Adoption Ready?

The AI Exposure of Jobs and Skills in Canada's Public Sector Workforce

Graham Dobbs, Vivian Li, Viet Vu and André Côté | August 2025

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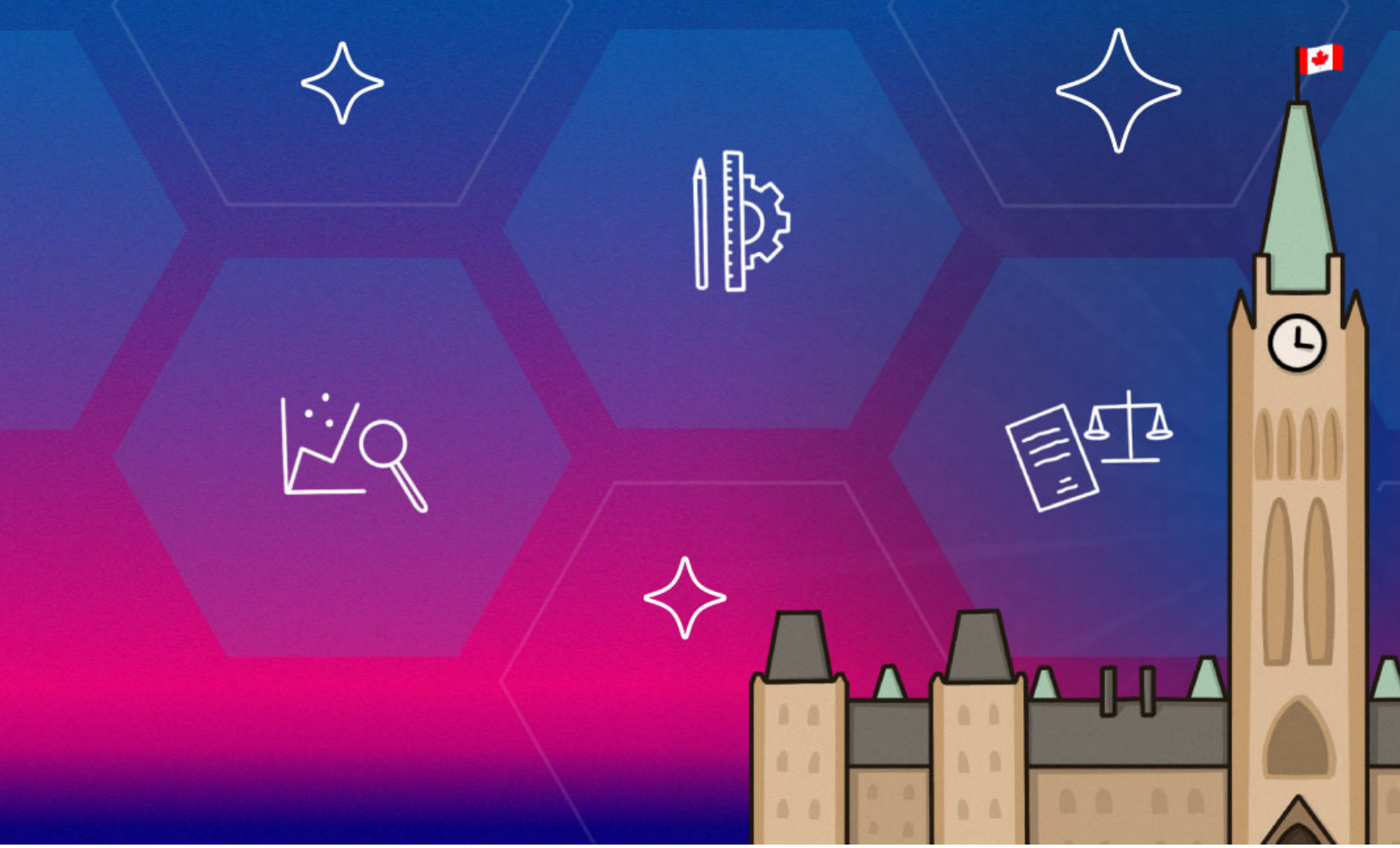

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Foreword

The world of work is at an inflection point. Across Canada, governments at every level are grappling with the implications of artificial intelligence (AI). As this report makes clear: AI adoption in the public sector is not a matter of if, but when and how. With nearly three-quarters of public sector jobs already highly exposed to AI, and a significant number of people in roles where current AI technologies could substitute core tasks, the decisions we make today will determine whether AI transformation will strengthen public service capacity or leave critical gaps.

At the Future Skills Centre (FSC), our mission is to ensure Canada's workforce is equipped not only to adapt, but to thrive in the face of change. We recognize the transformative opportunity that AI represents – including the potential to improve service delivery, boost productivity, and unlock new ways of meeting the complex needs of Canadians. In order to realize these benefits, AI adoption will need to be intentionally thoughtful and designed with equity in mind. This will require not just technology, but also skills.

The public sector's scale, diversity, and impact make it a proving ground for responsible AI adoption in Canada. If we can embed AI in a way that enhances - not replaces - the judgment, empathy, and expertise of public servants, we will not only modernize our institutions but also strengthen public trust.

This report offers a clear-eyed view of both the risks and opportunities of AI, and offers a roadmap for navigating the road ahead. The Future Skills Centre is proud to support this work, and we believe that AI adoption in Canada's public sector can become a model for sustainable, inclusive and skills-led transformation across the country.

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1 Executive Summary

Canada's governments, like companies large and small across the country, are racing to put artificial intelligence (AI) to use. For example, the federal government has committed to becoming more productive by "deploying AI at scale," with the aim of spending less on government operations and strengthening Canada's digital sovereignty. Yet, the public sector has struggled with digital transformation. Formerly a global leader in digital government, Canada has plummeted in the United Nations' E-Government Development Index rankings from third place two decades ago to forty-second place today. Change has been too slow and inconsistent.

The appeal of AI lies in its ability to automate routine processes, generate insights from large datasets, and enable workers to tackle complex issues by blending machine capabilities with human judgment. Yet, as public sector organizations evolve their approach to workplace AI adoption, this undertaking raises important questions: How can AI be adopted rapidly but responsibly by governments? What types of business processes and functions in the public sector offer the most potential? And what will be the impact on public sector workers, whether in *assisting* or *automating*, the tasks associated with their jobs?

This last question is the central focus of this study. We apply an innovative methodological approach **introduced in our earlier research** on AI's impacts on jobs and skills demand in Canada's workforce to this question of public sector worker impact. Using data from the 2021 Census of Population for Canada's public sector workforce at the federal, provincial, territorial, and municipal levels of government, the study assesses occupations (or, jobs) on two distinct but related measures: *exposure* to AI (i.e. the probability the occupation will have to interact with AI systems in their day-to-day work), and *complementarity* to AI (whether usage of AI is more likely to assist the worker with common occupational tasks, instead of substituting for the worker and replacing those tasks).

