



Fragmentation in the future of work

Exploring the impact of the changing nature of work on vulnerable workers

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Research funding

Tri-Agency Program Secretariat

- CIHR
- SSHRC
- NSERC

- To support **high risk, high reward** and **interdisciplinary** research
- To inspire projects that bring disciplines together
- Research that might fail, but has the potential for significant impact



Investigator team

	Institution	Disciplines
Arif Jetha	IWH	Public Health, disability
Ali Shamaee	IWH	Foresight
Cristina Banks	UC Berkeley	I-O psychology, workplace health promotion
Silvia Bonaccio	U Ottawa	I-O psychology, disability
Ute Bültmann	U Groningen	Life course epidemiology, disability
Monique Gignac	IWH	Social psychology, disability
Cameron Norman	OCADU and Cense Design	Foresight, public health
Peter Smith	IWH	Epidemiology, disability
Emile Tompa	IWH	Economics, disability
Lori Tucker	UBC and BC Children's Hospital	Transitional medicine

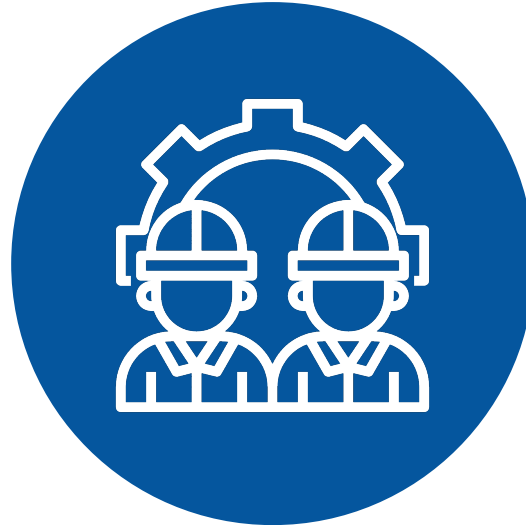
Jetha et al., (2020). Fragmentation in the future of work: A horizon scan examining the impact of the changing nature of work on vulnerable workers. *Under review.*

Open access pre-print available

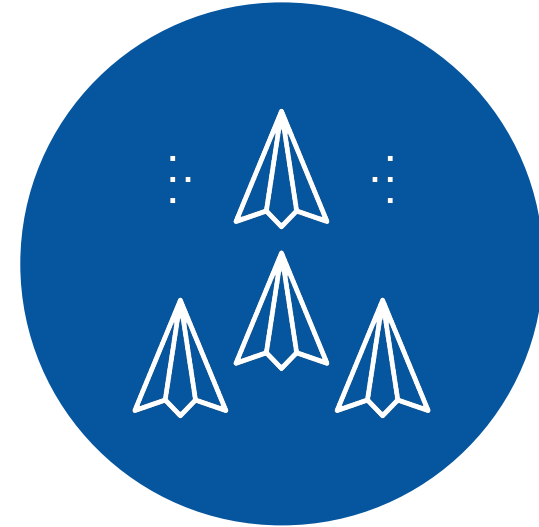
Take home messages



**9 medium-to-long
term trends that
characterize the
future of work**



**Impact of the
future of work will
be unequal**



**Opportunities
exist in the future
of work**

What is the future of work (*FoW*)?

- Large-scale and rapid digitization and automation of diverse domains of working life
- Coupled with social, demographic, political and environmental changes
- Reflects a dramatic change to every industry and transformation of all aspects of work
- Superimposed on top of ongoing industrial shifts, offshoring of work, growth in non-standard work arrangements



Knowledge gaps in FoW research



- Significant amount of research which has sought to project changes to the working world

What's missing?

- Experiences of diverse groups of workers within the FoW
- Public health implications of the FoW

Who are vulnerable workers?



