AI and the Future of Work(force Development)

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Heather McGeer

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Agenda

1. Introduction
2. What is AI?
3. Impact of AI on Work
4. Labour and Skills Development
5. Discussion Question

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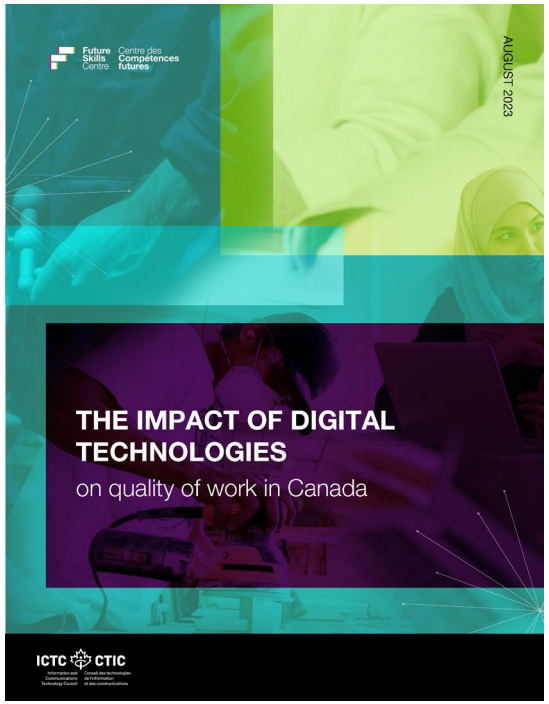
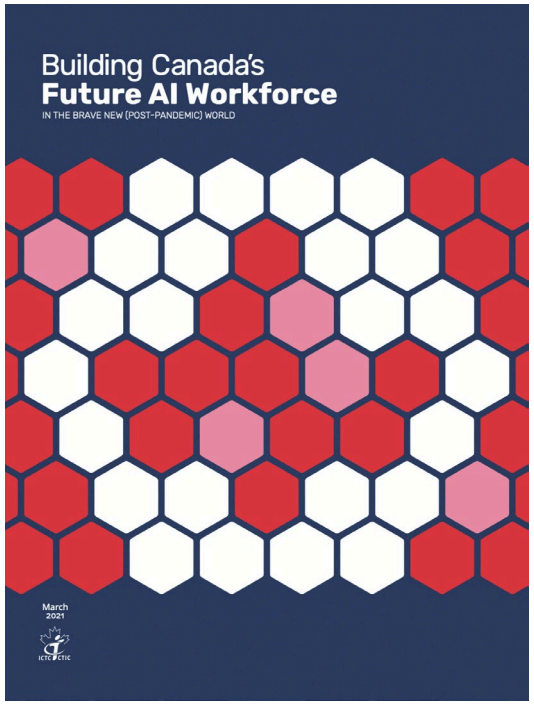
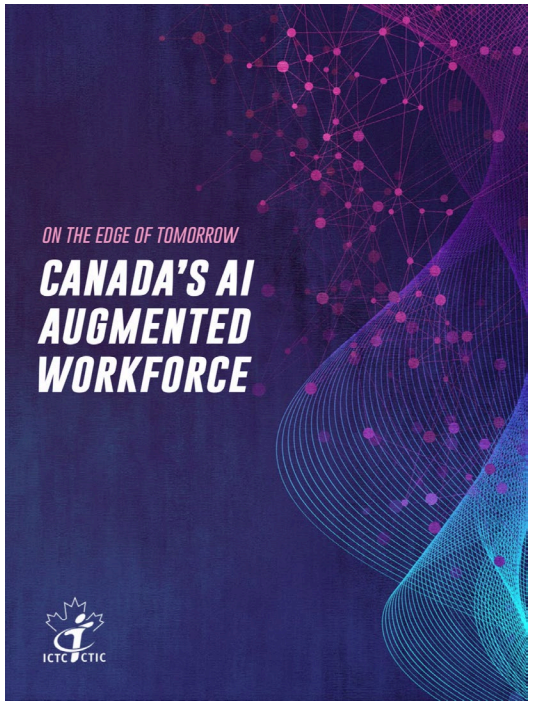
ICTC's AI Research (www.ictc-ctic.ca)



The Impact of Digital Technologies on Quality of Work in Canada (2023)



Building Canada's Future AI Workforces (2021)



Canada's AI-Augmented Workforce (2020)

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What is Artificial Intelligence (AI)?

