
**MICROMEM TECHNOLOGIES INC.
MANAGEMENT'S DISCUSSION AND ANALYSIS
FOR THE THREE MONTHS ENDED APRIL 30, 2023
PREPARED AS OF JUNE 29, 2023**

NOTICE TO READER

The Management's Discussion and Analysis ("MD&A") report for Micromem Technologies Inc. for the three months ending April 30, 2023, as attached, is dated as of June 29, 2023, consistent with the date of the Independent Registered Public Accounting Firm report and with the original 52-109 CEO and CFO certification filings related thereto.

/s/ Dan Amadori
Dan Amadori, CFO
June 29, 2023

/s/ Joseph Fuda
Joseph Fuda, CEO
June 29, 2023

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INTRODUCTION

The following sets out the Management's Discussion and Analysis ("MD&A") of the financial position and result of operations for the three months ending April 30, 2023, of Micromem Technologies Inc. (the "Company", "Micromem", or "we"). The MD&A should be read in conjunction with the Company's audited consolidated financial statements and accompanying notes for the fiscal years ending October 31, 2022, and 2021 which are prepared in accordance with International Financial Reporting Standards ("IFRS") as issued by the International Accounting Standards Board. Additional information regarding the Company is available on the SEDAR website at www.sedar.com.

The Company's shares are traded on the OTCQB under the symbol MMTIF and on the Canadian Securities Exchange ("CSE") under the symbol MRM. Micromem has several wholly-owned subsidiaries including Micromem Applied Sensor Technologies Inc ("MAST"). MAST was active until August 2018 and has been inactive since then. All of the Company's other subsidiaries have been inactive since inception.

Certain information provided by the Company in this MD&A and in other documents publicly filed throughout the year that are not recitation of historical facts may constitute forward-looking statements. The words "may", "would", "could", "will", "likely", "estimate", "believe", "expect", "forecast" and similar expressions are intended to identify forward-looking statements.

Readers are cautioned that such statements are only predictions, and the actual events or results may differ materially. In evaluating such forward-looking statements, readers should specifically consider the various factors that could cause actual events or results to differ materially from those indicated by such forward-looking statements.

FORWARD LOOKING STATEMENTS

This MD&A contains forward-looking statements and forward-looking information within the meaning of applicable Canadian securities legislation ("forward looking statements"). Any statements that express or involve discussions with respect to predictions, expectations, beliefs, plans, projections, objectives, assumptions, potentials, future events or performance (often, but not always, using words or phrases such as "believes", "expects" or "does not expect", "is expected", "anticipates" or "does not anticipate", or "intends" or stating that certain actions, events or results "may", "could", "would", "might" or "will" be taken or achieved) are not statements of historical fact, but are "forward-looking statements". Such forward-looking statements involve known and unknown risks, uncertainties and other factors that may cause the actual results, performance or achievements of the Company, or developments in the Company's business or in its industry, to differ materially from the anticipated results, performance, achievements, or developments expressed or implied by such forward-looking statements. Forward-looking statements include disclosure regarding possible events, conditions or results

of operations that are based on assumptions about future conditions, courses of action and consequences. Forward-looking statements may also include, without limitation, any statement relating to future events, conditions, or circumstances. The Company cautions you not to place undue reliance upon any such forward-looking statements, which speak only as of the date they are made. Forward-looking statements relate to, among other things, the successful commercialization of our technology, comments about potential future revenues, joint development agreements and expectations of signed contracts with customers, etc. A number of inherent risks, uncertainties and factors affect the operations, performance and results of the Company and its business, and could cause actual results to differ materially from current expectations of estimated or anticipated events or results. Some of these risks and uncertainties include the risk of not securing required capital in future, the risks of not successfully concluding agreements with potential partners on a timely basis and the risks associated with commercializing and bringing to market our technology. These risks are affected by certain factors that are beyond the Company's control: the existence of present and possible future government regulation, competition that exists in the Company's business, uncertainty of revenues, markets and profitability, as well as those other factors discussed in this MD&A report. This list is not exhaustive of the factors that may affect any of the Company's forward-looking statements and reference should also be made to the Company's Annual Information Form (prepared and filed in the form of a Form 20-F Annual Report pursuant to The Securities Exchange Act of 1934) for a description of risk factors.

Although the Company has attempted to identify important factors that could cause actual results to differ materially from those contained in forward-looking statements, there may be other factors that cause results not to be as anticipated, estimated or intended. There can be no assurance that such statements will prove to be accurate, as actual results and future events could differ materially from those anticipated in such statements. Accordingly, readers should not place undue reliance on forward-looking statements. The Company does not undertake to update any forward-looking statements that are incorporated by reference herein, except in accordance with applicable securities law.

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1. OVERVIEW

Micromem is actively pursuing business opportunities in Romania. It has been engaged in discussions with Romgaz, the state-controlled gas company in Romania for the past 18 months. Under the Romgaz umbrella, the Company has also been pursuing discussions to complete multiple projects with Petrom, the state-controlled oil company and with Transelectrica, the major public utility and interconnection company in Romania.

