PROJECT **INTEGRATE**
Exploring Future Employment Pathways

Foundational Report
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Equipping Youth Employment Services for the Future of Work in Canada

Project Partners:

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ACKNOWLEDGEMENTS

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INTRODUCTION

Objective

The Canadian economy has improved greatly since the Great Recession, yet young people still struggle to thrive and employers continue to have difficulty finding qualified talent. Although federal initiatives and funding programs have sought to address skills-related challewnges, much of the existing workforce ecosystem and training infrastructure in Canada remains unequipped, unprepared and unaware in the context of the additional challenges the future of work brings.

Most significantly, it persists as a patchwork system, disconnected from many of the current needs of youth and the technological abilities that now exist. While local employment service delivery remains a critical component of addressing employment needs, many local services operate in a complicated and layered network that many youth and employers find hard to navigate.

In 2019, a coalition of partners that includes Ontario Tourism Education Corporation (OTEC), First Work, MaRS Data Catalyst Centre, and the Canadian Council for Youth Prosperity (CCYP) began working with The Future Skills Centre – Centre des Compétences futures (FSC-CCF) to test an innovative, evidence-based approach to skills development for the new economy.

The initiative, known as Project Integrate, is testing the potential impact and feasibility of a single technology-enabled employment and training pathway for youth. FutureFit AI serves as an advisory and research partner in supporting Project Integrate's work conducting systems research and field testing with a range of promising employment-related technologies.

The goal of this foundational report is:

1. To provide a foundational knowledge base from secondary sources in **understanding the current employment landscape** and barriers faced by youth in Canada;
2. To synthesize data-driven insights on the **future evolution of the labour market** and considerations for the future of employment services;
3. To summarize **key technology trends** in the digital tools and assessments market; and
4. To support the **primary systems research** in evaluating ways that a singular technology system could be used to deliver future-focused employment services.

Methodology

In partnership with the Project Integrate team, the FutureFit AI research team conducted systematic secondary research aimed at understanding employment trends, future of work themes and implications for youth, emerging employment tools and technologies, and an extensive literature review of best practices for increasing technological adoption.

Open data sources were used where available to provide a complementary quantitative approach to understanding employment trends and youth journeys. Most data sources include data tables administered and published by Statistics Canada unless otherwise specified.

EXECUTIVE SUMMARY

While many statistics and reports demonstrate a healthy and vibrant Canadian youth workforce, this foundational report aims to provide a deeper evidence base from existing research and open data on the experience of Canadian youth in today's labour market and its future evolution. This report also provides an overview of digital employment tools and assessments, Canada's workforce system and enablers and barriers for increasing technology adoption among employment services. The primary findings include:

- **Youth and the Future of Work:** Technology and digital trends shaping work today will continue to put pressure on youth employment journeys, requiring more flexible supports that meet the needs of youth in continuous career and education transition.
- **Youth Barriers:** There are 6.9 million youth in Canada today, with approximately 779,000 of those in the not in employment, education, or training (NEET) category. Of those youth facing barriers in the employment journey, the concern is generally greater for those who are youth NEET inactive (not seeking employment, 510,000), as they may face greater challenges entering back into the labour force. Active (unemployed but actively seeking work) and inactive youth NEET should be considered by their age cohort (15-19, 20-24 and 25-29), as each cohort is likely to face a unique set of barriers. At the individual level, each youth may face different personal, family and social risk factors that should be considered when designing personalized employment supports.
- **Canada's Workforce System:** As it currently stands, the existing employment service environment in Canada persists as a network of providers often competing for funding and youth with limited ability or incentive to engage with employers and external stakeholders. There is sufficient opportunity to identify leverage points of systematic integration of youth employment services enabled by digital tools and assessment to improve Canada's system.
- **Digital Tools and Assessments:** Well- developed digital tools and assessments incorporated in employment services allow providers to more accurately identify and target the competencies and skills youth need, reach youth and deliver services on a larger scale, and better coordinate other stakeholders like employers in matching youth to opportunities. There are both supply and demand factors driving growth in the tools and assessments marketplace, but successful adoption will hinge on supporting unique technology adoption factors by employment service providers (ESPs)
  at multiple levels.
- **Enabling Technology Adoption:** Enabling successful technology adoption among ESPs requires supports that address unique user, organization and system-level factors. [There is extensive literature that investigates best practices for enabling technology adoption change.

