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ROUNDTABLE



# Understanding AI Workforce Skills Needs

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## TABLE OF CONTENTS

3	EXECUTIVE SUMMARY
4	UNDERSTANDING AI SKILLS NEEDS: A CHANGING LANDSCAPE
5	WORKFORCE AND SKILLS IMPLICATIONS OF AI
11	ADDRESSING AI SKILLS DEMANDS
12	CONCLUSION
13	APPENDIX

## EXECUTIVE SUMMARY

Artificial intelligence is reshaping work, but most organizations in Canada are still figuring out how to use it. The challenge is not the technology itself, but a gap in how organizations adopt and apply AI in practice. This report draws on interviews with employers across sectors to understand how AI is changing workforce skills needs. We find that while adoption remains uneven and largely experimental, a clear pattern is emerging: AI is not changing who organizations hire. It's changing what they expect workers to do.

### Employers increasingly need two types of capability:

- Talent who can drive AI adoption, by identifying use cases, selecting tools, and enabling experimentation; and
- Workers who can use AI effectively, by integrating it into workflows, evaluating outputs, and delivering results.

Across both, demand is shifting toward human and applied skills, including critical thinking, judgment, adaptability, and communication. Rather than replacing these skills, AI is making them more important.

This has important implications for workforce development. Preparing Canadians for an AI-enabled economy is not primarily about producing more advanced technical specialists. It's about ensuring that workers across roles and sectors have the literacy, confidence, and judgment to use AI effectively.

For employers, educators, and policymakers, the focus must shift from teaching about AI to enabling people to work with AI in ways that drive productivity, support adoption, and create value.



# 1. UNDERSTANDING AI SKILLS NEEDS: A CHANGING LANDSCAPE

Businesses across Canada are starting to adopt AI in an effort to improve productivity, competitiveness, and growth, but this adoption has been relatively slow and uneven. As with the advent of any transformative technology, AI also has workforce and skills implications, including changes to the mix of technical, human, and managerial skills needed to procure, implement, maintain, manage and use AI effectively.

But exactly which skills do employers need to support their AI activities, especially in new graduates and recent hires? How do skills needs differ across sectors, organizations, and occupations? And what are employers' recruitment and training plans to ensure they get the skills they need?

Existing research offers high-level overviews of AI adoption trends and the kinds of skills required among Canadian employers. To further clarify and fill out the details of specific skills and competencies that industries demand, this report takes a closer look at employers' AI-related strategies, activities, and skills needs. We conducted a scan of 49 organizations' activities, and interviewed 21 employers about their organizations' AI strategies, adoption, use, and associated skills needs and training plans.

Through this investigation, we find that AI is not creating an entirely new set of skills demands. Rather, it's intensifying the importance of a hybrid skillset that combines foundational technical and non-technical skills, with higher-order human skills at the forefront. Across all sectors, employers are looking to use talent to both drive AI adoption and use AI effectively once adopted. In practice, this means that employers are most interested in workers' ability to experiment, think critically, and integrate AI into workflows using sound judgment.

## APPROACH AND SOURCES

- We did an **environmental scan** of 49 Canadian organizations' AI activities and skills through media scans and reports on organizations' activities, internet research on company characteristics (including Pitchbook and CrunchBase), and review of company press releases where available. We supplemented this scan with **data analysis** drawing from a number of national datasets from Statistics Canada.
- We conducted **interviews** with 21 leaders at different organizations in Canada. Candidates were identified through the environmental scan as well as through a snowballing technique whereby interviewees made suggestions about other possible companies to contact.
- See the **Appendix** for further details about the employers represented in this report, including organization size, sector, location, and more.



## 2. WORKFORCE AND SKILLS IMPLICATIONS OF AI

Most Canadian organizations that are adopting AI are still in an early experimental stage of AI use, where they tend to rely on user-friendly, off-the-shelf tools. While many Canadian organizations will likely remain in this stage of AI use for the near future, there are signals that some organizations plan to increase the intensity and complexity of their AI use.<sup>1</sup> While uneven AI adoption across sectors make the exact kinds of skills required and the magnitude of change somewhat unclear, we found implications that hold true across all sectors in Canada:

1. Canada needs workers who can drive AI adoption within organizations: those who can demonstrate the potential benefits of AI use, procure and build solutions, and manage effective implementation.
2. Organizations that have already adopted AI now need workers who can use AI effectively, fluently, and responsibly.