Key findings:

- Canada's public sector workers, numbering just over 1.1 million, are significantly more likely to be in occupations that are exposed to AI applications than workers in the overall Canadian labour force (74 percent versus 56 percent).

- Compared with the overall Canadian workforce, a similar share of jobs are in high-exposure occupations (25 percent versus 27 percent) with tasks more likely to be assisted or augmented by current AI technologies—but a much larger proportion are in low-complementarity occupations (49 percent versus 29 percent) comprised of tasks that are more likely to be substituted or replaced.

- The federal public sector has a much higher concentration of workers in the high-exposure and low-complementarity quadrant (58 percent), reflecting a larger proportion of jobs in business, finance, and administration occupations than Canada's overall workforce. By contrast, in the higher-complementarity quadrant, the public sector has a larger concentration of workers in occupational groups such as senior management; natural and applied sciences; and education, law and social, community and government services.

- Our assessment of AI applications that are most useful based on the public sector's major occupational groups identifies four categories: interpreting and reproducing language (e.g. reading and writing tasks); recognizing and interpreting images (analytics); applications in abstract strategy games (data analysis and pattern recognition); and interpreting auditory information (speech recognition).

- The evidence around public sector technology adoption suggests that non-technology factors are also important determinants of success. These include the role of human oversight, access to AI tools and training for workers, and consistent application of core non-technological values and ethical principles to ensure successful, responsible deployment of AI in the public sector.

Action items for public sector organizations

In view of these findings, we propose a number of immediate actions to guide effective strategy and execution. Public sector organizations should:

1. Develop and publicly release clear, plain-language strategies for internal AI adoption and use.

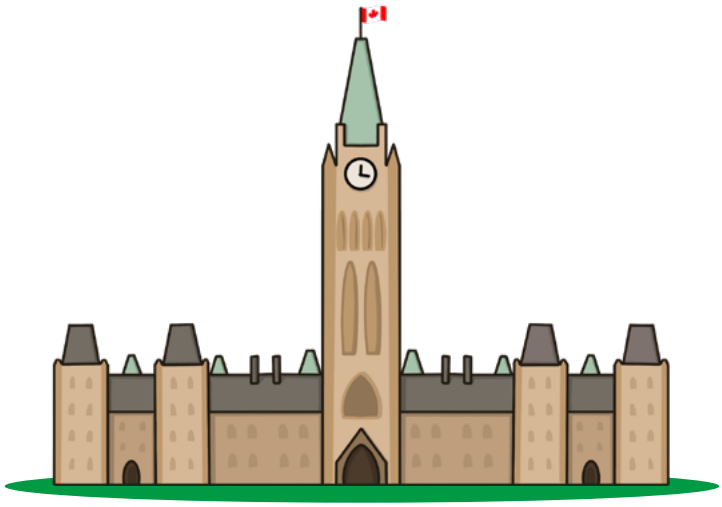
2. Equip workers with the AI tools and governance framework—and clear "social license" from management—to encourage responsible AI experimentation in day-to-day work, with tracking of outcomes, successes, and failures.

3. Identify priority applications for trialling AI in public organizations, with a focus on high-volume, low-risk repetitive tasks where AI can augment existing jobs.

4. Deploy AI literacy and responsible-use training and upskilling programs at scale across the workforce, to support adoption opportunities and general AI skills development.

5. Launch a rolling process for realigning job classifications, to reflect AI exposure and job change resulting from adoption.

6. Develop longer-term plans for managing the AI-driven workforce disruption, job change, and transition.



2 Introduction

The AI storm has taken over the attention of not just business leaders, but leaders in the Canadian public sector. Following his election in 2025, Prime Minister Mark Carney issued a mandate letter to Cabinet that calls on the federal government to become more productive by "deploying AI at scale," with the aim of spending less on government operations.[1] A new Minister of Artificial Intelligence and Digital Innovation has signalled an agenda focused on AI adoption and government purchasing of Canadian technology, while strengthening public trust and digital sovereignty.[2] The recent G7 Statement on AI for Prosperity, where Canada held the presidency of the group, positioned the country to be a leader in public sector AI adoption.[3] Provincial, territorial, and municipal governments are active as well.

Yet, the public sector has struggled with digital transformation. A recent Dais study found that the Government of Canada's digital maturity lags behind peer governments and the private sector, with core challenges in digital infrastructure, culture, and skills.[4] Change has been too slow and inconsistent. Meanwhile, the actions taken by the United States government's Department of Government Efficiency (DOGE) offer cautionary lessons about unleashing a Silicon Valley-style "move-fast-and-break-things" agenda within critical public institutions.

The appeal of AI lies in its ability to automate routine processes, generate insights from large data sets, and enable workers to tackle complex issues by blending machine capabilities with human judgment. Recent studies on generative AI highlight how these systems can enhance public service output by assisting with specific tasks like report drafting, data analysis, and communications.[5] While some governments have begun to deploy AI-driven projects—for instance, European municipalities piloting algorithmic social service delivery and real-time traffic management—these initiatives often remain in trial phases.[6]

A recent Dais study found that the Government of Canada's digital maturity lags behind peer governments and the private sector, with core challenges in digital infrastructure, culture, and skills.

What will be the impacts on public sector workers, whether in *assisting* or *automating*, the tasks associated with their jobs?

Dais research has found that Canada's overall AI adoption is relatively low.[7] Several challenges contribute to Canada's cautious approach. Concerns regarding privacy, bias, and the reliability of AI tools are especially pressing in the public sector, where trust, transparency, and accountability are paramount.[8] Additionally, aligning AI solutions with existing policies, procurement rules, operational processes, and organizational structures can present difficulties. These barriers suggest that the immediate productivity-enhancing opportunity from adopting AI is still unclear. For instance, a recent study found that public agencies in the US remain skeptical of whether AI in its current form is ready for large-scale deployment.[9]

Despite these hurdles, momentum has been building for more widespread use of AI in the Canadian public sector. Anecdotal evidence suggests municipalities have a stronger appetite for front-line service experimentation. For instance, the City of Vancouver just rolled out a new AI chatbot tool to enhance access to information and support for citizens accessing local services.[10] At the provincial level, Ontario recently passed Bill 194, a first-of-its-kind law that will set requirements for AI governance and accountability within government ministries and the broader public sector, including education, health-care providers and municipalities. The Government of Canada, prior to the recent election, introduced a new AI Strategy for the Federal Public Service 2025-2027, which aims to clarify procurement guidelines, reinforce ethical standards, and promote collaboration across agencies.[11] It was accompanied by a guide for managerial best practices in AI adoption.[12]

As public sector organizations evolve their approach to workplace AI adoption, the undertaking raises important questions: How can AI be adopted rapidly but responsibly by governments? What types of business processes and functions in the public sector offer the most potential for enhancement or efficiency through AI adoption? And what will be the impacts on public sector workers, whether in *assisting* or *automating*, the tasks associated with their jobs? This last question is the central focus of this study.