BACKGROUND: THE FUTURE OF WORK FOR YOUTH IN CANADA

As the leaders of tomorrow, today's youth are the key to Canada's future success. Representing just under 20 per cent of Canada's total population at approximately 6.9 million individuals, Canada's youth play a key role in strengthening the Canadian economy, maintaining international competitiveness and building towards an even brighter civic, social and political future. Supporting their pathway to employment and sustained participation in the labour market is key to maintaining a strong economy in a time of disruptive at the user, organization, and systems level, but realizing adoption in the ESP context requires a focus on supporting a robust digital foundation that can accommodate integrations and change over time. As this report shows, there are numerous digital tools and assessments that can help solve key issues facing youth employment issues, but persistent bottlenecks exist in legacy technology systems or a lack of training for the ESPs.] Beyond selecting the appropriate technologies at each process stage, the ESPs people involved need to be enabled through addressing unique behavioural, environmental and capacity factors through a set of best practices.

Youth in Canada Today

While many statistics and reports demonstrate a healthy and improving labour market for youth since the Great Recession, the experience of many young people across Canada sheds a different perspective on the resiliency of our workforce systems. Canadian youth fare well on the international scale, consistent with high labour force participation rates, high employment rates, lower rates of youth NEET and top educational scores among Organisation for Economic Co-operation and Development (OECD) countries.[1]

Although participation and employment rates show subtle signs of decline in various regions of Canada, this can be largely attributed to an increase in education levels and generally not interpreted as labour market slack or weakness.

But what about those youth not actively engaging in the labour market or training opportunities? As a proxy for youth who face the most difficult circumstances, youth NEET often face multiple, intersectional barriers to finding sustainable, quality employment and/or training opportunities and have been shown to struggle throughout later stages of the employment journey. One study found that youth NEET can experience 10-15 per cent lower wages inadulthood compared to non-NEETs and discourage a young person from following a meaningful career path.[2] Youth NEETs were also 2.8 times as likely to be unemployed or economically inactive 10 years later.[3]

By looking at youth NEET rates alongside other indicators like the rate for non-standard work and occupational risk of automation, this foundational report aims to provide rigorous and contextual evidence on the uncertainty that youth may face in their journey to employment and how this is unfolding in the context of the future of work.

Characteristics of the Future of Work

It is of little doubt that new and emerging technologies in addition to themes of globalization and demographic change are profoundly changing what, who, when, where and how work gets done. The automation of tasks, robotics integration, big data and cloud computing are just some of the common technological themes impacting the evolution of the workplace and, thus, the labour market as a whole.

While innovation and new technologies create new opportunities, efficiencies and scale, they also create challenges. Young people entering the labour market today and throughout the next 10-15 years might be set to experience the peak of these challenges if our institutions — mainly our social security, education and workforce systems — lag behind. The current lack of systems change has resulted in an overwhelming focus on skills, driven by an employer-led public conversation on the "skills gap" proliferating in news and major headlines.4 Skills requirements have already started to shift, with "lack of talent/skills" cited as a top concern among CEOs looking out to 2025.[5]

[1] For example, see the Canadian results of the most recent Programme for International Student Assessment (PISA) assessment: https://www.cmec.ca/Publications/Lists/Publications/Attachments/396/PISA2018_PublicReport_EN.pdf.
[2] Gregg and Tominey, "The Wage Scar from Youth Unemployment," 2004.
[3] Feng et al., "Consequences, risk factors, and geography of young people not in education, employment or training (NEET) – Research Findings," 2015.

In a recent survey, PwC found that employer concern over the availability of skills recently peaked at 80 per cent in 2018.[6]

The intersecting characteristics changing work are almost endless, making predictions of what jobs and skills may be required in the future a bit of a guessing game. While this foundational report presents research to provide guidance on the increased challenges youth may face, it can also be summarized with one core idea: **youth employment journeys will become more and more uncertain requiring more flexible employment supports.**

The Future of Work for Youth

So, what can we know about the potential future of the youth employment journey? Are youth differentially affected compared to other populations? How do these uncertainties map against present barriers?