Table 1 below provides an overview of the technical and non-technical skills that employers told us workers need to drive AI adoption and use it effectively.

**TABLE 1: EMERGING AI SKILLS FRAMEWORK**

	<b>DRIVE AI ADOPTION</b>	<b>USE AI EFFECTIVELY</b>
<b>HUMAN &amp; APPLIED SKILLS</b>	<ul style="list-style-type: none"> <li>• Opportunity identification</li> <li>• Experimentation &amp; change management</li> <li>• Risk awareness &amp; mitigation</li> </ul>	<ul style="list-style-type: none"> <li>• Critical thinking &amp; judgment</li> <li>• Communication &amp; collaboration</li> <li>• Adaptability &amp; learning</li> </ul>
<b>TECHNICAL &amp; DIGITAL SKILLS</b>	<ul style="list-style-type: none"> <li>• Data &amp; systems foundations</li> <li>• AI solution development</li> <li>• Digital procurement</li> </ul>	<ul style="list-style-type: none"> <li>• AI literacy &amp; prompting</li> <li>• Output evaluation &amp; quality control</li> <li>• Data security &amp; privacy</li> </ul>

<sup>1</sup> Statistics Canada, Table: 33-10-1045-01

## 2.1 SKILLS TO DRIVE AI ADOPTION

“

*The speed of technological development trumps any strategy that you can make. AI activity is very disorganized and more driven by the people doing the job than by leadership pushing it.”*

- Director

85% of Canadian organizations say that they do not plan to use AI in the next 12 months; of those organizations, more than three quarters say it's because they think AI is not relevant to their business.<sup>2</sup> However, interviews with AI adopters reveal that organizations actually become more likely to adopt once they gain a deeper understanding of where and how AI can add value to their operations.

Organizations go from willing to consider AI to active adoption once they also feel that they have the skills, tools, and strategies to safely experiment with AI.<sup>3</sup> Statistical trends show that larger firms are more likely than smaller firms to use AI, likely because they have readier access to more people with the knowledge and skills required to promote adoption. Employers told us that one way to drive active adoption<sup>4</sup> is to make space for workers with the necessary skills to experiment with AI in their work and demonstrate its potential to their managers and peers.

### NON-TECHNICAL SKILLS AND KNOWLEDGE TO DRIVE AI ADOPTION

Workers who have basic AI literacy, are open to experimentation, and have strong risk management skills can help champion AI use in organizations.

**Basic AI literacy.** Unsurprisingly, we heard that the most common pre-condition for AI adoption is workers who have a foundational knowledge of off-the-shelf AI tools' capacity and potential, including a general sense of what solutions are available and

how they are evolving, where and how they can be applied to workflows, and some sense of the limitations and risks of the technology.

Leaders at tech, aerospace, and professional services organizations as well as an innovation hub all shared similar sentiments that AI adoption requires workers, managers, and executives who pay attention to AI discourse. They need to be regularly thinking about how and whether AI can be used in specific processes in their business, and what value might emerge from doing so.

**Openness to experimentation and feedback.** Few organizations have comprehensive and explicit AI strategies in early stages of adoption. Trends show that AI integration is typically characterized by an initial phase of pragmatic experimentation, focused on augmentation using off-the-shelf tools, and led by individuals rather than enterprise-wide.<sup>5</sup>

Our environmental scan surfaced a few organizations with formal AI strategies. Among those few, all had dual-track approaches: more tightly planned and controlled client-facing use of AI, but more permissive back-office use whereby staff are encouraged to experiment with off-the-shelf tools to improve performance on internal, non-critical tasks.

Ensuring that workers have the skills and room to experiment with AI is necessary to drive adoption. To incentivize experimentation, employers that we spoke to in accounting, e-commerce, tech, and advertising have built informal feedback mechanisms to encourage workers to share information about how they are using AI, where it is working, challenges they see, and ideas to improve use and outcomes. However, a few organizations noted that the sensitivity of the client data they handle – such as financial or health information – reduces the freedom of exploration they might otherwise have with AI tools.

