Micromem Technologies (C.MRM): Paving the industrial IoT highway

TECHNOLOGY - ELECTRONIC GAMING & MULTIMEDIA

You've most likely already heard about the Internet of Things ("IoT") with products like Google's Nest and the endless array of fitness wearables saturating the market, but the real revolution, which the media spends little time on because it isn't as sexy as a Fitbit, is in industrial applications. This quiet end of the IoT spectrum dreams of an industrial world built on a series of interconnected device networks feeding an endless stream of data over the Internet to data centres where the numbers are crunched to produce a wealth of heretofore unknown actionable data, allowing companies to remain on top of their operations and ahead of the curve in real time. Analysts expect this 'unsexy' segment to explode, creating a global $151 billion market by 2020.

One of the companies on the leading edge of this industrial evolution is Toronto-based IoT pioneer **Micromem Technologies (CSE: MRM, OTCQX: MMTIF, Forum).** With its patented sensor technologies, Micromem is forming the relationships necessary to propel this transformative movement from futurism to reality. Through research and development, Micromem works with Fortune 50 partner clients to address particular needs where these companies wish to enhance information gathering in harsh environments, more specifically infrastructure like pipelines and power grids as well as complex manufactured products from such verticals as the automotive industry.

To illustrate potential and present need, we only need to examine pipelines. If you took all the underground natural gas and liquids pipelines in Canada alone and laid them end-to-end, you would have enough to circle the Earth at the equator 20 times. Much of these big oil infrastructure networks including pipelines, oil wells and production facilities, are systems that have been in place for decades, and the way the companies handle their information gathering has been fairly consistent for the last thirty some-odd years; someone is sent out to site to take a sample, they send that sample somewhere and then sometime later the company finally gets a result. This process can exponentially add up in terms of costs and time spent when you consider that big oil companies do approximately 10,000 field studies a year;

JOSEPH FUDA
PRESIDENT
AND CEO

that's an average of almost 30 per day.

Micromem, working with an American oil giant, Chevron, has designed a device that sits on the well head and can take measurements, feed that information live and on demand to the operators, saving them the costs and weeks of analysis they would have incurred using the traditional human-based sampling method. Now some investors may wonder what the upside to developing this tech in a time when the oil and gas sector is getting its collective teeth kicked in by low commodity pricing, but Micromem President and CEO, Joseph Fuda, argued that the same pressures plaguing oil and gas companies are the ones propelling the need for Micromem's patented technologies, "Basically, it's an efficiencies business. So with oil prices going down, it actually became more important to make processes more efficient. This explosion of IoT is now providing the vehicle for this necessary information gathering, and we are the ones providing the leading-edge sensor technology that will allow them to take this information into the Cloud."

This need and Micromem's fit in the sector is further evidenced by the recent announcement that Micromem has been approved to proceed with Chevron on an Interwell Tracer device. This isn't some fair weather relationship either; both companies have been working together since 2012 to bring this product from design concept to manufacture. Now that the process is past the prototyping stage, Micromem is putting together a production schedule for the device so they can enter into a field evaluation phase, which is scheduled to be a long-term project worth hundreds of millions of dollars over the next few years. Fuda illustrated further, "It could even be more than that; I am still going through the logistics on this one. Essentially the next steps are identifying manufacturing, which we have done; identifying the installer, which we have done; putting together an existing schedule, which we're doing now; and finally arranging for a relationship between us, the manufacturer, the installer and Chevron, our partner, to begin delivering these devices over the next three or four years. In short, it's a multi-phase, multi-year rollout."

