Mapping Digital Skills in Canada Responding to the changing needs of the workforce

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ADAPT Advanced Digital and Professional Training

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Agenda

- > Impact of Disruptive Technology
- > Digital Skills Gap
- > Mapping Digital Skills
- > The ADaPT Program
- > Outcomes and Assessment
- > Next Steps





> Disruptive Technology



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> Disruptive Technology

Impact

- Al Impacts:
 - 42% of jobs may disappear by 2020
 Osbourne and Frey, 2013
 - job automation (12%)
 - job enhancement (75%)
 - job creation (13%) Frank et. al., 2017



Hype Cycle for Emerging Technologies, 2019

Planning when you Can't Predict: VUCA (Volatile, Uncertain, Complex, Ambiguous)

- 50 Billion connected devices worldwide by 2020 (Cisco)
- Uber Drones by 2020
- \$11 Trillion On IoT by 2025

90%

Of cars online by 2020



As a result of the rapidly changing nature of "jobs" and the limitations of occupational classifications, increasingly there are efforts to focus less on "jobs" and more on "skills" or "competencies"



Processing

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- Information and Communications Technology Council estimates that there will be a shortage of more than 300,000 ICT workers in the next years
- This demand is across sectors as organizations are increasingly dependent on ICT
- At the same time, there is increasing demand for so called "soft skills" or behavioural skills: communication, creativity, collaboration, critical thinking, etc.



"Microsoft believes that lessons from a liberal arts education are necessary for the proper development of AI"

BUSINESS INSIDER

Justin Sullivan, 2019 In their new book "The Future Computed



> Digital Skills Gap

Unmet Demand

- Challenges in recruiting recent graduates due to skills gap:
 - 28.3% for SMEs
 - 30.9% for large employers Survey conducted with 200 Employers in 2013 for the Ontario Human Capital Research and Innovation Fund (OHCRIF)





Different definitions: Perceptions of skills



Graduates Employers



> Digital Skills Gap approaches

- Challenging traditional pathways and pipelines
- Planning when you cannot predict: pace of change and misalignment of PSE responsiveness to employer needs
- Employers looking for talent in all the wrong places
- Gaps in employer, graduate, and professor perceptions of "responsibilities and roles", "skills", "tools and techniques"
 - Eg coding is a skill, java plus is a tool
 - Eg. Writing is a skills, preparing a memo is a technique









Figure 1 from: Cukier, Smardz and Grant. (2017) "Digital Skills and Business School Curriculum". International Conference: The Future of Education, Ryerson University.

An Integrated Approach to Digital Literacy, building on Media Awareness Network 2010 model to differentiate between basic digital literacy, business related digital literacy and finally "deep" technical and content creation skills.



The New Foundational Skills for the Digital Economy



Figure 12 from: Markow, Hughes and Bundy. Burning Glass Technologies / BHEF (Business Higher Education Forum). (2018). "The New Foundational Skills of the Digital Economy: Developing the Professionals of the Future"









Work-integrated learning to address skills gap between employer needs and graduate skills through **intensive training** for recent graduates. In collaboration with employers and industry partners, ADaPT participants are placed in a paid work term.



> The ADaPT Program

- 1. ADaPT is a stand alone, employerdriven Work Integrated Learning Program
- 2. Testing+Training+Placement
- 3. Adjacent, not embedded in formal programming (non-credit)
- 4. Open to students and graduates from any university, and a variety of disciplines
- 5. Focused on providing alternative pathways to under-represented groups







Research and Assessment

- Baseline pre-testing
- Pre and post-training skills surveys
- Workshop surveys
- Program evaluation survey
- Post WIL and follow up surveys

Innovation to Address the Skills Gap: Customize ADaPT

Basic Skills Content

Communication, Finance and Analytics, Digital Skills, Research and Data Management, Job and Employment

Format

Blended learning; intensive or part time

Includes up to 12-week WIL placement

Evidence

Ongoing research to assess needs (employer and student), student assessments; program evaluation



