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Another victim of COVID-19: The municipal status quo?

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Introduction

Before the pandemic, some projected that disruptive technologies and artificial intelligence (AI) – and the new processes they hatch – might eventually change the world as we know it. COVID-19 lockdowns and workforce displacement have now accelerated those ‘over the horizon’ trends, yielding rapid and widespread acceptance in fields from retail and food-service to the working worlds of business, government and healthcare. Will municipal government go ‘back to normal’?

Are municipal governments being complacent, believing that fundamentally, the future will be much like the present? Can they largely control their fates? History might tell them not to worry. After the pandemic, maybe they should worry. The old world of municipal government is unlikely to be restored. As Yogi Berra and country music’s Ronnie Milsap both warned us: “The future is not what it used to be.”

A decade ago, the media highlighted a study by Oxford University’s Frey and Osborne, which speculated that fully 47% of existing jobs in America were at risk of being automated. At the time, many dismissed that prediction. With the effects of the pandemic all around us, however, we should look more closely at what those Oxford scholars actually did predict and how that might play-out after the pandemic, especially in the municipal world. Swedish economist Carl Frey later clarified that jobs *could* be automated, not that they *would be* – nor when automated, that they will disappear.¹ In fact, those scholars argued that the degree of displacement would not depend solely on the pace of AI, robotics and machine learning, but also on the cost, regulatory concerns, political pressure and social resistance.²

Many concluded that the Oxford scholars were talking about store clerks, stenographers, travel agents, realtors, car sales-people and assembly-line workers; certainly not professionals and government employees. The notion that municipal functions could be replaced by either machines or re-engineered processes still seems far-fetched to most. Lawyers, planners, snowplough operators

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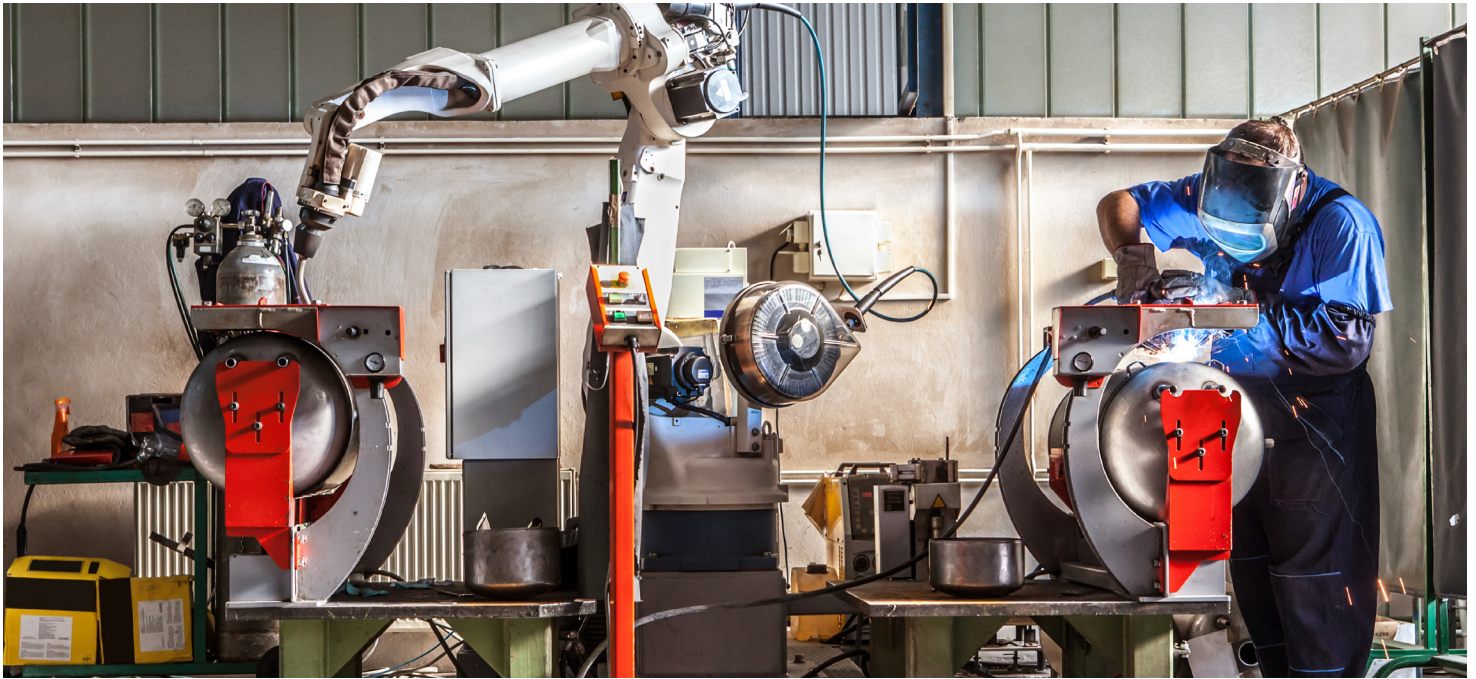
and firefighters would appear to be immune, especially in a local monopoly bolstered by high rates of unionization and constrained by limited technology-investment budgets.