In terms of where and how work is done by youth, according to a 2015 report by OECD, youth have already experienced the highest incidence of the rise of non-standard work, at an average of 40 per cent among OECD countries. Close to half of temporary workers observed are under 30 years of age in the OECD, and Canadian youth NEET are twice as likely to have held a temporary job in the last 12 months than non-NEET.[7] [8] While entering into non-standard, temporary and part-time forms of work comes with convenience factors for youth who are balancing work and education, these forms of work increasingly serve as intermediary points for youth looking to transition into permanent, full-time employment.

Youth have already experienced the highest incidence of the rise of non-standard work, at an average of 40 per cent among OECD countries.

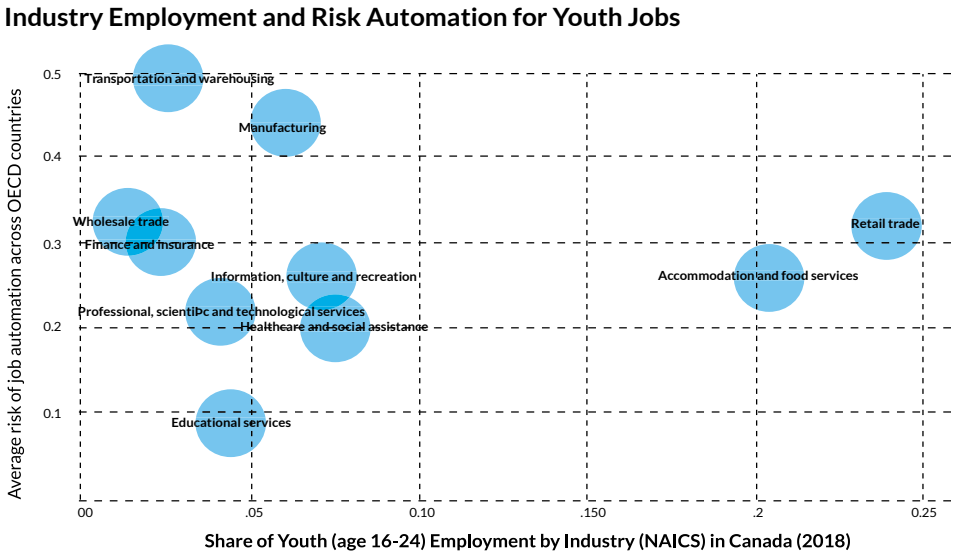
The automation and digitization of work tasks represent another emerging challenge to reliable work opportunities for youth and job creation.[9] [10] Examples of automation are already evident in some industries in Canada, such as automotive and mining, and also show up in more hidden forms such as robotic process automation (RPA) in both front-end and back-end office tasks.[11] While automation undoubtedly puts many jobs at risk, it's likely to disproportionately affect low-skill, low- experience occupations that youth traditionally use as first steps into the labour market, such as food services, accommodation and retail. An analysis conducted by PwC revealed that jobs that are traditionally the highest employers of youth in OECD countries are often at the highest risk of automation (anticipated for 2030).

This means that young workers will likely bear a larger proportion of the automation risk in the future. These young workers also tend to be less prepared with lower educational attainment and qualifications, limiting their ability to move flexibly between industries and new jobs.[12] Analysis on the Canadian context by the Brookfield Institute for Innovation and Entrepreneurship (BII+E) found that more than triple the number of Canadian youth are traditionally employed in jobs at a higher risk to automation than others.[13]

Chart 1 below provides a visual representation of the current concentration of youth employment by industry against the average risk of automation in those industries in Canada.

[4] For example: https://www.marketwatch.com/story/manufacturers- complain-of-skills-gap-as-employment-falls-in-march- 2019-04-05, https://www.inc.com/magazine/201404/cait- murphy/skills-gap-in-the-labor-force.html, https://www.weforum.org/agenda/2019/11/ceos- worry-skills-gap-retraining-ai-automation/.
[5] The Conference Board of Canada, "C-Suite Challenge™ 2019: Tomorrow's Barriers to Innovation," April 2019.
[6] PwC, "Talent Trends 2019," 2019.
[7] OECD, "In It Together: Why Less Inequality Benefits All," March 21, 2015.
[8] Statistics Canada, "Young people not in employment, education or training: What did they do in the past 12 months?" February 13, 2019.
[9] Doyle and Lamb, "Future-proofing: Preparing young Canadians for the future of work," BII+E, March 28, 2017.

