BioSpectrum the business of Bio & Health Sciences

Ontario onward outward

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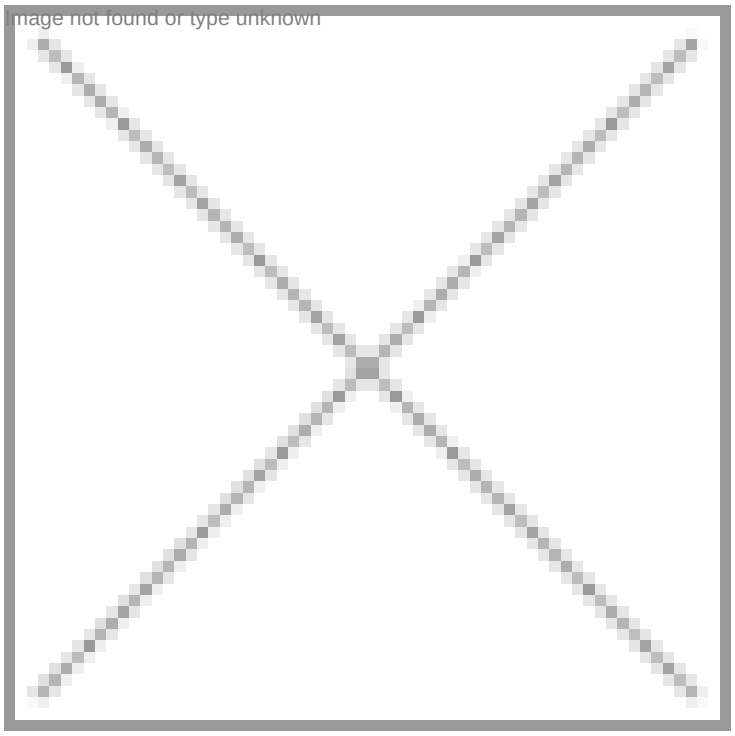

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Amongst the various provinces of Canada, Ontario leads on several economic parameters. The data indicates that Ontario has 38 percent of the GDP and 39 percent of the population, personal income and goods exported. As if that was not enough, it also has 43 percent of financial services and 48 percent of ICT employment. Almost an unfair share perhaps. Therefore, it is no surprise that Ontario leads Canada's efforts to go beyond the rather small domestic market and reach inernational shores. In order to accelerate the process, the province has international marketing centers in China, France, Germany, India, Japan, Mexico, UK and the US.

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The broad focus is on four sectors of manufacturing, health, energy and environment and ICT and digital media. While all sectors are important, the stress could vary from time to time and depending on region. Mr Aaron Rosland, counsellor (Commercial - Ontario), head of the Ontario International Marketing Centre in India, said, â€œIn the past year, advanced medical devices have started to become a focus sector for the India office. Therefore, to lay the groundwork for future activities, we have concentrated on building awareness in India of Ontario's capabilities in this sector.â€? The increased interest in India is for diagnostic, imaging and medical equipment companies in addition to e-health solutions and hospital infrastructure developers.

Medical devices is a growing sector in Ontario. There are over 650 companies that focus on diagnostics, imaging, medical treatment, surgery and assistive technologies. The sector employs 22,000 people that are slightly more than what the pharmaceutical and biotech sector employs. In terms of revenue, at $4 billion annually it is expectedly less than the $8.3 billion pharma sector. The government of Ontario has helped in the growth of the sector through various initiatives.

'We look forward to opportunities in emerging markets'

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In an interview with BioSpectrum, Dr John Rowlands, founding scientific director of the Thunder Bay Regional Research Institute, Ontario, talks about his mammography imaging solution, its commercialization through XLV Diagnostics, and relevance in emerging markets.

You have done research in medical imaging for 30 years. How would you describe â€œthenâ€? and â€œnowâ€? from the perspective of technology changes?

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The greatest change has been the move from analogue to digital in medical imaging devices. Thirty years ago it would've been unthinkable to look at radiography images via computer. Now we're moving at an exponential pace to improve those images. You can instantly see the image, make or manipulate multiple copies, and then send them via email.

Your work on PET suggests that it can potentially improve the resolution of PET from 10mm to 1mm. Where will this technology be applied?
The first application will be in breast imaging. The path to market is to make prototype systems and evaluate them clinically to see whether they're more accurate than x-ray mammography.

XLV uses commercial technology rather than medical technology. Do you see this as a new trend that will catch on with many other medical devices?
The use of commercial technology is already pervasive in medical systems. To re-use these devices in medicine is logical. For example, take the use of flat panel displays. Today, they are much different in comparison to the old bulky monitors that couldn't be used in the MR environment. They've now been replaced with something that is much more efficient and much less costly.

Is XLV Diagnostics going to license the technology or manufacture the product?
It will be a combination. XLV Diagnostics will both license the technology and manufacture the product.

Lowering the cost of manufacturing to a third of what a flat panel system costs today is laudable. But if XLV were to license the technology, the objective of low-cost medical imaging to the masses in emerging markets could well remain a research objective.
Yes, definitely. If XLV Diagnostics were to license this technology, our goal remains to offer low-cost medical imagingto the masses in emerging markets. It is a key research objective.

Any plans to license the technology to local manufacturers in emerging markets to ensure that the product is available at reasonable prices?
Yes, this is something we're exploring.

In emerging markets, digital imaging devices have to multipurpose. How soon will the XLV technology go beyond mammography?
First we are building a prototype of the product. Then, we will be developing it into other applications.

HIFU with MRI seems promising. How far are you from a commercial product and do you see a reduction in treatment cost?
These systems are already licensed for clinical use for some studies, for example, to treat uterine fibroids. Further improvement of transducers will create a reduction in the treatment time and cost. Our main objective is the bigger picture â€“ what I mean is that we're trying to reduce costs overall healthcare. For example, HIFU may always be an expensive procedure but you're saving because the patient outcomes are better. For example, the patient who has had a HIFU procedure will spend far less time in hospital, far less time off work recovering, and requires far less healthcare human resources.