There is also a tendency to see productivity-enhancing impacts on the municipal labour-force as being found primarily in functions that have already seen the benefits of technology and process re-engineering. Examples from the past come readily to mind: road re-paving, meter-reading, building-inspection, on-line payments and program-registration. It’s understandable to look to the past, for context – but it is likely not the shape of the future.

The effects of AI, automation and process re-engineering will not be an abrupt change in the number or type of municipal employees, nor a wholesale transfer of ‘municipal jobs’ to external providers. In practice, AI does not necessarily displace jobs, but rather it changes them fundamentally, by making them more productive. Referencing Daniel Susskind’s book, “The Future of the Professions”, *The Economist* explains this important distinction:

“In the past the relationship between machine and human labour has been driven by two

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factors: the substitution effect, which caused people to lose jobs, and the complementing effect, which allowed employees to do their work more productively.”³

There is often a lag-effect, as organizations gradually find ways to use new technology and as productivity improvements begin to embed themselves. “One [of the lessons of history] is that new technologies take time to produce productivity and wage gains...a delay known as Engel’s pause...”⁴ This doesn’t mean that dramatic change is not coming the municipal stage, nor that the first round of changes will be the most significant, even if some in the workforce fear that. It is just the ‘opening act’ in a multi-stage process.

The StrategyCorp Institute’s “Future of Ontario’s Workers” White Paper illustrates the profound but deceptively incremental workplace effects of technological change:

“When the Automated Teller Machine (ATM) was deployed in the United States, the number of bank tellers employed actually increased for several years as banks trained their tellers to perform more tasks than just cashing cheques or processing cash withdrawals. When the services offered by the ATM and tellers were combined, a bank branch could offer more to customers with fewer or the same complement of staff. Between 1991 and 2007, branches became cheaper to operate as one teller could effectively do more than ever before, including

other revenue generating activities. During this time, more bank branches opened across the United States despite the main activity of cash withdrawals being automated. That trend of bank branch openings was only reversed when, ironically, most banking transactions were again automated through online banking.”⁵

“For instance, the McKinsey Global Institute estimates that the invention of the personal computer eliminated 3.5 million jobs. However, since 1980, it created 15.8 million net new jobs. The jobs directly eliminated by the computer included typists, secretaries, and bookkeepers. The jobs the computer created were computer engineers, information and technology specialists, and software designers. Essentially, the computer eliminated semi- or mid-skilled jobs and in turn created a new set of high-skilled positions. The computer therefore single-handedly widened the overall skills gap.”⁶

Ultimately, some functions will simply be automated, or disappear through work shifting to other providers. The experience of a large Netherlands pension-fund assets manager reflects this sobering possibility:

“Dutch pension asset manager PGGM is to shed up to 25% of the workforce of its administrative unit by 2026. The planned staff reduction is the result of the departure of two clients and the replacement of manual tasks by robots, which is meant to cut costs.”⁷

COVID-19's impact on municipal government



The past year has been harrowing for everyone, but for many municipal governments, the damage from the pandemic may not have been as great as initially feared. Even with the human toll in municipal long-term care homes and huge transit-revenue losses, the effects of COVID-19 have generally been well managed by municipalities. Financial aid from the government of Canada and its provincial counterparts has cushioned many of the 2020 impacts, even in heavily-affected functions like public health, transit, social services, public recreation and notably, municipal long-term care homes.

It is less clear whether disruptive changes in local economies and the finances of 'senior' levels of government will translate, in years to come, into a fiscal and economic echo-effect on local governments and other broader public sector entities. A few municipal leaders worry about those prospects, while many others appear not overly concerned, focusing on near-term 'recovery' issues.