The Company has previously completed a successful interwell tracer program with Chevron, utilizing a technology application for interwell tracing in operating oil wells. The technology was developed in conjunction with a Silicon Valley-based design and engineering group who developed the technology which is, hereinafter, referred to as ARTRA. The testing of a prototype analyzer was completed in Lost Hills, California with Chevron in 2019-2020. The Company and Chevron committed approximately \$5 million to this initiative. We met most recently with Chevron personnel in May 2023 and we are maintaining an active dialogue with Chevron relating to our current undertakings in Romania and with respect to future business opportunities with Chevron.

The Company continues to raise capital for its ongoing operations; working capital continues to be constrained. The Company’s financial statements are prepared in accordance with International Financial Reporting Standards (“IFRS”). Under IFRS we report our complex financial instruments (convertible debentures) with quarterly remeasurement of the debentures and the related derivative liabilities. The result in such quarterly remeasurements is that the Company reports significant non-cash expenses in each quarter which have a material impact on our financial statement presentation. This matter is more fully addressed in the body and in Appendix 1 of this MD&A report.

Our litigation with Steve Van Fleet, a former officer of the Company, was resolved in our favour in 2021. Micromem was awarded \$1.058 million in settlement of this litigation. The Company has been receiving monthly payments from Mr. Van Fleet as part of the settlement agreement that was struck; these monthly payments are scheduled to continue through September, 2027.

The Company has navigated through the Covid-19 era and is now returning to more normalized operations. We relocated our offices to smaller, less expensive premises in 2022. We have four personnel who manage the Company’s operations including Joseph Fuda, our President & CEO and Dan Amadori, our Chief Financial Officer, both of whom are our named executives.

The Company is scheduling the next Annual General Meeting of Shareholders for fall 2023.

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2. BUSINESS DEVELOPMENTS IN QUARTER ENDING APRIL 30, 2023:

Romgaz: At April 30, 2023 and as of the date of this report, the Company has had positive developments with respect to its working arrangements with Romgaz. These developments include:

- a) A senior team of technical advisors has been enlisted by Romgaz to assist in the execution of our go forward workplan. This development team includes representation from the University of Oil and Gas of Ploiesti in Romania (“the University”). This team will be directed by Professor Dan Ioan Gheorghui, PhD. who serves as the President of the Romanian chapter of the World Energy Council. The team also includes Professor Alin Dinita, PhD. who serves as the Head of Development Strategies and the Faculty of Mechanical and Electrical Engineering at the University of Ploiesti and Professor Alin Dinita, PhD. who serves as Pro-Dean of the Faculty of Electrical Engineering.

- b) Micromem anticipates that it will finalize agreements with respect to three phases of go forward activity with Romgaz in July 2023. The 3 phases, as have been previously reported include:
 - i. An initial purchase order for 2 ARTRA units. The University will evaluate these initial units and develop all required specifications for a well-mounted device that incorporates all required analytics software. Upon completion, Micromem will receive a second purchase order for 20 of these upgraded units for infield testing by Romgaz. If these units perform successfully, an order for up to 3,800 units for gas wells and 1,200 units for oil wells will be forthcoming. These commercial units will be fabricated in Romania.

 - ii. The concurrent development of analytics software for the ARTRA units and for broader applications. The software is to be customized for use by Romgaz and Petrom in their respective gas and oil well operations. Micromem will maintain a 50% interest in the jointly developed analytics software which is intended to provide comprehensive real time data and analysis for operating wells. Micromem will realize recurring revenues as this software is utilized.

 - iii. The concurrent development of powerline monitoring solutions for the transmission and interconnection hardware currently in place in Romania’s electric grid system. Micromem will work with its Romanian partners to develop both the powerline monitoring devices and the analytics software for the grid system.

- (c) Micromem has now received the initial draft of the two-unit purchase order from Romgaz and the initial draft of the proposed joint venture agreement between Micromem and Romgaz who is purposed to develop the analytics software applications, the powerline monitoring technology applications and other initiatives going forward.

In anticipation of these developments in 2023, Micromem has planned for its business activity to include the following components:

- (i) Continuance of its working relationship with the developer of the ARTRA technology which Chevron has successfully tested in onsite testing of operating oil wells.
- (ii) We have established a Toronto-based engineering/product development team in cooperation with an established manufacturing and engineering group whom we expect to have a role in future as a strategic partner to Micromem.
- (iii) We will plan to add additional senior management to the Micromem team in the project management, engineering, and financial reporting areas of discipline. We will also look to recruit additional corporate directors to our Board.

(b) Chevron:

We met with Chevron in their Houston offices in May 2023 to advise them of our current progress in our dealings with Romgaz. Chevron continues to support these initiatives as we advance our development efforts. We are maintaining an active dialogue with Chevron regarding our current undertakings in Romania and with respect to future business opportunities with Chevron.

