
AI

Promoting AI Adoption: How the Government of Canada can Help Small and Medium Businesses Bridge the Technology Gap

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Executive Summary

Canadian small and medium-sized enterprises (SMEs) face significant challenges in adopting artificial intelligence (AI), hindering their growth and competitive edge in a rapidly evolving digital economy. This paper identifies deficiencies of resources, technical expertise, and supportive policy environments as critical barriers to AI integration within these businesses.

Our main findings suggest that the key to unlocking the potential of AI for SMEs lies in a combination of targeted governmental support, simplified access to AI technologies, and comprehensive education and training programs. Learning from prior initiatives, we recommend the establishment of *government-led incentives tailored for SMEs*, including **financial grants**, **tax incentives**, and a **framework for ethical AI use**, to lower the barriers to AI adoption.

The value of implementing these recommendations extends beyond individual enterprises, promising to catalyze innovation, enhance productivity, and strengthen the global competitiveness of Canada's SME sector. By fostering an ecosystem where SMEs can readily access and utilize AI technologies, the government can drive sustainable economic growth and position Canada as a leader in the digital age.

Introduction

This paper explores the integration of artificial intelligence (AI) within Canadian small and medium-sized enterprises (SMEs), emphasizing the critical role of government initiatives in helping these businesses bridge the technology gap and enhance their growth, innovation, and productivity. It outlines the challenges faced by SMEs, including slow AI adoption rates due to financial constraints, lack of technical expertise, and the complexities of AI navigation, despite the significant potential AI holds for operational efficiency, revenue growth, and competitive advantage in the face of global competition and technological advancements.

To address these challenges, the paper proposes a strategic approach involving government and industry collaboration to create a supportive environment for AI adoption among SMEs. While AI is receiving federal attention via the proposed $2.4 billion Budget 2024 package, the package is focused heavily on infrastructure creation in AI and less heavily on those who can adopt the technology. By fostering a conducive environment for AI integration, the paper argues that Canada can unlock the transformative potential of AI for SMEs, driving innovation, competitiveness, and economic growth through a collaborative effort across sectors.

Understanding the Challenges Faced by Canadian SMEs

The burgeoning integration of SMEs into the Canadian economy underscores their indelible impact and essential role in fostering economic vitality. SMEs, constituting 97.9% of all Canadian businesses as of December 2022, are not only predominant in the business landscape but also play a crucial role in employment and economic growth. These enterprises were responsible for employing 8.2 million individuals, equating to 67.7% of the private labor force, and contributed 36.7% to Canada's GDP from the private

sector in 2019, illustrating their indispensable contribution to the nation's economy (ISED Canada, 2022a).

The Canadian economy grew by an average of 0.39% per quarter between 2018 and 2023, lower than the US (0.57%) but on par with the G7 Average (0.38%) (OECD, 2024a). Since peaking during the height of the pandemic, inflation rates have continued to decline, currently sitting at 3.17% in Canada, 3.72% in the US and 3.26% (G7 Average) (OECD, 2024c). High unemployment and low productivity rates, however, have been the major pain point for Canadians and Canadian SMEs. Unemployment rates in Canada (6.6%) have trended almost 2% higher on average than in the US (4.7%) and G7 Average (4.8%) (OECD, 2024c). Productivity levels are the biggest source of concern, with the average Canadian worker only producing approximately 70% of their US counterparts. Indeed, productivity levels in Canada are a full 20% behind the US, and 10% behind the G7 Average (OECD, 2024b). Canada is currently lagging behind both the US and other G7 economies on the OECD's composite leading indicator (OECD, 2024d). Conversations with Toronto businesses show that general productivity is a primary concern, and many look to innovation to support their productivity.

As a result of these difficult economic conditions, business confidence has declined to near the 5 year low (OECD, 2024e). Despite these challenges, Canadians remain more optimistic about business opportunities and their capabilities in running a business (GEM, 2024a; GEM 2024b) than do their US counterparts. Indeed, Canada boasts impressive Total Early Stage Entrepreneurship statistics, significantly higher than both the US and G7 Averages (GEM, 2024c).

AI is Here to Help

This situation presents a clear opportunity for AI productivity tools to assist businesses in tackling these tough economic conditions and low productivity rates. While 48% of Canadian businesses have explored the use of AI (higher than any other G7 country) (IBM, 2023), only 9% of Canadian businesses are using AI, and only 5% have plans to use it soon (Canadian Chamber of Commerce, 2024). Owing to AI's potential to boost productivity, Canada ranks 9th out of 33 OECD countries to benefit from the use of AI (Canadian Chamber of Commerce, 2024).