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Given the unique position of municipalities, it is not surprising that there is a degree of municipal complacency. Municipalities may believe that they are inoculated against the economic and social trends swirling around them. The services that municipalities provide are essential to community life and well-being. Municipal governments are a public monopoly – the 'only game in town' – with the power to tax and to enforce collection of arrears, even in a recession. They have other governmental powers: their planning decisions can curtail property rights; their regulatory decisions can control commercial activity.

In an age of distrust of government, the public respects municipal government and feels it can hold municipal councils directly accountable. This reality makes municipalities (and their politics) very 'customer-focused'. The imperatives and direct political influence of well-established community groups and public-sector trade unions reinforce the precedents of the past as the recipe for the responding to the future.

To the business world, municipal governments in Canada would likely be seen as 'conglomerates', operating many unrelated "lines of business". Indeed, their range of services is likely wider than any private corporation. If municipalities were developing 'customer satisfaction' surveys, they might need to list sixty or more distinct municipal programs and services.

AI comes to “city hall”



So how might disruptive change come to city hall? The answer is likely as a myriad of gradual and diffuse changes, in each of its many services, but aggregating and accelerating to produce a much different municipal corporation than the one we see today. Much as the internet, the smartphone and social media quickly transformed everything in the first decades of this Millennium, the changes from AI, machine-learning and automation will be hard to predict and difficult to manage, but impractical to resist.

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The test will be whether AI will transform municipalities into more integrated, community-responsive, effective and efficient organizations. Or, will the wave of AI and other innovations impose unwelcome changes on unreceptive municipalities and a workforce with a diminished role? That choice will largely be made at the top of the municipal organization.

The municipal chief administrative officers (CAOs) and city managers charged with leading these reforms will need to oversee the implementation of a wide array of changes, within an overall goal of sustaining municipal government and its public support. They will need to develop a ‘change agenda’ that understands the destination, if not always the route, while enlisting those who will be affected.

One challenge these changes present to municipal leaders is not to relapse into ‘siloed’ organizational behaviour, reinforced by specific AI applications and other new technologies and processes. AI should be seen by senior municipal administrators as an opportunity to integrate further the policies and the delivery of services across the organization. This may be achieved by identifying common service-delivery characteristics (frequency, geographic location, seasonality trends) across programs, rather than viewing AI as a service-specific or task-specific tool.

Implementing municipal AI



How can CAOs tackle this important work in an uncertain environment and in the likely face of employee and union resistance? How are big, complex, transformational changes successfully implemented? Global consultancy McKinsey and Company outlines one approach:

“Many best-in-class organizations build a lighthouse – that is, they implement 10 to 15 use cases within one organizational unit or focused upon one topic. The concentration delivers change that can be seen, not incremental improvements, and so builds support for broader adoption.”⁸

To the McKinsey observation, we could add that unlike competitive businesses, municipal governments also freely share ‘best practices’. If one municipality succeeds with an innovation, it will celebrate it and many others will quickly follow. More than competitive businesses, however, municipalities face obstacles like fear of failure and reluctance to change, which can impede reform.

The roadmap for change in local government may be an incremental route, while still reaching the destination. CEO Jan Carlzon, who turned Scandinavian Airlines from among the worst to one of the world’s best,

applied what he called ‘the Rule of 1%’. Carlzon argued that it is easier to make an organization 100% better by effecting one hundred 1% improvements, rather than trying to force through two 50% improvements. Understanding human nature, he asked people to make small, acceptable changes, rather than demanding major changes.

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Taking full advantage of AI’s potential would help municipal administrators to identify commonalities across services (whether delivered directly, or through third parties, or by complementary community organizations) that were never imagined in the past. These complex inter-relationships might be uncovered in areas ranging from solid-waste recycling or changing socio-economic characteristics of neighbourhoods, through to the ability to predict development-application

cycles based on broader economic trends. For those municipalities with responsibility for health and social services functions, being able to discern patterns and outcomes would make a contribution to building thriving communities.

Shifting the focus from external to internal considerations, AI could assist municipal administrators to predict the municipal corporation's human-resources patterns and requirements, in areas like attendance-management, staff-turnover, eliminating hiring biases, and managing employee-benefit programs. In addition to optimizing organizational performance, data from AI analytics would support more productive and evidence-informed collective bargaining.

Regardless of the implementation strategy employed, municipal government reform is on the horizon. In each of dozens of municipal services and programs, artificial intelligence will distill and implement best practices, making outcomes predictable, consistent and timely. Machine-learning will refine repetitive procedures and predict optimal maintenance requirements. Automation and robotics will make blue-collar workers more productive, up-skilling them on complex equipment and analytical software, and lessening the demand for peak-period staffing and semi-skilled positions.

