Linamar CEO Linda Hasenfratz sits to the right Prime Minister Justin Trudeau, with Ivanka Trump to his left as President Trump hosts the first meeting of the Canada-United States Council for Advancement of Women Entrepreneurs and Business Leaders at the Cabinet Room of the White House on February 13. *Adam Scotti photo*

Being Ready for Anything,
OR HOW TO INNOVATE AMID PERPETUAL CHANGE

Linda Hasenfratz

In 2002, Linda Hasenfratz took over as CEO of Linamar, the auto parts company her father, Frank, founded in 1966. Since then, she has built the business into the second-largest auto parts manufacturer in Canada and the largest employer in Guelph, Ontario, with 9,000 workers. In 2014, she was the first woman named EY Entrepreneur of the Year for Canada and, she is a member of the Canada-United States Council for Advancement of Women Entrepreneurs and Business Leaders. And, she knows a little something about innovation.

At Linamar, we have long believed our prosperity as a company is based on our competitiveness—our ability to capture opportunity and the culture we have created and nurtured. Competitiveness is 100 per cent driven by our ability to innovate and our ability to run efficient operations.

Innovation is absolutely critical to success. Customers come to you if you have the products that solve their problems, products they want, and innovation is how you achieve that.

Innovation shows up in a lot of places in companies; in the products we design, in the processes we develop to make those products, and in the development of new materials to enhance those product designs or processes. And, of course, in the continuous improvement of all of that, every single day.

Our governments can and should help companies make these investments, through strong Scientific Research and Experimental Development (SRED) tax credits and grants to support innovation investments. Our governments also play a key role in efficient operations by keeping regulations and taxes to a minimum as well.

Innovation is clearly linked to any company's strategy.

The relationship between innovation and strategy begins with identifying your customers' needs. What are their biggest problems? What are their most significant costs? What do they or their customers like least about their products?

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The automotive industry is a great example to look at.

The face of the automotive market is changing, which makes this an exciting time to be bringing innovation to the table to gain market share in a shifting landscape.

The clear imperative for our industry is around reducing emissions and improving fuel economy.

That means finding ways to reduce weight, diminish noise and enhance product design in existing internal combustion engine (ICE) vehicles and developing new exciting products for hybrid and electric vehicle platforms.

So, how will that play out?

Well, we think in multiple stages.

In the short term, it's all about improving the ICE. There is huge potential for doing so, as detailed above. The emissions of an ICE are 30 times lower today than they were 25 years ago—enormous progress has been and will continue to be made. At Linamar we have come up with innumerable innovations to drive light-weighting; one example is a hydroformed camshaft—manufactured through using highly pressurized liquid to displace tubular material around a lobe to dramatically cut the weight of the cam by up to 60 per cent while maintaining strength compared to traditional cast cams.

Hybrid vehicles will be critical in the medium term. They are an important bridging technology to the battery electric (BEV) vehicle as technology challenges such as range, infrastructure and charge time are solved. We have many initiatives underway for hybrid vehicles in both the ICE systems and the electric systems as well as in the driveline area and body. For example, we have developed an electronically actuated axle that creates better drivability in the vehicle while turning any architecture into a hybrid. It can also be used in BEV vehicles. Our unique disconnect systems disengage the AWD system when road conditions are good through a Self-Energizing Electro-Magnetic Disconnect Actuator which will also re-engage the system when slip conditions are detected. This eliminates the parasitic losses of all that spinning apparatus using fuel when it is not needed.

For BEV, our opportunities lie in the noted driveline systems as well as in elements of the electric motor system, again bringing new lightweight materials and optimized casting processes to bear to create better products in the electric system. Multi-speed gearboxes are also a key opportunity we are developing. Another is replacing heavy stamped steel assemblies in the body with aluminum castings through new technologies we have developed for casting high strength aluminum yielding 45-50 per cent weight savings.

As we move to an autonomous world where vehicles can communicate with each other, there are exciting innovations we can bring to the table specific to the AWD system to deliver important information from one vehicle to those traveling behind it regarding road conditions to improve safety of operations. Our pilot tests show we can engage disconnect systems for the AWD system much faster using vehicle-to-vehicle (V2V) communication than could ever be done by a human—our response times just aren't as quick as sophisticated sensors at sending those messages.

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When will all of this happen? We don't know for sure, some predict many years away, others think these evolutions will happen sooner. We can't predict the future. We can make an informed guess at what might happen based on

our knowledge of our industries and technology.

What we should *not* do is try to pick a future and bet on that happening.

What we *do* need to do is develop a strategy that will see us successful in as many of those different futures as possible. That is exactly what we are doing for our automotive business—developing products for each type of vehicle propulsion so we have great opportunity in each. Then it doesn't matter to us *when* a shift happens or even *if* it does. We have the product strategy for any future of propulsion. That's business savvy innovation.

I would like to come back to the idea of focusing on your customers' needs as you develop your innovation strategy. You can't innovate for innovation's sake alone. There must be a customer who wants that product and values it.

A good example are the concepts of car sharing and ride hailing. Some people think that in the future no one will own a vehicle. That may very well be true for a typical urban dweller who just needs to get to work and back each day but may not be for many others.

As we contemplate these topics we need to remain grounded in understanding all consumer needs. Most of the people making predictions about future vehicle ownership do not represent the full demographic of the market. To speculate that every suburban household or smaller city/town resident will no longer own a car is likely unrealistic.

Suburban drivers have different needs for their vehicles. Drivers with kids go from school to dance to soccer, then home, with all required bits for that stored in the car. They go grocery shopping and get large orders, sometimes at multiple stores. They run errands with children in car seats, making multiple stops. To call a ride hailing service to do all that, carrying all those packages and car seats and other bits along every step of the way isn't very practical.

In cities, today's millennials expect instantaneous response and service. Will these people who want to rapidly get from A to B be happy to stop and pick 2 or 3 other people up along their route to B? Will the high-energy urban business person be happy to share a vehicle with someone on their commute to work when they need to make a phone call or work on a confidential project?

We can all speculate about a future that technology will enable but if the customer doesn't want it, it won't happen, or not to the extent that you might envision. Innovation, like every other aspect of a successful business strategy, always begins with the customer and what they want, not what technology can do. It is where the two intersect that we find true transformative change. P

Linda Hasenfratz is CEO of Linamar Corporation, Chair of the Business Council of Canada and a member of the Canada-United States Council for Advancement of Women Entrepreneurs and Business Leaders.