2017.

	December 31, 2018	December 31, 2017
Cash	\$ 4,138	\$ 1,805
Accounts receivable	1,215	1,539
Total liquid assets	\$ 5,353	\$ 3,344
Quick ratio ⁽¹⁾	1.80:1	1.96:1

(1) Total liquid assets over total current liabilities, excluding amounts due to related parties and deferred revenue

The quick ratio as defined above is a non-IFRS financial measure. We believe this an important financial metric to investors and other stakeholders to assess Novra's ability to meet its third-party short-term obligations with its most liquid assets. The related parties have expressed no intent to call on their debt in the near term until such time Novra is in a stronger capital position. We also excluded deferred revenue in the quick ratio calculation as it does not represent a contractual financial obligation i.e. it is a liability that will reverse once revenue recognition has been met.

At December 31, 2018, Novra's quick ratio was 1.80:1 or \$1.80 of liquid assets available to cover each \$1.00 of third party current liabilities, a slight decrease from 1.96:1 at December 31, 2017.

The following is a summary of cash flows by activities for 2018 vs. 2017.

Operating activities

We had positive cash flows from operating activities of \$2.7 million for 2018, compared to positive cash flows from operating activities of 2.5 million for 2017. In 2018 the positive cashflow was mainly driven by significant customer deposits received and cash conversion of receivables whereas in 2017 the positive cashflow was driven by strong cash conversion of our receivables and inventories.

Investing activities

In 2018 we made minor equipment purchases that drove \$4 thousand in cash applied to investing activities. In 2017, we completed the purchase of 51.6% controlling interest of Wegener Corporation and assumed Wegener's cash on hand at closing. Therefore net cash inflow from closing the merger was \$66 thousand.

Financing activities

We have negative \$44 thousand net cash from financing activities in the current period, compared to negative \$2.0 million in the prior period. In 2018 we received additional funding from WEDC and we

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borrowed from our revolving line of credit with the Chymiak Trust to fund working capital requirements. We also made repayments on our long term debt and IMT promissory notes this period. In 2017 we used a portion of the excess cash generated from operating activities to fully repay borrowings under the RBC Credit Facilities and make a partial repayment on the IMT unsecured promissory note. We also received funding from WEDC and through warrants exercised during that period.

As of the date of this MD&A we continue to have access to the following RBC Credit Facilities

	Currency	Borrowing Limit	Availability Based On	Outstanding Amounts	Remaining Borrowing Limit	Interest Rate	Maturity
Revolving Demand Facility (for general use)	CAD	\$ 350	75% of Good Accounts Receivable in Canada and 50% of encumbered inventories up to \$150	\$ -	\$ 350	Royal Bank Prime + 0.50%	None; Due on demand
Revolving Demand Facility (for pre-shipment financing)	CAD	\$ 495	100% of eligible pre-shipment costs	\$ -	\$ 495	Royal Bank Prime + 0.75%	None; Due on demand

As of the current date, there are no amounts outstanding on any of the above facilities.

Working Capital Ratio

Novra's working capital ratio was as follows:

	December 31, 2018	December 31, 2017
Working Capital:		
Current assets	\$ 8,110	\$ 5,545
Current liabilities	5,691	3,914
Working capital	\$ 2,419	\$ 1,631
Working capital, excluding related party and deferred revenue balances	\$ 5,143	\$ 3,843
Working capital ratio⁽¹⁾	2.73:1	3.26:1

(1) Total current assets over total current liabilities, excluding amounts due to related parties and deferred revenue

Working capital improved to \$2.4 million at December 31, 2018, from \$1.6 million at December 31, 2017.

"Working capital, excluding related party and deferred revenue balances" and "Working capital ratio" as defined above are both non-IFRS financial measures. Management believes these are useful, relevant financial measures to investors and other stakeholders in order to assess the available working capital to fund Novra's day-to-day operations.

Excluding related party and deferred revenue balances, Novra's working capital increased to \$5.1 million at December 31, 2018, from \$3.8 million at December 31, 2017. Our working capital ratio (as defined above) remained healthy at 2.73:1 or \$2.73 per \$1.00 of current liabilities at December 31, 2018.

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Contractual obligations and commitments

At December 31, 2018, Novra's contractual obligations and commitments were as follows:

Payment due:	Total	Within 1 year	1 to 3 years	3 to 5 years
Borrowings (Note 13)	\$ 2,709	\$ 153	\$ 204	\$ 2,352
Operating leases (Note 24)	4,187	729	1,763	1,695
Purchase commitments (Note 24)	150	75	75	-
Trade payables and other payables	563	563	-	-
Total third party contractual obligations	7,609	1,520	2,042	4,047
Promissory notes from related party (Note 22)	977	750	227	-
Advances from related parties (Note 22)	709	709	-	-
Total contractual obligations	\$ 9,295	\$ 2,979	\$ 2,269	\$ 4,047

See Consolidated Financial Statements notes for further details.

Based on the December 31, 2018 liquid assets (as defined above) and working capital, we have sufficient liquid resources to fund all third party contractual obligations coming due in 2019.

CAPITAL RESOURCES

Our key objectives and policies for managing capital are to maintain a strong capital base in order to:

- maintain investor, creditor and market confidence;
- advance Novra's corporate strategies to generate attractive risk-adjusted return over the long-term for our shareholders;
- sustain Novra's operations and growth through all cycles; and
- ensure compliance with the covenants of any applicable credit facility and other financing facilities.

