



Innovation Unplugged: Bridging The Digital Skills Divide

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“All of creation gets still, and then the light comes - and when it does you can hear the creatures giving thanks for the new day. They say that this quiet time, the silent time, when all of creation turns to the east and waits for that new day to come into creation. This speaks to the simple things that often seem the hardest, simply giving thanks - to stay connected with creation and each other.”

**- Perry McLeod-Shabogesic, Manager of Cultural Services
for the Niinjaansinaanik Child & Family Services of Dokis
First Nations**

Preface:

ICTC is a national centre of expertise for the digital economy. With over 25 years of experience in research and program development related to technology, ICTC has the vision of strengthening Canada's digital advantage in the global economy. Through forward looking research, evidence-based policy advice, and creative capacity building programs, ICTC fosters innovative and globally competitive Canadian industries, empowered by a talented and diverse workforce.

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SECTION 1 - EXECUTIVE SUMMARY

As Canadians, we are increasingly witnessing the digital world rapidly developing and scaling around us. Rather than the tool we may have once believed it to be, technology is now a thread woven into the fabric of our educational and professional institutions. With the growing permeation of digital disruption across our industries and daily lives, we are beginning to see once separate and independent industries unite.

In March 2019, the Information and Communications Technology Council hosted its first annual *Innovation Unplugged Summit*. The event brought together students, educators, industry professionals, and policymakers, among other stakeholders. Although the overall theme of the event centred on the topic of “Bridging the Digital Skills Divide,” attendees, panelists, and guest speakers presented on numerous factors related to digital disruption and its associated changing social and economic circumstances. This included an assessment of our country’s workforce development performance on a macro and community level.

Recapping and analyzing critical discussions taking place at the summit, this report presents a series of recommendations and implementation strategies regarding the future of work for industry, provincial and national institutions in an age of continued digital disruption.

As Canada encounters a vast array of social, educational, and technological barriers, this Summit sought to provide insight for attendees to learn about innovative educational or skills development programs and shared challenges with other leaders and their communities. The summit’s discussions and conversations brought to light the following key areas of interest, identifying:

1. A need for a clearly articulated commitment from leaders and policymakers to the development of a bi-model (university/college and Industry) framework that allows for both a traditional and rapidly evolving program structure.
2. Employment-led initiatives, or skills development programs at an institutional or educational level that must be created in a way that is respectful to the traditional rights of First Nation peoples, ensuring that all marginalized populations are represented in planning discussions.

3. With continuing advances in Canada’s quality of life/living, a multi-generational workforce is a growing reality. Organizations must consider inclusiveness in a way that respects an intergenerational workforce while analyzing and evaluating internal, external, equal system inclusion and innovation practices.

These key discussion points created a subtle undertone of concern throughout the day’s events. As conversations and topics covered a wide array of issues, the need to revise workforce development practices presented itself in a number of key conversations. As the difficulty to create a skilled workforce for key growth sectors increases, so too should our ability to respond in-kind. The summit did an exemplary job of highlighting that the challenges we face as we respond sluggishly to evolving industry demand restrict Canada’s ability to flourish in a digitally competitive international environment.

With the feedback gained from the *Summit* as a foundational framework, this report showcases the considerations of attendees regarding practices associated with changing industry needs, inclusivity issues, the challenges of rural and remote communities, and the constitutional limitations of our federal and provincial educational ministries. These topics were central in shining a light on the responsibilities we carry as “torchbearers”¹ of an inclusive future, based on important pillars like social and technological equity and inclusive innovation.

SECTION 2 - INTRODUCTION

For years, Canada has placed high value on assessments of education. From access to education, to the prevalence of top-tier programs and resources, we have a lot to be proud of. As the BBC’s Sean Coughlan writes: “In the most recent round of international Pisa tests, Canada was one of a handful of countries to appear in the top 10 for maths, science and reading [...] at [the] university level, Canada has the world’s highest proportion of working-age adults who have been through higher education— 55% compared with an average in OECD countries of 35%.”²

However, despite these obvious strengths, there is room for improvement, and an emerging need to

¹ A term used throughout the day referring to the act of being accountable agents of change.