Scope and methods

Building on previous work regarding a skills-based approach to AI workplace adoption, this study examines the applicability of the technology for public service professionals.[13] [14] As a starting point, we define artificial intelligence (AI) as covering an extensive range of applications in economic terms, using the Electronic Frontier Foundation (EFF) AI Progress Metrics.[15] The EFF captures AI applications from fundamental model identification to evaluation criteria. We focus on ten specific AI applications, as defined in our previous research, which include elements from more traditional image classification to image and language generation.

The study leverages the **innovative methodological approach** we introduced with earlier research on AI's impacts on jobs and skills demand in Canada's workforce, applying it to data from the 2021 Census of Population for Canada's public sector workforce at the federal, provincial, territorial, and municipal levels of government.

To do this, we focus on two distinct but related measures: **exposure** to AI, and **complementarity** to AI. Higher *exposure* to AI means that there is a high probability that the occupation will have to interact with AI systems in their day-to-day work. It is calculated using methodology that was pioneered in Felten, Raj and Seamens (2021) that applied technological progress indices into occupational contexts.[16] They calculate exposure measures by projecting technology readiness measures that comes from the EFF that covers ten automation technological domains: language modelling, image generation, image recognition, speech recognition, instrumental track recognition, translation, reading comprehension, visual question answering, abstract strategy games, and real-time video games.

This study supplements this exposure measure with an additional complementarity measure that was introduced by Tavares, Cazzaniga, Pizzinelli and Rockall (2024)[17] and applies it to the Canadian employment context. Higher *complementarity* to AI means that, where a worker has to interact with AI, usage is more likely to **assist the worker** with common occupational tasks. Conversely, lower complementarity means AI usage is more likely to **substitute for** or **replace the worker's tasks**. See the Dais' previous report, ***Right Brain, Left Brain, AI Brain***, for a more detailed description of the methods applied in this paper.[18]

Using Canada's National Occupational Classification (NOC), this analysis assesses and plots each of the more than 500 occupations based on their exposure and complementarity measures. For example, an occupation classified as having high exposure and high complementarity (HE-HC) has higher probability of encountering AI in their day-to-day work, with a higher likelihood that AI use will be assistive with common jobs tasks. An occupation that is classified as having high exposure and low complementarity (HE-LC) also has a high chance of encountering AI in day-to-day work, but will more likely be working side-by-side where some job tasks are fully automated. Occupations classified as having low exposure have lower likelihood of encountering AI in day-to-day task-based work, regardless of whether they are classified as higher or lower complementarity.

The goal of the study is to provide governments, public sector leaders, human resource professionals, and employees with a broad assessment of the AI exposure and complementarity of Canada's public sector workforce, and with specific applications of AI technologies relevant to their tasks, roles, and responsibilities for larger, higher exposure public sector occupations. The study concludes with a summary of the findings, and with action items for public sector leaders to support both efforts to advance AI adoption and to prepare for the significant workforce disruptions the technology will bring.

3 Findings

Public service occupational analysis

Over a million workers are employed across all levels of government in Canada. The number of workers and share of the public sector workforce at each level of government is displayed in Table 1. There is a reasonably similar distribution across the levels, with the federal workforce as the largest employer at close to 37 percent of the public service workforce.

Table 1. Public service employment by level of government (2021)[19]

Level of government	Number of workers	Share of public sector labour force[20]
Federal	405,930	36.8%
Provincial and territorial	331,340	30.1%
Municipal	364,445	33.1%

As Table 2 shows, strong patterns emerge when analyzing the assignment of AI exposure-complementarity quadrants to each level of the public sector workforce. There are two broad findings:

First, the share of public sector workers is heavily concentrated in high-exposure occupations. Nearly 75 percent of the public sector workforce are estimated to be highly exposed to AI technologies based on their occupational attributes, compared with 56 percent across Canada's total labour force.

Second, among workers in high-exposure occupations, a much higher share is in the low-complementarity (49 percent) quadrant than high-complementarity (25 percent). This suggests that, relative to the total Canadian workforce, public sector workers comprise a higher share of workers that perform routine cognitive tasks that current AI technologies are well positioned to substitute or replace.

Table 2 also shows the breakdown across the three orders of government. The share of federal government workers in high-exposure and high-complementarity jobs is similar to the overall Canadian workforce (28 versus 27 percent), but a much higher concentration of workers is in the high-exposure and low-complementarity quadrant (58 versus 29 percent). This is primarily because the federal public sector has a much larger share of workers in the business, finance and administration occupational group, including human resources professionals, administrative assistants, auditors, and accountants. The provincial workforce has a similar profile, with a moderately higher share in HE-HC occupations (31 percent) and moderately lower share in HE-LC occupations (52 percent). Notably, the municipal workforce has a very different profile, with employees clustered in occupations with lower exposure to AI—and higher complementarity—in front-line citizen service type roles (e.g. firefighters, police officers, landscapers).