The integration of AI can transform small businesses in several key areas. AI enhances back-office administration by automating routine tasks, thereby freeing up valuable time for strategic activities. In digital marketing, AI tools can offer personalized customer experiences through targeted content and offers, improving engagement and loyalty. Additionally, AI-driven customer relationship management systems can provide insights into customer behavior, enabling businesses to tailor their services effectively. Data analytics powered by AI can uncover trends and patterns from vast datasets, aiding in more informed decision-making (CanadianSME, 2022). Of the businesses that have already adopted AI, accelerating the development of creative content (69%), increasing automation of tasks (46%) and improving customer experience (38%) are the primary drivers of AI adoption (Canadian Chamber of Commerce, 2024). These businesses believe that AI can significantly increase productivity and competitiveness across industries.

Despite the benefits outlined above, an overwhelming proportion of small businesses cannot make this transition, and require support. We argue that by adopting the policy recommendations contained in this report, the Government of Canada can support SMEs in adopting AI tools by alleviating some of the financial, structural and regulatory challenges they face. Ultimately, this will help increase productivity levels and help translate Canada's burgeoning early-stage entrepreneurial activity into thriving businesses, revitalizing the Canadian economy and fostering sustainable growth.

Barriers to AI Adoption

Having identified the broad challenges that Canadian SMEs face and how the adoption of AI productivity tools is likely to alleviate some of these challenges, we now discuss the barriers that businesses have faced in adopting AI, informed by a comprehensive review of the relevant literature and conversations with several Canadian small business owners.

1. **Navigating the Economic Impact and Structural Challenges of SMEs**
   The introduction of Generative AI into SMEs has been identified as a catalyst for revenue growth, contingent upon the interaction of human capital, technological infrastructure, and market competition. Studies have illuminated how SMEs benefit markedly from Generative AI, especially when supported by a well-educated workforce and robust technological infrastructure. Nonetheless, the intensity of market competition can mitigate these benefits, highlighting the nuanced influence of external market forces on AI's efficacy (Soni, 2023). Yet, a predominant barrier to leveraging AI for productivity enhancement lies in the fragmented collaboration among governments, businesses, and policymakers, necessitating a unified strategy for AI integration (Parkinson, 2023). Furthermore, more than 30% of Canadian businesses suggest hiring skilled employees and financial reasons as the primary challenges they face in adopting AI (Canadian Chamber of Commerce, 2024).

2. **Technological Integration Challenges**
   Amid these discussions, the challenges unique to SMEs, particularly in navigating economic pressures such as inflation and rising costs, come to the forefront. A cautious outlook is evident among smaller businesses, with many anticipating reduced profitability without the propensity to raise prices or expand their workforce, indicative of a broader reluctance to adopt new technologies, including AI. This hesitation, especially pronounced among SMEs, is attributed to a lack of technical expertise and intimidation by technology, which stymies potential productivity gains (Statistics Canada, 2023; Parkinson, 2023). This said, many discussants indicated a desire to learn more, but currently lacked the time and labor resources to invest in learning new toolsets.

3. **Ethical and Bias Challenges in AI Causing Regional Disparities in Adoption**
   The ethical considerations and potential biases in AI applications also pose significant challenges, emphasizing the need for strategic AI integration across various operational areas, including human resources. Moreover, the disparity in AI adoption rates between large and small businesses, particularly highlighted in Quebec's slightly higher adoption rate among SMEs, underscores the challenge of

maintaining competitiveness on a global scale. Canada's urban businesses are almost twice as likely to adopt AI as their rural counterparts (Canadian Chamber of Commerce, 2024). This scenario stresses the importance of strategic approaches and cross-disciplinary collaboration to manage AI's benefits and risks effectively, as highlighted in the Deloitte AI Institute's report on Generative AI (Deloitte, 2023). Most discussants had not given thought to these challenges, highlighting important gaps in knowledge.