² BBC News, “How Canada became an education superpower,” 2017, <https://www.bbc.com/news/business-40708421>

adapt and grow. Technological innovations continue to disrupt aspects of our lives—whether through advancements in financial technologies, automation, or the development of machine learning. With these developments comes the rising demand for skilled talent to tackle challenges, spearhead solutions, and continue to drive innovation and growth. This accelerated demand, coupled with the rate of scaling of technology, inevitably also leads to a talent crunch for Canada when it comes to industry. Not only is this [talent] drought viewed as a “pan-Canadian (cross-industry) shortcoming,” as Benoit Tessier, Director General, Skills & Economic Strategy Tables of the Ministry of Innovation, Science and Economic Development, puts it, but ultimately, it is placing Canada’s economy at a critical inflection point.

As a nation, we can no longer view ourselves as an independent entity operating in a global arena, but instead must increasingly see ourselves as a vital thread in an interconnected global fabric. As the Information and Communications Technology Council (ICTC) identifies in the “Digital Literacy: Canada’s Productivity Opportunity” whitepaper:

“People around the world have the same human potential. Commercial advantage in this borderless resource is bestowed by training and education. A nation with adequate focus on education will rise dramatically.”³



The *Innovation Unplugged Summit* in March 2019 brought together a network of leaders from education, skills development, and training; provincial and federal governments; and private industry. The event focused on identifying the intersection between innovation and diversity; the power of inclusion in workforce development practices; and the need for collaborative solutions to create and respond to

³ ICTC, “Digital Literacy: Canada’s Productivity Opportunity,” 2012, https://www.ictc-ctic.ca/wp-content/uploads/2012/06/ICTC_DigitalLitWP_EN_09-10.pdf

industry demand.

As Perry McLeod-Shabogestic argues, “care must be at the heart of each project being developed.” This was a meaningful, yet practical sentiment as discussions throughout the day would become larger in scale. While topics ranged from pedagogy to the responsibilities of private industry in shaping inclusivity and youth education, when McLeod-Shabogestic’s phrase was referenced, it was used to ground each idea in a practical and actionable manner. The following sections represent ideas and recommendations designed to harness the positive impact of an inclusive, caring, and productive future work environment.

SECTION 3 - OPENING ADDRESS

“How do we as both a group and as a nation unplug innovation. What are the roles of certain skills and education as it pertains to youth for the next 10-15 year period? Canada’s economy is facing some structural transformation brought on by environmental trends, trade dynamics, innovative technologies but most importantly labor market shifts that dramatically change the nature of work for the next number of years.”

— Namir Anani, President & CEO, the Information and Communications Technology Council

As our economy shifts and adapts to a series of global innovations, it becomes easier to map domestic segments of rapid development to the framework of our economy. As Namir noted, a few central factors or “Megatrends,” are shaping our future economy. They are:

- Population and urbanization
- Environment and resources
- Technology breakthroughs
- Gig economy
- Evolving monetary systems
- Globalization
- Demographics



talent remains competitive—that businesses focus on utilizing our homegrown talent and showcasing the best of what Canada has to offer? Globalization and the gig economy are reshaping our business models and challenging traditional notions of when, where, and even how work is done. What impact does this revamping of the traditional workplace have on Canadian businesses and job seekers alike? Canada must adapt to these trends and use them to shape new models, practices, and strategies that can really showcase the best of what we have to offer as a country and, in turn, highlight our competitive advantage in a global economy.

These trends will only accelerate as global urbanization takes hold. The world’s population is currently sitting at approximately 7.3 billion, and is expected to grow to 8.5 billion by 2030. Today, the vast majority of the world’s population is clustered in or around urban centres—these centres accounting for roughly 70% of global GDP. Over the next decade or so, urbanization is expected to continue to grow, with nearly 85% of global economic output tied to cities.

“The world we live in as Canadians is so vastly different than it was twenty years ago, not defined by the speed, level of technology or services being provided, but by the notion that the technology being created is challenging who we are as humans.” Namir explained.

This notion set the tone throughout the day.

How does the role of education and skill development impact the solutions our industries are looking for in the fight to remain globally competitive? How do we respond to the environment of education as it shifts from a focus on traditional to more complex skills (ie. computer programming), and what is our pathway on the journey of preparing today’s youth for the needs of tomorrow?

One suggestion, Namir proposes, is rooted in identifying how our provincially mandated educational ministries respond to the demands of modern learners. Blended learning, learning on demand (or “binge learning”), and the differing intergenerational needs of re-skilling Baby Boomers (or Zoomers as Cheryl Cran, Founder of *NextMapping* describes) or our millennial generation are just a few of the hurdles to be encountered. The change our world has experienced will only continue, both with regard to new services and new jobs.