Oddly enough, even though smart infrastructure is an eventuality, industry adoption is slow to move with few verticals such as oil and gas, construction, auto manufacturing and utilities leading the way. That said, Micromem has made itself a first mover in these sectors in a unique fashion that engenders long-term growth and market stability as Fuda explained, "It's not like we're heading out there with something on the shelf, trying to convince potential customers they have a challenge that needs to be addressed. When we partner up with these companies, they have already identified the problem and have approached us to assist them in making a custom-tailored solution with our sensing technologies. Since we share the IP of the resulting product, there is a vested interest on both sides to complete the deal as well as maintain a relationship beyond the development of the device. It's a win-win for everyone involved and builds a stability not really known in traditional client / contractor relationships."

The fact that Micromem, a small North American tech play, has been able to develop these relationships speaks to the quality of their technologies and sector reputation. There is huge money at play here and you can be sure that Chevron talked to everybody as it sought out a partner for this particular project before it finally settled on Micromem. Like government contracts, these deals are slow processes, but once they're established, it's a big tap that has the potential to remain open a long time.

Now extrapolate this story with the fact that Micromem has eight of this sensor technology partnership projects on-going, three of which, the Castrol LIBS (Laser Induced Breakdown Spectroscopy) device, the Chevron Interwell device and with Flextronics International Limited, a tier one automotive manufacturer on the Oil Pan Plug Sensor device, are beyond prototype development and into the evaluation or field deployment phase. Fuda illustrated, "We've accomplished a lot in those three market verticals. The R&D risk is long gone

and we're at the point where we're perfecting these devices for real world use; installing them in cars, in oil wells and wind farms, and many further opportunities to explore."

The nice thing about Micromem's revenue model is it's based on royalties or mark-ups, meaning they get a cut of every product sold without the manufacturing, marketing and installation headaches, allowing the company to remain lean and continue focusing on developing new technology solutions with their partner clients.

This next year is going to be exciting for Micromem as the company expects to be delivering another two products into commercialization as well as the ongoing negotiations for three new partner client contracts for device development. All of this added to its current accomplishments is expected to push the company into a cash flow positive state. So as far as near-term financing possibilities, Fuda had this to say, "We only finance because we need to be invested into the IP. As an example, one of the projects we are working with is approximately $7.0 million in costs to develop, which the partner paid half and we paid half. If we hadn't done that, there would be no royalty stream. Essentially, you have to look at it from this perspective; you're paying a group to do a job, the job is complete and it's 'thank you very much'. If somebody is working with you to share the IP, to co-develop for a piece of the pie, you also need to share the costs. Therein lies our financing strategy."

He went on, "If we were to look at doing a financing it would be to expedite the some of the work on our other projects in the oil industry. That said, we fully expect by mid-2017 that the money coming in from the other projects will become self-funding. In other words, not only will we be making money, but we'll be able to expand our IP base through internal cash flow. The decision will be whether we just sit back, wait and relax over the next year-and-a-half for the bank to build up or we can keep striking while the iron is hot by bringing in capital to expedite the projects, thus, receiving revenues sooner than later."

Micromem Technologies, for lack of a better analogy, is the little engine that could. Popular sentiment within the sector has been that the company has either been too small to survive to become the dark horse of the sensor technology market. Despite this, the company has survived the core technology development phase, they survived the development of a client base, they survived the partnership's due diligence review, they survived the selection process of these same partners, they survived the research and development phase with these partners and are now going to commercialization. In short, they've been doing their thing for a decade and they are still here doing it – successfully. Fuda summed up, "We are here to deliver on these products. We are a small company that continues to deliver big technologies with some of the world's biggest players. We survived all of the challenges of a developing business. We are here to stay in a sector that is just beginning to grow and we are excited about the blue sky potential ahead of us."

He isn't just talking through his hat. When Chevron was trimming its fat in a massive attempt to cut costs during this current commodity pricing slump, Micromem's contract was left untouched. That in and of itself speaks volumes for the importance placed on the company's technology offerings. There is no guarantee to how fast the industrial IoT revolution will take, but it will happen and Micromem could very well be a major player within the inevitable massive multi-billion-dollar sector. Don't take my word for it however. As always, do your due diligence before making any investment decision.

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