

# The public–private imperative in urban mobility: A view from Canada

Josipa Petrunic imagines a low-carbon, smart-mobility future for Canada. In this interview, she describes how CUTRIC, the consortium she leads, is bringing the public and private sectors together to make it happen.

**The Canadian Urban Transit Research and Innovation Consortium (CUTRIC)** convenes city governments, manufacturers, tech companies, and other stakeholders to solve urban-mobility challenges. The goal: spur innovation and economic growth through the creation of a low-carbon, smart-mobility ecosystem across the region. In this interview, conducted by McKinsey's Allen Webb, CUTRIC's executive director and CEO, Josipa Petrunic, describes the consortium's progress, as well as the challenges it faces cutting through bureaucracy to bridge the efforts of the public and private sector, in service of a shared goal.

**The Quarterly:** *What do you see as the future of urban mobility, and how does CUTRIC's mission fit into that?*

**Josipa Petrunic:** For us, low-carbon smart mobility is the name of the game—anything that reduces emissions or improves mobility for Canadians is where we

play. At CUTRIC, we want to move Canadians faster, quicker, cheaper, and cleaner than individual automobiles ever could. That is the goal.

**The Quarterly:** *Where do you prioritize your efforts? What sorts of projects are you working on?*

**Josipa Petronic:** We're helping to develop a few different technology projects, including a Pan-Canadian electric-bus project focused on high-power charging systems and a hydrogen fuel-cell bus application. Another very large effort is a national smart-vehicle project, where we're working with 10 to 12 cities in Canada to integrate autonomous low-speed electric shuttles.

That's critical, because in Canada, as in the United States, we have a lot of first-mile/last-mile problem areas. We have light-rail transit, subways, or rapid-transit buses that get you from point A to point B really quickly and efficiently. But once you get to point B, there is no bus service, or very low service. And the result is you drive your car the whole distance—the classic suburban problem of North America.

Understandably, transit systems in cities will look at routes that are very short and they will not apply a bus to it. It's expensive, and the bus will be empty most of the time. Transit systems in cities are typically looking at these kinds of on e-kilometer, last-mile solutions and saying, "That's where autonomous vehicles need to go." And they're right.

**The Quarterly:** *What are some of the challenges you see when it comes to these kinds of urban-mobility projects?*

**Josipa Petronic:** It's not just about getting the vehicles out on the road. That's been done before. What we really need to focus on are things like the development and integration of standardized vehicle-to-vehicle and vehicle-to-infrastructure communications. Right now, when a city looks at an RFP [request for proposal] it can't mix and match various manufacturer makes and models of shuttles, for example, because of the proprietary tech involved. Competitors and players from the public and private sector have to come to the table and decide on the kinds of standards that have to exist.

Then there's an innovation challenge. For one, we absolutely need interoperable, high-powered charging systems. We already have low-powered charging for, say, a Chevy Volt, but that's not going to cut it for things like coach buses, transit buses, or cement trucks. These systems require an enormous amount of power to be delivered, which in turn has implications for utilities. Second, we have to develop electric power trains for those kinds of heavy-duty vehicles. That would be the Holy Grail. You'd be taking some of the dirtiest generators of emissions—diesel engines—and replacing them with some of the most efficient forms of propulsion technology.

**The Quarterly:** *Is there a critical policy or regulatory shift that needs to happen?*

**Josipa Petrunic:** Yes, but in some ways the problem is more fundamental and goes beyond regulation or policy—the structure of government itself has to change. Traditionally, in Canada and other countries the most senior levels of decision making within government are spread out across different ministries, such as economic development, transportation, and energy, and the siloed nodes of this triangle never meet.

For example, when we launched our pan-Canadian electric-bus project, I thought the hardest part would be getting Siemens and ABB and New Flyer and Nova Bus to redesign their systems. That proved to be technologically the most logical and rational part; it proceeded with some good, hard work. But literally, the most challenging part was trying to get the Ministry of Transportation to sign a contract with a utility as a partner, because that was outside their silo. And in the end, we weren't able to get there.



## Josipa Petrunic

Josipa Petrunic is the executive director and CEO of the Canadian Urban Transit Research and Innovation Consortium (CUTRIC). She previously served as the lead researcher in electric-vehicle policy studies at McMaster University. Her educational background includes a PhD in science and technology studies at the University of Edinburgh and a master's degree in political science and public policy from the London School of Economics. In 2018, she was named one of Canada's Top 40 Under 40 by *Bloomberg News*.

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That kind of bureaucratic division of duty is killing the advancement of low-carbon smart mobility. Because not only does it mean decision makers are separated from each other, but you're asking bureaucrats and government staffers to do jobs they were not trained to do. You're asking people who are used to funding diesel buses and building basic cement highways to now think about autonomous-vehicle integration from a tech perspective.

**The Quarterly:** *So what role do you see CUTRIC playing in helping to overcome this problem?*

**Josipa Petrunic:** This is not just a Canadian problem; many other countries struggle with it. So if we want to solve the issue of low-carbon smart mobility, it's not enough to kind of pick around the periphery by focusing on regulation that would not allow autonomous vehicles on the road or restrict certain charging systems on some urban roads.

I'll give you an example from our work over the past three years. When we started out, we were working with the Ministry of Economic Development in Ontario and received some initial seed financing of \$10 million for various projects in low-carbon smart mobility, which was great.

But we then had to have a 12-month friendly battle with the ministry and other government folks to understand that companies like Hydrogenics and Ballard that do fuel-cell stacks and electrolyzers for hydrogen-vehicle applications are automotive companies. That classification had never existed before for companies like that. Electric-motor makers were not traditionally deemed automotive companies, even though they primarily make electric motors for automotive applications.

To their credit, our current government has made some movement in this regard. So it's about internal lobbying, but also international collaboration. If I talk the talk in Canada, I'm only going to get so far. But if I can partner with major organizations in Germany, the United Kingdom, and the United States and try to motivate similar efforts, then I think that will drive the motivation to change how governments handle these things. Ultimately, I do think it's possible to get through to decision makers and even gradually change the fundamental structure of the government through good projects that test traditional boundaries.

**The Quarterly:** *What about the role of private companies? What's the best way for governments to work with them to solve urban mobility-related challenges?*

**Josipa Petrunic:** The private sector is vital, of course, but I do worry about how government reacts to the private sector at times. For example, we've seen cities in the United States and Canada that have had a kind of knee-jerk reaction in considering the future of mobility. They think, "These companies are already doing on-demand ridesharing. Their car fleets will soon be autonomous and electrified, so they must be the solution." I believe that public-sector decision makers should instead be starting off with an urban-planning perspective and asking, "Isn't our ultimate goal to reduce emissions and move people more conveniently than with individually owned cars?" If so, let's work with manufacturers and integrators to create a well-designed system and make it happen.

**Josipa Petrunic** is the executive director and CEO of CUTRIC. This interview was conducted by **Allen Webb**, editor in chief of *McKinsey Quarterly*, who is based in McKinsey's Seattle office.

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