A multi-disciplinary subject, involving methodologies and techniques from various fundamental disciplines such as mathematics, engineering, natural science, computer science, and linguistics.

Not a singular concept: currently, AI is limited to assistive technologies with context-dependent “intelligence”.

Further Definitions

- Machine Learning (ML): *AI algorithms that allow systems to learn and improve without further programming/intervention*
- Natural Language Processing (NLP): *tech to aid computers in understanding human natural (rather than coding) language*
- Robotics: *machines that can substitute humans or replicate human actions*
- Neural Networks: *a network of algorithms that are designed to recognize patterns*
- Automation: *the use of tech to automate a process or procedure to be performed with minimal human assistance (physical means or digital processes)*
    - *Job vs. Task Automation

Impact of AI on Work

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The AI Labour Market

Demand for roles such as:

- Machine learning engineers
- Data engineers
- Systems engineers
- Data scientists
- Computer scientists
- Data analysts
- Computational linguists
- Software developers
- Ethicists
- Human factors specialists
- Government representatives

But…

Shift of “AI worker” from someone who designs, develops, and manages AI, to one who must understand how to use AI tools.

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AI-Applicable Roles, Disruption to Knowledge Work

- Automation and robotization has had an impact on physical labour, administrative, and simple information processing occupations
- Roles reliant on science and critical thinking are **less** exposed to AI disruption
- With language learning models of AI, programming and writing roles are **more** exposed
- Transformation or “augmentation” rather than replacement

Benefits and Drawbacks

Benefits	Drawbacks
• Increased productivity and efficiency • Automation of arduous or repetitive tasks • Opportunities for value-added tasks and more meaningful work • Improved access to work or services, improved flexibility	• Job displacement • Technology stress • Diminishment of worker well-being • Ethical issues and data selection, collection, and privacy • “Black box” nature of AI

Managing AI and Technological Progress in the Workplace

- Technological deployment in the workplace should be done in a **human-centric** way
    - Technological changes should be made **with** workers, rather than **to** them
- Digital-forward workplaces should focus on worker training and consideration of how to best leverage human capabilities
- Expanded hands-on and work-integrated learning opportunities
    - Continuous learning important as the rate of change accelerates

Skills Development for the AI Augmented Workforce

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Automation-Resistant, Human Skills

Key human skills for future-ready workers:

- Critical thinking, creativity and problem solving
- Interpersonal communication
- Emotional intelligence / social perceptiveness
- Adaptability and flexibility
- Leadership
- Collaboration

In 2019, only about 1/3 of post-secondary strategic plans and annual reports explicitly acknowledged social-emotional skills.

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Transferable Digital Skills

What are transferable digital skills?

1. Universally applicable across various disciplines
2. Adaptable within specific domains or industries
3. Do not become obsolete with new/emerging digital technologies

- Management
- Sales and Marketing
- Operations Analysis
- Troubleshooting
- Systems evaluation
- Negotiation and conflict resolution
- Strategizing and business acumen

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Digital Literacy Classifications

Classification of Digital Literacies: Core Areas	
Tools and interface	Basic familiarity with computer systems and ability to interact with hardware, software, applications, and design concepts
Information and data	Ability to retrieve, think about, process, and use information
Sharing and creation	Ability to read, write and communicate ideas and information digitally and in the interconnected global world
Historical and cultural context	Ability to recognize that technologies are developed within cultural, economic, and political systems

How to support workers?

