



CN is North America's largest railway, a legacy company meeting the challenge of innovation. *CN photo*

A Culture of Industrial Innovation

Sean Finn

While innovation has become the obsession of business schools and management gurus around the world, it tends to be associated with tech start-ups and undiscovered geniuses tinkering in garages and coffee shops from Cupertino to Kitchener. Meanwhile, legacy companies are dealing with their own innovation challenges, and some of them are excelling. CN Executive VP Sean Finn explains how one legacy company is meeting the challenge.

The key to innovation, whether in the public or private sector, is the ability to come up with fresh ideas and translate those ideas into new products and services.

In order to create world-leading clusters and partnerships—the super-clusters that are a magnet for ideas, talent and capital—Canada needs to have the best connections to North American and global supply chains.

When Canadians think of innovative companies, they tend to think of technology companies. I know, however,

from my own experience as a former chair of the Canadian Chamber of Commerce and of the Quebec federation of chambers of commerce, that there are countless examples of innovative companies in more traditional industries. And there is nothing more traditional than railroading. The first true railroad in Canada dates back to 1836 when John Molson and other merchants from Montreal backed the Champlain and St. Lawrence Railroad. Since those humble beginnings, generations of railroaders have been committed to innovation.

By the late 1980s, Canadian National was an iconic Canadian institution with a proud history and one of the most recognized logos in the world. The crown corporation, however, was a North American rail industry laggard in terms of productivity and profitability. The government of Prime Minister Brian Mulroney knew that something had to be done, so non-core assets, such as CN Hotels, were divested. Prime Minister Mulroney also brought in new, energized leadership from the outside under former clerk of the Privy Council Paul Tellier. The government of Prime Minister Jean Chrétien privatized CN in 1995. Privatization, led by Transport Minister Doug Young, was a bold step for the government and marked a critical turning point: the beginning of a culture of innovation at CN.

Since 1995, CN has transformed itself fundamentally. Under gradual deregulation, CN has made significant investments and evolved from a largely Canadian network to one that is truly North American. Today, CN spans Canada from Vancouver and Prince Rupert on the West Coast to Halifax on the East Coast. It also spans mid-America from Chicago down the Mississippi to New Orleans, Louisiana and Mobile, Alabama on the Gulf of Mexico. CN is North America's only transcontinental railroad connecting those three coasts. CN now reaches close to 75 per cent of U.S. consumers and serves all major Canadian markets.

CN's operating ratio—a key measure of efficiency—improved from the high

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80s in 1994 to the mid-50s in 2016. And the market capitalization of the company increased from \$2.5 billion in 1995 to over \$70 billion today.

The competition for ideas, talent and capital is a global one, so it makes sense for Canada to focus on areas where it is currently—or has the potential to be—a hotbed of innovation. Canada already has innovative world-class leaders in the freight rail industry. These companies play a critical role in facilitating trade and Canadian exports.

Right now, we are going through a cultural transformation at CN. We are asking all employees to move from railroad thinking to supply chain thinking. We are encouraging them to focus simultaneously on two tracks. The first is all about the day-to-day—moving our customers' goods safely and efficiently from point A to point B. The second track is our line to the future. It is all about thinking how can we do this better? In a nutshell, that is what innovation is all about.

CN's commitment to innovation can be seen throughout the company, whether in our relentless focus on safety, in our commitment to working collaboratively with our customers and sustainability or in our approach to stakeholder engagement.

It is all about providing premium, safe service at low incremental cost. We achieve this by understanding our customers' total needs, sharing data with supply chain partners, and tailoring our operations to meet them efficiently.

Innovation is driving improvements in safety at CN. We are using inno-

vative thinking to develop predictive data analytics and to deliver safety improvements by leveraging one of our core strengths: CN's industry-leading network of wayside inspection systems, detectors and other inspection technologies. CN is gathering real-time information from its multitude of defect-detecting sensors to enable our employees to fix the tracks before incidents occur. Based on years of historical data, CN is also developing health scores for rail, ties and other track infrastructure to help ensure the right assets are being replaced at the optimal time. Data analytics are ushering in a new era for rail safety and will lead to a better understanding of the overall condition and life cycle of track and railcar infrastructure.

