

INTELLIGENT CITIES

NAVIGATING NEW OPPORTUNITIES

Natasha Apollonova, Ec.D., PMP
Co-Founder, Sigma Helix

September 14, 2022 12:30 p.m. ET



A HIGHER LEVEL of
management consulting
ONTARIO



Un NIVEAU SUPÉRIEUR
de conseil en management
ONTARIO



WHAT'S UP NEXT

The 2nd Wednesday of the month
12:30pm eastern

- ❑ October 12: [Changes in Change Management](#) with Louise Harris & Dawn-Marie Turner
- ❑ November 9: [Protecting Against Cyberattacks](#) presented by Marcus Troiano
- ❑ December 14: [Exploring Canada's Entrepreneurship Ecosystem](#) with Kayla Isabelle



WHY JOIN?

MEMBERSHIP CONNECTS YOU



CONSULTANTS



NETWORK



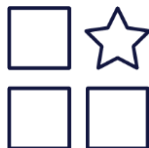
RESOURCES



CERTIFICATION



VISIBILITY



DIFFERENTIATE



CMC Pro Bono Program

NEW OPPORTUNITIES AVAILABLE FOR CMC VOLUNTEERS!

The CMC Pro Bono Program provides no-charge management consulting services to registered charities and non-profit organizations... that provide services and public benefit to our local communities.

Organizations we are working with:

- 360Kids
- Abbotsfield Housing Society
- Inn From the Cold
- The Prince's Trust Canada
- VITA Community Living Services

For more info, email probono@cmc-ontario.ca



How to Participate

- Participant controls in the lower left corner of the Zoom screen
- You will be muted for this call
- To ask a question – Type the question into the chat tool.
- We kindly ask that you turn your Video on if you are able to. We want to see your smiling faces!
- This session will be recorded
- A copy of the presentation will be available after the event.





ABOUT OUR PRESENTER

Natasha Apollonova

Co-Founder, Sigma Helix, Ec.D., PMP

- ❑ Senior policy and advocacy roles at the Toronto Region Board of Trade
- ❑ Worked as a Senior Manager, Government Relations for Canada's largest technology association TECHNATION
- ❑ 10 in economic development, market intelligence and enterprise risk planning consulting roles at BDO, IHS Markit, TD Bank and Deloitte.





Intelligent Cities: Navigating New Opportunities in the Post COVID-19 world

Prepared by Natasha Apollonova
September 14, 2022



"Giant leaps often start with small steps."

Queen Elizabeth II



Topics for Discussion Today



1

Continuous Learning is Key to Professional Growth

2

Key Challenges for Cities Today

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What are Intelligent Cities?

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Case Study 1: Transit Electrification

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Case Study 2: Government Services Digitization & Complex Procurement

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Summary

Continuous Learning is Key to Professional Growth



- **Need to help displaced workers to re-skill and up-skill (e.g., Auto & Parts and Aerospace sectors)**
- **Ageing population, workforce renewal and immigrant integration into Canadian economy is critical**
- **Public sector employment accounts for 1 out of 5 employed Canadians. The extent to which governments recognize and value micro-credentials will help to shape this market**
- **Digitization trends and massive amounts of data generated by Canadians. Role of enabling tech like AI and Cloud is critical to Canada's future prosperity**

Micro-Credentials is Key to Professional Growth



News

Microcredential programs on the rise in Canada

Low rates of awareness about microcredentials by prospective students and employers remains a challenge.

