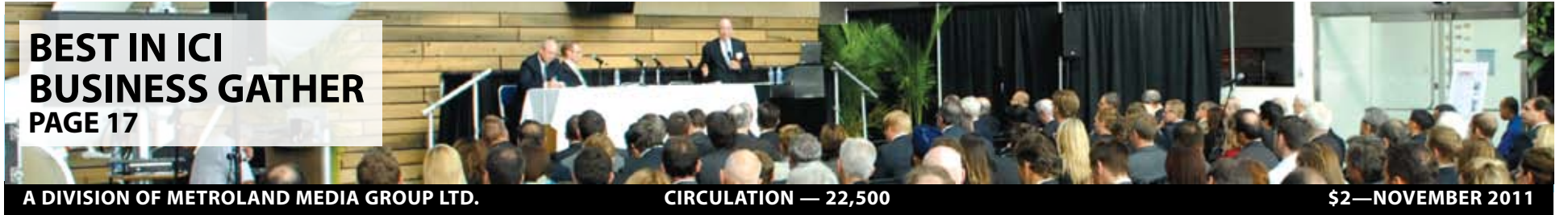


# Business Times



**BEST IN ICI  
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CIRCULATION — 22,500

\$2—NOVEMBER 2011

# King of Copy

*It's time to create innovation hub says award-winning Xerox engineer*

By JANA SCHILDER

On his last official day of work as head of Xerox Canada's Canadian Research Centre in Mississauga, Hadi-Khan Mahabadi had not yet celebrated his retirement with family, friends, or colleagues.

Instead, he attended the RIC Centre's news conference on August 31 where the report "An Action Plan for Innovation in Mississauga" was unveiled. The report, under \$50,000 to produce, was funded by the Ontario Ministry of Research and Innovation, the RIC Centre, and the City of Mississauga.

Mahabadi is not alone in wanting Mississauga to become an "innovation hub" - the early steps to a Mississauga incubator or business accelerator. Successful incubators around the world are well known as the cornerstones of economic prosperity.

During a 30-year career at Xerox, the Iranian-born Mahabadi, who is a polymer engineer, personally contributed 88 patents to Xerox in the areas of advanced materials and toners. Many of his patents have been commercialized by Xerox and are used by hundreds of millions of the company's customers worldwide.

When I catch up with him a month later for an interview at the Xerox building,

located in Mississauga's Sheridan Park—Canada's first research park—everyone greets him with a big smile and a congratulatory handshake.

He escorts me to Xerox's Customer Visitor Centre: it has a custom, V-shaped table that is more akin to the deck of the Star Trek Enterprise than a mahogany boardroom table on Bay Street, the latest in videoconferencing equipment, and futuristic Italian lighting.

"This is where we bring customers for work sessions. We ask them two things: what do you worry about and what do you wish for?" says Mahabadi. Worry implies things that are not yet working well and wishes implies the best of all possible worlds.

"These are the beginnings of innovation," he adds. "After we communicate the worry list and the wishes list to our researchers, that's when the creativity starts."

For Mahabadi, the definition of innovation is simple: invention coupled with creativity, applied to solve customers' problems, or to make customers' dreams come true. The important part of that definition is the word "customer," he says emphatically.

"Many people think that invention is innovation. Period. And they stop there," says Mahabadi.

Some individuals and organizations take the opposite approach. "They come up with a solution—an idea or a new technology—but they don't know which problem they have fixed," he says.

The other hugely important part of innovation is what he calls 'de-risking the value chain.' This is the trial-and-error experimenting process and involves technology, business processes and general feasibility. At the end of the day, will the idea work?

Each step in this value chain is a closed loop, where one problem is dealt with sequentially or concurrently. And, the de-risking process may take months or years, depending on the complexity of the technology.

"And here's the critical part, the de-risking process can take millions of dollars. Small start-ups cannot afford this, that's why they go broke and their ideas die," says Mahabadi.

So, after 30 years of breathing, eating and sleeping innovation, what 'lessons learned' can Mahabadi impart to the Ministry of Research and Innovation, the Peel Region-focused local RIC Centre, the municipal government of the City of Mississauga, and the Committee established to put the report's recommendations into practice?

Cont. on page 2



The inventor with his invention: Hadi-Khan Mahabadi, who holds several patents on this giant Xerox printing press for customized high quality printing, holds up a photo of himself printed on this machine.