2. Statistics Canada, Table: 33-10-1046-01

3. <https://www.shiftinsights.ca/projects/a-rise-in-software-related-r%26d>

4. Statistics Canada, Table: 33-10-1045-01

5. Challapally, A., Pease, C., Raskar, R. & Chari, P. (2025). *The GenAI Divide: The State of AI in Business 2025*. MIT.

**Risk management skills.** Regardless of the stage or intensity of AI use, Canadian organizations using AI require workers to have the skills to identify and develop plans to mitigate AI-related risks. For example, one small accounting company told us they mandate that all workers must double-check the work produced by AI and that AI-generated or -assisted documents intended must be vetted for accuracy and reliability by senior executives. Organizations in industries with more substantial risks associated with regulatory compliance, ethics, and safety may need to develop more formal policies and procedures in areas such as data storage and usage. This means that risk assessment and planning – and the skills and knowledge required to perform those tasks – are treated as preconditions to AI adoption among those organizations.

### TECHNICAL SKILLS AND KNOWLEDGE TO DRIVE AI ADOPTION

While we heard that non-technical AI skills are enough to drive adoption for most organizations in Canada, organizations in the tech sector that would use AI more robustly or in more depth also need a more extensive suite of technical skills. Our interviewees talked about the challenges associated with developing more sophisticated AI tools; to address those challenges, tech employers need talent with strong digital and data skills, as well as digital procurement skills.

**Digital and data skills.** To drive and support more ambitious and complex AI use, including developing proprietary AI solutions, tech organizations need to recruit workers with a variety of specialized digital and data skills and/or upskill their existing workers. While the specific skills will differ by organization and industry, the advanced skills our interviewees talked about include:

- Data science, analysis and modelling skills, including machine learning and neural networks
- Programming languages such as Python, R, C++
- Data storage, infrastructure and architecture skills, including Application Programming Interface (API) design and protocols
- DevOps approaches and techniques that combine software development and IT operations teams to deliver high quality software at speed

**Digital procurement skills.** While some organizations may develop their own custom AI solutions entirely in house, many others will likely rely partially or entirely on external software vendors. Therefore, effective digital procurement skills are also important to drive and support AI adoption. Tech organizations that are still building their AI strategy told us that they want to train their workforce with advanced certifications like ISO 42001 so workers can confidently procure the right solutions, which would allow the organizations to effectively adopt AI.

These skills to support AI adoption may also include “agile” procurement and project management skills and techniques, such as more narrowly scoped projects, smaller contract values, shorter timelines, more opportunities for feedback, and drawing from more suppliers.<sup>6</sup>

## 2.2 SKILLS TO USE AI EFFECTIVELY

“

*I don't think AI has changed the type of person we look for. I think the type of person we're always looking for is just well adapted to utilize AI.”*

- Chief Operating Officer

Driving AI adoption in Canada's lagging adoption context is the first challenge. Using AI effectively, productively, and responsibly after adoption poses ongoing challenges for organizations, which can be addressed through recruitment and upskilling. Despite organizations' differing needs, we found some pan-industry patterns in the kinds of skills and knowledge they demand.

### NON-TECHNICAL SKILLS AND KNOWLEDGE TO USE AI EFFECTIVELY

Our environmental scan and employer interviews revealed that organizations across the board need talent who can apply higher-order human skills and a growth mindset to AI use.

6. S. Boots, et al. (2024); Auditor General of Canada (2021). *Procuring Complex Information Technology Solutions*.

**Human skills.** Organizations who have already adopted AI are primarily employing user-friendly, off-the-shelf AI products, so specialized technical skills are not always needed. Instead, across all organizations we interviewed, employers said they need workers with what we can group together as higher-order human skills. Within this skills category, employers included critical thinking, judgment, attention to detail, and creativity.