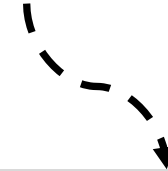
Exposed to adverse and unsafe work conditions

Lack access to employment legislation or statutory benefits

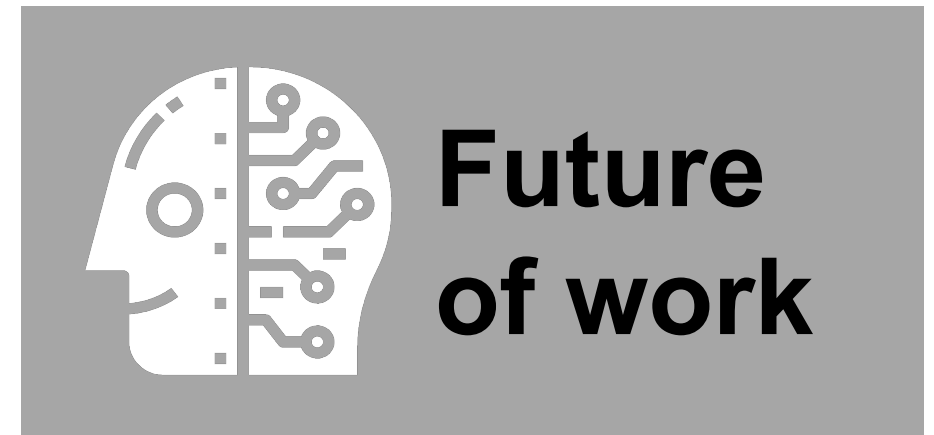
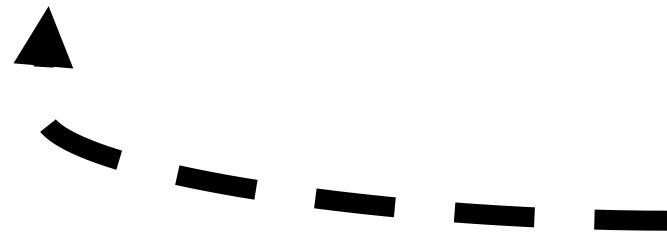
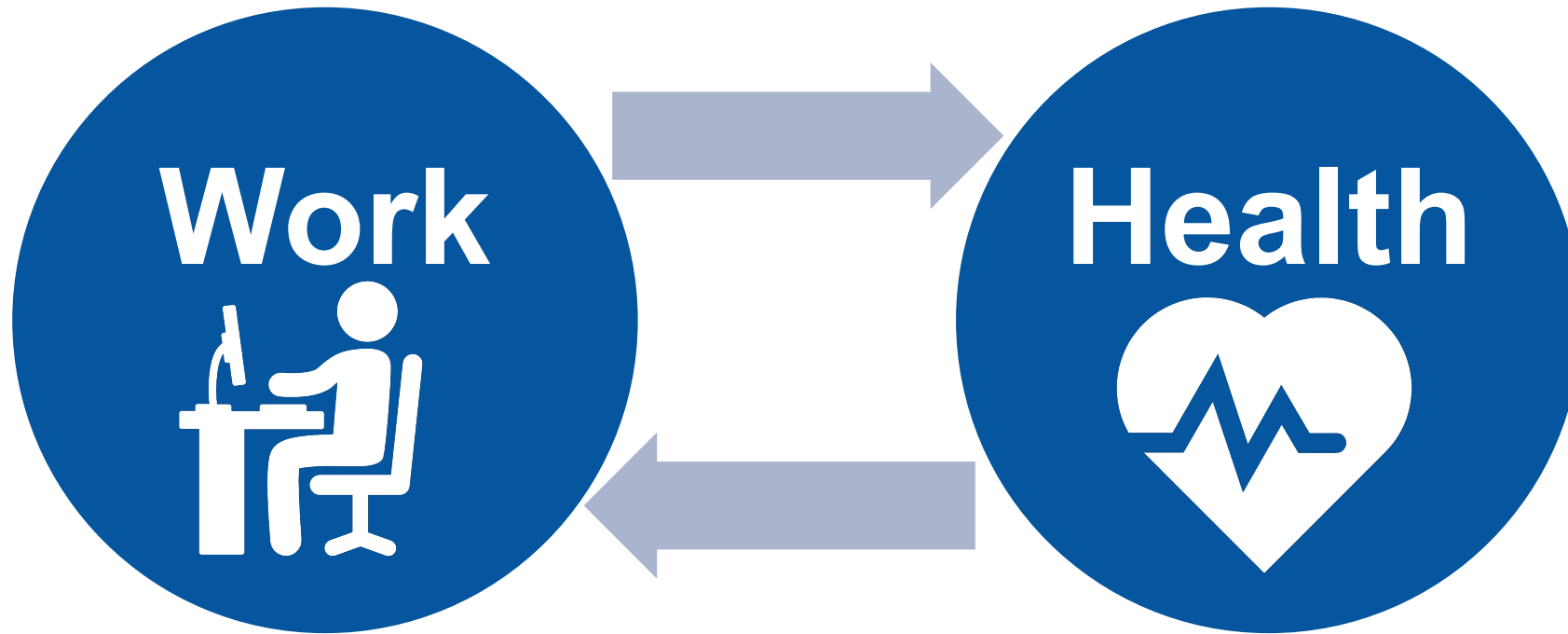
Lack opportunities to improve working conditions

