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EVIDENCE BRIEF

The **Social Sciences and Humanities Research Council** in collaboration with the **Future Skills Centre**

SSHRC's Imagining Canada's Future initiative mobilizes social sciences and humanities research to address emerging economic, societal and knowledge needs for Canada, and help guide decision-making across all sectors toward a better future. This evidence brief addresses the Future Challenge Area of: **Skills and Work in the Digital Economy**

Canada as a learning economy: Education and training in an age of intelligent machines—challenges and policy responses

About the project

This knowledge synthesis report is part of a research program currently underway at the Munk School's Innovation Policy Lab (IPL) that seeks to understand innovation as the product of a learning economy. Unlike classical economic models, this perspective conceives knowledge as a dynamic process of creation and destruction, not as a static stock. It offers an alternative, human-centred policy approach aimed at enhancing innovation capacity.

As information and communication technologies (ICT) accelerate the rate of knowledge creation and destruction, the **rate of change** is what matters most. Dynamics that make information easily accessible also make knowledge, skills and competences obsolete at a faster rate. For business it means shorter product life cycles and intensified

competition; for individuals it means a constant need to renew skills to remain employable; and for policy-makers it presents a need to establish and promote resources to support learning.

The broader research project aims to corroborate international evidence suggesting that the organization of work and opportunities to learn on the job are factors influencing national innovation performance. This work challenges the assumption that innovation policy focused exclusively on research and development is sufficient to enhance long-run prosperity.

This report was presented on June 4, 2021, at the annual conference of the Industry Studies Association (ISA) held at the Massachusetts Institute of Technology. It is also available as a working paper on the IPL website.

Key findings

International research highlights the link between high-performance work practices that provide opportunities to learn and develop skills and the capacity to innovate. This research suggests that learning is a critical factor in the economic performance of knowledge-based economies (Holm et al. 2021; Nielsen et al. 2021; Gjerding et al. 2020; Lorenz & Lundvall 2006; Lundvall & Johnson 1994). Patterns of learning, knowledge creation and the organization of work determine innovative capacity, ultimately producing comparative advantage in different industrial sectors that typically characterize national economies. Variation in innovation patterns emerges from the ways in which knowledge is generated and used by firms to create value that in turn conditions its pace (fast or slow) and style (incremental or radical).

As artificial intelligence and robotics become more diffused, the learning economy perspective contends that existing education systems must be reconceived to focus on continuous learning. It requires business and government to focus on the ways in which institutions such as schools, universities and research institutes shape patterns of learning and innovation. In this context, strategic human resource management and informal forms of learning on the job are also critical.

Across advanced economies, workforces have bifurcated over the past three decades. The wage premium enjoyed by workers without postsecondary education during the industrial era has diminished, while returns to highly skilled workers have increased. In Canada, uneven access to adult education and learning resources across the country has the potential to undermine efforts to develop a highly skilled, flexible and inclusive workforce.



Canada's contentious history of active labour-market policy and skills development reflects long-standing institutional and governance conflicts. It stands in sharp contrast to a growing emphasis in the innovation literature on the link between learning processes and innovation performance.

Using a place-based lens to understand how risk of automation impacts labour markets at a community level, this report argues that Canada's lacklustre innovation performance is partly rooted in underinvestment in human capital, representing significant lost opportunity.

Policy implications

Insights presented here suggest Canadian policy-makers must look beyond technological frontier countries, particularly the United States, to middle-income peers such as Denmark for inspiration. Adopting an incremental rather than a radical approach to innovation requires a shift away from Canada's current R&D-focused policy orientation.

To facilitate the digital transition and mitigate the automation risk facing many Canadians, labour-market policy must become a higher priority. Policy-makers must take a long-term view of economic growth and conceptualize innovation broadly to include human skills and learning.

Labour market reforms should reflect local market demand and employer needs, paying attention to the behaviour of firms by shaping incentives in ways that balance private and social needs. At the same time, firms must consider the capacity to learn and develop knowledge as a critical source of competitive advantage.

This will require more collaborative governance, because neither the federal nor provincial governments can solve problems of an economy-wide digital restructuring alone. Without opportunities to upskill or reskill over the course of a career, many Canadian workers will be left behind, with significant consequences for economic competitiveness and social cohesion.

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FURTHER INFORMATION

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SSHRC is a funding agency of the Government of Canada. Through research grants, fellowships and scholarships, SSHRC supports research that provides key insights on the social, cultural, environmental and economic challenges and opportunities of our ever-changing world.

The Future Skills Centre (FSC) is a forward-thinking centre for research and collaboration, dedicated to preparing Canadians for employment success. As a pan-Canadian community, we are collaborating to rigorously identify, test, measure and share innovative approaches to assessing and developing the skills Canadians need to thrive in the days and years ahead.