BY SHARON ASCHAIK | MAY 25 2021



Post a comment

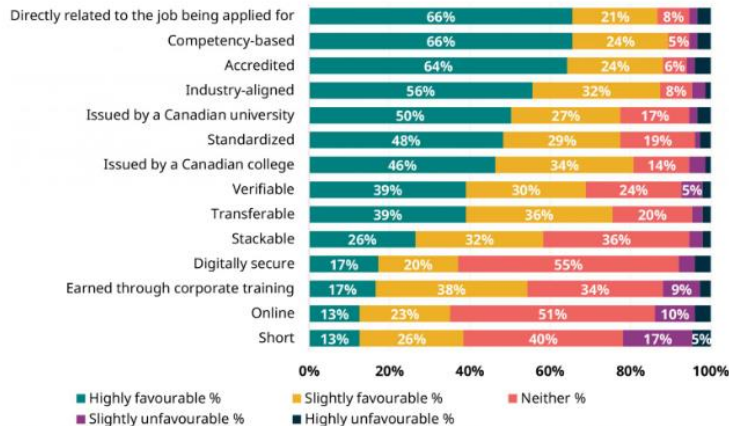


A new report on current views about microcredentials in Canada reveals a majority of higher education institutions are keen to create these concise, competency-focused upskilling programs, and many say the COVID-19 pandemic has made them even more relevant.

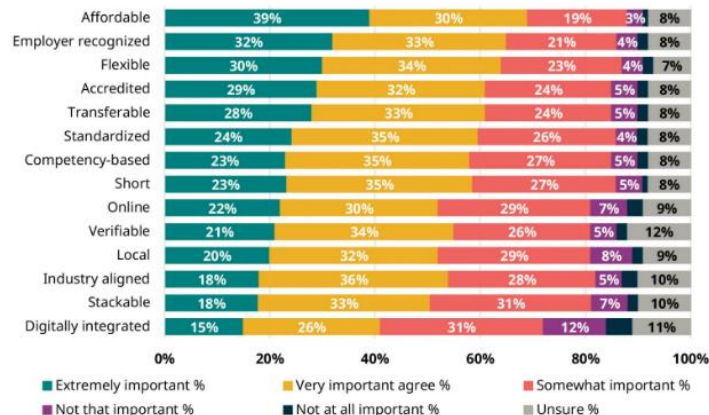
Released by the Higher Education Quality Council of Ontario (HEQCO) earlier this month, **"Making Sense of Microcredentials"** reveals what this emerging training trend means from the perspectives of three key stakeholder groups: universities and colleges, prospective students and employers. The 32-page descriptive research report is based on the results of a literature review, 44 interviews (17 with postsecondary schools), and 2,362 surveys, which included 161 representatives from 105 postsecondary institutions, including 41 universities.

The postsecondary survey, which was conducted last November and December, revealed that 51 per cent of respondents were already offering microcredentials. Also, 83 per cent said their institutional leadership was encouraging the development of microcredentials, though less than 40 per cent said they had a framework or strategy in place. As well, 62 per cent said the pandemic has accelerated the need for these sorts of programs.

Key Features of Micro-Credentials



Employer Survey: Imagine you came across a microcredential on the application of a job candidate. How favourably would you consider the following features of that microcredential? (n= 151). Image courtesy of HEQCO.