Earn low wages or experience employment instability

≈1/3 of Canadian workers experience vulnerability

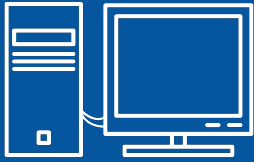


Women, visible minorities, immigrants, Indigenous peoples, LGBTQ2+, those with low socioeconomic status, people with disabilities



Back to the future

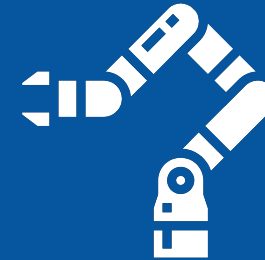
Past events provide a roadmap for how FoW might contribute to health and social inequities



**1980s/1990s
Personal
computers**



**2008
Recession**



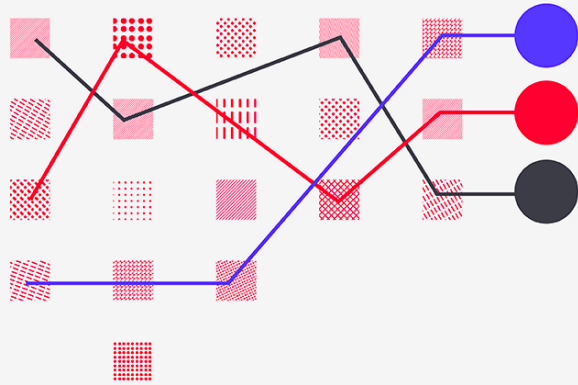
Automation

Research objectives

1. To identify existing evidence on different trends that may span social, technological, economic, environmental and political domains and characterize the future of work
2. To synthesize and describe how the convergence of the trends that we identified might impact vulnerability within the labour market

METHODS

Horizon scan



Systematic information-generating activity to identify trends that have the potential to emerge over time

- Inclusive and seeks to identify and synthesize diverse evidence sources
- Five core documents selected by the research team to develop an initial pool of search terms
 - Social, technological, political, economic and environmental
 - Vulnerability
 - Work outcomes
- Iteratively identified new search terms
- December 2019-January 2020; updated in August 2020

Horizon scan: Search process



Peer-reviewed and gray literature

- ASSIA, Business Source Premier, IBSS, PAIS Index, Sociological Abstracts, WPSA



Twitter

- Tweets with moderate amount of engagement
- Tweet included a link to a specific resource

Eligibility

- English language
- Published ≥ 2015
- Documented a potential FoW trend
- Focused on an industrialized context
- Described an explicit impact on vulnerability