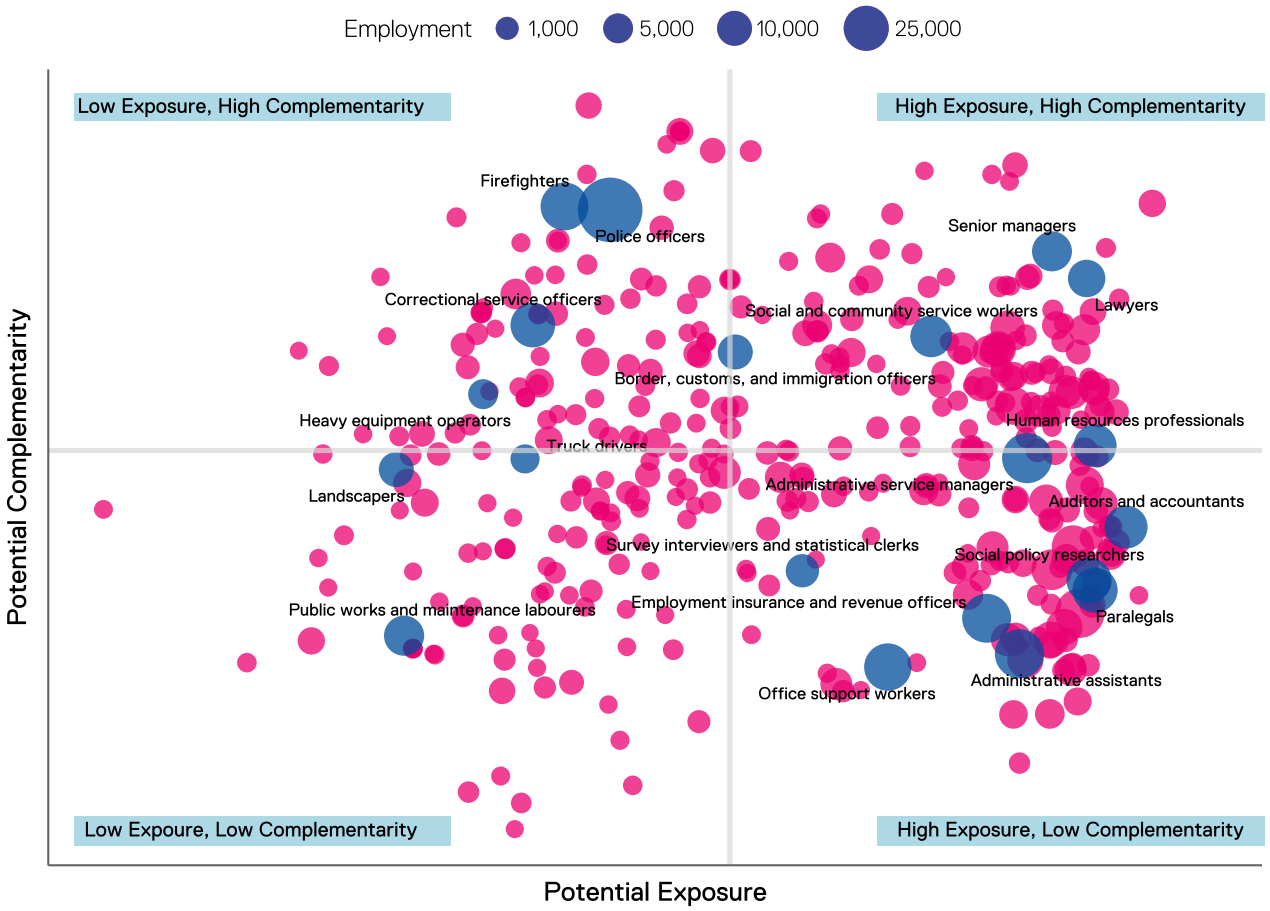
Relative to the total Canadian workforce, public sector workers comprise a higher share of workers that perform routine cognitive tasks that current AI technologies are well positioned to substitute or replace.

Table 2. Overall public sector employment by exposure-complementarity index and jurisdiction

Quadrant	Number of workers in quadrant[21] (Total public service)	Share of total public sector labour force (2021)[22] [23]				Share of overall Canadian workforce
		Federal	Provincial and territorial	Municipal	Total Public Sector	
High Exposure-High Complementarity	264,865	28%	31%	20%	25%	27%
High Exposure-Low Complementarity	516,945	58%	52%	31%	49%	29%
Low Exposure - High Complementarity	198,755	11%	12%	31%	19%	14%
Low Exposure - Low Complementarity	83,595	3%	4%	17%	8%	29%

Figure 1 shows the distribution of occupations across the exposure-complementarity axes, with the size of the bubbles corresponding to the number of public sector workers in each occupation. The distribution of occupations across the quadrants for each order of government is available in the Appendix.

Figure 1. Public Service Occupations by Quadrant and Employment Size



Source: Author Calculations, 2021 Canadian Census

Tables 3 and 4 present an analysis of the public sector workforce across broad occupational groups.[24] The occupations with the highest rates of exposure to AI applications are in business, finance, and administration, with a very high concentration in the low-complementarity quadrant (62.5 percent). By contrast, in the higher-complementarity quadrant with more potential for task assistance, there is a higher concentration of workers in occupational groups such as senior management; natural and applied sciences; and education, law and social, community and government services. Compared to high-exposure occupations across Canada's overall workforce, the public sector has a smaller share of workers in health; sales and service; and art, culture, recreation and sport occupations.

Table 3. Share of workforce in "highly exposed to AI" quadrant

Broad occupational group	Example occupations	Share among public sector workforce that are highly exposed	Share among Canadian workforce in high-exposure occupations
Senior management	Senior managers in finance, health, trade, or construction	2.1%	2.3%
Business, finance and administration	Human resources professionals, administrative assistants, auditors and accountants	47.1%	30.1%
Natural and applied sciences	Information systems specialists, civil engineers, urban and land-use planners	17.5%	13.9%
Health	Registered nurses, orthopedic technologists, blood donor clinic assistants	1.1%	7.3%
Education, law and social, community and government services	Social workers, paralegals, policy researchers, lawyers	26.3%	18.0%
Art, culture, recreation and sport	Translators, editors, graphic designers and illustrators	1.4%	3.6%
Sales and service	Customer service managers and representatives, financial service representatives	3.2%	21.0%
Trades, transport, and equipment operators	Facility operation and maintenance managers, construction and transportation managers	0.9%	2.7%
Natural resources and agriculture	Managers in natural resources production and fishing, landscaping and grounds maintenance labourers	0.02%	0.1%
Manufacturing and utilities	Utilities managers, supervisors, petroleum, gas and chemical processing	0.1%	0.8%

Table 4. Occupational distribution among AI exposure quadrants for the public sector

Broad occupational group	Example occupations	Share amongst public sector workforce that are highly exposed and highly complementary	Share amongst public sector workforce that are highly exposed with low complementarity
Senior management	Senior managers in finance, health, trade, or construction	6.4%	0%
Business, finance and administration	Human resources professionals, administrative assistants, auditors and accountants	20.6%	62.5%
Natural and applied sciences	Information systems specialists, civil engineers, urban and land-use planners	24.0%	14.6%
Health	Registered nurses, orthopedic technologists, blood donor clinic assistants	3.1%	0.1%
Education, law and social, community and government services	Social workers, Paralegals, policy researchers, lawyers	39.1%	17.1%
Art, culture, recreation and sport	Translators, editors, graphic designers and illustrators	2.2%	1.0%
Sales and service	Customer service managers and representatives, financial service representatives	1.3%	4.7%
Trades, transport, and equipment operators	Facility operation and maintenance managers, construction and transportation managers	2.8%	0%
Natural resources and agriculture	Managers in natural resources production and fishing, landscaping and grounds maintenance labourers	0.05%	0%
Manufacturing and utilities	Utilities managers, supervisors, petroleum, gas and chemical processing	0.5%	0%

AI applications in the public sector

Next, we discuss how public service employees can practically incorporate AI into their daily tasks. To do so, the ten applications used to calculate the AI exposure score are disaggregated across each of the broad occupational groups. Four general groupings of AI technologies and uses emerge, as follows:

- **Interpreting and reproducing language** using large language models to improve productivity on reading and writing tasks.
- **Recognizing and interpreting images** for tasks including producing critical service analytics and identifying errors or deviations.
- **Applications in abstract strategy games** that can be leveraged in tasks involving data analysis and pattern recognition, and scenario analysis.
- **Interpreting auditory information** through speech recognition could support transcription and translation.