Interviewees spoke about how these skills are often employed in multiple contexts and different job tasks involving AI, and a worker who is strong in these skills can more effectively integrate AI into their work. Specifically for new hires, employers are shifting away from a focus on routinized tasks and are now moving towards asking them to think critically about where and how AI can add value and improve efficiency. We heard that some organizations expect workers to be able to break down their entire workflows into discrete tasks, creatively identifying which tasks can be performed by AI and which they can focus on uniquely.

Organizations across the board also noted that using AI often requires much more acute judgment and problem-solving skills to assess the quality of AI outputs. Although we found this to be true across all interviewees, more technical sectors like accounting and aerospace stressed the importance of judgement more strongly.

Proficient interpersonal communication skills are also required to share the outputs of various AI tools in clear and effective language, and to support continuous improvement discussions about effective and productive AI use.



## Employers on the Rising Importance of Human Skills in the Age of AI

*“There are things that a machine can’t do better than a human – those human skills are critical. Getting that set of skills is essential.”*

- HR Leader

*“I think your ability to have that critical thinking, understand how things are connected, explore further are foundational. If you think about what AI can do, critical thinking and judgment might be the things that you want to spend a lot of time on.”*

- HR Leader

*“The expectation is shifting from performing those routine tasks to actually interpreting the outputs or mastering AI prompts, applying judgment, looking for mistakes and fact checking. AI is going to handle a lot of the hard skills but things like empathy and collaboration and actually knowing how to build a relationship, all those things are going to be really important as you navigate AI.”*

- Chief People Officer

### **Growth mindset and willingness to learn.**

Organizations often look for high levels of engagement, curiosity, and a growth mindset in new hires. This is especially true in smaller organizations. With up to 99.7% of Canadian organizations being small- and medium-sized enterprises, this suite of skills and attitudes is essential for new graduates and workers.

The smaller organizations we interviewed are looking for candidates who are curious about new and evolving AI technologies, take the initiative to understand their functions, and explore how they might be employed to improve efficiency and effectiveness. One employer explained their skills needs as being an organization that's always looking for people with "a passion for experimenting and tinkering," people who "are keeping up with technology" and are "always looking at the latest tools."

### TECHNICAL SKILLS AND KNOWLEDGE TO USE AI EFFECTIVELY

Most workers in most AI-enabled organizations do not require highly technical data or digital skills (e.g. proficiency with coding languages, developing machine learning algorithms, or back-end data infrastructure). Instead, Canadian organizations actively using AI need workers to have strong AI literacy and fluency: a working knowledge of AI tools and how to use them effectively and responsibly in relation to the business needs of the organization. Employers also noted that workers need to be able to undertake quality control and have a clear understanding of data security and privacy.

**AI literacy and fluency.** Similar to driving AI adoption, workers in organizations with more mature AI strategies need a literate understanding of AI tools and their strengths and weaknesses. As one employer from a large professional services firm put it, workers need "to have the foundational layer in order to apply AI, which is data literacy, understanding how solid and sound the tool is, where it came from, what it tells us."

Technical skills in AI literacy also encompass AI prompting and querying techniques. While many AI tools are user-friendly, all organizations already using AI were clear that they expect workers to have the skills necessary to get AI outputs that are as useful and accurate as possible.

Beyond basic literacy, organizations that have already adopted AI are also looking for talent with **AI fluency**: the ability to apply their knowledge of AI strategically to advance business needs and transform workflows. Employers in the tech space told us they are seeking talent who can demonstrate how they have used AI to create efficiencies in their work, not just share what tools they know how to use. Additionally, employers across sectors want workers who understand return on investment (ROI) when using AI, which means being able to assess the time, cost, and relevance of potential AI solutions to determine if it will lead to meaningful productivity gains.

**Quality control skills.** Performing quality control analysis of AI outputs was often highlighted by organizations across all sectors as one of the most important skills for workers to possess in an AI-enabled environment. AI can produce unexpected results and even "hallucinate," resulting in unexpected and inaccurate outputs.

Tech organizations in particular noted that using AI often requires more subject matter expertise than ever before to check and ensure the quality and accuracy of the outputs. In addition to this expertise, organizations highlighted that for workers to be effective at quality control they must also understand potential biases in the data and output.