Increasingly, businesses are sourcing workers from around the world, via remote workers and freelancers. Accordingly, how do we make sure that Canadian

“The best and most beautiful museums in Canada only exhibit of 5% of what they have, while the remainder is stored below, waiting for the right environment to be revealed. So today is the opportunity to unleash all of these concepts and ideas and how we entice and develop an environment that supports a shared digital economy for ourselves and our children for the next number of years.”

- Namir Anani

SECTION 4 - “THE FUTURE OF WORK. HOW TO MAKE THE FUTURE WORK.” - CHERYL CRAN

“The future of work is about consistent, real-time learning that applies to the constant up-leveling of skills - regardless of age. That’s the future of learning.”

**- Cheryl Cran, Author/
Founder of NextMapping**



In today's economic climate, business leaders are often resistant to change which stalls both innovation and creativity. As Cheryl explained in her keynote address, "the future of work demands us to change." As industry, education, and government representatives, Cheryl believes we must be flexible when it comes to behaviour and capabilities, while viewing collaboration as a must on the pathway to understanding, and in some cases overcoming, today's systems and structures.

To begin, and to lay the framework for a conversation about what must specifically change, we must acknowledge a few key realities of the Canadian workforce. Referencing her book *NextMapping*, Cheryl argues: "the speed of change is 10x faster now than it was a decade ago [...] Technology is changing the way we think, do and share information [as] the human brain takes in 34 gigs of data daily [...] 40% of Fortune 500 companies will no longer be here in 10 years [...] More than 50% of the global population is under the age of 30 [...] By 2020, 46% of the workforce will be occupied by millennials [...] 92% of millennials thrive with a team leadership mentality, rather than a hierarchical 'lone' leader approach."

Although these details help paint a picture of the key turning points we face as a nation, our focus—as the *Summit's* title suggests—must be to "bridge the digital skills divide." Cheryl asked the audience: "What do we *think* the future of work looks like?" She continued: "the future of work is centered around the idea of real-time learning, a style that applies to the constant up-leveling of skills, independent of age [...] Research by PwC and Korn Ferry suggests that more jobs will be created, requiring higher-skill-sets. Upskilling and reskilling are the mantra for getting future-skills ready." Our responsibility is to understand, acknowledge, and adapt to this environment.



To address these future-of-work challenges, an organization should consider its unique needs in implementing data-driven frameworks to achieve this goal. A few considerations provided within Cran's keynote presentation include:

1. Developing an updated teaching approach, such as:
 - a. The development of bi-model university frameworks that allow for traditional *and* quickly evolving and innovative programs
 - b. The development of programs that run in parallel with one another (intersectoral)
2. Focusing on skill transition programs with employers and post-secondary institutions
3. A commitment to having a younger generation learn and lead in real-time i.e. reverse-mentorship programs, professional development opportunities led by youth for an older-workforce pertaining to digital skills development etc.
4. The creation of new curriculums that appropriate and highlight relevant pathways to skill building for the future
5. The development of pathways that directly link kindergarten to university
 - a. Examples include ICTC's Focus on IT (FIT) and Middle Years Focus on IT (MyFIT) programs
6. An understanding that the future of work is anchored in collaboration and teamwork

7. The development of horizontal leadership models, where accountability and responsibilities are spread amongst the team
8. A focus on the development of employee skills that highlight creativity, curiosity, and self-directedness
9. The offering of incentives that are focused on negotiated pay-for-work practices and align with personal values and aspirations
10. The enabling of work environments that are remote, virtual, and global in scope, allowing for greater integration and participation of all supply streams

1. Provide a high-level overview of your organization’s current priorities and projects regarding inclusivity and how they impact the concept of innovation.

“Tata has approximately 400,000 Employees throughout 34 countries [...] They have become the #1 tech job creator in the 2012-2016 market, hiring 3 Canadians every 48 hours [...] So to TCS, when you talk about carrying a ‘fire,’ you take into consideration progress as an industry and humanity. You focus on innovation for the future, as well as the people within it.”

- Soumen Roy



These are the stepping stones to progressive institutional change as we shift towards a ‘future of work’ mentality. Understanding the challenges that we face today, while remaining vigilant to the opportunities these new models and disruptors can present is key to a successful future.

Cheryl concluded her keynote with a piece of wisdom shared by American writer, businessman and futurist Alvin Toffler stating: “The illiterate of the future won’t be those who can’t read or write, it will be those who cannot learn, relearn, and unlearn.”