CHART 1: INDUSTRY EMPLOYMENT AND RISK OF AUTOMATION FOR YOUTH JOBS



Regardless of the industry or the risk of job automation, one common and consistent consensus appears across recent evaluations: the future of work for youth will likely include the following characteristics:

1. Fewer consistent, full-time jobs;
2. More frequent job transitions throughout their career; and
3. Acquisition of new skills (both essential and technical) over time.[14]

Implications of the Future of Work for Youth

Any transition from one stage to another is difficult. For many youths, the transition from secondary education to the next step in their career pathway is a unique and complex journey. Layered onto the emotional and mental difficulty is the rise of various forms of work we've outlined (i.e., temporary, part-time work, gig work, freelance, etc.) and automation and digitization of work tasks now increasingly common in the workplace. Young people have limited job experience, if any, and often undergo a period of unemployment before finding their first job. Young workers are also more likely to become unemployed than adult workers when they do find a job due to their lack of work experience.

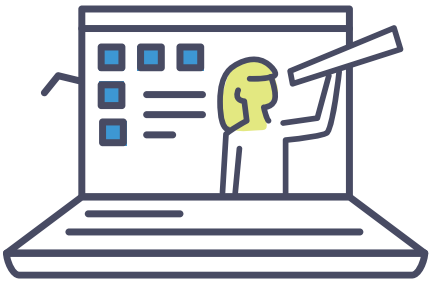
On the other hand, youth have more options and tools than ever to consider. Learning and training opportunities enabled by technology include online, distance, a range of online open courses, blended and traditional learning opportunities. Finding work and building a professional network can happen through a variety of tools with as little as a mobile device and social media. Online communities and forums can help youth navigate by providing a common space to ask questions and seek the advice of mentors and peers.

Flexibility is now a common characteristic of a labour market in transition but navigating those options can be overwhelming for youth and come with their own hidden costs (i.e., lack of benefits, volatility, lack of security, hidden fees on platforms, low wages, etc.). Research shows that the consequences of heightened uncertainty and declining retention of youth in the labour market can be severe — from leading to a "delayed adulthood" to resulting in chronic underemployment and causing wage scarring — all of which result in higher reliance on social assistance and greater need for more adaptive, integrated employment supports.[15]

Rather than focus on predicting the jobs and skills of tomorrow, the future of work should be anticipated by building an integrated system that manages and mitigates uncertainty in the youth employment journey by also addressing its present shortcomings. This requires not only understanding key characteristics of future change, but also addressing the barriers experienced by youth working today. These are outlined in detail in the following section.

[10] *Acemoglu and Restrepo, "Robots and Jobs: Evidence from US Labor Markets," March 2017.*
[11] *Deloitte, "The value of robotic process automation in shared services," 2019.*
[12] *PwC, "Young Workers Index 2017," October 2017.*
[13] *Doyle and Lamb, 2017.*
[14] *This finding is supported by recent work at Social Capital Partners outlined here: https://medium.com/ideas-from-social-capital- partners/https-medium-com-jonshell-designing-for- uncertainty-a2622a0ab693*
[15] *Nunley, Pugh, Romero, and Seals, "The Effects of Unemployment and Underemployment on Employment Opportunities: Results from a Correspondence Audit of the Labor Market for College Graduates," June 2016.*