“

*I know the formulas. I know where they come from and I double check the AI output for three reasons: 1) To make sure that they're correct. 2) So that I remember how to do these calculations. And 3) because sometimes clients ask during a presentation: How did you come up with the number? How is it calculated? How can I improve the number? So I need to know how the system arrived at the number so that I can give them explanations.”*

- Employer

**Data security and privacy.** Organizations further along in their AI implementation often need workers with cybersecurity skills and knowledge, and an understanding of responsible AI use.

Employers that we spoke to in the tech, aerospace, advertising, and professional services fields expect workers to understand how data is collected and used in AI tools, how it is stored, how it contributes to biases. They are looking for talent who are trained in data privacy and understand data privacy issues, what is safe and appropriate to input into an AI tool, the potential security risks with AI use, and potential intellectual property infringement. More than just understanding these risks, employers want workers who also know or can develop strategies to address them.

“

*Don't blindly paste private documents into an LLM; don't ask for results or analysis that goes against company policy. That safety conversation – what you can and can't do – is important.”*

- Chief Operating Officer

## 2.3 AI SKILLS FOR ENTRY-LEVEL WORKERS

Employers we spoke with across all sectors signalled both the technical and non-technical skills to use AI effectively are in particularly high demand in new hires and entry-level workers.

We found two primary reasons for this. First, lower-risk, routine-oriented job tasks traditionally assigned to new hires are increasingly being done by AI tools in many of the organizations included in this report. As such, entry-level workers are now expected to be ready to hit the ground running when it comes to both effective AI usage and also applying higher-order human skills usage to perform the more complex job tasks not covered by AI.

Second, because new graduates are perceived to be more tech-savvy than more tenured workers, new hires are often expected to serve as internal change champions to help more senior staff understand and adopt AI. We spoke to tech and advertising organizations that are actively seeking entry-level staff with an aptitude for AI, making it important for new graduates to think about how they can contribute to AI transformation. However, being change champions also requires strong interpersonal communication skills when younger or less experienced workers have to navigate teaching more senior workers.



### 3. ADDRESSING AI SKILLS DEMANDS

Employers are responding to the emerging AI skills needs surfaced in this report with a combination of training and recruitment. Across our environmental scan and interviews, most organizations plan to upskill their existing workforce both formally and informally. National data also shows that 50% of businesses who plan to adopt AI intend to train current staff,<sup>7</sup> and that 70% of AI adopters do not plan to change the size of their workforce.<sup>8</sup>

While formal upskilling can mean structured external training platforms and courses, we found that most organizations rely more on informal approaches like experimentation, learning by doing, and peer-to-peer coaching. As such, building capability is about creating conditions for continuous learning in the workplace.

At the same time, AI is also beginning to shape recruitment strategies. Although few employers plan to address AI skills needs through new hiring alone, employers across all sectors told us that the advent of AI has led to a greater emphasis on candidates' human skills and AI literacy. Additionally, new hires are increasingly expected not only to use AI effectively, but also to support broader organizational adoption by acting as informal champions. This has increased the value of a growth mindset and a general interest in technology and business for recruiters.

These trends point to broader implications for how workforce development systems respond to AI.

#### HIRING PRACTICES ARE SHIFTING

Employers are placing greater emphasis on human and applied skills, such as critical thinking, communication, and adaptability, alongside AI literacy.

This reflects a shift away from hiring based primarily on technical specialization or credentials, toward candidates' ability to apply AI with human judgment in real work contexts and generate value.

#### AI SKILLS ARE BECOMING CROSS-CUTTING, NOT SPECIALIZED

AI skills are not confined to technical roles or programs. Instead, they are emerging as a cross-cutting capability required across occupations and sectors. This has implications for post-secondary education, where embedding AI literacy and applied use across disciplines, and pairing it with the development of durable human skills, will be more important than expanding standalone technical programs.

#### TRAINING IS SHIFTING TOWARDS THE WORKPLACE

With most organizations prioritizing upskilling over hiring new AI talent, the workplace is becoming the primary site for building AI capabilities. This reflects both Canada's early stage of AI adoption and the applied nature of AI skills, which are often best developed through hands-on use. As a result, demand for employer-led and work-based learning is likely to grow, reinforcing the need for stronger alignment between employers, post-secondary institutions, and training providers.