Toffler’s sentiment provided the summit with a perfect catalyst for conversation and ideation. As the summit had a strong attendance of members from within the education sector, discussions regarding digital literacy and workforce development helped cultivate interest and dialogue in an interactive manner. This spark of conversation provided a noticeable energy for collaboration and teamwork throughout the room.

“Everyone wants to talk about projects, but the process [of] relationship [building] is more valuable [...] The spaces, systems and spirit (the fire)—[is at] the heart of what’s in things... [Inclusivity] means we’re starting with something and we’re going to include others; backing up, and focusing on the context as to why or how people are being included. In technology, specifically talking about the fire—we ensure we have the right traditional elements, and marginalized populations [have] representatives within an organization or project. The right individuals [who are] able to evaluate what and how [policies] are applied internally [...] Innovation means taking a look at the advancement and changes in traditional elements, like coding’s relationship to beadwork, the focus on land-based learning, and how it’s evolved and changed for Indigenous learners and non-indigenous learners alike.”

- Patricia Chabbert

“The ability to transform [our] workforce to have an inclusive approach is [our] belief that that’s how [we] transform and change the world that [we] live in [...] IBM’s target is designed to retain, attract and present new [path]ways to women in technology [...] we believe that diversity isn’t a target, it’s a value system.”

- Colette Lacroix

SECTION 5 - PANEL DISCUSSION: INCLUSIVE INNOVATION

The following section details a selection of essential quotes and highlights from each panelist, as they relate to the questions posed by the moderator.

- Moderator:** Shane Schick, Editor-In-Chief at B2B News Network
- Panelist:** Soumen Roy, Executive Director & Country Head - Canada, Tata Consultancy Services
- Panelist:** Patricia Chabbert, Indigenous & Business Relations Manager, Canadore College
- Panelist:** Colette Lacroix, Industry Executive Higher Education & Research Canada, IBM Canada

2. The term ‘Inclusive Innovation’: what does it mean for youth, and how do you rate our progress currently, considering Edelman’s 2019 Trust Barometer which suggests “40% of Canadians feel they are denied access to the opportunities they need to get ahead, while 80% agree that elites who run most institutions are out of touch with “regular people”?”

“The careers and jobs that are available [in the future] don’t exist today. Students are asked to create their own careers, and paint the picture they want for themselves. So [...] how do we [shape] the world we live in so it is positive and inclusive? We have to look at it in an applied perspective. How do we create a world where we can grow the pace quickly, make it inclusive with exponential learning [so] we enable k-12 [educational development] in a meaningful way [...].”

- Colette Lacroix

“25% of our students are Indigenous. Working with learners, communities and knowledge keepers – [while staying] focused on culturally relevant programming [is critical]. [...] Environmental technology, as it associates to land-based-learning, aligns closely with stewardship and cultural parallels. It’s not only important to bring your inclusive demographic to the table, but [to] continuously ensure you’re engaging [with] them. [...] Recognizing Indigenous learners have a unique pathway into education and private industry [is critical]. [...] People are focused [on] the end goal, but the goal should really be to understand when the junctions [or turning points] are in their [academic and professional] experiences. [We need to understand] where challenges or issues exist, and then identify how to overcome them [...] This includes [focusing on] workers who want to maintain their cultural heritage, but don’t have organizational policies that allow for certain accommodations [...] When working with First Nations communities, it’s important to understand the social and political history with the land you’re operating on to understand and reflect on customs and protocols. Understanding the rights of the community is key to program success [...] To be inclusive, it’s valuable to review, understand and implement the TRC’s calls to action within one’s own organization.”

- Patricia Chabbert

“How we look into innovation from an ecosystem perspective...Inclusiveness can be an intergenerational issue so we [have a four-part approach]—Internal, External, Equal System Inclusion and the Power of Inclusive Innovation. The supply chain for talent relies in the high-school and middle school [...] [with] programs that tap into young talent pools, to explore the value of STEM [so] they don’t have to wait until they’re older to explore the value of robotics [...] It entices them at an early level, by empowering educators to see the value in STEM [...] [Tata] believes in the idea of democratizing education, by encapsulating knowledge groups to dissolve the belief that education is achieved in a four year period, when it could be learned— in isolation or in a group in a fraction of the time [...] If you want to design something for the future, the design thinking is more robust if a multi-faceted input process comes into it.”

- Soumen Roy

3. Inclusivity is not mainstream at the moment; however, technology is being developed to focus on language, mobility, autonomous vehicles etc. How do we make this more of a mainstream topic - given that innovation and technology is currently focused in this area anyways?