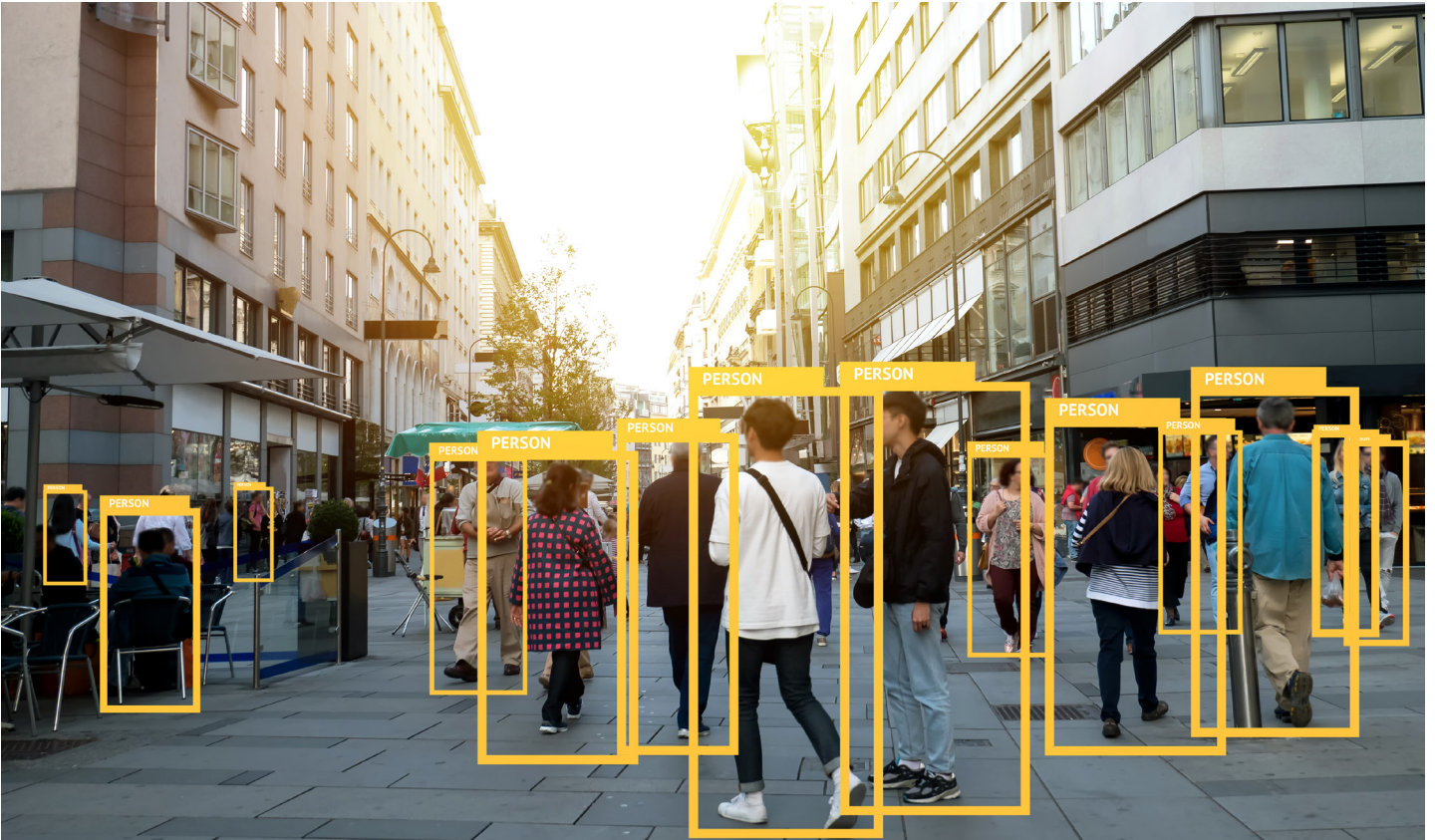
Deep-learning capacity means policy options can be modelled to predict outcomes, lower unit-costs and reduce the number and complexity of transactions, with implications for those administering existing policies and programs. For example, if tax-expenditure programs like 'guaranteed minimum income' and child tax credits move larger numbers off social assistance, the nature and focus of income-support administration and social work changes fundamentally.