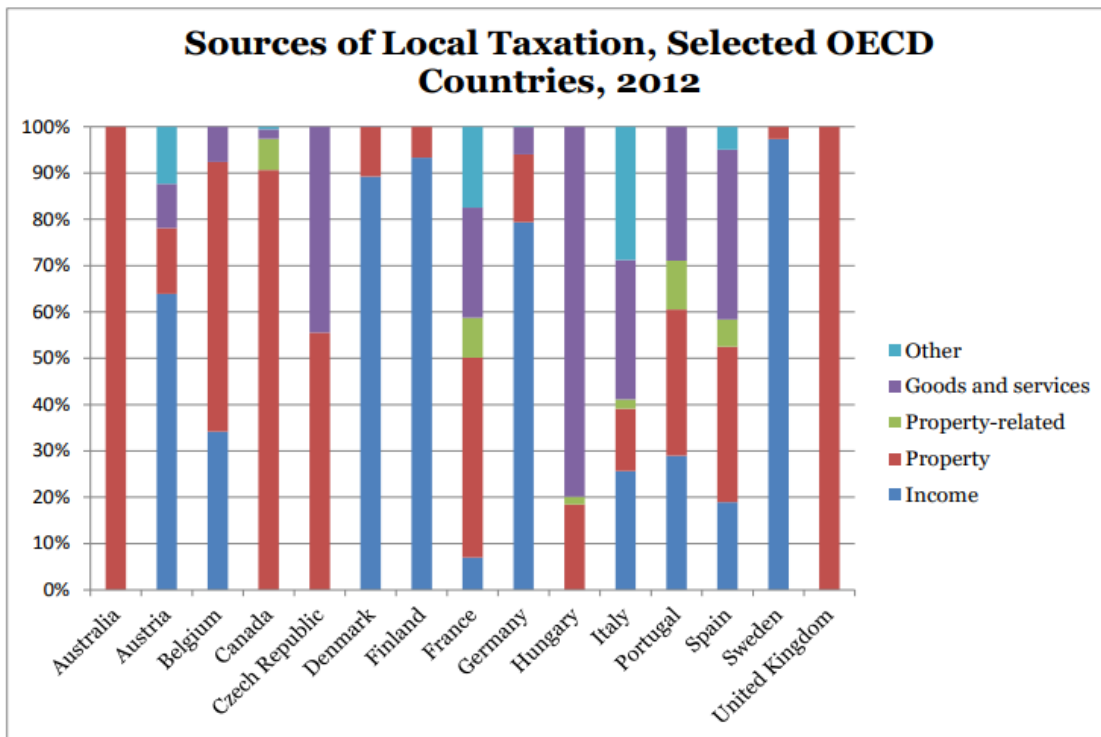


Survey of Canadians: How important are each of the following potential characteristics of a microcredential? Image courtesy of HEQCO.



Key Challenges for Cities Today

Key Challenges for Cities: Revenues



Source: OECD (2014) Revenue Statistics, 2011-2012.

- More than 80% of local tax revenues from property taxes in Australia, New Zealand, Ireland, UK, Canada, US
- More than 80% of local tax revenues from personal and corporate income taxes in Sweden, Germany, Switzerland
- Sales taxes are levied mainly by cities in the US
- Mix of taxes in Spain

Key Challenges for Cities: Revenues



Figure 21: Taxes in Major International Cities

Taxes	Toronto	New York	Paris	London	Madrid	Berlin	Tokyo
Property / Land	x	x	x	x	x	x	x
Land Transfer*	x	x	x			x	x
Billboard	x						
Sales / Value Added*		x			x	x	x
Personal Income*		x			x	x	x
Business Income		x	x		x	x	x
Vehicle		x			x	x	x
Other taxes		18	5		3	16	12

*In some instances, shared with senior orders of government.

- Limited sources of revenues
- Fiscal responsibilities for social housing and public transit state of good repair costs
- User fees have been negatively impacted by COVID-19
- Senior government transfers are not reliable
- Staff salaries and wages account for 40% of spending