Below, we provide examples of specific use cases for prevalent public sector occupational groups and occupations classified as high exposure.

Practical applications for public service AI adoption, by broad occupational group[25]

Senior management

Potential AI applications[26]
Language modelling, reading comprehension, speech recognition, translation, abstract strategy games

Example 1. Occupation: Senior managers in public service

Occupational tasks include:
- Establishing objectives for the organization in accordance with government legislation and policy
- Recommending, reviewing, evaluating, and approving documents, briefs, and reports submitted by middle managers and senior staff members
- Allocating human and financial resources to implement organizational policies and programs

AI application: For reading comprehension, natural language processing tools could help senior managers efficiently understand and summarize policy documents, briefs, and reports. This in turn helps distill the implications of evidence-based research to inform decision-making and how to respond to public needs.

Language modelling: Summarize, structure and distill ideas/findings into publications for general audiences and/or internal teams.

Language modelling software could also help managers understand and subsequently automate correspondence to public inquiries and redirect them to resources to obtain further information.

Risks: Given the tendency for AI applications to have an imperfect ability to capture nuances in information (and at times, misinterpreting or providing false information), human intervention to supervise AI outputs is required, especially in the context of disseminating information to the public.

Business, finance and administration

Potential AI applications
Language modelling, reading comprehension, speech recognition, translation, abstract strategy games

Example 1. Occupation: Administrative assistants[27]

Occupational tasks include:
- Preparing, edit and proofread correspondence materials (publications, reports)
- Maintaining information filing systems
- Organizing meetings and appointments

AI application: Reading comprehension— parsing and summarizing documents to organize information to be communicated across teams.

Example 2. Occupation: Employment insurance (EI) and revenue officers

Occupational tasks include:
- Determining the eligibility of persons applying for government benefits (e.g. CPP, EI, etc.)
- Auditing accounting records to determine income, exemptions, payable taxes, compliance with reporting regulations
- Monitoring payments and records for existence of fraud

AI application: Abstract strategy games are a type of AI that is useful for spotting patterns, which can be leveraged by an EI officer who is looking to detect fraud in applications for government benefits. Data across individuals who are applying for benefits can be assessed for unusual activity or patterns of behaviour, which have a higher likelihood of fraudulent claims.

Example 3. Occupation: Financial auditors and accountants

Occupational tasks include:
- Examining accounting and financial records (e.g. bank statements, expenditures, tax returns) of individuals or establishments to ensure accuracy and compliance with accounting standards and procedures
- Preparing reports on audit findings and make recommendations to improve accounting and management practices

AI application: Reading comprehension and language modelling—extracting financial data to perform calculations and analysis.

Risks: As predictive models are not always accurate (given predictions are assigned based on understanding patterns in historical data, which does not always perform well in unfamiliar contents), errors in assignment of false and positive claims can occur. A revision of falsely assigned claims should be analyzed by a trained worker who is able to understand contextual information which models cannot capture.

Natural and applied sciences

Potential AI applications
Visual question answering, Image recognition, generating images, language modelling, abstract strategy games

Example 1. Occupation: Information systems specialists

Occupational tasks include:
- Collecting and analyzing data to improve IT infrastructure
- Designing, developing, testing, implementing and overseeing IT systems
- Devising policies and procedures to maximize life cycle of software and IT products

AI application: Visual question answering (VQA)—supports troubleshooting of hardware and software issues (e.g. understanding screenshots of error messages, detection of firewall or cybersecurity threats, analyzing images of IT assets such as server racks and barcodes to understand errors).

Example 2. Occupation: Civil engineers

Occupational tasks include:
- Planning and designing major civil projects (e.g. buildings, roads, bridges)
- Conducting technical analyses of survey and field data
- Ensuring construction plans meet guidelines and specifications of building codes and other regulations

AI application: Abstract strategy games— Applications which are based in abstract strategizing are useful for decision optimization and recognizing patterns in data. For a civil engineer, this could look like analyzing topographic and environmental data to support planning decisions around infrastructure.

Example 3. Occupation: Urban and land-use planners

Occupational tasks include:
- Preparing and recommending land development concepts and plans for zoning, transportation, utilities, and other land uses
- Compiling and analyzing data affecting land use (e.g. demographic, economic, sociological, physical)
- Presenting plans, proposals or planning studies to authorities, the public, and other interest groups

AI application: Generating images and image recognition—image generation and recognition support the conceptualization and prototyping of physical spaces. For urban planners, AI technologies can analyze geospatial data on traffic, land use, urban sprawl, and other features to support development and city planning.

Risks: Similar to language models, image generators are prone to errors in output; human intervention to double check and validate images for accuracy would be required.

Education, law and social, community and government services

Potential AI applications
Language modelling, reading comprehension, speech recognition, translation

Example 1. Occupation: Social policy researchers

Occupational tasks include:

- Conducting research, developing social programs, assessing, coordinating and developing awareness of existing social services
- Developing questionnaires and surveys and interpreting the data compiled to support social issues and policy areas
- Developing social programs and policies, social legislation, or proposals based on demographic, social, and economic research

AI applications: Language modelling and reading comprehension: Similar to senior managers in public service, social policy researchers are able to use language models and reading comprehension AI software to summarize key points in research (e.g. reports, articles, papers, etc.). This can subsequently inform relevant policy direction, programming, legislation, and other types of support.

Example 2. Occupation: Paralegals

Occupational tasks include:
Assisting lawyers by interviewing clients, witnesses and other related parties; assembling documentary evidence, preparing trial briefs, and arranging for trials
Researching records, court files, and other legal documents

AI applications: Language modelling and reading comprehension—review and summarize legal documents and records, synthesize findings and create briefs to send to legal teams.

Example 3. Occupation: Program officers unique to government

Occupational tasks include:

- Advising politicians or diplomats on the social, economic, and political effects of government decisions
- Coordinating the logistics and administration of elections and ensure that electoral and voting procedures are followed
- Explaining Canadian foreign and domestic policies to governments and nationals of foreign countries

AI applications: Speech recognition, reading comprehension—transcribe meetings with foreign and domestic entities, which support the development of advisory materials and decision-making.

Risks: The transcription of audio may be inaccurate for a variety of reasons (e.g. quality or volume of audio), which requires manual validation of the accuracy in the translation output.