“If there is commercialization, the enterprise system is going to pick it up for commoditization. If there is no market, then it is more of a government focus—which eventually will lead to a market innovation. The third element is usually a future design concept, which then has to be done in a comprehensive design (agile design), scalability of design [format] through collaboration and inclusivity.”

- Soumen Roy

“The question shouldn’t be, “how do we make inclusivity the focus of innovation”— it’s remembering that the motivation behind technological innovation should be to provide a human solution. These are the morals and ethics behind ‘why’ we create these innovative technologies—[it’s] to aid the fundamental needs of others. As an example, how can we provide clean water to communities? How can we protect and preserve the environment? These are the questions we should be addressing. Providing basic human needs, first: that’s how we effectively scale this issue. You can’t have someone innovating in computer programming and developing AI if they don’t have the internet or broadband to do so.”

- Patricia Chabbert

SECTION 6 - AUDIENCE OBSERVATIONS

NeOlé, a participating partner of the day's events, specializes in facilitating in-depth group discussions by leveraging technology for educational purposes. NeOlé helped track audience opinion and feedback as the day progressed. As NeOlé explains, this projects the summit's "expert opinion" on many of the topics discussed throughout the day. Highlights included:

1. Academia remains too slow and not agile enough to properly respond to innovation and developing technology needs.
2. Government, Private Industry, and Education's history and track record in developing organizational silos holds back the development, progress, and response to the future of work.
3. There is a disconnect between partnership development and the fostering of Indigenous relationships. This rift is causing a schisms between workforce development, education, and innovation.

SECTION 7 - PANEL DISCUSSION: NEXT GEN. EDUCATION

The following section details a selection of key quotes and highlights from each panelist as they related to the questions posed by the moderator.



Moderator: Prieeyya Kesh - Founder, Our Wave Hub

Panelist: Dr. Bonnie Schmidt - President, CEO of Let's Talk Science

Panelist: Denise Amyot - President & CEO Colleges and Institutes Canada

Panelist: Chris Treadwell - Assistant Deputy, Minister - Educational Services, Anglophone Sector, New Brunswick Education and Early Childhood Development

1. Where are we with education today, and where are we headed?

"One of the problems that education has is the focus on content-based learning, [whereas] we have to address the issue of mindsets. We cannot in New Brunswick educate youth fast enough to keep up with trends in tech, or educators who can teach at that level. And we can't afford to do that either. We need experiential opportunities to learn the trades at industrial standards so we can find what businesses want. It's not the quality of our teachers, or youth readiness—we're dealing with old structures holding back our progress. We need to redesign the structures holding us back."

- Chris Treadwell

"We have 5 million [school-aged] youth, which is only double the city of Shanghai. We have a system that is constitutionally structured, with twenty-two ministries or departments of education through kindergarten to post-secondary, yet we do not have a federal ministry of education [...] There is no policy or regulatory table, so the ability to scale up becomes quite challenging. Working at the national level, the curriculum may be similar, but we're so siloed [that] teachers are touching and teaching several curriculum documents [...] The logistics of our educational system is faulty by comparison to other high-performing education systems in other countries."

- Dr. Bonnie Schmidt

“There is a complete lack of federal representation regarding education, despite the constitutional structure of our system, even though healthcare is similar yet has federal representation. [...] Despite the fact that education is provincial or territorial, there are program advisory committees which are designed for any program being taught at the college level. [It’s] designed by people from the industry who provide curriculum on material, equipment, skills and competency [...] 95% of Canadians are within less than 50 km of one of the colleges and universities. For Indigenous communities, this is closer to 86%. However, in order to do this, you need access to Internet [...] Is it normal that when it’s time to approve a program, it takes six months in some locations and in others it takes six years? We have a narrative about innovation, yet the institutional structure of higher learning doesn’t accommodate it.”

- Denise Amyot

2. The world economic forum suggests that 65% of students will go on to occupy jobs that don't exist yet. How do we respond to this alarming realization?

“How do we help prepare teachers to provide easy access to job-embedded professional development? It works well to integrate industry in post-secondary, but in the high-school and public-school sector, it’s difficult to bring in community partnerships and investments. We’re having a discussion about looking at other countries doing this stuff, yet they’re already talking about how best to refine this process. They’re looking for more partners, more opportunities, yet we’re constantly placing barriers in our way, hoping for a different outcome. We’re still teaching outdated subject areas, yet trying to pile up additional outcomes.”