Streams

- "Core": 70+ hours of workshops in tech and professional skills followed by paid work placement
- "Light" RBC ADaPT: 10+ workshops during work placement
 - **Specialized focus on in demand TOOLS**
 - **Pegasystems:** 4 week intensive boot camp program with certification exam
 - Data Analytics: 6 day, 40 hour course in partnership with General Assembly
 - Salesforce: 5 week program ending with certification exam



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> Outcome and Assessment

Skills Development Evaluations Post Training		
Skills	Increased By	
Job Search	11.6%	
Technical (Excel, Website/Graphic Design)	21.9%	
Financial Literacy	20.3%	
Entrepreneurship	22.3%	
Understanding of Business Environment	11.2%	
Oral Communication	6.1%	
Leadership	5.3%	



OUTCOMES: Participant Placements





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Testing New Delivery

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- Scale program **nationally** through partnership with ITAC
- Recruitment and placement of 2500+ students over next three years
- Test and customize affordable programs based on employer needs
- Continue to target youth facing barriers



Further Questions

- Understanding barriers and alternative pathways to employment
- Regional comparisons
- Efficacy of different delivery methods
- Test different levels of access to coaching
- Efficacy of micro credentials



Further Opportunities

- Opportunity to offer nationwide training, impacting a larger number of participants facing employment barriers:
 - Women
 - Indigenous Persons
 - People with Disabilities
 - Racialized People
 - LGBTQ2+

- Collaboration with external partners:
 - ITAC
 - Willis College / CSIS
 - Pegasystems
 - RGAX
 - Calgary
 - Halifax





Lessons Learned

- Bridging the skills gap requires new approaches
- Speed is the new currency of business
- Innovation in PSE: rethink structures, policies and processes to provide more flexibility
- We need better, accessible real time LMI
- Leverage technology
- Assess and evaluate
- Learn from successes and failures: Iterate
- Pivot: Make it up as you go along



Thank you

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ADAPI Advanced Digital and Professional Training

Creating professional online profiles Word processing Managing privacy settings	Using keyboards and touch- screens SASIC KILLS	Artificial Intelligence Digital entrepreneurs Big Data ADVANCED SKILLS	ship Cybersecurity Internet of Things
Email Deskto Publishi	INTERM SKILLS	EDIATE Digital Graphic Digital Design Marketing	Virtual reality

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Figure 2 from: International Telecommunication Union (ITU). (2018) "Digital Skills Toolkit", p7. Taken from an 88 page document created by ITU to address the digital skills gap globally, and to support the "Decent Jobs for Youth" global initiative.



Figure 7 from: Do and Huynh. (2017). "Hello World! Working in a digital era". Brookfield Institute for Innovation & Entrepreneurship Retrieved from https://brookfieldinstitut e.ca/commentary/helloworld-working-in-adigital-era/

An 'overhead angle' of Brookfield's skills map.

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Figure 8 from: Do and Huynh. (2017). "Hello World! Working in a digital era". Brookfield Institute for Innovation & Entrepreneurship Retrieved from https://brookfieldinstitut e.ca/commentary/helloworld-working-in-adigital-era/

"Side angle" of Brookfield's '3-d' skills map.





Lamb, Vu, and Willoughby. Brookfield Institute. (2019). "I, Human: The digital and soft skills driving Canada's labour market"





Digital Competence framework



Figure 5 from: Vuorikari, R. (2014). "DIGICOMP - A framework to help improve students' digital competence - and what about teachers?". Retrieved from https://www.slideshare.net/v uorikari/20141127digitalcompetenceetwinningiptsfinal

A snapshot of the EU framework known as "DigComp 2.0: The Digital Competence Framework for Citizens", their tool to improve citizen's digital competence.

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Figure 11 from: ALL ABOARD: Digital Skills in Higher Education. (2017). Retrieved from http://www.allaboardhe.ie/map

Irish national project to empower learners in digital knowledge, skills & confidence. Each 'station' on the Metro Map leads to digital badges, with the use of a 'Travelcard' for students.

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