Stanford University's benchmark study on AI sums it up crisply:

"As AI substitutes for human roles, some jobs will be eliminated and new jobs will be created. The net effect on jobs is ambiguous, but labor markets are unlikely to benefit everyone evenly. The demand for some types of skills or abilities will likely drop significantly, negatively affecting the employment levels and wages of people with those skills. While the ultimate effects on income levels and distribution are not inevitable, they depend substantially on government policies, on the way companies choose to organize work, and on decisions by individuals to invest in learning new skills and seeking new types of work and income opportunities. People who find their employment altered or terminated as a consequence of advances of AI may seek recourse in the legislature and courts..."⁹



Patterns of 'disruptive change'



Technology may indeed cause major changes, but not always how we anticipated when the trends started to emerge. This repeats a pattern that municipalities have seen before. In the last decade of the 20th century, the price of personal computers dropped dramatically as their functionality grew. Moore's Law overcame the barriers to processing capacity and data storage, making it possible to do things on desktop computers that previously required a 'dumb terminal' connection to a mainframe computer and a lot of programming. Intuitive software also eliminated the need to understand coding and computer languages to make productive use of computer processing capacity, just as a half-century earlier, drivers no longer needed to understand what happened under the hood.

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Early on, municipalities recognized the value of digitizing data and GIS mapping, both for their own purposes and for processing development applications. It required labour-intensive data-tagging, as teams of graphics technicians and data-entry clerks plotted property boundaries and water lines on mainframe digital maps and populated financial databases. Then just as suddenly, digitizing software and storage capacity advanced, allowing laborious plotting and data-entry to be done automatically and by batch, with a light-touch of monitoring and quality control.

The internet gave those same personal computers free access to the world of information. The ubiquitous smartphone (and its camera), less reliance on established in-house experts, and same-day cycle-times on public issues combined to collapse the regular monthly and weekly cadence of scheduled council meetings and staff reports, into days or even hours. The views of social media and its bloggers came to rival the shrinking municipal coverage from mainstream media.

These patterns are set to repeat themselves in municipal government.

Commercial innovators will use these new technologies and processes to create more sophisticated applications and offer them to wide audiences, including municipal clients. Much as they have with capital construction, payroll management and computer software, municipalities may discover that it is more practical and efficient to have companies with deep pockets and hundreds or thousands of clients make the big investments and take the development and operational risks. For example, why maintain your own expensive back-up servers, when “the cloud” can do it for you securely, at a fraction of the price and risk?

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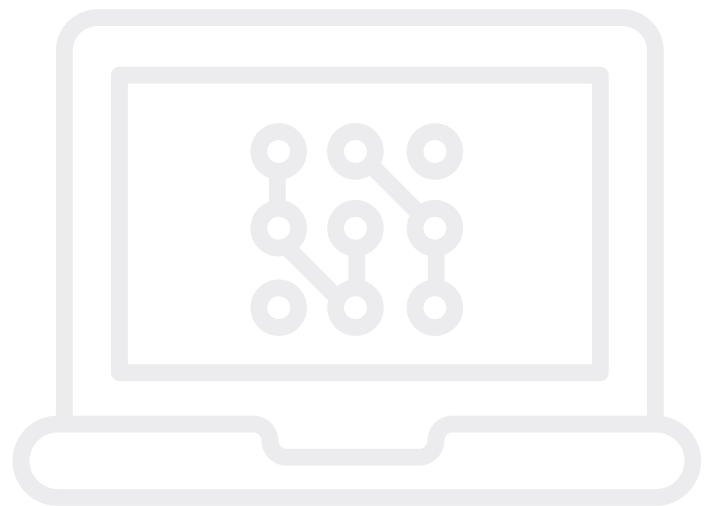
Not all parts of the municipal workforce, however, will be affected equally or at the same pace. Some projections make a clear distinction between impacts on “city hall” or purely ‘municipal’ functions, when contrasted with other functions, like utilities, public safety, transit, medical response or care for the elderly. Many individual services and programs will prove to be efficiently and effectively provided by a range of public, private and non-profit providers, at a range of costs and paid by a variety of means.