At December 31, 2018 and 2017, Novra's total outstanding voting common shares were 33,372,312 and 33,308,312, respectively. Our capital resources at December 31st were as follows:

	2018	2017
Borrowings (drawn)	\$ 2,709	\$ 2,512
Promissory notes from related party	977	1,017
Shareholders' equity	1,520	2,150
Total capital resources	\$ 5,206	\$ 5,679

The change in capital resources during 2018 was primarily due to net losses for the year and a foreign exchange translation adjustment on borrowings (revolving line of credit with Chymiak Trust).

Based on Novra's current liquidity, as discussed above, management believes Novra has sufficient capital resources to fund Novra's operations for the foreseeable future, including the contractual obligations and commitments as noted above.

OFF BALANCE SHEET ARRANGEMENTS

At December 31, 2018, and 2017, we had no off-balance sheet arrangements.

TRANSACTIONS WITH RELATED PARTIES

In addition to key management personnel compensation, we have material unsecured promissory notes with IMT (IMT is a shareholder and our President & CEO has a controlling interest in IMT) as disclosed in the "Liquidity" and "Capital Resources" sections of this MD&A. Refer to Note 22 of the Consolidated Financial Statements for a complete disclosure of all related party transactions, including amounts due on demand.

ACCOUNTING MATTERS

Critical Accounting Estimates

The Consolidated Financial Statements include certain amounts that are inherently uncertain and judgmental in nature. As a result, management is required to make assumptions and best estimates in order to determine the reported values. We consider an accounting estimate to be critical if: (1) it requires that significant assumptions be made in order to deal with uncertainties; and (2) changes in the estimate could have a material impact on our results of operations, financial condition or liquidity.

We believe that the material items requiring such subjective and complex estimates are as follows:

- Revenue recognition
- Inventory obsolescence
- Impairment of non-financial assets

Refer to Note 3 of the Consolidated Financial Statements for further details.

We believe that the amounts included in these financial statements reflect management's best judgment. However, factors including, without limitation, those noted under "Risks and Uncertainties" below could cause actual events or results to differ materially from our underlying assumptions and estimates. Accordingly, this could lead to a material adverse impact on our results of operations, financial condition and/or liquidity.

New Accounting Standards

On January 1, 2018, we have adopted the following two new accounting standards:

- IFRS 15 – Revenue from Contracts with Customers; and
- IFRS 9 – Financial Instruments

The adoption of these two new accounting standards did not result in a material impact to Novra's Consolidated Financial Statements and its internal accounting processes and procedures. Refer to Note 2 of the Consolidated Financial Statements for further details on these new accounting standards.

Future Accounting Pronouncements

Refer to Note 2 of the Consolidated Financial Statements.

FINANCIAL INSTRUMENTS AND OTHER INSTRUMENTS

Refer to Note 5 of the Consolidated Financial Statements for disclosure relating to Novra's financial instruments and financial risk management objectives and policies.

RISKS AND UNCERTAINTIES

The risks and uncertainties below are not the only ones facing Novra. Additional risk and uncertainties not presently known to us or that we currently consider immaterial may also impair Novra's business operations and cause the price of Novra's common shares to decline. If any of the following risks occur, Novra's business may be harmed and its financial condition and results of operations may suffer significantly. In that event, the trading price of Novra's common shares could decline, and an investor may lose all or part of his, her or its investment. Accordingly, potential investors are strongly recommended to consult an independent financial advisor before deciding to invest in Novra.

- We rely on a small number of customers for a large percentage of our revenue. Accordingly, our quarterly revenue and operating results can be difficult to predict and can fluctuate materially, which may negatively impact Novra's results of operations.
- We may not timely identify emerging technology and market trends, enhance our existing technologies or develop new technologies to effectively compete in the multimedia broadband content distribution business.
- We face significant competition from several competitors and if we do not compete effectively with these competitors, our revenue may not grow and could decline.
- The amended RBC credit facilities agreement is subject to annual review. There is no assurance RBC will renew the existing credit facilities in 2018.
- Historically, we relied significantly on a related party (IMT) for new capital. There is no assurance that IMT will participate in future capital funding activities.
- We may engage in future acquisitions that could disrupt our business, cause dilution to our shareholders and/or negatively impact Novra's financial condition and operating results.
- Failure to manage Novra's growth successfully, including integration of acquired companies, may adversely impact Novra's operating results.
- The industry in which we operate is subject to rapid technological changes, and our continued success will depend upon our ability to react to such changes and having the financial resources to continue developing innovative products. Additionally, rapid technological changes may lead to material inventory obsolescence if we failed to manage effectively our inventory holdings.
- We have limited intellectual property protection for our product solutions.
- Discontinued third party components and defects in components or design of Novra's product solutions could result in significant costs to Novra and could impair our ability to sell existing product solutions.
- We rely on limited contract manufacturers for our product solutions.
- Our ability to recruit and retain key personnel is crucial to our ability to develop, market, sell and support our products and services.
- A substantial portion of Novra's revenues and expenses is denominated in U.S. dollar and Euro currencies and therefore we are exposed to significant currency risk. Failing to actively manage currency risk may negatively impact Novra's operating results.
- We are exposed to significant customer credit risk, particularly as the majority of our business is with foreign customers, which could lead to significant impairment charges.
- We may have unintentionally infringed on the intellectual property rights of others without appropriate licensing arrangement in place, which could lead to litigation and significant costs to Novra.
- We rely on resellers and distributors to complement our small sales team to drive future sales growth.
- Economic and geopolitical uncertainty may negatively affect our ability to grow sales.
- Depending on Wegener's 2019 financial performance, we may delay the acquisition of the remaining 49% of Wegener by another one or two years. Also, there can be no guarantee that Wegener shareholders will approve eventual acquisition of the remaining 49%.