- Dr. Bonnie Schmidt

“We need to ensure that people have the essential skills that industry demands, but also place a focus on soft skills [...] Digital skills are there, but they need to be linked to subjects like problem solving [...] It’s [also] important to consider that small to medium sized businesses encountering industry-specific challenges are able to communicate and coordinate with their regional college level or university level institute to help overcome certain challenges [...] The ultimate goal is not only business and institutional success, but [that] the students assisting with these challenges are gaining first-hand experience. This is why the concept of ‘Work Integrated Learning’ is paramount to the future of work.”

- Denise Amyot

“We can’t properly anticipate or adapt to the changes in industry and the changes needed by education, because education is structured to be standardized. The concept should be that the child is the curriculum and our current system is holding students back who could be proceeding, however our current model won’t allow for it [...] If we move forward with work integrated learning, we can’t place a bunch of new technology on an old system that’s creaking. We need to develop a new pedagogy towards learning [...] If we leave this type of change up to education, we’re going to limp along until it’s much too late. We also must acknowledge that public education is at risk to private schools as a result of this.”

- Chris Treadwell

3. How do you see the role of provincial government in education changing thanks to the role of technology?

“New technology has the capability of assisting us in a large capacity, but specifically when it’s applied to high-need areas in an effective manner. In the case of cloud-based technology, when looking at rural areas, it’s providing new opportunities for youth to continue with after-school learning in a more accessible manner.”

- Chris Treadwell

“There’s a ton of equipment out there that focuses on a few key areas of educational development, specifically in the realm of computational thinking and coding. Lots of great material, but that’s not really one of the issues [...] We’re focusing on the resources used to teach certain subjects when in actuality we don’t even have access to reliable broadband in certain communities [...] We need to start looking at, and taking seriously, the opportunities presented by equipment and education that dismantles that issue as a barrier—where broadband connectivity isn’t a deterrent to equitable learning.”

- Dr. Bonnie Schmidt

“Technology could be used to provide assessments to ensure we don’t duplicate efforts on relearning material

[...] Lethbridge College wanted to take [advantage] of virtual and augmented reality in all of their programs, while auditing their entire education framework, and how it could be implanted everywhere [...] Radio Canada had an employment issue and worked with a regional French language school, who required a specialized skill set. So, the college developed an after-hours/weekend program for students at the station, so they could learn with their equipment and as a result, the station had first pick at the college graduates.”

- Denise Amyot

SECTION 8 - PANEL DISCUSSION: THE FUTURE OF WORK

The following section details a selection of key quotes and highlights from each panelist as they related to the questions posed by the moderator.



Moderator: Kathy Knight, President & CEO ICT Association of Manitoba

Panelist: Benoit Tessier, Director General, Skills & Economic Strategy Tables, ISED

Panelist: Doug Currie, VP Public Affairs & Government Relations, Nelson Education

Panelist: Daniela Pico, Manager Strategic Partnerships, Riipen

1. Where are we coming from and where, in your opinion, are we're going regarding the future of work and building our 21st century workforce?

“We have to stop the blame game, but governments tend to blame employers for not doing enough to create [jobs], and then the universities for not making individuals work ready, and universities [blame] the high-schools for not making them education ready [...] What’s the role of each, and what do we need to do to ensure we have the workforce of the future? [...] It’s telling that Mr. Bains keeps talking about skills and talent being the barrier to innovation [...] What are the skills needed for the innovation agenda? Digital skills as number one and then tech adoption [...] Work integrated learning and creating collaborations between postsecondary and employers [is needed], so that employers can influence what is in the institution’s curriculum.”

- Benoit Tessier

“We’re seeing a lot of sector collaboration to support student learning, and if we look at the global landscape for skill development, we’re ahead in [terms of] how we can develop talent and how we bring the right parties together. We do have a long way to go in developing the agility and network for this to take place [so] how do we take today’s material and move it into action?”

- Daniela Pico

“More than 42% of Canadian jobs will be impacted by automation by 2036 [...]. The demand for digital talent grows. In 2017, the average rate of unemployment within the ICT workforce was 2.3%, and lower in provinces like Manitoba, [... where] the sector is almost fully employed. Not only is our sector feeling this, but most other sectors are as well. Access to [skilled] talent is [in high-demand]. The development of a 21st century workforce is going to be the number one factor in our international competitiveness.”

- Kathy Knight

2. Is there an opportunity to increase the level of collaboration between provincial and federal government, given the responsibility of education landing in the provincial sphere?