YOUTH EMPLOYMENT, SERVICES AND BARRIERS IN CANADA

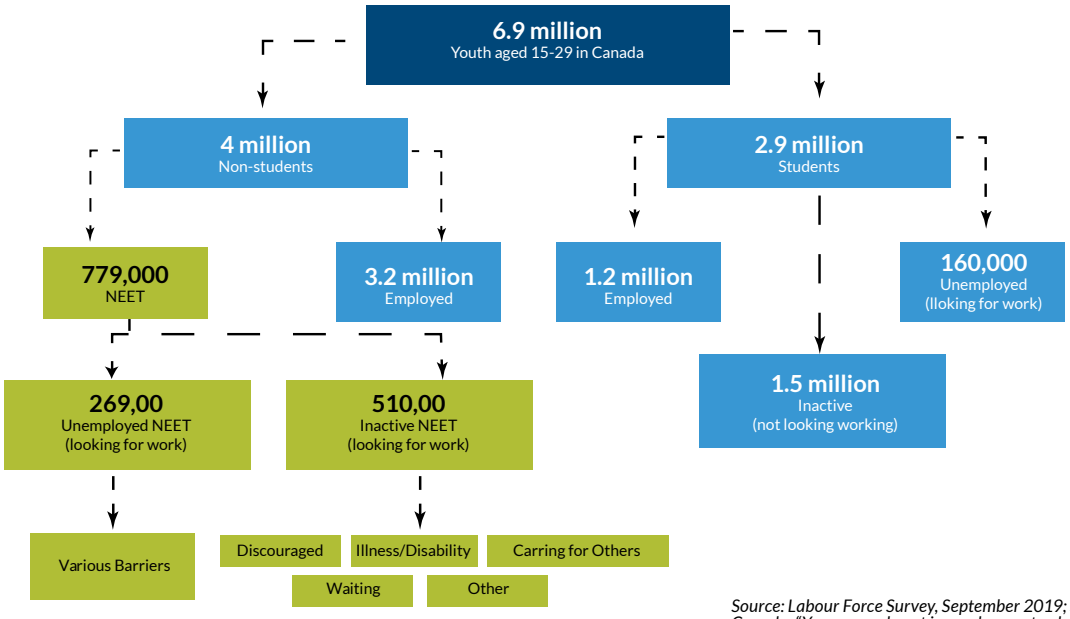


Youth employment and broader labour market participation is much more than supporting sustained economic activity – it can support a high level of self-worth, promote strong social identity in a community and support continued attachment to the labour market.

Unfortunately, many youth who seek employment may face several barriers that prevent them from being successful and may even lead to them dropping out of the labour market completely. Most often, this youth population is termed at-risk (i.e., youth who are most vulnerable or at risk of disparities in access, service use and outcomes) and youth NEET.[16] Youth in these categories may also be more susceptible to the negative impact the future of work may bring as they often struggle to advance in the transition from education to stable employment and can be obstructed by socio-economic status, racial inequality and other barriers.

This section provides an overview of leading research from Canada of youth journeys and barriers in seeking employment to provide a contextual understanding of the present of work for today's youth. The first step in assessing youth journeys in Canada is to capture a detailed picture of the Canadian youth employment landscape, with a focus on those most vulnerable to employment disruption or in need of services. While each group contained within the NEET category outlined in the following section may be at risk of falling behind their peers on work experience, **the concern is generally greater for those who are youth NEET inactive, as they may face greater challenges re-entering the labour force.**

DIAGRAM 1: THE LANDSCAPE OF CANADIAN YOUTH EMPLOYMENT



Source: Labour Force Survey, September 2019; Statistics Canada, "Young people not in employment, education, or training: What did they do in the past 12 months?", February 2019.