We also met with the developer of the original technology that Chevron deployed in the testing which they completed in Lost Hills California in 2019-2020. That developer will continue to work with Micromem in our current dealings with Romgaz.

(c) Covid 19 update:

The impact on the Company's operations of the COVID-19 pandemic has been discussed in previous reports. The pandemic has previously resulted in delays in rolling out our Romgaz program. We have now returned to more normalized operations in 2023.

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3. FINANCING

In Q2 2023 the Company secured \$330,492 of financing from private placements (Q2 2022: \$19,867) and received proceeds of \$149,000 (Q2 2022: \$156,000) from the issuance of convertible debentures (referred to interchangeably as “debentures” or “convertible loans” or “loans” throughout this document). The Company issued 16,218,279 common shares relating to the conversion by debenture holders of their debentures totaling \$1,026,217 during Q2 2023 (Q2 2022: issued 3,646,545 common shares relating to conversion of debentures totaling \$217,133).

The Company’s convertible debt structure is complex with 3 broad categories of such debt: (i) \$CDN denominated debt with fixed conversion prices; (ii) \$US denominated debt with fixed conversion prices, and (iii) \$US denominated debt with variable conversion prices. The term of the debt in each instance is typically between 4 months and 12 months. To date, the Company has repaid certain convertible loans at maturity when due as requested by the debenture holder or converted the debenture into common shares at the request of the debenture holder or extended the term of the debenture through negotiations with the debenture holder – in this latter case, certain terms of the loan – interest rate and/or conversion price – have, in some instances, been adjusted as part of the extension.

Under IFRS reporting, such loans require quarterly remeasurements. The application of the remeasurement methodology is very specific. This is more fully discussed in Appendix 1; in summary, there are several non-cash related income and expense charges that arise from such remeasurements. We recorded the following non-cash charges in the period ending April 30, 2023 and 2022 none of which impact the Company’s cash flows:

For the 6 months ended April 30	2023	2022	Change
Accretion expense	\$ 431,179	\$ 1,254,943	\$ (823,764)
Loss on conversion of convertible debentures	130,175	333,896	(203,721)
Loss on revaluation of derivative liabilities	(1,120,783)	(1,089,468)	(31,315)
Loss (gain) on extinguishment of convertible debentures	18,139	44,983	(26,844)
Net expense (income)	\$ (541,290)	\$ 544,354	\$ (1,085,644)

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4. DISCUSSION OF OPERATING RESULTS:

(a) Financial Position as at April 30, 2023:

	April 30, 2023 (US \$000)	October 31, 2022 (US \$000)
Assets:		
Cash	216	34
Prepaid expenses and other receivables	54	18
	<u>270</u>	<u>52</u>
Property and equipment, net	40	48
Patents, at value	-	-
	<u>310</u>	<u>100</u>
Liabilities:		
Accounts payable and accrued liabilities	145	288
Current lease liability	16	15
Debenture Payable	38	38
Convertible debentures	3,543	3,792
Derivative liabilities	3,375	642
	<u>7,117</u>	<u>4,775</u>
Long-term lease liability	22	29
Long-term loan	45	44
	<u>7,184</u>	<u>4,848</u>
Shareholders' Equity:		
Share capital	89,742	-
Contributed surplus	27,202	27,460
Equity component of bridge loans	1,074	793
Deficit	(124,892)	(120,786)
	<u>(6,874)</u>	<u>(4,748)</u>
	<u>310</u>	<u>100</u>

Commentary:

1. The Company's working capital deficiency is \$6,847,503 on April 30, 2023 (at October 31, 2022: deficiency of \$4,722,878).

A non-IFRS presentation of the current working capital deficiency as of April 30, 2023 is presented as follows:

Current Assets	\$ 270,229
Current Liabilities	<u>\$ (7,117,732)</u>
Working Capital Deficiency	\$(6,847,503)
Adjust for derivative liabilities reported	<u>\$ 3,375,051</u>
Revised Working Capital Deficiency	<u>\$(3,472,452)</u>

The equivalent revised working capital deficiency at April 30, 2022 was \$(4,081,579).

The convertible debentures as reported at April 30, 2023 totaled \$3,542,816 which accounts for all of the revised working capital deficiency as above. In this regard, the Company has successfully managed its convertible debenture obligations to date. It continues to secure extensions on the term of these debentures which have matured; in certain cases it has repaid the debentures at maturity date and in other, multiple cases, the Company has been successful in having the debentures converted to common shares at maturity dates.

The Company believes that it is successfully managing its working capital requirements and that it will continue to do so in future.