7. Statistics Canada, Table: 33-10-1048-01  
8. Statistics Canada, Table: 33-10-1048-01

## 4. CONCLUSION

AI promises to transform many areas of the Canadian economy, but adoption currently remains both limited and uneven. The minority of organizations that are using AI are still largely in experimental and exploratory phases, without fully planned strategies or a clear view of how AI will generate ROI. Given this context, organizations thinking about their skills needs in the AI economy will want to distinguish between skills to drive and support AI adoption, on the one hand, and skills to use AI effectively and responsibly, on the other.

Building skills to drive adoption can help to advance AI adoption across the economy and allow more organizations to begin considering how AI might improve their operations. Building skills to use AI effectively can help organizations better integrate AI into their processes and workflows, and allow them to realize the productivity promises of AI.

The challenge for many organizations is still to recognize that they could benefit from AI in the first place, and to then take the steps needed to develop skills for adoption and effective use.

Addressing these challenges will require coordinated action across employers, post-secondary institutions, and policymakers. Employers will need to take a leading role in upskilling their workforce, while education systems must integrate AI fluency and applied learning across programs. Governments and system leaders have an opportunity to support this shift by strengthening partnerships and scaling models, such as WIL that enable workers to develop and apply AI skills in real-world contexts.

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## ABOUT BHER:

The Business + Higher Education Roundtable (BHER) is the only non-partisan, not-for-profit organization that brings together leaders from Canada's top companies and post-secondary institutions. Since 2015, BHER has harnessed the strengths of its members to drive collaboration, boost innovation, and tackle some of Canada's biggest skills, talent, and productivity challenges.

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## 5. APPENDIX

### ORGANIZATIONAL OVERVIEW

To gather insights on AI adoption and skill needs, we conducted a scan of 49 organizations and interviewed 21 employers from a breadth of organizations of varying sizes and sectors from across Canada. Below is a breakdown of the different types of organizations to show the diverse perspectives that informed this report.