Improve access to career supports, upskilling opportunities, or other tools and resources needed to acquire digital literacy

Inform workers on the digital skills and competencies that are increasingly applicable across many roles

Provide additional support to address language barriers, work eligibility, recertification, and systemic discrimination

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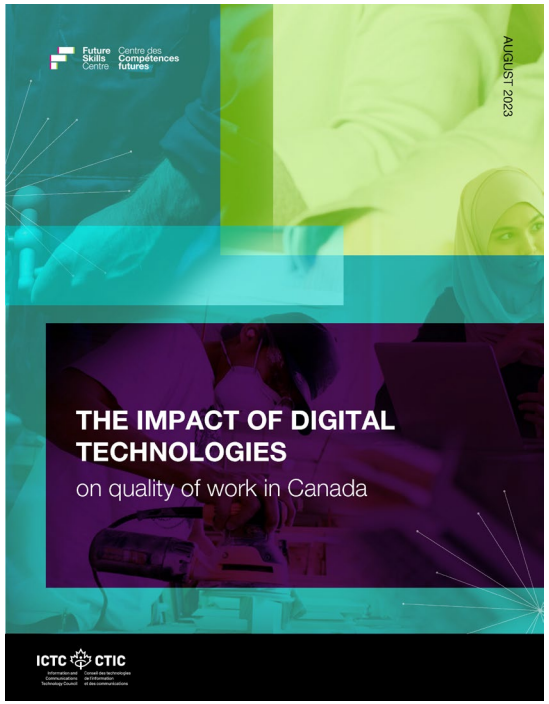
ICTC's AI Research (www.digitalthinktankictc.ca)



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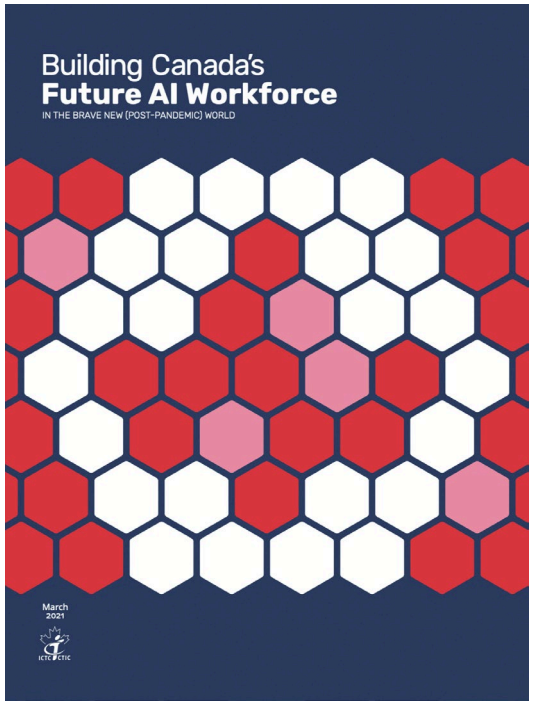

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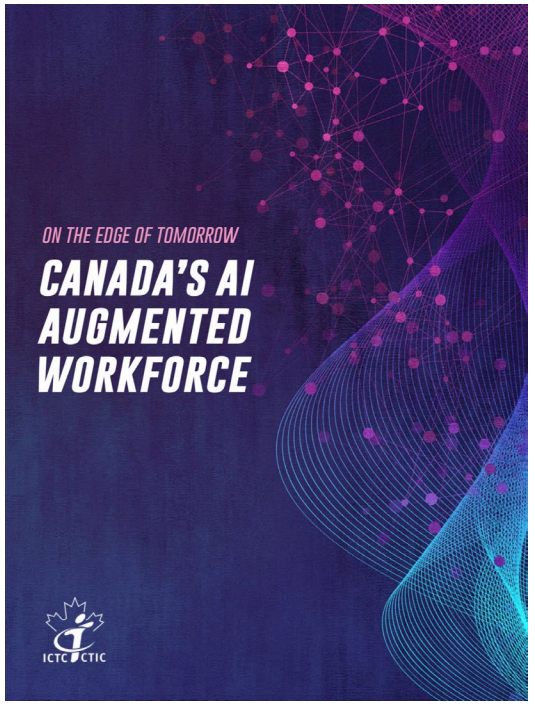

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