Summary of findings

- Canada's 1.1 million public sector workers are distributed reasonably evenly across federal, provincial, territorial, and municipal levels of government, with the largest share (37 percent) in the federal public sector and these workers are significantly more likely to be in occupations that are exposed to AI applications than the overall Canadian labour force (74 percent versus 56 percent).

- Compared with the overall Canadian workforce, a similar share of jobs is in high-exposure occupations (25 versus 27 percent) with tasks more likely to be assisted or augmented by current AI technologies—but a much larger proportion are in low-complementarity occupations (49 versus 29 percent) where a portion of their jobs may fully be automated.

- Across levels of government, the federal public sector has the largest share of jobs in high-exposure occupations, and a much higher concentration of workers in the high-exposure and low-complementarity quadrant (58 percent). The provincial workforce has a similar profile, while the municipal workforce is clustered in occupations with lower exposure to AI and higher complementarity.

- The public sector has a much larger proportion of jobs in business, finance, and administration occupations than Canada's overall workforce, which are heavily clustered in the low-complementarity quadrant (62.5 percent). By contrast, in the higher-complementarity quadrant, the public sector has a larger concentration of workers in occupational groups such as senior management; natural and applied sciences; and education, law and social, community and government services.

- Our assessment of the AI applications most useful based on the public sector's major occupational groups identifies four categories: interpreting and reproducing language (e.g. reading and writing tasks); recognizing and interpreting images (analytics); applications in abstract strategy games (data analysis and pattern recognition); and interpreting auditory information (speech recognition).

- The public sector's broad occupational diversity will require efforts to assess AI adoption opportunities within occupational groups, and for the specific roles and tasks of unique occupations. We provide examples of AI use cases for specific occupations in Table 4 (e.g. roles involving document analysis, compliance checks, and citizen service delivery).

- The evidence around public sector technology adoption suggests that non-technology factors are also important determinants of success. These include the role of human oversight, access to AI tools and training for workers, and consistent application of core non-technological values and ethical principles to ensure successful, responsible deployment of AI in the public sector.

4 Action Items for Public Sector Organizations

In view of these findings, and of the increased focus Canada's governments are placing on AI adoption for objectives such as improved service delivery, internal operations, and financial efficiency, the scale of both opportunity and disruption from the application of AI in public sector organizations could be significant. Responsibly directing this transition requires focused and transparent strategies, prioritization and risk assessment of immediate opportunities, and a significant focus on engaging and supporting public sector workers—especially those in high-exposure occupations—in all aspects of this shift.

We propose a number of immediate action items for guiding effective strategy and execution, with a focus on public sector workforce transition.

The scale of both opportunity and disruption from the application of AI in public sector organizations could be significant.

Public sector organizations should:

1. **Develop and publicly release clear, plain-language strategies for internal AI adoption and use.** Like the federal government's *Responsible use of artificial intelligence in government* framework and directives,[28] all governments should introduce strategies geared to multiple audiences including internal leaders, workers, and the general public, and be transparent about the objectives, priorities, resources, and multi-year milestones or outcomes. These strategies should be developed in consultation with public sector workers and unions, and other key groups, in order to establish trust, buy-in and clear expectations up front.

2. **Equip workers with the AI tools and governance framework—and clear "social license" from management—to encourage responsible AI experimentation in day-to-day work, with tracking of outcomes, successes, and failures.** While some departments in governments have started the early process of experimenting with AI usage, broader provision of tools in low-risk settings should be considered. Tools can include common access to off-the-shelf large language model (LLM) platform licenses for low-risk areas, or custom-built internal applications for higher-risk areas. Governance frameworks should be short and focused on basic generative AI literacy, and guidance on privacy, data security, and risk assessment in business use of AI tools. Incentivizing experimentation requires that senior leaders empower workers, and permit sharing of failures alongside rewarding successes.

3. Identify priority applications for trialling AI in public organizations, with a focus on high-volume, low-risk, repetitive tasks where AI can augment existing jobs. For example, seek out specific applications for occupations with a large share of employment in the high exposure and high-complementarity quadrant (e.g. senior managers, policy researchers, information system specialists), where there is minimal risk around data privacy, ethical use, or critical service disruption. This will help to spotlight the potential benefits of AI in assisting workers and boosting organizational efficiency, while building capabilities for more widespread adoption.

4. Deploy AI literacy and responsible-use training and upskilling at scale across the workforce, to support both adoption opportunities and general AI skills development. Furthermore, beyond basic AI use knowledge and capabilities, talent management and workforce upskilling efforts can "future-proof" the workforce by developing the unique skills associated with HE-HC occupations (see Appendix for details), equipping workers to support government modernization and ready themselves as AI gradually infuses across jobs and workplaces.

5. Launch a rolling process for realigning job classifications, to reflect AI exposure and job change resulting from adoption. Led by human resource and talent management operations, the immediate focus should be updating tasks and skills in highly exposed occupations with the highest potential for task assistance and support from AI (high-complementarity) as part of early efforts to prioritize adoption opportunities.

6. Develop longer-term plans for managing AI-driven workforce disruption, job change and transition. Given the high concentration of public sector workers in occupations with high potential for task automation (the HE-LC quadrant), the findings of this study should inform the types of jobs that are at higher risk of change and worker displacement. Public sector employers, unions and workers, and other stakeholders should be proactively planning for this transition. They can build upon well-established methods and tools, pioneered by the Dais and other Canadian organizations, for establishing job transition pathways for workers facing economic and technological disruption.[29]

The potential for AI to augment public sector tasks and abilities is significant, but faces complex adoption challenges relative to the rest of the economy. Experimentation, evaluation, and iteration of public service AI adoption can accelerate practical use cases. In such early stages of innovation technology adoption, an emphasis should be placed on ensuring that adoption is flexible, purpose-driven, and focused on tasks with low criticality or harm to public service delivery and Canadian society. Long-run workforce planning should also incorporate training and upskilling opportunities to ensure that workers who may be most vulnerable to AI disruption and displacement are supported to upskill and transition to other jobs and careers.