2. Included in prepaid expenses and other receivables at April 30, 2023 is a share subscription receivable in the amount of \$33,618 (October 31, 2022: nil). This receivable was collected after April 30, 2023.
3. For financial reporting purposes the Company has fully amortized the historical cost of its investment in patents. The Company believes that its patents remain as an asset to be exploited in future through the pursuit of licensing agreements with potential strategic partners.
4. The Company continued to secure additional financing in 2023 through convertible bridge loans. Given the terms of the debentures, the Company has measured, as appropriate, the prescribed accounting treatment for these loans and the related derivatives. These loans are typically of a short-term nature and have, in many cases, renewed on multiple occasions; the related financial reporting has become progressively more complex. Refer to Appendix 1 of this report for additional commentary.

The balance reported as convertible loans at April 30, 2023, is \$3,542,816 (at October 31, 2022: \$3,792,064) and the related derivative liability balance is \$3,375,051 (at October 31, 2022: \$641,299).

5. The Company also reports a non-convertible debenture in the amount of \$38,367 at April 30, 2023 (October 31, 2022: \$38,001); interest is payable at a rate of 2% per month. The original loan was secured in 2021 and has since been renewed for successive six month terms.

The Company reports the following charges to the consolidated statements of income:

- a) Accretion expense on these debentures of \$74,289 for the quarter ended April 30, 2023 (year ended October 31, 2022: \$1,1,179,603; quarter ended April 30, 2022: \$431,179).
- b) A foreign exchange gain of \$140,883 for the quarter ended April 30, 2023. The \$CDN has dropped in value relative to the \$US for the 3 and 6 months ended April 30, 2023. Accordingly, the \$CDN denominated convertible debentures as reported have been adjusted resulting in the gain as reported.
- c) A loss on the conversion of bridge loans to share capital of \$12,341 for the quarter ended April 30, 2023 (year ended October 31, 2022: gain of \$9,506; for the quarter ended April 30, 2022: loss of \$130,175).
- d) A loss on the revaluation of the derivative liabilities of \$1,583,394 for the quarter ended April 30, 2023 (a gain on revaluation of \$409,607 for the year ended October 31, 2022; a gain on revaluation of \$1,120,783 for the quarter ended April 30, 2022).

The gain or loss on revaluation is a function of the volatility of the stock price and the term of the underlying debentures. The Q1 gain as reported was due to an unchanged stock price between October 31, 2022 and January 31, 2023 and a reduced time frame on the maturity dates of the loans. The Q2 loss was due to the significant change of the stock price from \$0.03 per share at January 31, 2023 to \$0.11 at April 30, 2023.

These gains/losses as reported are non-cash charges.

- e) A net loss on extinguishment of convertible debentures of \$1,884,384 for the quarter ended April 30, 2023 (a loss of \$200,650 for the year ended October 31, 2022; a loss of \$18,139 for the quarter ended April 30, 2022).

The Company reports a loss on extinguishment of debentures whenever a loan is renewed. There were a significant number of such renewals in Q2. *The losses as reported are non-cash charges.*

Management generally employs a Black Scholes valuation model although, for certain of the loan transactions contracted for, it uses a binomial measurement model.

Management acknowledges that the cost of financing to the Company is significant; interest on the convertible debentures is substantial. We reported interest expense of \$137,204 for the quarter ended April 30, 2023 (interest expense of \$469,425 for the year ended October 31, 2022; interest expense of \$110,160 for the quarter ended April 30, 2022).

6. The Company secured funding from various sources; the significant components include:

	3 months ended April 30, 2023	12 months ended October 31, 2022	3 months ended April 30, 2022
Private placements	\$ 330,492	\$ 207,588	\$ 19,867
Bridge loan financing	149,000	765,671	156,000
Bridge loan settlements for shares	1,026,217	764,432	217,113
	<u>\$ 1,505,709</u>	<u>\$ 1,737,691</u>	<u>\$ 392,980</u>

Operating Results:

The following table summarizes the Company's operating results for the three months ended April 30, 2023, and 2022:

Discussion of operating Results

	Quarter ended April 30,	
	2023 (\$000)	2022 (\$000)
Administration	46	69
Professional fees and salaries	115	141
Stock-based compensation	146	-
Travel and entertainment	16	8
Amortization of property and equipment	4	7
Amortization of patents	-	2
Foreign exchange (gain) loss	(141)	94
Accretion expense	74	431
Interest expense convertible debt	137	110
Other financing costs	31	3
Loss (gain) on revaluation of derivatives liabilities	1,583	(1,121)
Loss on conversion of convertible debentures, net	-	130
Loss on extinguishment of convertible debentures	1,885	18
Net expenses (income)	3,896	(108)
Net comprehensive (income) loss	3,896	(108)
Income (loss per share)	(0.01)	-

A non-IFRS presentation of the net loss and comprehensive loss for the 3 and 6 months ended April 30, 2023 is presented as follows:

	3 months	6 months
Net loss as reported	\$(3,896,034)	\$ (4,112,364)
Adjust for non-cash expenses reported relating to Convertible Debentures:		
i. Accretion expense	74,289	154,051
ii. Loss on revaluation of derivative liabilities	1,583,394	1,278,545
iii. Loss on conversion of convertible debentures	12,341	21,120
iv. Gain on repayment of convertible debentures	(12,715)	(18,382)
v. Loss on extinguishment of convertible debenture	1,884,384	2,004,621
Revised net loss	<u>\$(354,341)</u>	<u>\$(672,409)</u>

The comparable revised net loss for the 3 months ended April 30, 2022 is (\$433,231) and for the 6 months ended April 30, 2022 is (\$740,650).

