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- 1. Tension Between Technological Innovation + Inclusive Economic Growth
- 2. Impact of Automation on Canada's Labour Force
- 3. Geographic and Regional Implications
- 4. Tasks and Skills At-Risk and In-Demand
- 5. Implications and Recommendations
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In 2016, for the first time ever, the top 5 companies in terms of market value were all tech—Apple, Alphabet, Microsoft, Amazon and Facebook.

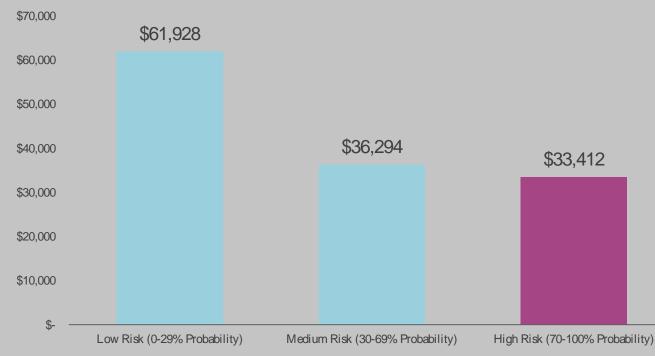


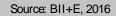
Technology has been particularly effective at replacing workers' routine tasks, which has been a major driving force behind the decline of middleskilled, middle-income jobs, such as those in the manufacturing sector. A 2017 US <u>study</u> showed that between 1990 and 2007, the introduction of one additional robot per 100 workers led to a

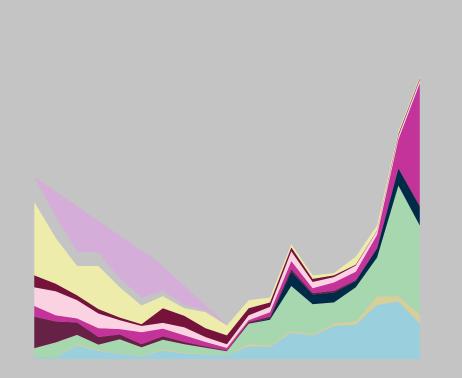


# Part 2) Impact of Automation on Canada's Labour Force

#### Automation Potential and Average Income







### Automation Across the Nation

- Released June 2017
- Used McKinsey & Co (2017) work activity methodology
- Mapped onto Canadian Census Metropolitan Areas (CMAs) and Census Agglomerations (CAs) covering roughly 83 percent of the country's labour force
- Used NHS 2011, will update using 2016 Census data

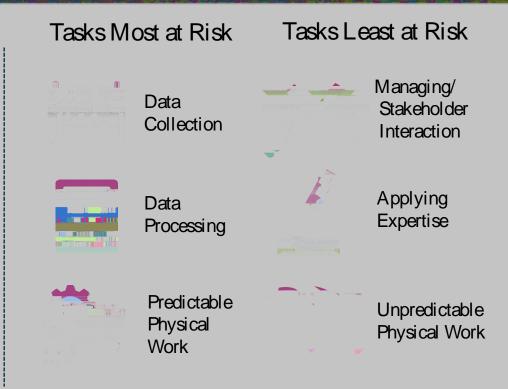
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# Part 3) Geographic and Regional Implications

- Limited variation between cities and towns, meaning automation can impact cities and towns across Canada
- Small regional economies specializing in manufacturing or mining, quarrying, and oil and gas extraction are most susceptible to automation
- A reas less susceptible to automation include cities and towns with a large hospital, postsecondary institution or public sector presence
- Larger, more diverse labour markets, such as Toronto and Vancouver, are more likely to reabsorb displaced labour and weather potential automation impacts

Difference in Industry Proportions, CMAs and CAs Most Susceptible to Automation (Top 20) Compared to National Average, 2011 Overall, percent of work activities in Canada have the potential to be automated, across all industries

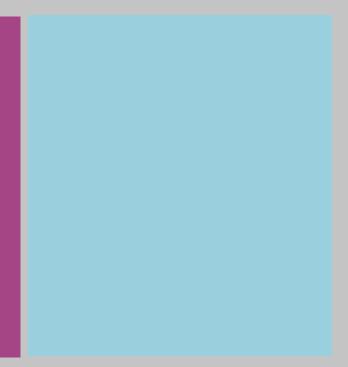
This does not mean that these



#### Part 4) Tasks and Skills At-Risk and In-Demand

Canada's labour force should be equipped with a broad suite of technical and soft skills that will be important for growth and that can not (yet) be automated, including: skills associated with digital literacy, entrepreneurship, and social intelligence.

A 2016 survey of 90 large Canadian private-sector employers identified teamwork, communication, and problem-





A 2016 analysis of the US presidential election by FiveThirtyEight demonstrated that county-level results strongly correlated to the share of a county's jobs that are routine. President Trump's margin was close to 30 points in counties with more than 50 percent of jobs that are routine.

# 5) Implications

# Areas to explore:

Investments in education and training, e.g.: ! Accessible digital literacy + coding education ! Work-integrated learning ! Lifelong learning / rapid up- skilling	<ul> <li>Policies aimed at improving equity,</li> <li>e.g.: <ol> <li>Basic income</li> <li>Changes to tax policy</li> <li>Changes to labour policy</li> <li>Policies to address cost of living in cities</li> </ol> </li> </ul>
New models for labour market information, e.g.: ! Improved signaling from employers to trainers + educators ! New sources of data	<ul> <li>Test new approaches, e.g.:</li> <li><i>Co-design new models with users</i> <ul> <li><i>workers, employers, service</i></li> <li><i>providers, unions</i></li> </ul> </li> <li><i>Collect data on program</i> <ul> <li><i>outcomes</i></li> <li><i>Pilot, evaluate, scale</i></li> </ul></li></ul>

# 6) Appendices

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Innovation (patents per capita) is driving higher levels of income inequality, accounting for around 17% of the total increase in the top 1% income share on average across US states between 1975 and 2010.

However, innovation also