Key Challenges for Cities: Toronto's SOGR Backlog



**\$23 Billion and
Growing**

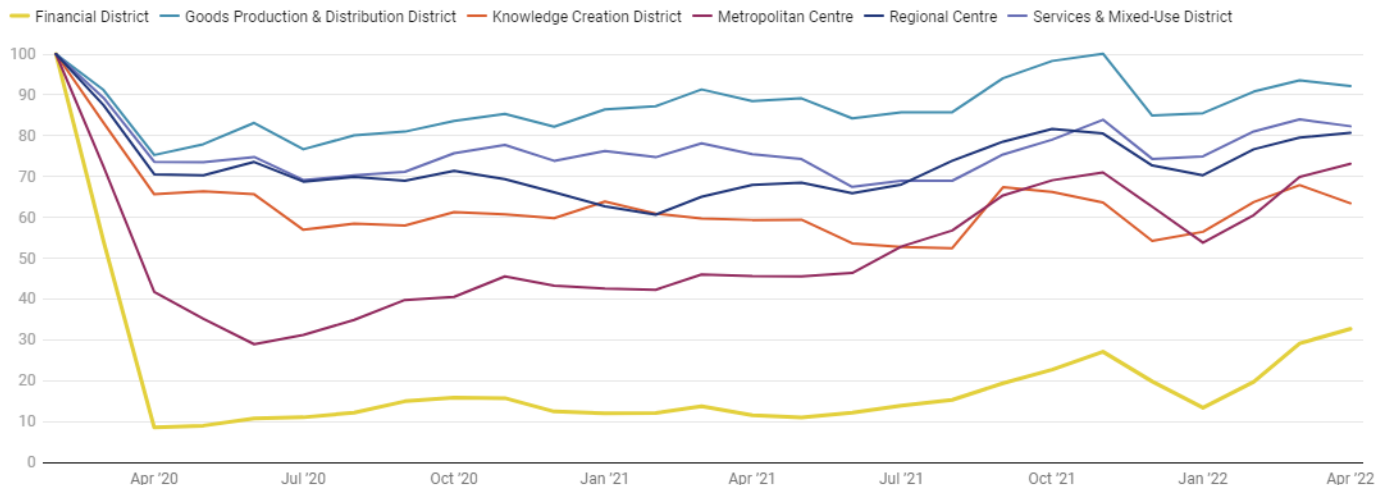
Key Challenges for Cities: Not Fully Recovered



Weekday Workers Volume (Indexed)

Toronto Region Board of Trade Recovery Tracker

Average weekday workers volume by destination. Indexed to Feb 2020 = 100. Innovation Corridor. Feb 2020 - Apr 2022.



The analysis excludes residents and non-worker visitors in the area analysed. Workers were only counted if they spent a minimum of three hours in the area. All data used by TELUS Insights is fully de-identified meaning it cannot be traced back to an individual. It is also aggregated into large data pools; ensuring privacy is fully protected at all times. The TELUS Insights platform uses privacy protective methodologies; has achieved Privacy by Design Certification.

Source: TRBOT analysis of Telus Insights data • [Download image](#) • Created with [Datawrapper](#)

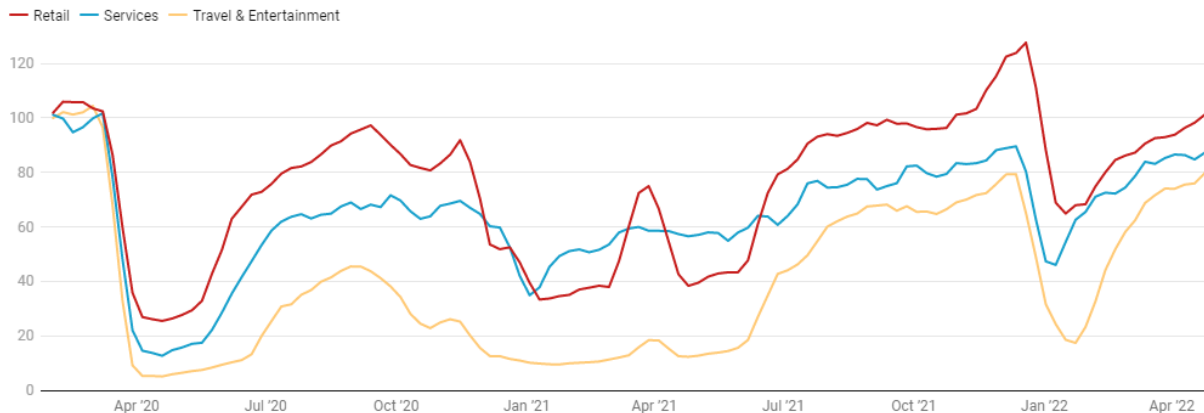
Key Challenges for Cities: Not Fully Recovered



Consumer Spending, In-person (Metropolitan Centre - Indexed)

Toronto Region Board of Trade Recovery Tracker

Weekly in-person transactions by spending category. Indexed to first week of Feb 2020 = 100. Three-week moving average. Innovation Corridor. Feb 2020 - Apr 2022.