The Company's monthly cash requirements to cover its operating expenses is, based on the above, approximately \$110,000-\$120,000 per month. As operations expand with our projects in Romania, we expect that we will begin to report revenues and that our monthly operating expenses will increase.

Quarter ended April 30, 2023 compared to Quarter ended April 30, 2022

- a) Administration costs were \$45,414 versus \$69,129 in 2022. These costs include rent and occupancy cost, investor relations, listings and filing fees and other general and administrative expenses.
- b) Professional and other fees and salaries costs were \$115,132 in 2023 versus \$140,789 in 2022. The components of these total costs include legal and audit related expenses of \$39,169 (2022: \$30,857), consulting fees of \$37,238 (2022: \$55,503), staff salaries and benefits of \$38,725 (2022: \$54,429); the Company hired 2 engineering coop students commencing in June, 2021 to August 31, 2022.

The CFO has received \$9,174 of management fees in 2023 (2022: \$9,449). The CEO of the Company has received \$11,292 of cash compensation in 2023 (2022: \$24,039).

- c) Travel and entertainment expenses were \$16,055 in Q2 2023 (2022: \$8,285).
- d) Interest expense was \$137,204 in Q2 2023 versus \$110,160 in Q2 2022. This represents the actual interest expense obligations incurred by the Company based on the stated interest rates on the convertible debenture notes.
- e) Amortization expense was \$4,076 in Q2 2023 versus \$9,063 in Q2 2021.

- f) Financing costs were \$31,499 in Q2 2023 versus \$3,057 in Q2 2022. These expenses relate primarily to costs associated with the convertible debenture financings which the Company completed in this time frame.
- g) The (gain) on foreign exchange reported in Q2 2023 was \$(140,833) versus a loss of \$92,968 in Q2 2022. This includes the exchange relating to the translation of \$CDN denominated transactions during the year and to Canadian denominated assets and liabilities at fiscal quarter and year ends. It also includes the foreign exchange relating to the initiation, renewal, conversion, and repayment of convertible debentures transactions during the reporting periods. The Canadian dollar, relative to the US dollar was \$0.7365 at April 30, 2023, \$0.7327 at October 31, 2022, \$0.7921 at April 30, 2022.
- h) The other expenses reported relate to the convertible debentures. These expenses are all non-cash expenses and compare as follows:

For the 3 months ended April 30	2023	2022	Change
Accretion expense	\$ 74,289	\$ 431,179	\$ (356,890)
Loss on conversion of convertible debentures, net	-	130,175	(130,175)
Loss on revaluation of derivative liabilities	1,583,194	(1,120,783)	2,703,977
Loss (gain) on extinguishment of convertible debentures	1,884,384	18,139	1,866,245
Net expense	\$ 3,541,867	\$ (541,290)	\$ 4,083,157

C. Unaudited Quarterly Financial Information – Summary

Three months ended (unaudited)	Revenues \$	Expenses \$	Income (loss) in period \$	Loss per share \$
April 30, 2023		3,896,034	(3,896,034)	0.01
January 31, 2023	-	216,330	(216,330)	-
October 31, 2022	-	(419,082)	419,082	-
July 31, 2022	-	1,421,173	(1,421,173)	-
April 30, 2022	-	(107,839)	107,839	-
January 31, 2022	-	1,392,843	(1,392,843)	-
October 31, 2021	-	(1,259,196)	1,259,196	
July 31, 2021	-	(2,102,701)	2,102,701	-

Three months ended (unaudited)	Working capital (deficiency)	Capital assets at NBV	Other Assets	Total Assets	Shareholders' equity (deficit)
April 30, 2023	(6,847,503)	39,466	-	309,695	(6,873,535)
January 31, 2023	(4,786,678)	43,779	-	105,556	(4,813,784)
October 31, 2022	(4,722,878)	48,092	-	99,519	(4,748,000)
July 31, 2022	(5,421,607)	4,445	-	97,504	(5,463,523)
April 30, 2022	(3,939,361)	11,630	-	93,372	(3,790,399)
January 31, 2022	(4,694,513)	11,816	1,877	93,372	(4,368,574)
October 31, 2021	(3,452,924)	26,012	3,877	225,293	(3,471,278)
July 31, 2021	(4,876,595)	31,283	5,877	223,528	(4,887,324)

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5. RISKS AND UNCERTAINTIES

There are a number of risks which may individually or in the aggregate affect the long-term commercial success of the Company, both known and unknown. An investment in the Company should be considered speculative due to the nature of the Company's activities and its current stage of development.