Will research collaboration with institutes in emerging markets help in addressing its requirements better? Any plans in that direction?
Yes, we definitely have plans in that direction. We recognize the value in collaborating with research institutes in

emerging markets. If we partner with institutions in emerging markets, we can better identify patient needs that exist in other parts of the world. Patients in various countries have many different circumstances, challenges, and issues, which are likely to be very different from those in rural and remote Canada. We look forward to this opportunity to work with institutes in emerging markets.

Success through collaboration

One such initiative is the creation of The Health Technology Exchange (HTX), which addresses the 'pre-commercial' gap. The HTX was set up two years ago and manages an investment fund for the Ministry of Economic Development and Innovation. In its short period of existence, the HTX has made 15 investments to help companies to move from pure research to translation of work to the commercial space. The investments made are not for equity stake but instead the HTX charges a low interest. Due to the attractiveness of the scheme, the HTX receives plenty of applications leading to a high rejection rate.

Ontario Centers of Excellence (OCE) is another government arm that works with the industry to fund research in the universities. It works like R&D matchmaker connecting companies with researchers. With a current annual budget of $35 million, the OCE has various schemes that promote industry-academia collaboration. If the OCE invests a dollar in a research project, it expects the industry to invest double of that to ensure commitment. The OCE even has a scheme where they subsidize the salary of students for two years if they choose to work for a start up company.

Toronto's Discovery District is an unique feature of Ontario's life sciences sector. The district is spread over two square kilometers and has nine teaching hospitals, 30 research centers and over 20,000 people working in medical research and care. This is a perfect but rare concentration of life sciences expertise. Located within the district is MaRS Innovation, which is an incubator, that brings life sciences companies under the same roof with public sector researchers and venture capitalists.

All the action is not just in the greater Toronto area. There are government-funded R&D centers in various parts of Ontario. One the latest amongst these is the Thunder Bay Regional Research Institute (TBRRI) located in the north-west of the province. The center focuses on research in advanced detection, image guided intervention and biomarker exploration. In three years, a significant achievement of the TBRRI has been the launch of two spin-off medical imaging companies. One of these is Tornado Medical Systems, which has developed a margin assessment machine for breast surgery, and the second is XLV Diagnostics, which is developing a mammography imaging solution.

Prospect focus

While many companies are working on bringing products to the market using the technology and research being done in the province, the case of three companies is interesting from different angles. Tornado, the spin-off from the TBRRI, started with an OEM product called Hyper Flux S32 Raman Spectrometer and is now developing its own end user product. In the North American region where the number of breast conservation surgeries (BCS) exceed that of mastectomies, there is also a 20 percent to 40 percent re-excision rate for BCS procedures. Re-excision procedures create trauma for patients and an expense for hospitals as they are not covered by insurance companies. The margin assessment machine (MAM) being developed by Tornado allows the doctors to assess during surgery itself whether all of the malignant tissues have been removed.

The Sentinelle division of Hologic has developed an add on device to the regular MRI for breast scanning. Sentinelle was the first to develop a variable coil that is adjustable for breast MRI. The Sentinelle system design allows for better access for targeting in all quadrants of the breast and is compatible to leading biopsy and localization needles. They are now moving into the men's health area with a two channel endo MRI coil for prostate and pelvic imaging.

Baylis Medical started as importers and distributors of medical products in 1986. Around a decade back, they developed and shipped their own product. Since then the company's business model has changed from a being a pure distributor to 90 percent of revenues coming from manufacturing. The product lines of Baylis are in the cardiology, radiology and pain management areas. The common technology theme used in the products is radio frequency. The pain management system seeks to destroy problematic nerves that are responsible for pain. The radio frequency puncture system is used to creating

controlled perforations in cardiac and vascular tissues.

India market

India is not amongst the top 10 countries to which Ontario exports to or imports from. Almost 79 percent of goods export is to the US and the Netherlands, ranked tenth, is a mere 0.6 percent. Ontario imports 57 percent of its goods from the US and China comes second at 11 percent. In fact, France and India are the only two countries not in the top 10 despite having Ontario's international marketing centers. India is thus a case of a potential market that is yet to tapped effectively. However, it is not going to be easy with India being a focus for many jurisdictions around the world, because it is full of opportunities for collaboration.

â€œWhile we are interested in selling products, we hope to differentiate ourselves by also focusing on the 'how'. The 'how' includes Ontario's collaboration in education and training and that 47 percent of Canada's total R&D happens in Ontario. We also hope to enhance the existing linkages between India and Ontario, which includes a strong diaspora of approximately 7,00,000 Indo-Canadians in Ontario,â€? added Mr Rosland.

As many multinationals have realized, sometimes late, there is a market in the metros of India and another large one in the non-metros. The former is lucrative and easier to tap. The latter is potentially a huge market and more difficult to penetrate. Ontario companies seem to be looking at both. According to Mr Rosland, apart from the metro market, there are a number of exporters who recognize the potential market size that is available outside of the metro market, and are frequently visiting India and forging alliances with major hospital chains and exploring opportunities in tier two and three cities.

Ontario's initial success story was in the automobiles sector with its lower manufacturing costs and easy access to the large US market. The medical devices sector presents the same easy access but the rest of the dynamics is very different. With medical devices, Ontario has a working collaboration model that involves industry, universities, hospitals and research institutions all working together to grow the sector onward and outward.

E Abraham Mathew in Ontario

The author was in Ontario, Canada, at the invitation of Ministry of Economic Development and Innovation of the Ontario Government