Dates for consumer spending data are reported based on the start of the retail sales reporting week, which starts on Sunday. Consumer spending data corresponds to changes in weekly transaction dollar volume. In-store transactions are represented by 'card present' transactions recorded by Moneris. In-store transactions that are recorded as 'card not present' transactions are not included. Moneris-acquired credit and debit transaction data are included. Moneris indexed volumes use chained indexing; merchants are counted if they are active in consecutive weeks. Powered by [Moneris Data Services](#).

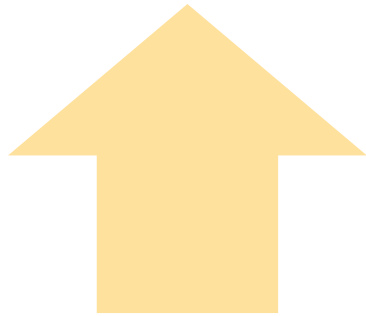
Source: [TRBOT analysis of Moneris data](#) - [Download image](#) - Created with [Datavrapper](#)

What Are Intelligent Cities?



- Intelligent cities use information and communication technology (ICT) to improve operational efficiency, share information with the public and provide a better quality of government and citizen services.
- Application of ICT to solve for major public policy issues in cities like Transit Electrification and Government Services Digitization to Canadians.

How Can Intelligent Cities Help?



1. Transit
Electrification



2. Government
Services Digitization
& Complex
Procurement

How Can Management Consultants Help?





Case Study 1: Transit Electrification

Transit Solutions to Address Climate Change...



Green House Gas emissions are rising and we are still using diesel buses and trains.



Many cities including City of Toronto are looking to bring in electric buses.





Case Study 1: Transit Electrification



- **Economic case for electrification of public transit in major metro areas like Toronto**
- **Transit-related congestion accounts for 1/3 of GHG emissions**
- **Funding opportunities around electrification of public transit at municipal levels**
- **Support needed around investing EV charging infra as well. City of Toronto example**



Case Study 1: Transit Electrification



**15,000 Buses in Canada
But only 160 are
electric**

By 2025, 33% need to be electric

By 2030, 55% need to be electric

Case Study 1: Transit Electrification



“

“That’s a huge transformation for us. Even though nine years to 2030 seems like a long time, it’s a marathon at a sprint pace.”

–Daniel Hesse, head of new mobility, BVG

EV Trends in Canada



Canadians hot on EVs;
cold on charging ability

KPMG in Canada poll

71%



would consider buying
an EV the next time
they buy a vehicle

49%



would buy an EV
made by a major
tech company

79%



won't consider an EV unless
it can run at least 400 km on
a fully charged battery

**“I’d like my next
vehicle to be an EV,
but I have nowhere to
charge it.”**

**Resident in Ward 19
(Beaches-East York).**

Source: KPMG in Canada Auto Poll Survey 2022

EV Charging Infrastructure is Key



"As the automotive industry continues its shift in focus to electric vehicles, it is critical that we lean into electrification now. Toronto Parking Authority will continue to show leadership in this area and invest in the infrastructure needed to accelerate EV adoption by B2C and B2B customers."