Stage of Development of Technology:

The Company has made strides in advancing its technology and in developing a product portfolio and in engaging customers in joint development projects. There remains the risk that the Company must successfully complete development work on these products to have available commercially viable products which can be licensed or sold.

Customers' Willingness to Purchase:

We have previously entered into joint development agreements whereby our prototype products are being subjected to rigorous testing by our partners. We expect to be successful in commercializing our product portfolio. If we are successful in doing so, our partners will then have to decide the extent to which they will adopt our technology for future use for their applications. The future revenue streams for the Company are dependent upon the rate of adoption by our customers and their willingness to do so.

Patent Portfolio:

The Company has previously committed time and effort and incurred significant costs with respect to the maintenance and development of our intellectual property portfolio. Commencing in 2019, it decided to abandon certain provisional patent filings in international jurisdictions which it believes does not impact on the core patent technology that the Company maintains. Given the nature of IP development, the Company is subject to continuing risks that our patents could be successfully challenged and that our patent pending files may not ultimately be granted full patent status. The Company does not have extensive in-house resources so as to manage its IP portfolio in this environment and has traditionally relied heavily on its patent attorneys for these services.

Financing:

The Company has successfully raised funding on a quarterly basis to continue to support its development initiatives and fund the Company's corporate structure and overheads. The Company must continue to source financing in order to continue to support its business initiatives.

Competitors:

The Company is subject to competition from other entities that may have greater financial resources and more in-house technical expertise.

Management Structure:

The Company is highly dependent on the services of a small number of senior management team members. If one of these individuals were unavailable, the Company would encounter a difficult transition process.

Foreign Currency Exposure:

The Company expects to sell its products and license technologies in the United States, in Canada and abroad. It has raised financing in both \$CDN and \$USD. The Company has not hedged its foreign currency exposure. Foreign currency fluctuations present an ongoing risk to the business.

Project Execution Risks:

The Company is now embarking on its project and joint venture initiatives with Romgaz, as discussed in the body of this MD&A report.

In order to be successful in these initiatives, the Company will have to expand its activities. It will require the hiring of additional technical staff and program managers. The Company will add one additional staff person to its four person head office team. It will likely open a branch office in Bucharest, Romania.

There are operating and execution risks associated with this expansion of our operations. Our future success is dependent on accomplishing all of the above tasks and in building, monitoring and reporting on our go forward operations.

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6. GOING CONCERN

The consolidated financial statements have been prepared on the “going concern” basis, which presumes that the Company will be able to realize its assets and discharge its liabilities in the normal course of business for the foreseeable future.

There are material uncertainties related to conditions and events that cast significant doubt about the Company’s ability to continue as a going concern for a reasonable period of time in future. During the three months ended April 30, 2023, the Company reported a net loss and comprehensive loss of \$(3,896,034) (Q2 2022: \$107,839) and negative cash flow from operations of \$510,994 (Q2 2022: \$630,548). The Company’s working capital deficiency as at April 30, 2023 is \$6,847,503 (October 31, 2022: \$4,722,878).

In this context, we reference the comments provided on Non-IFRS measurements with respect to reported working capital and operating results in section 4 of this MD&A report.

The Company’s future success depends on the profitable commercialization of its proprietary sensor technology. There is no assurance that the Company will be successful in the profitable commercialization of its technology. Based upon its current operating and financial plans, management of the Company believes that it will have sufficient access to financial resources to fund the Company’s planned operations through fiscal 2022 and beyond; however, the ability of the Company to continue as a going concern is dependent on its ability to secure additional financing and/or to profitably commercialize its technology. The financial statements do not include any adjustments to reflect the possible future effects on the recoverability and classification of assets or the amounts and classifications of liabilities that may result from the possible inability of the Company to continue as a going concern.

If the “going concern” assumption was not appropriate for these consolidated financial statements, then adjustments would be necessary to the carrying value of assets and liabilities, the reported expenses and the balance sheet classifications used; in such cases, these adjustments would be material.

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7. OTHER MATTERS

(a) Critical Accounting Policies

The accounting policies the Company believes are critical to the financial reporting process include foreign currency translation, financial instruments, compound and hybrid financial instruments, derivative liabilities, conversion features of bridge loans, patents, impairment of long-lived assets, patents, deferred development costs, revenue recognition, stock-based compensation, and income taxes. These critical accounting policies are set forth in Note 4 to our audited consolidated financial statements as of October 31, 2022; there have been no changes to our critical accounting policies on a year to date basis through April 30, 2023.

(b) Legal matters: lawsuit vs Steven Van Fleet

We have previously reported on the litigation matter relating to Mr. Van Fleet, the former President of MAST, which commenced in 2018. Ultimately, after all legal and court proceedings, on June 16th, 2021 the court ordered that Micromem and MAST had established damages of \$765,579.35, the full amount that had been requested. Additionally, the court awarded costs and statutory prejudgement interest from May 9, 2017. On June 29th, the court entered a judgement (“Judgement”) in favor of Micromem and MAST and against Mr. Van Fleet in the amount of \$1,051,739.83.