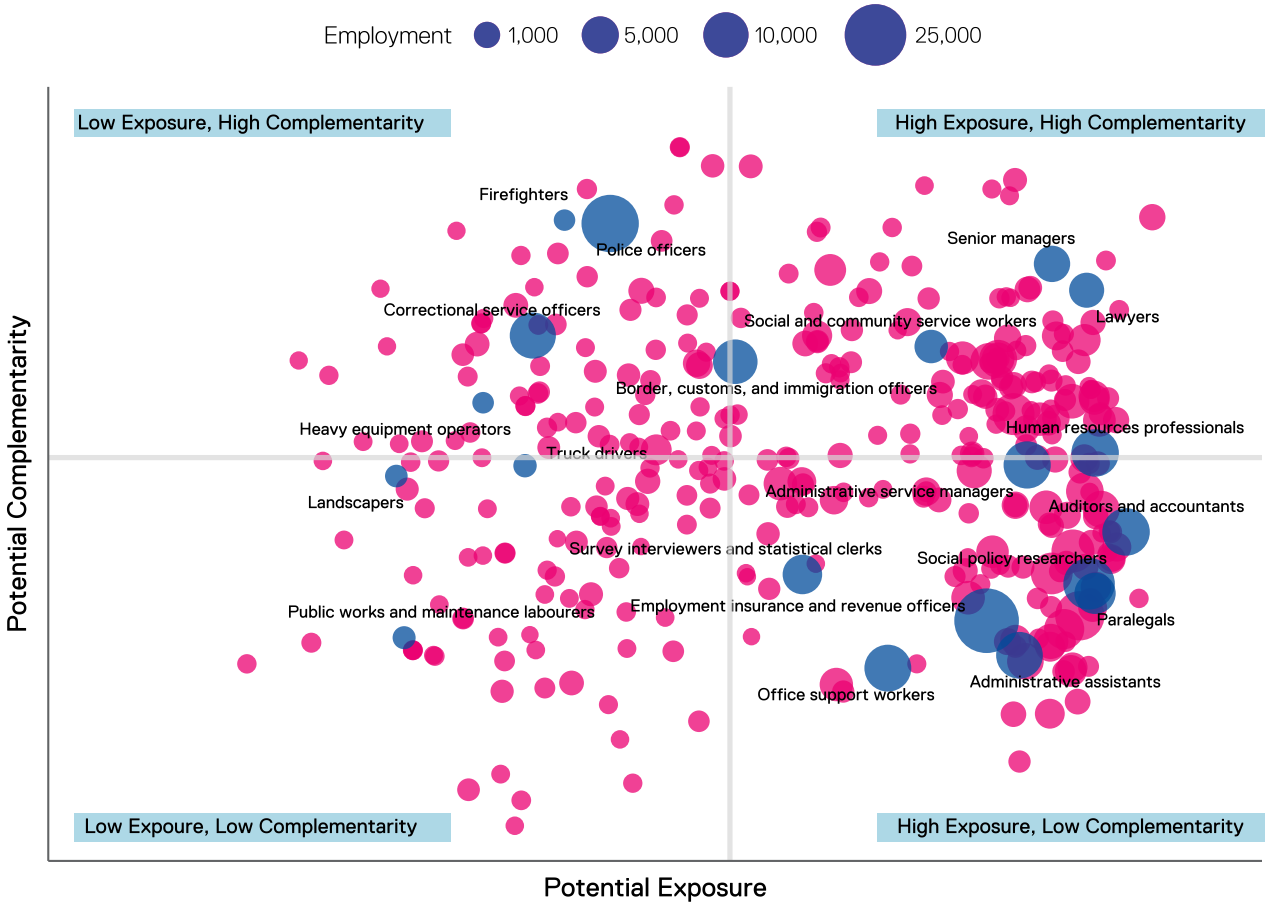
As a final point, AI technologies can serve as valuable tools in the public sector, but are not a substitute for the strategies and bold actions we and others are calling for to modernize Canada's governments and public administration to be fit for purpose in the twenty-first century.

AI technologies can serve as valuable tools in the public sector, but are not a substitute for the strategies and bold actions we and others are calling for to modernize Canada's governments.

Appendix

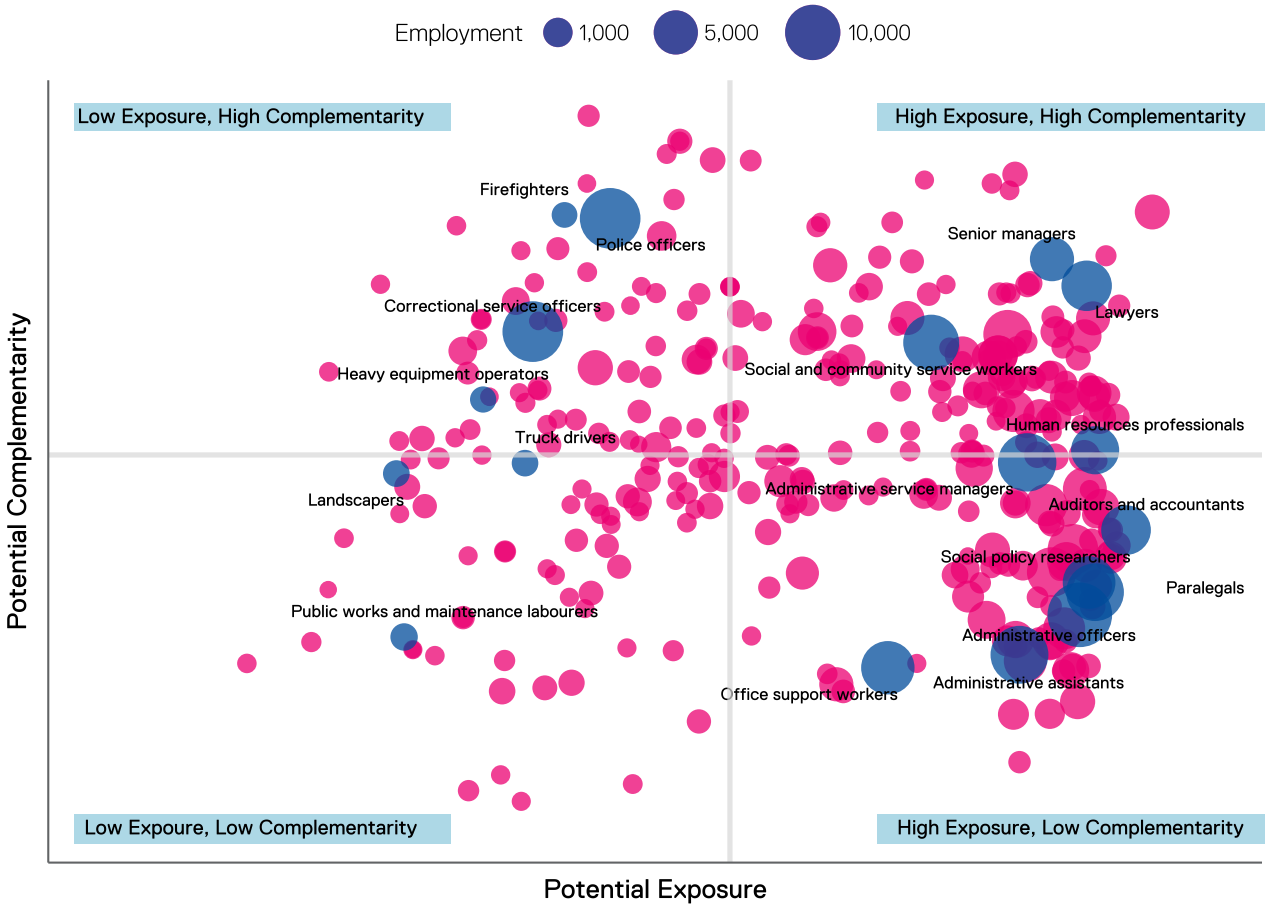
Figures 2 to 4 show the exposure-complementarity quadrants separately for the three levels of government. Different sets of occupations are prominent across the three levels, as some occupations have high demand in certain departments (e.g. employment insurance and revenue officers are commonly employed at the Canada Revenue Agency), while others fulfill local jurisdictional needs (e.g. police officers).