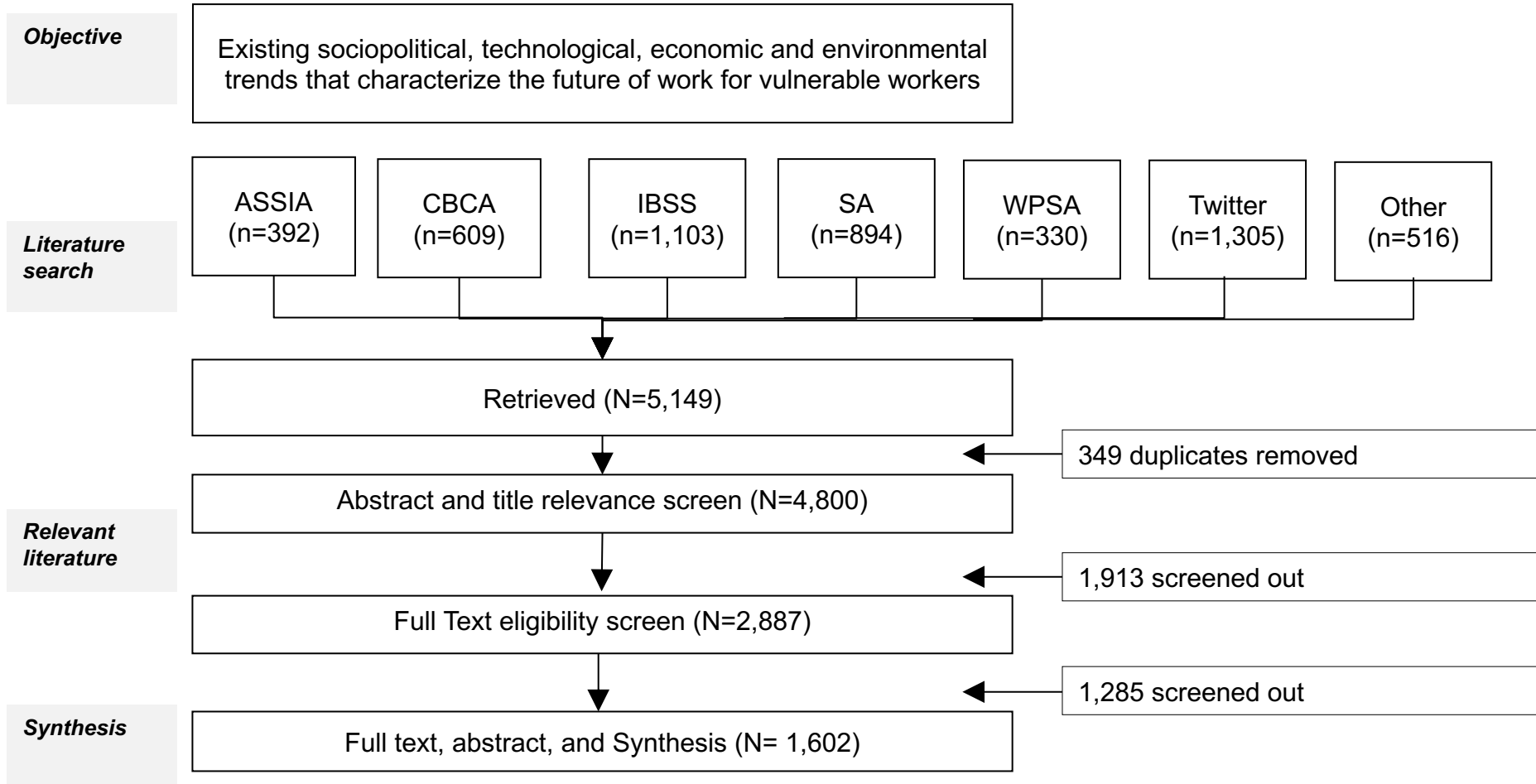
Horizon scan: Synthesis

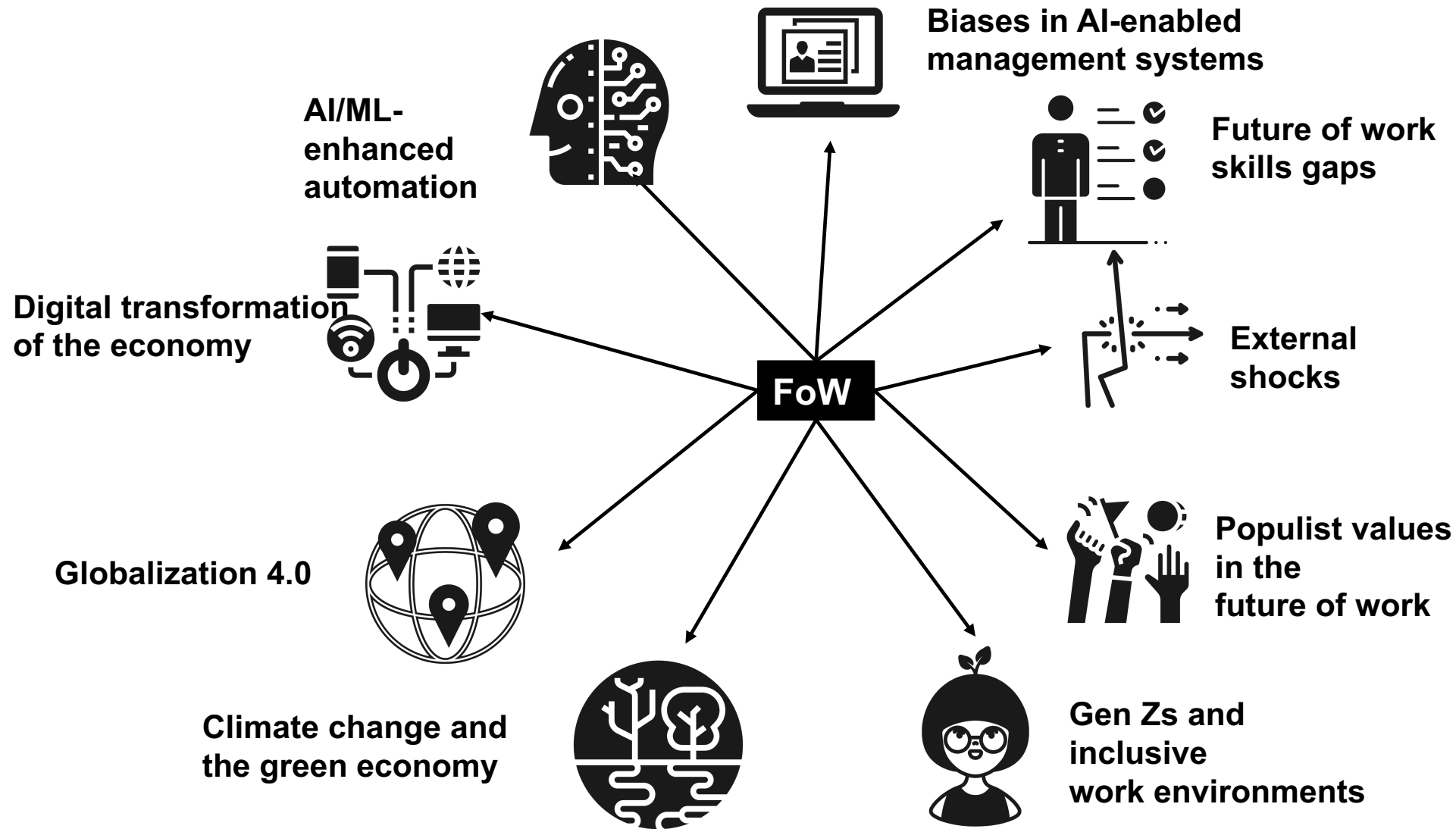


- Reviewed and synthesized relevant articles
 - Summarized FoW trend
 - How the trend contributed to vulnerability
 - Specific groups of workers who could be affected
- Articles were categorized according to common themes to develop macrotrends
- Weak signals were captured but not synthesized

Results

Review flow chart





Trend 1. Digital transformation of the economy



Advancement and application of novel digital technologies that contribute to hyperconnectivity, advance telepresence, automate work, and increase reliance on mobile apps

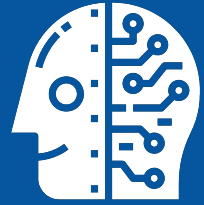


- Displacement of routinized and low skilled jobs
- Job tasks could be contracted out
- Competition for limited jobs
- Precarious or unsafe working conditions