Photo courtesy of Brian A. Kilgore

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## RIC report on right track

Cont. from page 1

First, while he agrees with the report's assertion that talent and creativity are important, he believes Canada does "a great job of creating talent in our universities," he says, at least when it comes to researchers and entrepreneurs.

But the jury is still out on whether Canadian industry has enough skilled labour for the industries of the future. The RIC Centre, for example, focuses on helping entrepreneurs in the following four industries: advanced manufacturing, aerospace, life sciences, and emerging technologies, including green technology.

Second, about 50 per cent of international Ph.D. students who come to study at Canadian universities return to their native countries. We lose those who come only to learn. "Because they are talented, researchers are international. They move around a lot," says Mahabadi.

"This is why we also have the problem of brain drain, where home-grown Canadian researchers leave the country in search of greener pastures," he adds. Many Canadians head south to Silicon Valley, Research Triangle Park in North Carolina and the Boston area.

Third, innovation is a chain with many links. It is these links—or rather missing links—that Canada lacks. This is what he

calls innovation eco-systems that can nurture both ideas and talented people, to bring new products and services to successful commercialization.

Of course, successful commercialization has many benefits, not just to scientists and their employers, but also revenue for new companies, high quality jobs in Mississauga and taxes paid to Ontario coffers.

Mahabadi notes that Singapore pays high salaries to talented researchers and entrepreneurs because that country has had an innovation eco-system in place for more than 20 years.

More importantly, the tiny city-state of Singapore understands the link between entrepreneurs, high-paying jobs, the country's productivity and the standard of living.

So, if Mississauga wants to be a successful innovation hub, we have to think of the entire innovation infrastructure, or eco-system, not just individual entrepreneurs and small start-ups at the beginning of the innovation process. "Canada has a lot of talent, but no commercialization infrastructure. That's why most of our new ideas fail," adds Mahabadi. He says on a scale of 1 to 10, where 1 is poor and 10 is great, Canada is a 2 in terms of our commercialization infrastructure.

When it comes to commercialization, Canada has ranked 14th to 16th for years, according to the OECD. Countries which continue to rank highly in commercialization are Japan, Singapore, Finland, Sweden, South Korea and The Netherlands.

Many entrepreneurs in Canada run out of money, time to commercialize their inventions, and patience with the lack of an innovation eco-system. They simply run out of steam. So, we'll never know how many good ideas die in shoeboxes, basements and garages. "That's why we must encourage funding, both from the government and the private sector to create this infrastructure, the innovation eco-system," he says.

"Equally important, universities in Finland and Israel, for example, teach Master's and Ph.D. students how to start a successful company that creates jobs. But in Canada, we teach these graduates to go work for big companies—a key difference," explains Mahabadi.

If we have thousands of start-ups and after 10 years each one hires thousands of people, "we have a groundswell of quality jobs and an improvement in the standard of living for all in Ontario," he says. "One thing that is critical to establishing a successful innovation eco-system is that everyone understands the relationship between innovation, jobs and community prosperity. Then, everyone is more likely to support innovation," says Mahabadi.

So, how does a 30-year veteran of innovation celebrate retirement? He consults universities and funding organizations on innovation. An innovator's job is never done.

Creativity, invention and innovation have paid big dividends in Japan and the beneficiaries have been Japanese citizens.

After WWII, Japan's infrastructure was totally destroyed. This was particularly devastating because Japan has no natural resources, unlike resource-rich Canada. Japan has no oil, coal reserves, minerals, forestry or potash (for fertilizer). The Japanese over-fished their own coasts. Japan grows rice, but it cannot feed its own population. Japan is a net importer of food, including fish, seafood, meat, and grains. "The only thing the Japanese really have is brainpower—their creativity," says Mahabadi.

Japanese auto makers like Honda and Toyota started producing cars while GM, Ford and Chrysler were at the top of their game in the 1960s. Equally important, these North American auto makers had the market all to themselves. And yes, early Japanese cars were the butt of jokes. "But every year, the Japanese auto makers would work on several innovations that were important to customers," says Mahabadi, pointing out that being able to adjust the side mirrors from inside the cabin was a Japanese innovation.

"Japanese people spend two hours inspecting their new car when they pick it up at the dealer," adds Mahabadi.

"And, here's the important point, 70 per cent of those cars are sent back for re-work. Those cars were not good enough," he explains.

He says that the Japanese want to buy Japanese products; they are fiercely nationalistic. And they know how important buying Japanese is to strengthening Japan's innovation culture.



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