Figure 2. Federal Public Service Occupations by Quadrant and Employment Size



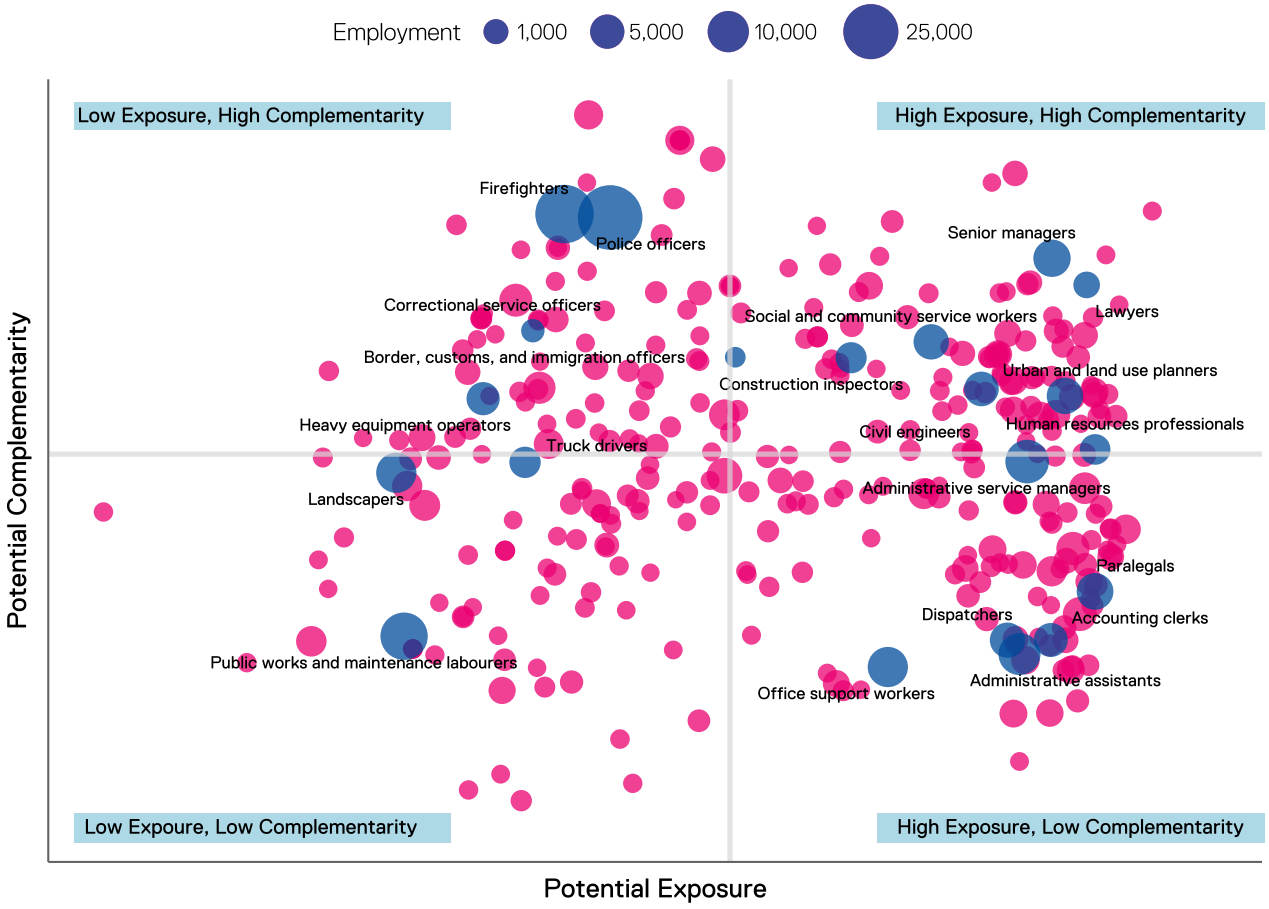
Source: Author Calculations, 2021 Canadian Census

Figure 3. Provincial Public Service Occupations by Quadrant and Employment Size



Source: Author Calculations, 2021 Canadian Census

Figure 4. Municipal Public Service Occupations by Quadrant and Employment Size



Source: Author Calculations, 2021 Canadian Census

Skills analysis

The top ten unique skills identified in the Dais' *Right Brain, Left Brain, AI Brain* report across high and low-complementarity occupations, which are highly exposed to AI, are shown in Tables 5 and 6. The proportion of public service workers in each of those quadrants possessing those skills are outlined, with highlighted cells representing a greater proportion compared to share of overall workforce for that quadrant in 2023-2024.

Table 5. **Top 10 skills complementary to AI by percentage share of total public employment by quadrant (2020-2024 Vicinity Jobs online job postings)**

Top 10 unique skills (HE-HC)	HE-HC % of total public sector employment	HE-LC % of total public sector employment
Planning	**40.3%**	**21.3%**
Coaching	0.6%	2.1%
Patient care	3.2%	0.03%
Leadership	31.0%	14.4%
Critical thinking	3.6%	1.2%
Sales	0.1%	0.1%
Problem solving	8.1%	12.4%
Budgeting	9.0%	**7.5%**
Advanced Cardiac Life Support (ACLS)	0.4%	0.03%
Operations management	1.2%	0.1%

Table 6. **Top 10 skills potentially automatable by AI by percentage share of public employment by quadrant**

Top 10 unique skills (HE-LC)	HE-HC % of total employment	HE-LC % of total employment
Accounting	**7.4%**	7.3%
Microsoft Excel	8.4%	**21.8%**
Data analysis	**8.1%**	**8.6%**
Microsoft Word	7.5%	**22.9%**
Microsoft Office	4.5%	7.7%
Office administration	1.5%	**14.3%**
Information filing	0%	2.3%
Reports preparation	2.8%	3.1%
Filing systems	0.2%	1.6%
Proofreading	1.5%	1.2%

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22 As some occupations were not mapped to an exposure score, 3.4 percent of the public sector workforce was not captured in the quadrant analysis.

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