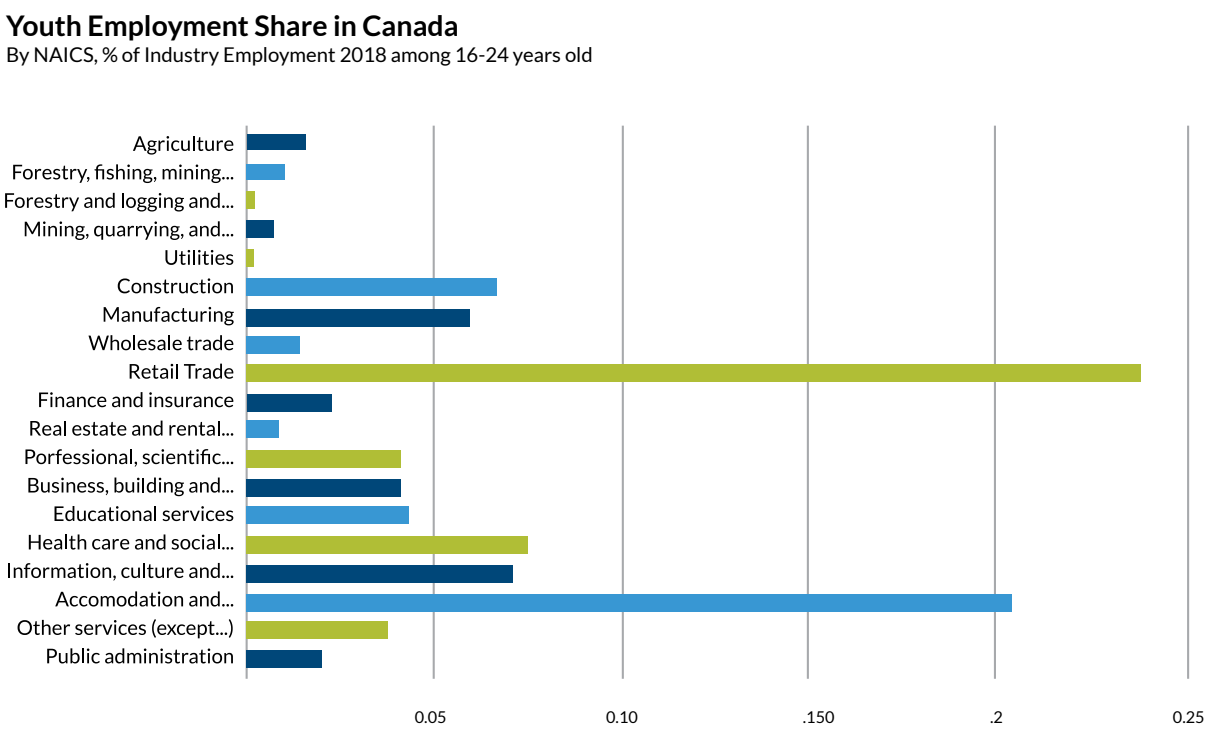
[16] *Queen's SPEG, "Needs of NEET youth: Pathways to positive outcomes," June 2019.*
[17] *Based on LMIC calculations from data in 2018 from the Labour Force Survey.*

Youth Employment in Canada: An Overview

Regularly ranking high among countries with advanced economies in terms of the share of its population holding college or university degrees, Canada has one of the most educated and engaged workforces, globally. Youth today are also more educated than they ever have been with 36 per cent of 21-year-olds at university. The Canadian labour market has also been particularly robust in recent years, with more than 68 per cent of those aged 16 to 29 holding a job, and its youth employment rate at its highest in a decade. At the same time, 21 per cent of Canadians in that age group are enrolled in post-secondary education, which is the highest enrollment rate since 2009.[17]

While relatively high, youth employment tends to be concentrated in just a few industries, including retail trade and accommodation and food services, **which may have implications on how and where youth are able to transition in the future of work.**

CHART 2: YOUTH EMPLOYMENT SHARE AND CONCENTRATION IN CANADA



Source: Statistics Canada, Table: 14-10-0023-01 (formerly CANSIM 282-0008)

These statistics should not overshadow the fact that **11 per cent of this age group are also youth NEET.** Youth in this category are often distinguished by the struggle to transition from education to stable employment and can be obstructed by socio-economic status, racial inequality, and other barriers.

NEET Youth in Canada

In Canada and around the world, there is an increasing concern for NEET youth. The NEET indicator has been regularly published by the OECD since the late 1990s, as NEET youth may be at risk of low-income or social exclusion. The NEET indicator is intended to quantify the proportion of young people who do not follow a traditional path, such as going to school and then getting a job. These young people (aged 15 to 19, 20 to 24 and 25 to29) also often find themselves outside the educational system and without work.

At a broader level, youth are more generally and traditionally categorized as:

1. Young people who are attending school (School)
2. Young people who are working and no longer attend school (Working)
3. Young people who are NEETs (Neither)

Within the NEET category, these youth are further characterized as NEET – caring for children, NEET – looking for paid work, and NEET – other. In most classification systems, young NEETs are therefore wa heterogeneous group, **but it is important to study them based on differ-**

ent age groups and type of NEET. Young people aged 15 to 29 often experience very different education and labour market transitions based on age. Those 15 to 19 may have been in high school and dropped out or just recently transitioned; those aged 20 to 24 may have started their transition from high school to the labour market; and the majority of those aged 25 to 29 may be looking for work.

