

# 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**

## Transforming work in the digital economy: The impact of digital technologies on work innovation and worker engagement

### About the project

Digital technologies have profoundly transformed how we function in society and organizations. They have become indispensable to life in all sectors of the economy. These technological advancements, leveraging high-speed networks, have created fundamental shifts in how, when, where, and for and with whom we work. Such fundamental changes in the nature and arrangement of work reframe the definition of employment and people's relationship with organizations. They are changing organizational life's spatial and temporal geography, allowing people to work from anywhere, at any time, with whom they need to. These changes have profound positive and negative effects on the constitution and configuration of work and how people engage with and carry out work. In this report, we synthesize research focusing on the impact of digital technologies on work and worker engagement. Applying topic modeling and qualitative content analysis, we sought to understand:

- (1) how digital technologies are transforming the nature of work;
- (2) how digital technologies are transforming workplace practices;
- (3) the effect of digital technologies on social networks and relationships in the workplace;
- (4) how and to what extent these new work arrangements affect employee engagement and the meaningfulness individuals find in the work they do; and
- (5) the implications of digital technologies for the future of work.

### Key findings

Using topic modeling, we generated research findings relating to the following five themes:

- 1. Digital technology platforms and the changing nature of work.** Crowd-work and work-on-demand systems afford self-employment and time management autonomy, enhancing flexibility. Digital platforms employ complex and invisible algorithms to manage and control work supply and demand dynamics, and monitor and evaluate work performance.
- 2. Digital technological affordances and the transformation of workplace practices.** Three major work processes have been shaped significantly by digital technologies:

1) organizing work and hiring workers, 2) communication and collaboration within and across organizations, and 3) performing knowledge work. Digital technologies are embedded in knowledge work practices and support knowledge workers' need for autonomy, mobility, flexibility, and control of ambiguity and complexity, enabling them to engage in productive work practices.

- 3. Effects of digital technologies on social networks and relationships at work.** There is no consistent conclusion regarding the impact of digitalization on the social structure at work. While some researchers find that digital technologies positively impact social relationships and networks and enhance employees' power in workplace social structure, other research finds that digitalization

negatively impacts power dynamics at work. The technologies can be empowering for both employers and workers at the same time. While algorithms embedded in platforms give managers advanced powers of control and surveillance, they can also enhance the power of individual workers to respond to such oversight, reducing its impact.

- 4. Digital technologies, experiences, consequences and management.** Digital technology capabilities can be both value-enhancing and value-destroying, impacting workers' behavioural and psychological outcomes. Applying digital technologies at work may lead to information overload, challenges in time management and work productivity, and higher cognitive and time resources requirements. Digitalization can also cause adverse psychological outcomes, such as work-life imbalance, work stress, technostress and anxiety.

- 5. Digital technologies and the future of work.**

Industry 4.0 represents the digitalized workplace's future, requiring reskilling to support work in the new era. Future management of platform work should move beyond just using algorithms for control to a more holistic application of platform logic for managing work and worker interactions. The COVID-19 pandemic has increased interest in the adoption and use of artificial intelligence (AI) and its application in machine learning, natural language processing and robotics in the workplace. Security and privacy issues will continue to be very problematic in the future of work.

---

## Policy implications

1. Policy-makers need to thoroughly analyze the impacts of digital technologies on employment and the economy to ensure gaps do not widen further between those who benefit from applying these technologies in the work setting and those they marginalize.
2. Policy-makers need to understand what it will take to move from algorithm-based management and control to platform-based management and control. Platform-based management involves a broader socio-technical awareness of digital infrastructures and their impacts.
3. Workers need to develop their technological capabilities relevant to the digital economy to reduce the knowledge and power gap. Organizations must invest in further education and training for platform workers to help them acquire the new skills and qualifications necessary to cope with rapid developments in technology.
4. Policy-makers need to recommend investment in lifelong learning opportunities and promote collaborations between businesses, government and educational institutions to improve digital knowledge accumulation and dissemination effectiveness and efficiency.
5. Policies that incentivize or drive investment in affordable and accessible digital infrastructures are needed to reduce the digital divide between those with access and those who do not have such access.
6. Embracing and harnessing AI and related technologies impacting work requires significant digital knowledge development and organizational retooling.

---

## CONTACT THE RESEARCHER

**Gerald Grant**, professor, Information Systems and Director, Centre for Information Technology, Organizations, and People, Sprott School of Business, Carleton University:  
[gerald.grant@carleton.ca](mailto:gerald.grant@carleton.ca)

**Yun Wang**, postdoctoral researcher, Rowe School of Business, Dalhousie University: [yn657004@dal.ca](mailto:yn657004@dal.ca)

---

## FURTHER INFORMATION

▶ [Read the full report](#)

---

The views expressed in this evidence brief are those of the authors and not those of SSHRC, the Future Skills Centre or the Government of Canada.

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.