4. **Governmental and Regulatory Hurdles**
   The Canada Digital Adoption Program (CDAP) represents a governmental effort to bridge the technology gap among Canadian SMEs. However, the program's effectiveness has been hampered by excessive regulatory and consulting requirements. Despite its intentions, CDAP ultimately fell short of its goals to assist SMEs in their digital transformation, primarily because its framework inadvertently introduced additional barriers by emphasizing the use of consultants, thereby underlining the critical importance of direct and accessible government support in effectively enabling SMEs to navigate the complexities of adopting new technologies (Hannay, 2024). While many business owners contacted were familiar with CDAP by name, many of those discussed their reservations with the time commitment to obtaining government funding at the price points provided. Some indicated that they preferred to participate in city grants as they felt more connected, and were more straightforward to achieve.

The Way Forward

On a positive note, the growing adoption of AI technologies among Canadian businesses, as indicated by the 2022 Borealis AI report and supported by IBM Global AI Adoption Index, suggests a promising trend towards leveraging AI for operational efficiency, customer service, and market competitiveness. Despite facing challenges such as ethical concerns, privacy, cybersecurity, and talent scarcity, businesses are increasingly recognizing the importance of ethical AI implementation. This trend is particularly evident in the Toronto-Waterloo region, where a vibrant ecosystem of talent, diversity, and funding opportunities is driving a surge in AI adoption among new small businesses (Borealis AI, 2022; Startup Genome, 2024).

The future of Canadian SMEs in the AI era will hinge on the collaborative efforts to navigate these challenges and seize the opportunities that AI presents for sustainable growth and competitiveness in the global market (Statistics Canada, 2024). The journey towards widespread AI adoption and its integration into the fabric of Canadian SMEs requires a concerted effort from all stakeholders, including businesses, governments, educational institutions, and policy firms, to foster a culture that embraces AI, technological literacy, and adoption (Blit, 2024). The approaches outlined below go further and more directly address the gap than do those of the Pan-Canadian Artificial Intelligence Strategy (ISED Canada, 2022b).

Policy Recommendations

Overwhelmingly, the data and responses given indicate that adoption of AI by SMEs is limited by various resource constraints, such as time, knowledge, and money. One way the

government can assist is by **lowering the barrier of entry to government funding**. Responses to previous government funding programs including CDAP indicate that potential participants were turned away by the time investment, significantly lowering program adoption. To this, future programs aimed at funding adoption of technologies, particularly AI, could benefit from *faster review and turnover of applications*, directly working with businesses as opposed to partnering with consultants. Additionally, manifesting a *one-time flat tax break for adoption of AI technologies* could be a straightforward way to lower the cost of entry. It is imperative that the government prioritize accessibility of funds, as this would allow businesses to take advantage of the rapidly evolving nature of AI tools, while helping avoid further productivity lag.

Another, potentially parallel, option that agencies including ISED can take is in creating a **Responsible Usage of AI accreditation framework**. This could manifest as a straightforward and validateable checklist that both *protects consumers from some of the issues surrounding AI* while ensuring that *businesses do not expose themselves to unnecessary legal risk* in the adoption of AI. Among the benefits to business are adherence to a recognized standard, a listing in a directory of appropriately-recognized businesses, and increased transparency for doing business. On the government side, the low cost of creation and maintenance of such a system is attractive, and could assist in choosing contracts for public-private partnerships.

Finally, **training programs on how to safely and effectively use AI** could be implemented. These programs should aim to equip individuals and businesses with the necessary skills and knowledge to confidently utilize AI technologies. By prioritizing practical skills and emphasizing safety protocols, the policy would help mitigate fears and barriers associated with AI adoption. Furthermore, it would facilitate a more inclusive digital transformation, enabling a wider range of entities to benefit from AI advancements. This policy initiative is crucial for fostering a competitive edge, driving economic growth, and ensuring a technologically proficient workforce in the face of rapidly evolving digital landscapes. Under federal guidelines and supervision, implementation of the training programs should be done at the provincial level, to allow the respective governments to focus key issues in their own specific constituencies. Additionally, this could be coordinated with business associations in different sectors to create tailored education for different business contexts.

Conclusion

This paper highlights the imperative for targeted government and industry interventions to facilitate the adoption of AI by Canadian SMEs, recognizing AI's potential to significantly enhance operational efficiency, innovation, and global competitiveness. It emphasizes the need for simplified access to government funding, tax incentives for AI adoption, and the establishment of a Responsible Usage of AI accreditation to ensure ethical and legal compliance. Additionally, the paper advocates for practical training programs to equip businesses and individuals with the skills required for effective and safe AI use. By fostering a supportive ecosystem for AI integration, the paper concludes that SMEs can unlock transformative growth and productivity, ensuring Canada's economic resilience and competitiveness in the digital era.

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