The terminology describing youth NEET first appeared in a late-1990s United Kingdom government report…

In the future, consideration might also be given to the occupational segments of youth 20 years and older employed or trained in industries with a higher risk of automation.[18]

TABLE 1: YOUTH NEET ACTIVITIES AND STAGES BY AGE GROUP

	15 - 19 youth NEET	20 - 24 youth NEET	25 - 29 youth NEET
Primary Activities	Potential high school Looking for entry-level work experience	Considering or entering additional education Transitioning more fully into labour market	Seeking additional education Seeking or transitioning into employment

Source: Statistics Canada; Author.

The following section draws on statistical profile studies conducted by Statistics Canada to represent a current and comprehensive profile of youth NEET in Canada.

Youth Employment and NEET Rate in Canada

The terminology describing youth NEET first appeared in a late-1990s United Kingdom government report to describe youth who were having trouble securing employment or making a successful transition into higher education (Social Exclusion Unit 1999).

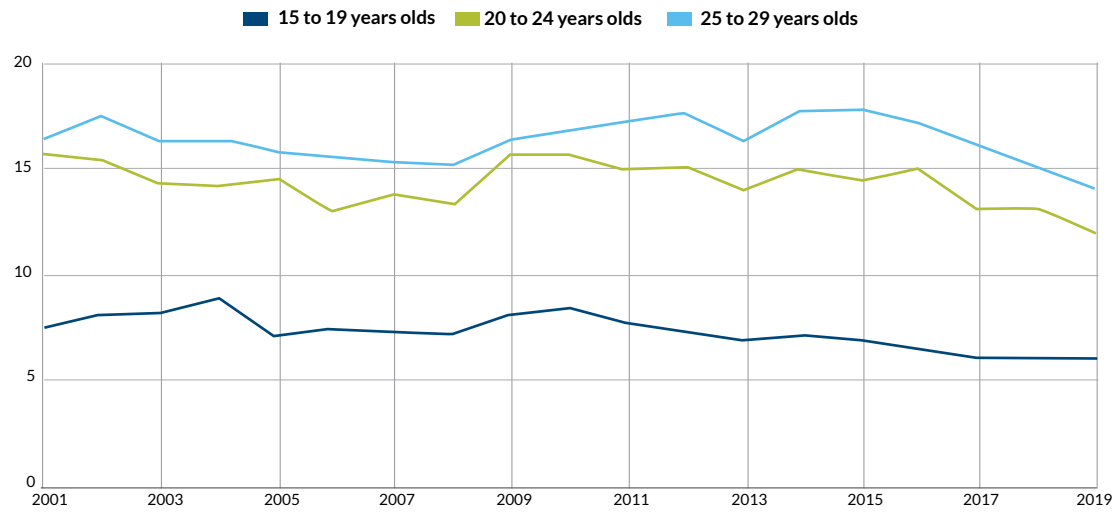
Since then, NEET has become a regularly reported indicator for youth, particularly with the OECD and now with the United Nations in one of its 2030 Sustainable Development Goals (SDGs) as part of SDG 8 – sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.

Statistics Canada continues to track Canada's progress towards this goal, pulling from surveys and data sources such as its Labour Force Survey (as demonstrated below).

As mentioned above, the reasons for young people to be in the NEET population will partly depend on their age group and are explored in detail below.

NEET Rate for youth aged 15 to 19, 20 to 24, 25 to 29

In Canada, 2001 to 2019



Source: Statistics Canada, Labour Force Survey, 2001 to 2019

18 For example, see Frey and Osborne (2017) for a breakdown of automation risk by occupation: https://www.sciencedirect.com/science/article/pii/S004 0162516302244.

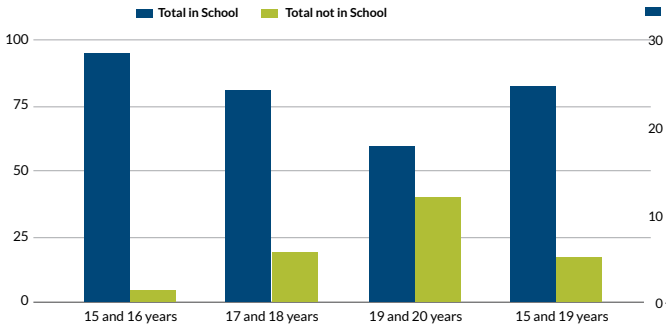
NEET: 15- to 19-year olds in Canada

Between 2001 and 2019, the NEET rate for 15- to 19-year-old Canadians has ranged from a high of 9 per cent in 2004 to a low of 6 per cent in 2016-19, which is just slightly lower than the OECD average of 6.1 per cent. According to Statistics Canada, the steady decline in the NEET rate for this age group since 2010 can be accounted for by the **increasing proportion of youth this age staying in school.**

The majority of youth aged 15 and 16 are not in the labour force due to their enrollment in high school education.