- Creation of new work opportunities
- Efficiency
- Accessibility to the work environment
- Flexibility work conditions
- Gig work could provide an entry point into the labor market

Trend 2. Automation enhanced by artificial intelligence and machine learning



Digital systems that replicate human intelligence and behaviours. Automate job tasks and make predications to perform complex work. Increase the requirement for humans to work alongside smart machines



- Displacement of those in routinized and low skilled jobs
- Professional jobs could also be replaced by machines
- Entry level jobs have greater physical demands and precarity



- New job opportunities
- Efficiency and accuracy of job tasks
- Workers with emotional intelligence could be in high demand

Trend 3. Biases in AI-enabled management systems



Algorithms used to inform the initial parameters of AI-enabled hiring and performance management systems have the potential to reinforce existing social conditions within a workplace



- Biases towards workers who didn't fit a pre-determined mold
- Potential for discrimination
- Exclusion from work opportunities



- Level the playing field by making HR decisions based on objective metrics

Trend 4. Future of work job skills gaps



Workers across all industries are required to possess advanced technical competencies, digital literacy and soft skills to obtain jobs of the future



- Low educational attainment or job skill readiness
- Barriers to upskilling or reskilling



- Companies broaden their hiring to groups of previously overlooked workers
- Diverse lived experience and soft skills could be an asset

Trend 5. Globalization 4.0



Advancement of technologies will facilitate exchange of ideas, services and goods within physical and virtual environments across the globe

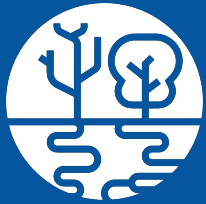


- Displacement of workers in blue and white-collar jobs
- Increased competition for a limited
- Worsen work conditions in other contexts



- Greater attention paid to addressing inequities within the context of globalization

Trend 6. Climate change and green economy



Extreme weather events will disrupt employment and contribute to lost productivity. The climate crises may contribute new job opportunities



- Jobs that are affected by extreme weather events
- Unsafe working
- Less access to safety nets during a climate crisis
- Barriers to obtaining green jobs



- New jobs may emerge in the green economy

Trend 7. Gen Z workers and inclusive work environments



Growing numbers of Gen Zs will enter the workforce. Gen Zs value inclusivity, diversity and social responsibilities



- Work environments more accessible and inclusive
- Employers adopt policies on work-life balance, work-from-home arrangements
- environmental sustainability
- Encourage job training

Trend 8. Populism and the future of work



Rejection of the establishment, elites and expertise by a growing community of people. Growing frustration and anxiety about the future among people who may hold populist sentiments



- Workers may experience discrimination
- Workers may be excluded from the labour market
- Policy change that limit work opportunities



Trend 9. External shocks and the future of work



Work significantly affected by external shocks such as an economic recession, natural disaster or global pandemic



- Job displacement
- Work conditions most likely to be affected
- Facilitate the automation of work
- Growth in populist sentiments



- Increased adoption of digital technologies may increase accessibility

Discussion

- FoW will be fragmented and have health implications for the working population
- Some workers enter FoW at a position of disadvantage
- Interrelationships between technological innovation and social and political changes (e.g., AI, globalization and populism)
- External shocks contribute to an acceleration of change and may exacerbate inequities
- Unclear if opportunities will be available to vulnerable groups



Where do we go from here?

- Operationalize and measure vulnerability in FoW
- Examine diverse challenges and opportunities for specific groups
- Consideration of intersectionalities
- Determine how different digital technologies impact diverse groups of workers
- Capture evolving FoW characteristics and weak signals
- Determining social policy and labour protections for vulnerable groups

Upcoming FoW studies at IWH

- Interviews with policy experts, labour market specialists, disability employment service providers
- Delphi survey on workplace practices and policy supports that are relevant to the future of work
- Interviews with diverse young workers on thoughts and perceptions on the future of work



Are you interested in participating?

Thank you

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