- Jeffrey Dea, VP of
Business Development



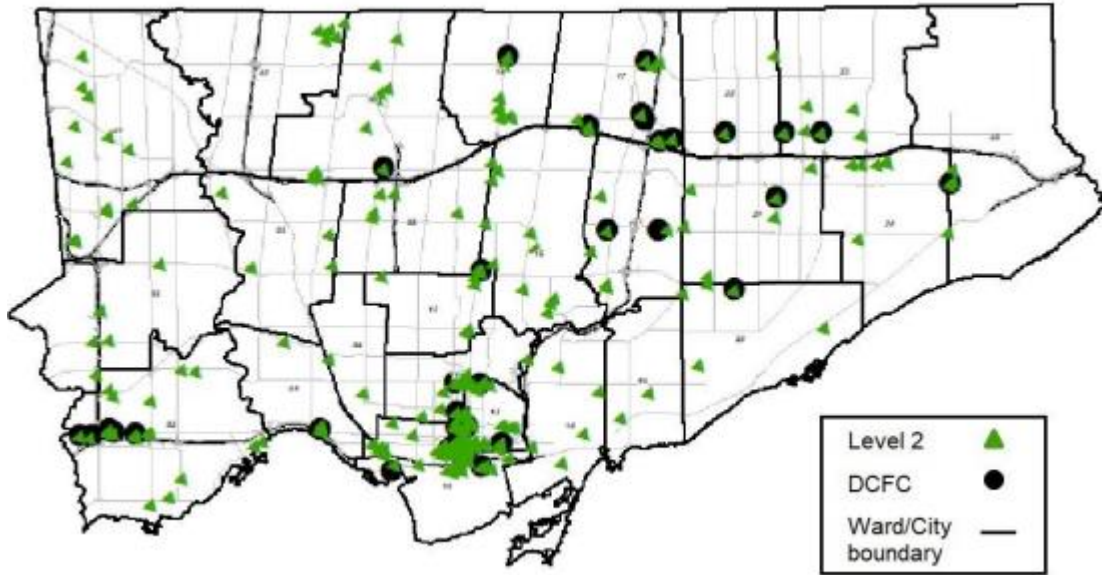
Case Study 1: Transit Electrification



**30% of cars in Toronto
should be electric by
2030**

Only 2.4% of cars in Toronto are EV

Case Study 1: Transit Electrification



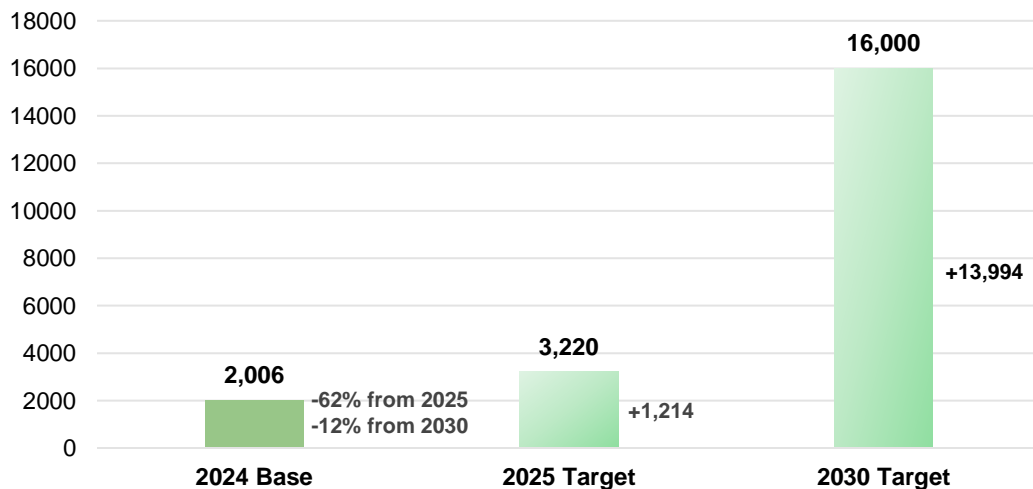
- There are 1,348 publicly-accessible charging stations in Toronto. This includes 1,232 Level 2 and 116 Level 3 (DCFC) charging stations.
- Toronto currently has 0.20 per 1,000 residents.
- This is significantly behind San Jose, California with roughly 2.9 public charging stations per 1,000 residents.

Source: Update on Electric Vehicle Strategy Implementation, City of Toronto, June 22, 2022

Progress Needs to Be Accelerated to Meet Toronto's 2025 and 2030 Targets



How Far From Target?



- This chart presents a good overall picture of where we need to be between now and 2030.
- We need to grow from 1,348 today to 16,000 by 2030.

Significant Investment is Required!