As the Stanford University AI ‘think tank’ explains:

“To be successful, AI innovations will need to overcome understandable human fears of being marginalized...Changes in employment usually happen gradually, often without a sharp transition, a trend likely to continue as AI slowly moves into the workplace. A spectrum of effects will emerge, ranging from small amounts of replacement or augmentation to complete replacement. For example, although

most of a lawyer’s job is not yet automated, AI applied to legal information extraction and topic modeling has automated parts of first-year lawyers’ jobs. In the not too distant future, a diverse array of job-holders, from radiologists to truck drivers to gardeners, may be affected.”¹⁰

For the municipal workforce, it is unlikely that the reform process would entail simply reducing the size of the work-unit by introducing new technology, at least in the near term. In this respect, the introduction of AI and new technologies is different from the pattern previously seen in public works and parks functions. In the past, new technology – the rear-loading garbage truck, the riding mower or the paving machine – improved productivity by reducing the number of staff required to spread asphalt, cut grass, or collect solid waste. AI may run parallel to existing municipal workforce activities, by offering an alternative delivery mechanism (e.g., on-line self-service, vs. in-person “counter service” by a municipal employee).



Rethinking the municipal role



AI may also provide capacity or proprietary processes unavailable within the municipal staff establishment. That capacity may be too costly for an individual municipality to develop and maintain because of scale, analytical constraints, regular technological advances, and/or security requirements. As the Stanford University AI group explains:

“AI is poised to replace people in certain kinds of jobs, such as in the driving of taxis and trucks. However, in many realms, AI will likely replace tasks rather than jobs in the near term, and will also create new kinds of jobs. But the new jobs that will emerge are harder to imagine in advance than the existing jobs that will likely be lost. AI will also lower the cost of many goods and services, effectively making everyone better off.”¹¹

Although there are examples of well-executed public-private partnerships (P3s) and privatizations, wholesale transfer of functions will not likely be the first recourse when modernizing municipal services. Unlike the past, the reform and modernization processes – including achieving economies of scale – may not start with big institutional mergers or regional special-purpose bodies. Changes to the municipal workforce may come initially as incremental improvements to productivity and innovation. Citizens will begin to demand from their municipal governments what they have come to enjoy as digital consumers, and as enhanced business-to-business expectations begin to permeate the public sector.

Is AI the problem – or the solution?



Through its application within the organization, or by third parties that are engaged by or work with municipalities, AI should be embraced for its positive potential for enhancing the work of the public service.

Public expectations for more customization and responsiveness may mean that the volume of work and the range of services does not diminish. The real change may occur in how – and by whom – those services are delivered. The public assessment of community services will continue to be availability, quality and cost – with the addition of an element of choice. But the electoral test may become: “Does the municipality ensure community services are readily available, at a reasonable level of quality and cost?” rather than: “Are community services delivered by the municipal corporation or by a municipal workforce, and funded by property taxes?”

Just as municipalities live in a complex and multi-functional environment of shared-cost and shared program delivery, introducing AI and its analogues will have intergovernmental and inter-departmental dimensions and manifestations (and many negotiations). As noted above, municipalities are well positioned to advance the development and viability

In practice, this will mean refocusing away from the delivery of discrete services, in favour of leveraging municipal government as the order of government best able to ensure an effective, community-scale interplay among economic, social/health and environmental challenges and priorities.

of sustainable and thriving communities. In practice, this will mean refocusing away from the delivery of discrete services, in favour of leveraging municipal government as the order of government best able to ensure an effective, community-scale interplay among economic, social/health and environmental challenges and priorities. Capitalizing on tools like AI, municipal governments can restructure their bureaucracy and promote more lateral thinking, collaboration and ‘cluster’ approaches to developing healthy, prosperous communities.

That fundamental shift, driven by AI, has significant implications. AI will demand answers to questions like these...

- Will municipalities increasingly become contract administrators, rather than service-delivery agents, aided by better procurement practices and risk-management capacity?
- Will regulatory and licensing activities be more automated and standardized, much as we see with (say) Canada Revenue Agency?
- When some municipal government work is shifted to sophisticated specialized providers, what does that mean for local political accountability or for meeting pension-plan obligations funded by municipal employees and employers?
- Will the cost, predictability and cycle-time for land-use planning, construction and business licensing approvals be improved?

- Will the capacity to do more – and to do it faster – change the parameters for the size, tax burden, allocation of functions and geographical ‘footprint’ of individual municipal governments?
- How must collective bargaining (and interest arbitration) need to change to anticipate and accommodate these unavoidable impacts on the municipal employee and the municipal workplace?

While many in the municipal world may understandably view AI with apprehension, with good risk management and visionary leadership, it could be a key to future success for Canada’s communities.

All of these issues will emerge sooner than we expected, as result of the acceleration of change brought about by the COVID-19 pandemic. Municipal leaders will need to have answers for them sooner than they may have anticipated.



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