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An example of working collaboratively with our customers is the progress we have made serving our grain customers. This crop year, we are delivering outstanding results despite more difficult winter weather, and many of our key

operating metrics are breaking records.

A high-performing grain supply chain hinges on strong end-to-end collaboration. CN is promoting open communication with all of its stakeholders: farmers, elevator companies, ports, car suppliers and government. With daily and weekly interactions, all parties are sharing information to understand and optimize supply chain performance, including scheduling hopper car and container supply, planning vessel loading, and managing the pipeline in order to keep the ports running smoothly.

CN constantly innovates to improve the overall supply chain. We have invested in new locomotives that can haul more grain cars with less fuel. These locomotives are also built to run as distributed power, allowing CN to run longer trains in cold weather when trains would normally be shortened due to lower air pressure in the braking systems.

Grain customers continue to invest in CN's network. Elevator companies are upgrading facilities to enhance throughput. Port elevators have expanded capacity and new entrants have designed facilities to unload unit trains at a faster rate and with improved vessel loading capabilities.

As a leader in the North American rail industry, CN plays an important role and has a responsibility in fostering a greener and more prosperous economy. Rail transportation is four to six times more fuel efficient than trucking and that translates into 75 per cent lower greenhouse gas (GHG) emissions for an equivalent volume of freight. A single freight train is capable of removing 280 trucks from our public roads and highways. CN has been working hard to reduce its carbon footprint by leveraging its unique asset-lean business model, acquiring new fuel-efficient locomotives and investing in leading-edge technologies.

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ly 15 per cent more fuel efficient than the rail industry average.

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Policy makers can contribute to greening Canada's freight transportation sector by looking at Quebec's PREGTI program, which aims to reduce emissions by promoting a modal shift to rail and marine transportation. We at CN have been leveraging this program successfully to incent customers in Quebec to switch from road to rail. Rail can play an even more important role in helping Canada meet its climate change objectives. And we are actively encouraging other provinces to adopt this forward-looking green policy through our stakeholder engagement efforts.

Following the tragedy in Lac-Mégantic in 2013, with the social license of railroads—even those not directly involved in the incident—being questioned, the status quo was no longer an option when it came to the industry's approach to engaging with communities. Therefore at CN, we launched a Structured Community Engagement Program. Today, we are in frequent contact with a unique network of municipal, provincial and federal elected officials: First Nations; first responders; and chambers of commerce across eight provinces. Reaching out to stakeholders directly gives them a much better understand-

ing of CN's commitment to being the safest railroad in North America and of the role CN plays in the national and local economies. Equally important, we at CN have a much better appreciation of local concerns as well as business development opportunities. While we may not always agree with each other, we keep lines of communication open and strive to be good and safe neighbours.

Innovation in safety, customer service, environmental sustainability, and stakeholder engagement have become part of our corporate DNA. The innovation mindset challenges us to transform ourselves from being North America's leading railroad to becoming North America's leading transportation and logistics company.

CN believes there is an exceptional opportunity to transform Canada into a global centre for innovation, and we will continue to do our part. Our employees are committed to innovation, and will continue to come up with ideas to enhance not only our own productivity and competitiveness, but our customers' and, ultimately, Canada's as well.

Making Canada a global centre for innovation is within our grasp. To quote Perrin Beatty, President and CEO of the Canadian Chamber of Commerce, Canada possesses “important advantages, including our rich resource inheritance, the skills and industry of our citizens and our proximity to the world's richest market...with imagination and plain hard work, we can translate these advantages into business success that will benefit every Canadian family.” **P**

Sean Finn is Executive Vice-President, Corporate Services and Chief Legal Officer at CN and former Chair of the Canadian Chamber of Commerce and of the Quebec federation of chambers of commerce. sean.finn@cn.ca