**TABLE 2: ORGANIZATION SIZE REPRESENTATION**

ORGANIZATION SIZE BY # OF EMPLOYEES	NUMBER OF ORGS REPRESENTED
SMALL (<100)	9
MEDIUM (100-499)	7
LARGE (500+)	33

**FIGURE 1. SECTOR/INDUSTRY REPRESENTATION**

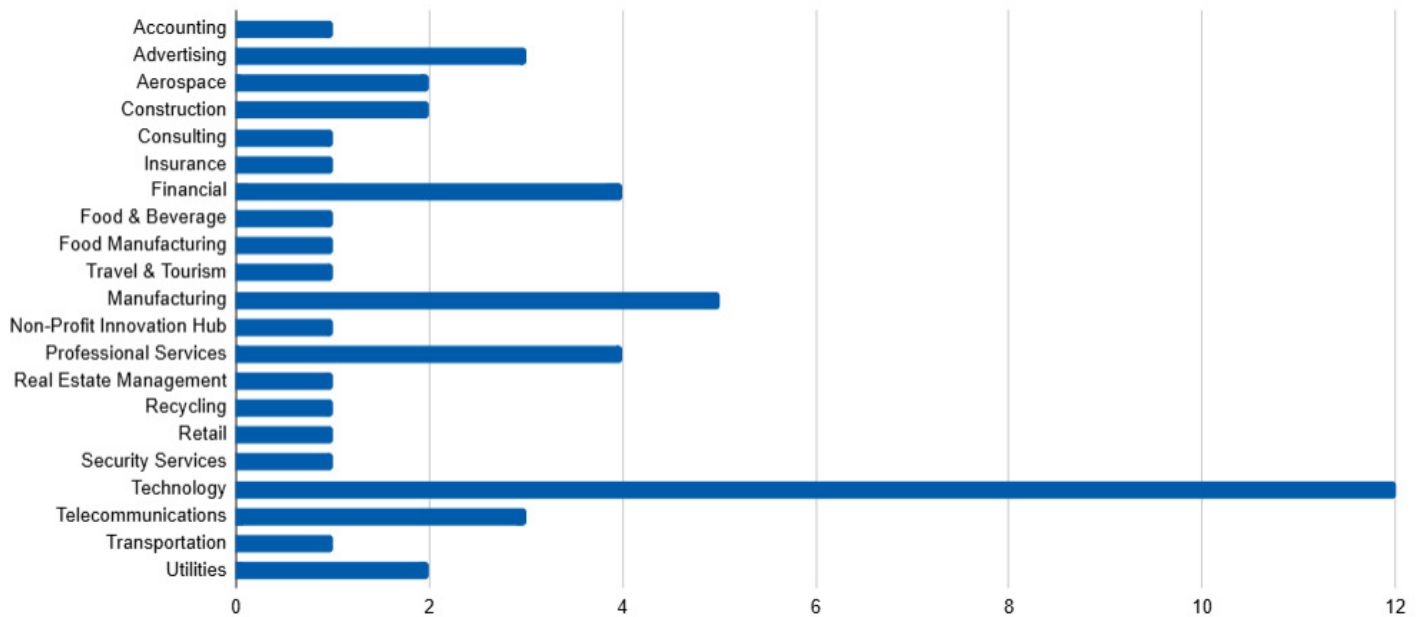


FIGURE 2. TECHNOLOGY SECTOR BREAKDOWN

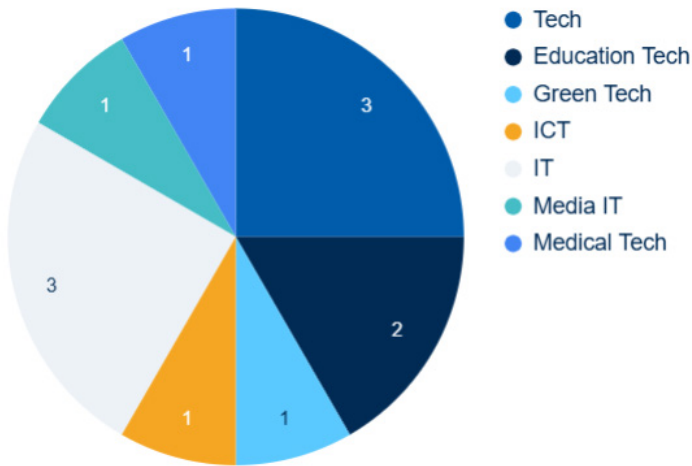
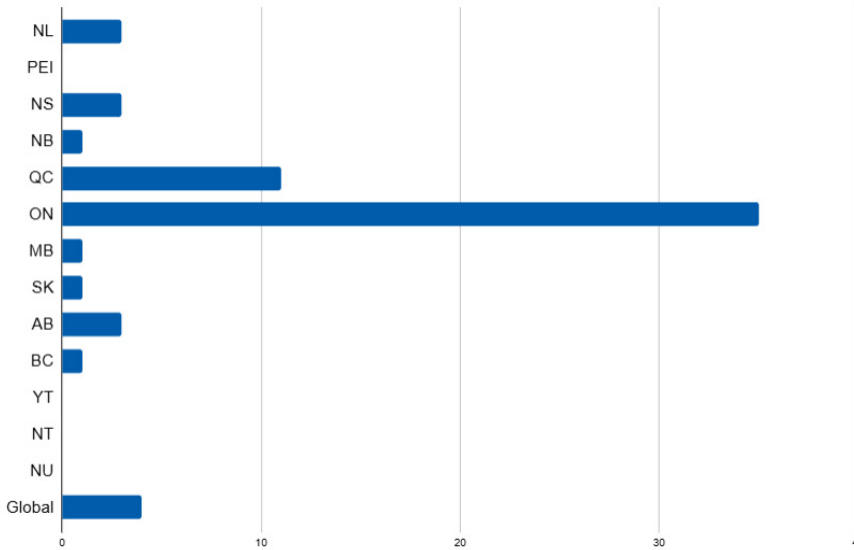


FIGURE 3. LOCATION\*



\*Some organizations had multiple offices in different regions of Canada

FIGURE 4. AI MATURITY