With respect to the Company’s efforts to collect on that Judgement, a settlement (“Settlement”) was reached during October 2021. Pursuant to the Settlement, the Company received an initial one-time payment and is entitled to additional monthly payments over a period of up to six years through September, 2027. The Company will record those payments as and when they are received. The total amount to be received by the Company if Mr. Van Fleet makes all the required payments under the terms of the Settlement will be less than the amount of the Judgement obtained by the Company, but if Mr. Van Fleet does not comply with the terms of the Settlement, it also provides the Company a means of enforcing a larger judgement against Mr. Van Fleet that is substantially in line with the Judgement. Mr. Van Fleet has made the prescribed monthly payments each month since October 2021.

(c) Contingencies and Commitments

The Company may be subject to litigation, claims and governmental and regulatory proceedings arising in the ordinary course of business. In such cases, the Company accrues a loss contingency for these matters when it is probable that a loss has been incurred and the amount of the loss can be reasonably estimated. There are no such accruals reflected in the Company’s accounts at April 30, 2023.

(d) Off-Balance Sheet Arrangements

At April 30, 2023, the Company has no off-balance sheet financial commitments and does not anticipate entering into any contracts of such nature other than the addition of new operating leases for equipment and premises as may be required in the normal course of business.

(e) Share Capital

At April 30, 2023, the Company reports 498,209,037 common shares outstanding (October 31, 2022: 467,607,678; April 30, 2022: 447,191,433). Additionally, the Company has 13,875,000 stock options outstanding with a weighted average exercise price of \$0.06 per share at October 31, 2022: 11,700,000 options outstanding with a weighted average exercise price of \$0.06 per share; April 30, 2022: 10,725,000 options outstanding with a weighted average exercise price of \$0.06 per share).

(f) Management and Board of Directors

At our most recent Annual Meeting of Shareholders held on September 8, 2020, Joseph Fuda, Oliver Nepomuceno, and Alex Dey were re-elected to serve on our Board of Directors. Joseph Fuda and Dan Amadori continue to serve as officers of the Company.

Our management team and directors, along with their Q2 quarterly remuneration, is presented as below:

		2023 remuneration		
Individual	Position	Cash	Options	Total
Joseph Fuda	President, Director	11,292	-	11,292
Oliver Nepomuceno	Director	-	-	-
Alex Dey	Director	-	-	-
Dan Amadori	CFO	9,174	-	9,174
Total		20,466	-	20,466
		2022 remuneration		
Individual	Position	Cash	Options	Total
Joseph Fuda	President, Director	23,653	-	23,653
Oliver Nepomuceno	Director	-	-	-
Alex Dey	Director	-	-	-
Dan Amadori	CFO	9,449	-	9,449
Total		33,102	-	33,102

(g) Transactions with Related Parties

The Company reports the following related party transactions:

Key management compensation:

Key management personnel are persons responsible for planning, directing, and controlling activities of the Company, including officers and directors. Quarterly compensation paid or payable to these individuals is summarized as above.

Trade payables and other liabilities:

As at April 30, 2023, there were no balances reported as trade payables and other liabilities due to related parties (April 30, 2022: Nil).

(h) Liquidity and Capital Resources

Liquidity:

We currently report negative cash flow from operations. This result will only change once we are generating sufficient revenue from either license fees, royalties or the sale of products utilizing our technology. In 2023 and through to the date of this report, the Company has continued to raise additional financing.

We currently have no lines of credit in place. We must continue to obtain financing from investors or from clients in support of our development projects.

We have granted to our directors, officers, and employee's options to purchase shares at prices that are at or above market price on the date of grant. At April 30, 2023, there are 13,875,000 stock options outstanding at an average exercise price of \$0.06 per share.

Capital Resources: We have no commitments for capital expenditures as of April 30, 2023.

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8. SUBSEQUENT EVENTS

Subsequent to April 30, 2023:

- a) The Company secured a private placement with an investor consisting of common shares with no warrants pursuant to prospectus and registrations set forth in applicable securities law. It realized net proceeds of \$21,000 USD and issued a total of 200,000 common shares.
- b) The Company extended convertible debentures that were within 3 months of maturity date from April 30, 2023 for an additional six (6) months.
- c) The Company secured \$ 80,937USD in a convertible debenture with a 12 month term and conversion features which become effective six months after initiation date.
- d) The Company converted \$265,855 CDN of convertible debentures through the issuance of 5,317,100 common shares.
- e) The Company issued 800,000 common shares for a total of \$104,000 CDN for the exercise of stock options.

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APPENDIX 1

COMMENTARY ON CONVERTIBLE DEBENTURES:

This section of the report is intended to provide readers with additional information as to the nature of the reporting requirements, procedures, and impact of the convertible debt financings that the Company has completed. The objective is to facilitate the reader's understanding of this complex aspect of the Company's financial statements.