“McKinsey did a survey of educators and employers, and while 83% of educators thought their students were ready for the workforce, [only] 34% of employers agreed with this. One of the largest concerns I have in my position is that this same conversation is taking place in every industry simultaneously. We’re facing a digital skills challenge across the board in all industries [...] Every sector is trying to identify their own solution, when we should be looking at a pan-Canadian approach to collaborating and resolving this issue. [In addition to that], it needs to be industry-driven, and we should be celebrating the quality of the formal education system in this country. The infrastructure that we’ve put in place here is admirable. 95% of Canadians are within 50km of a college—this is an asset that should be celebrated. We need to communicate and share best practice stories.”

- Benoit Tessier

“The federal government through the ESDC is interested in labour market trends, and the alignment between K-12 and post-secondary. The evidence suggests that the time to start career chats with youth is in grade 5 [...] These forums and conversations are critical, as the alignment from the public sector leads straight through to education. The conversations going on around fiscal budgets, and the need to be strategic leaders and thinkers in this area are critical. The days of siloed execution and mandates are over –there are so many wonderful things that could take place when working together and get in front of issues.”

- Doug Currie

“Do we collectively understand the vision of where we’re going? The Canada 2067 vision is one of the ways we can continue to [understand] that [...] It’s great to see the increased level of interest from industry about these challenges, and how they’re being given alternative solutions to overcome these shortages. How do we also give different options for students to get involved in different ways for unique industry pathways?”

- Daniela Pico

3. What are your thoughts on what we could do to democratize the access to education, so all learners have access in Canada?

“We need to focus on equity, access, and the ability for all learners in this country to have an equal playing

field [...] Nelson’s product “Edwin” helps address this challenge. Not everyone is moving in this same direction [with] a decentralized education system [...] If you look from province to province to territory, there is a disparity in terms of how we’re performing [...] Provinces and territories change their commitment to education due to regional challenges and economic issues that they need to mitigate.”

- Doug Currie

“Inclusion and diversity are pieces of one conversation, youth at risk is another, high quality digital skills is another—there’s not a solution that fits well [for everything] here. We have to democratize learning, however we’re seeing people mixing all of these issues and their proposed solutions together and it’s getting muddy.”

- Benoit Tessier

“We’re having a conversation about broad sweeping changes and ideas, but that’s correct—we have to look at individual communities and regions and the barriers to education they face. Today’s on-going issue of broadband connectivity is a perfect example—how can we talk about democratizing education and issues of equality when we aren’t allowing our nation to start the competition on the same playing field [...]. Around the involvement of learners in the process of education democratization... [we’re not involving them] as much as we should.”

- Daniela Pico

4. What can we be doing for educators to elevate their teaching practice, and what can we do to support them and their digital literacy skills and access to professional development?

“Teachers have challenging jobs. Five years ago, we weren’t talking about social and emotional issues, now it’s a top priority [...] The needs of a classroom now are completely different—Teachers need to be a part of this conversation, as they’re the ones providing the education every day to our youth. Their role in updating pedagogy, updating curriculum, upgrading technology is important.”

- Doug Currie

“When we talk about teachers, it’s such a broad spectrum. Teachers are at different comfort levels with technology, so how do we give access to the reskilling and upskilling [needed] so they feel comfortable including technology where it once never existed? One of the shifts that is happening is a teacher was the holder of knowledge, [and is now] a facilitator of learning. We have the opportunity to create a much more guided learning experience. We

need to ensure our teachers are well supported in this transition, without making them feel like they're giving up control.”

- Daniela Pico

5. How can we create pathways for under/unemployed individuals to gain the experience they need to be successful in the future and aid our workforce?

“The federal budget is focused on skills issues, so if you think about investments that the government is making in growth sectors—like that of super-clusters, [or any] of those mega-sectors which are facing the same issues. They're trying to identify some pathways to train and retrain the current [and developing] workforce [...] Six economic strategy tables were developed to talk about the major barriers to growth, and skills and talent were consistent. These tables were developed to create sector skills hubs. Hubs bring on more than students, it brings on education, private industry and government [...] The future skills council is just one attempt to do this.”

- Benoit Tessier

“We don't have a lot of conversations about ourselves. About reskilling and upskilling. There needs to be more [talk] about educational institutions and fast-skilling institutions that create onramps and offramps for the current workforce [...] How do we make sure our students come back to post-secondary to pivot to their next career? How do we make that transition easier for those onramps and offramps? How do we transition workers right now? How do we make sure industry understands how those transitions can happen with small changes?”