Equipment & Installation Costs per EV Charging Station
(Shown as a Range)



- High capital funding requirements
- Complex site selection criteria
- Approval of higher usage fees to generate operating revenue



Case Study 2: Government Services Digitization & Complex Procurement

Case Study 2: Government Services Digitization & Complex Procurement



75% say government services should be accessible online instead of in-person

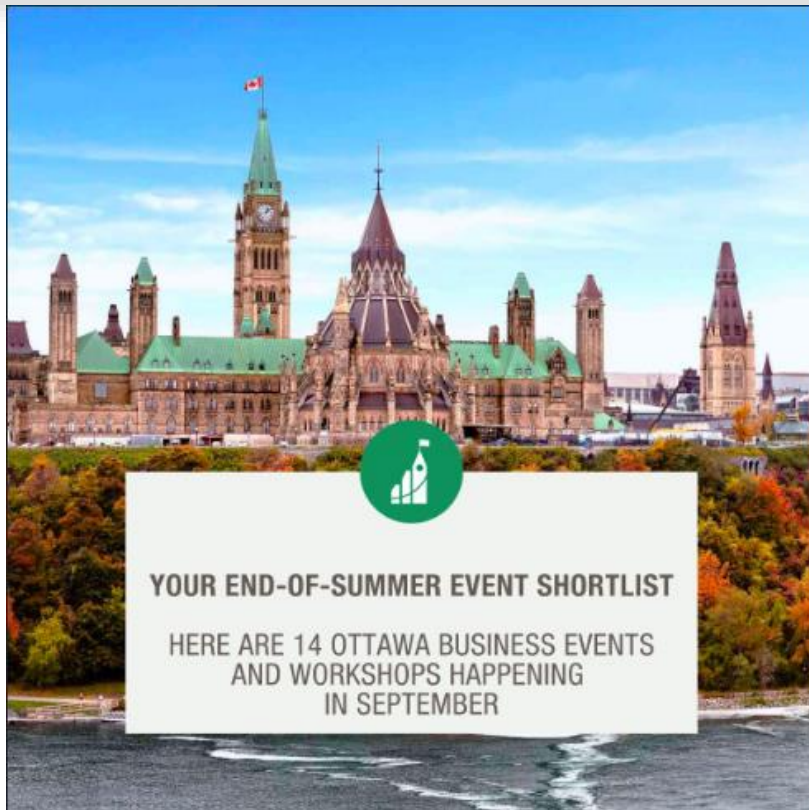
50% agree it is more important now than pre-COVID-19 to access health and government services , such as renewing a driver's license and registering for benefits, online

Case Study 2: Government Services Digitization & Complex Procurement



- Federal Government alone spends close to \$9 billion annually on IT-related procurement in both products and services
- Strong believe that government should be in the business of delivering core services to Canadians and “buying not building”
- Economic development opportunity for SMEs, 97% of firms in Canada are SMEs, 44,000 are in the ICT sector
- There is a strong push to reform procurement opportunities to focus on agile approaches and include various suppliers like micro businesses and minority-led businesses in the procurement mix. What can management consultants do?
 - Help navigate procurement processes
 - Help with funding applications
 - Be part of [buyandsell](#) database
 - Build strong business case to adopt new [technology solutions](#)

Case Study 2: Government Services Digitization & Complex Procurement



- **Invest Ottawa** offers over 14 webinars this Fall. Don't forget to register for specific themes like doing business with the Government of Canada
- **Sep 15: Doing business with the Government of Canada (Webinar)** by Procurement Assistance Canada
- **Sep 22: Bidding on opportunities (Webinar)** by Procurement Assistance Canada, National Capital Region

Summary



- **Emphasize continuous learning, professional development and networking**
- **Intelligent Cities would greatly benefit from support of management consultants**
- **Management consultants need to stay on top of global macro trends like transit electrification and digitization of government services to be successful**
- **Management consultants can help navigate complex procurement processes and help with funding applications**



CONTACT INFORMATION

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About Sigma Helix



- Our mission is to work with clients to help them excel and deliver on their vision in a sustainable and consistent way one step at a time.
- We are a boutique management consulting firm based in Toronto.
- Our advisory services include business case analysis, survey and data analytics, government relations, project and event management, and strategic planning.
- We work with local entrepreneurs and scale up companies, government and NGOs.
- We developed deep expertise in technology, professional and social services, transportation and logistics and advanced manufacturing sectors.
- Client references are available upon request.
- For more information visit: www.sigmahelix.org.