(1) Overview: convertible debenture reporting

- (a) We are required under IFRS reporting standards to measure the components of our convertible debt including the debt, the derivative liability, and the equity component of the face value of the debt, as appropriate, upon execution of the loan agreement with the lender.
- (b) The measurement methodology that we employ is in accordance with prescribed guidelines under IFRS and International Accounting Guidelines. This methodology is either a Black Scholes pricing model or a binomial distribution measurement model, depending on which model is more suitable in each case. That determination is based on a subjective assessment by the Company.
- (c) When we secure a convertible debenture from an investor, the terms which are finalized through negotiation with the investor will vary on a case-by-case basis in terms of the following aspects:
 - (i) Term (typically 2 months to 12 months).
 - (ii) Interest rate (typically 1 to 2% per month but, in some cases, between 5% - 10% per annum; in yet one other case, the interest rate is 2% per annum).
 - (iii) Conversion price which may be fixed at initiation date or fixed after 6 months based on a formulaic calculation, denominated in Canadian dollars or U.S. Dollars, the latter being the functional currency of the Company and its subsidiaries.
 - (iv) The option for the Company to prepay the loan during the entire term of the loan or within an initial period of the term of the loan (typically up to 6 months).
- (d) At the maturity date of the debenture, the debenture holder may agree to extend the term of the loan for an additional period of time, either on the same basic terms as already exist or on renegotiated terms.

(2) Accounting measurements and periodic reporting of convertible debentures:

- (a) To the extent that there is a derivative liability that arises in the initial measurement (1(b) above), we are required to revalue the derivative liability at each quarter end using prescribed Black Scholes or binomial methodology. Then, on a quarterly basis, we are required to report this gain or loss on the revaluation in our quarterly consolidated statements of income.
- (b) To the extent that the face value of the loan – which is due at the maturity date – is greater than the amount that is assigned to the loan component of the total amount at inception of the loan (1(a) above), then this difference must be accreted over the term of the loan. Typically, the loan term is from 2 months to 12 months. Thus, over the term of the loan, we are required to report this accretion amount as an expense in our quarterly consolidated statements of income.
- (c) To the extent that a loan is converted into common shares by the debenture holder, we will close out the loan at that point, record remaining accretion expense up to the date of conversion, remeasure the derivative liability to nil and calculate a net gain or loss on conversion of the loan. The net gain or loss is reported in our consolidated statements of income.

(3) Impact on financial reporting:

The realities and complexities of these prescribed accounting treatments give rise to complicated disclosures in our financial statements and footnotes:

- (a) We report substantial accretion expense in our periodic financial statements.
- (b) Over time, barring significant volatility in the share price, we generally report a gain on the settlement of the derivative liabilities. However, the quarterly revaluations of the derivative liabilities can result in significant quarterly fluctuations.
- (c) The calculated *effective interest rate* on debt can be substantial. To illustrate,(for example) if the reported fair value of the debt is a small fraction of the face value at inception and it must be accreted to face value over the term (for example 2 months) then the effective rate of interest will be as high (in these reported financials) as 5,803% or higher, representing the rate that would be required to step up the reported value to the face value in the short period of the term of the loan.

It is essential, when reviewing our periodic consolidated financial statements, to bear in mind the following:

- a) Accretion expense is a *non- cash item*.
- b) Gain or loss on revaluation of derivatives in a *non -cash item*.
- c) Gain or loss on extinguishment of debentures *is a non -cash item*.
- d) Gain or loss on conversion of debentures to common shares is a *non -cash item*.

The total non-cash expense (income) relating to items (a) - (d) above reported in the quarter ended April 30, 2023 was \$541,290; (April 30, 2022: \$(544,354)).

(4) Additional Comments:

The Company notes the following:

- a) We have had to resort to convertible debentures financing as a primary means of securing financing over the past several years in order to continue our operations.
- b) The *actual interest expense* on our convertible debentures, which is interest paid to the debenture holders, is at a coupon rate ranging between *1% and 2%* per month (in one case at a rate of 2% per annum). The effective rate referenced above is an accounting measurement metric, not a payable obligation.
- c) The use of convertible debentures has served to increase our outstanding number of shares over the past few years. In the quarter ended April 30, 2023, the Company issued 16,218,279 common shares in settlement of \$1,026,217 of debentures which were converted to common shares by the debenture holders (quarter ended April 30, 2022: 3,646,545 shares issued to settle \$217,113).
- d) The total actual amount that the Company reports as outstanding for debentures at April 30, 2023 is \$3,792,064 including principal and accrued interest (April 30, 2022: \$3,105,682).

At April 30, 2023 we report a total of 498,209,037 common shares outstanding (April 30, 2022: 447,191,433 common shares).

The Company plans to deemphasize or eliminate this complex and expensive source of financing in future as it develops and grows its business and is better able to secure more conventional, lower cost financing.
