

Canada as a technology powerhouse? Signs we're falling behind

Automaker R&D dollars to build the vehicle of the future are being spent closer to their home bases, but Canada is home base to none

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CANADA'S SHARE OF global investment in new automotive technologies is falling behind that of other countries despite its growing reputation as Silicon Valley North and the targeted incentives from government, new research suggests.

As the global industry places a big bet on the future of driverless cars and electrified vehicles, more of the R&D dollars are being spent closer to the automakers' headquarters in the United States, South Korea, Japan and Germany or the tech giants in California, according to a pair of reports from the engineering faculty at McMaster University in Hamilton, Ont.

"While there are pockets of interesting things going on, in general, Canada is not jumping forward with the same speed as the rest of the world," said Greig Mordue, an associate professor of engineering and ArcelorMittal chair in advanced-manufacturing policy at McMaster.

The findings are at odds with the widely held belief that Canada — and particularly Ontario — can somewhat offset its declining auto-manufacturing industry by capitalizing on expertise in information technology.

SUCCESS ... IN SPOTS

Industry leaders say it's too early to rule out Canada's role in the race to build the car of the future.

General Motors, Ford Motor Co. and Fiat Chrysler Automobiles have all made major investments in Canadian research centres in recent years, said Brian Kingston, president of the Canadian Vehicle Manufacturers' Association (CVMA).

"It shows Canada is having success in attracting that type of investment," Kingston said.

But Mordue said that while pockets of good news exist, the

TECHNOLOGY SPOTLIGHT

overall trend is discouraging.

Automakers and suppliers in Canada invested \$330 million in R&D in 2019, up from \$213 million in 2014 but down from a peak of \$500 million in the mid-2000s, according to the report titled "Neither Core Nor Periphery: The Search for Competitive Advantage in the Automotive Semi-periphery."

Meanwhile, Canada's share of global patents for automotive research has stagnated at around

500 new patents a year. That represents 0.4 per cent of global automotive research, down from one per cent in 2001, Mordue's research found.

The one bright spot is research into autonomous vehicles, where Canada produced 30 new patents in 2016. That represents just less than one per cent of global patents, according to a separate study titled "Frontier Technologies in Non-Core Automotive

Regions: Autonomous Vehicle R&D in Canada."

CANADIAN AUTOMAKER?

Colin Dhillon, chief technology officer at the Automotive Parts Manufacturers' Association, thinks the industry has a promising future in Canada.

"We have the right ingredients geographically placed in order to be global leaders and attractive to global automakers wanting to build here," he said. "Or we could control our own future by creating a Canadian automaker. I'm talking regularly with brand new startups who want to build Canada's first electrical vehicle."

Technology company LeddarTech Inc., which develops sensing products that enable advanced driver applications and autonomous vehicles, said it's attracting international money to Quebec. Those investors are drawn by the cluster of expertise in optics that grew out of the telecom boom, the company said.

"In our last large round of financing in 2017, about 95 per cent came from foreign investors from the U.K., America, Germany, Italy, all strategic investors who decided that LeddarTech was the right place to put in over \$100 million U.S.," said Frantz Saintellemy, the company's president.

With 210 employees, LeddarTech conducts research in Quebec City, Montreal, Toronto and in Lenz, Austria, and Israel, Saintellemy said.

Canadian startups face some tough challenges because of the country's small size, said Jason Lee, CEO of Ottawa-based SmartCone, which helps make streets safer through intelligent infrastructure.

"We don't have the benefit of creating a product we can sell domestically. We have to export," Lee said. "We have to compete against the rest of the world and their innovations."

When Canadians do succeed, he said, they're often bought out by foreign inves-

tors.

Still, Lee thinks Canada is "the right country at the right time with the right people and the right vision to be a significant leader in the future of the automotive sector."

DECLINE ... AND DEFIANCE

But Mordue, the McMaster professor, said this won't be enough to reverse Canada's declining role as an automotive manufacturer.

Since 2000, seven assembly plants have closed, and total vehicle output has dropped by a third as global automakers shifted more of their production to lower-cost countries such as Mexico.

In a bid to reverse or at least halt the trend, Canadian policymakers sought to play to the country's strengths, focusing on the emerging market for the connected car.

The province of Ontario earmarked \$1.15 million in 2014 for 15 projects and \$1

million in 2016 to develop and commercialize technology for autonomous vehicles. In 2017, the province created the Autonomous Vehicle Innovation Network, supported by a five-year, \$80-million fund with a demonstration zone in Stratford, 150 kilometres west of Toronto.

The federal government has also supported the development of AV technologies. Through the National Sciences and Engineering Research Council, it has awarded 327 grants valued at \$40 million to universities and students. The Social Sciences and Humanities Research Council has awarded five grants totaling \$5.2 million.

The CVMA's Kingston said the future of Canadian automotive R&D lies in securing its assembly plant footprint.

"If we're going to be a leader in the future," he said, "having assembly will be very important." — **ANC**



Dhillon: "We could control our own future by creating a Canadian automaker."

FILE PHOTO



Mordue: Despite some successes in auto technology investment, the overall trend in Canada is discouraging.

PHOTO VIA GREIG MORDUE



Saintellemy: In 2017, about 95 per cent of the investment in LeddarTech came from foreign investors.

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