- Daniela Pico

SECTION 9 - CONCLUSION AND POLICY RECOMMENDATIONS

The *Innovation Unplugged Summit* highlighted some critical challenges, but also the opportunities that our nation has to capitalize on future workforce development efforts. With discussions pertaining to community, provincial and federal levels of government and leadership, speakers and panelists provided thought-provoking considerations for meaningful and practical change. The following are a highlight of these proposed recommendations:

1. **Mixed models of education are the future.** The development of a bi-model university/college framework that allows

for both a traditional and rapidly evolving and short duration program structure is key to meet the needs of rapidly changing economy and nature of work. Additionally, leveraging online tools with a focus on project-based learning will pave the way for better integration between education and the world of work. These can run in parallel with one another.

2. **Cultural considerations for education are essential.** Employment-led initiatives must be developed in a way that respect the traditional rights of First Nation peoples, while also ensuring that all marginalized populations are represented in planning discussions in terms of the tools, setting, delivery, and community participation among others. **Multi-generational workforces are increasingly more prevalent.** As more of the adult workforce returns to school to gain the necessary skills and remain employable, educational institutions must look at inclusiveness in a way that caters to the learning needs of an intergenerational workforce. A mixture of online tools and classroom, as well as weekends and after hours settings could help adult learners juggle competing demands between their work, personal life, and learning. This should be done by analyzing and evaluating internal, external, equal system inclusion and explore innovation practices.
3. **Social and moral responsibility must increasingly be part of the conversation.** When considering the subject of inclusivity in the design of future of work practices, organizations must consider the moral and ethical motivations related to them (i.e. *why* do these programs aid the fundamental needs of others). This may include recognizing the value beliefs of individual and groups and the right to accommodate various needs, having awareness programs to build greater understanding and connections while heightening the contribution of individuals to the goals of the organization, among many others.
4. **Indigenous educational needs are unique.** Government must understand the difference between partnership development and the fostering of meaningful relationships with Indigenous

communities. This issue is causing a schism between Indigenous workforce development, education, and innovation.

- 5. Partnership between educational institutes and industry is essential.** Educational institutions are not solely responsible for the development of a future workforce. Experiential opportunities, designed by industry, that instruct and train candidates to meet their needs are the only way to ensure that we address and prepare technological evolution.
- 6. A standardized framework for future educational needs must be created.** Canada should consider the development of an overarching regulatory educational body that helps deconstruct provincial silos and provides teachers with unique opportunities for professional development. The current dearth in this space is influencing the ability of educational institutions to scale-up as an international educational/skills-training competitor.
- 7. Increased collaboration across sectors is essential for sustainable education policies.** Intersectoral collaboration to support student and workforce development should be at the forefront of skills-development programming. This would help create efficiencies in the design of educational programs that are innovative, sustainable, and effective in meeting a broad range of industry needs. **Access to key technology, such as broadband, is critical for equitable development.** Industry, education, and government need to place an increased focus on social and technological equity, as access and opportunity for learners strengthens our national competitiveness.
- 8. Upskilling and reskilling opportunities must be created for all workers, in an age where life-long learning is a must.** Industry must embrace a strategic approach in continuously developing the workforce to remain innovative in a rapidly changing economy and nature of work. Additionally, the development of post-secondary short-duration educational pathways for working professionals is paramount to our ability to compete on an international stage.

The proposed policy recommendations encourage the understanding that effective leadership and accountability are critical to the development of our future workforce. By considering various forms of inclusivity—whether they address different nationalities or creeds, or even the differences between age and learning styles—we must be prepared to respond to these challenges in an equally diverse and dynamic manner. As Tessier once again explained, “we have to stop the blame game” and begin acting under the premise that there is, in fact, a shared Canadian experience. As McLeod-Shabogesic explained, summarizing the day’s events, we have an inherent responsibility as individuals to implement this change, as stewards of meaningful innovation:

“Fire exists everywhere. The sun, our grandfather, the stars that are campfires in our great mystery. The fire in each of us, of life and of emotion. Thought: being the very first fire with creativity and choice that the creator gave us and not other creatures of creation. What we do with these fires is our choice. The power of sharing the fire of knowledge in a good way is a responsibility we have, in a world where we often don’t make great choices.”

Our responsibility as administrators and policymakers when bridging the digital skills divide is not limited to only our domestic affairs. Canada doesn’t act in isolation in the international arena, so we cannot shy away from reforming our own internal processes in the name of developing our future workforce. Canada must instead be bold in considering new systems and processes and then lead confidently by example.