About Natasha Apollonova



1

Economic Consulting, Market Intelligence, Risk Planning
(MDB Insight, BDO Canada, IHS Markit, TD Bank, Deloitte)

2

Policy and Advocacy
(TECHNATION, Toronto Region Board of Trade)

3

Strategic Planning, Operations, Program Management
(tech, agri-business, transportation and logistics)

4

Stakeholder Engagement
(governments, not-for-profits)

5

Market Intelligence, Data Insights
(advanced manufacturing, professional services)



Natasha Apollonova
Co-Founder, Sigma
Helix
PMP and Ec.D., EDAC

Sigma Helix



1

Financial Services, Capital Markets, Risk Management
(Canadian Imperial Bank of Commerce, OPTrust)

2

Software Architecture, Engineering and Development
(IBM Risk Analytics, Telelogic AB)

3

Strategic Planning, Operations, Program Management
(financial services, IT, data analytics)

4

Data Acquisition, Modeling and Analytics
(financial, operational, benchmarks)

5

Governance and Controls
(advisory services)



Victor Mozgin
Co-Founder, Sigma Helix

#1: Business Case Analysis



- **Sigma Helix creates frameworks and models to help clients analyze different scenarios. Sigma Helix also develops risk analysis frameworks to identify and manage risks during project implementation phase.**
 - ❑ **The Canadian Urban Transit Research & Innovation Consortium (CUTRIC) is a socially responsible non-profit organization that supports the development and commercialization technologies required for a 21st century low-carbon green economy.**
 - ❑ **Sigma Helix helped CUTRIC to assess project risks and economic impact of the Zero Emission Bus project implementation on behalf of London Transit Commission.**

#2: Survey and Data Analytics



- **Sigma Helix designs sentiment and analytical surveys to gather and analyze stakeholders feedback around key areas of strategic interest. Sigma Helix conducts SWOT analysis and develops strategies to help clients build on strengths and overcome weaknesses.**
 - ☐ **The Canadian Urban Transit Research & Innovation Consortium (CUTRIC) is a socially responsible non-profit organization that supports the development and commercialization technologies required for a 21st century low-carbon green economy.**
 - ☐ **Sigma Helix assisted CUTRIC with benchmarking and member surveying and stakeholders outreach.**
 - ☐ **The goal of the project was to undertake 2021 CUTRIC membership pulse check and to prepare recommendations which will serve as key input into future strategic plans.**
 - ☐ **Phase I was completed earlier (May-June 2021), and involved benchmarking of the peer organizations.**
 - ☐ **Phase II adds a new component of surveying member organizations with respect to key areas of interest. Sigma Helix conducted 15 stakeholder interviews to gather additional insights.**

#3: Government Relations & Project Management



- Sigma Helix creates and enhances client relations with government and public sector institutions and helps identify procurement opportunities for their products and services.
 - ❑ Led a federal advocacy campaign on behalf of 250 TECHNATION members resulting in [Roadmap for Sustained Growth in Canada's Tech Sector](#) which summarized member policy views in a single document.
 - ❑ Developed and delivered on key priorities on behalf of TECHNATION's members including procurement modernization, agile procurement and ScaleUp with Shared Services Canada, and connected over 600 tech companies to [Canada's Digital Marketplace](#) to increase sales.
 - ❑ Developed technology roadmap and project management plan to grow the number of tech companies on [Canada's Digital Marketplace](#) from 140 to 600 and enhanced platform features. This SaaS platform raised awareness about Canada's tech ecosystem among government stakeholders and facilitated challenge-based procurement resulting in 10 agile solicitations being awarded to Digital Marketplace members.



Questions

Please type in the chat





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