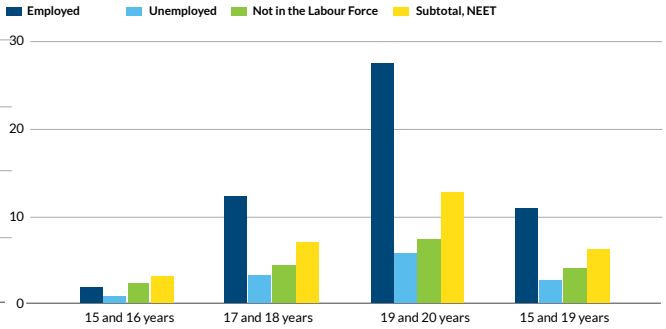
However, those **youth who are not in high school when they should be by law are at high risk of staying NEET in future years and other future socio-economic difficulties.**

Youth Subgroups: In School and Not in School



Source: Statistics Canada, Labour Force Survey, 2016

Percentage of Youth Not in School: Subgroups



Source: Statistics Canada, Labour Force Survey, 2016

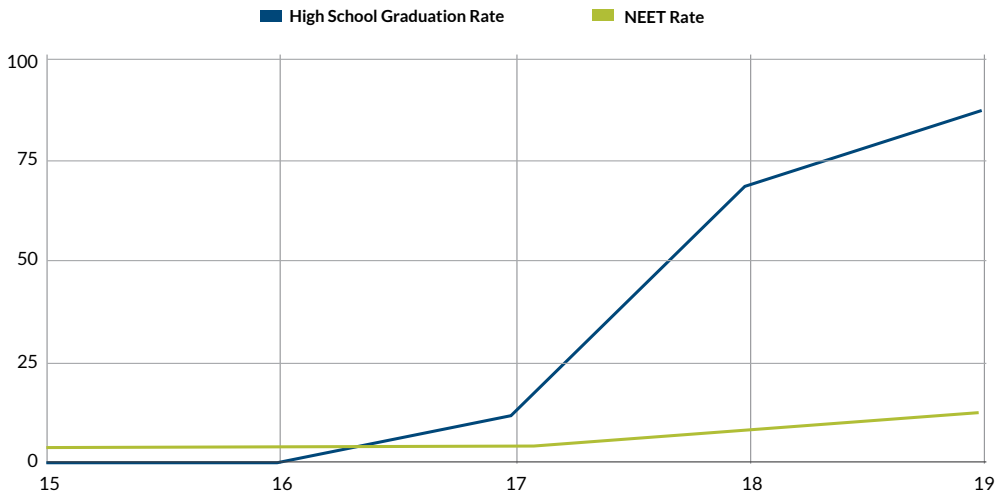
In terms of NEET rates between men and women in this age group, young men had a higher NEET rate at 7.2 per cent, while the NEET rate for young women is 5.4 per cent, based on the most recent estimates from the Labour Force Survey.

For youth aged 15 to 19 years, the NEET rate by single year of age closely tracks high school graduation, revealing two sub-groups: 15-16-year-olds with a much lower NEET rate (approx. 3 per cent) and 17-19-year-olds with a much higher NEET rate (range 4-11 per cent). Importantly, **the NEET rate for youth aged 18 to 19 may be used to measure the direct transition between high school and post-secondary studies and direct transitions to the labour market, also serving as an important indicator for employment service needs.**

Within Canada in 2016, the differences in NEET rates for 15 to 19-year olds between the provinces were generally not statistically significant. The one exception to this was that the NEET rate for 15-19-year olds in Saskatchewan was higher (8.5 per cent) than the rate in Ontario (5.2 per cent) and the difference is reported as statistically significant.

Percentage of High School Graduates and NEET Rate

By Age in Canada 2016



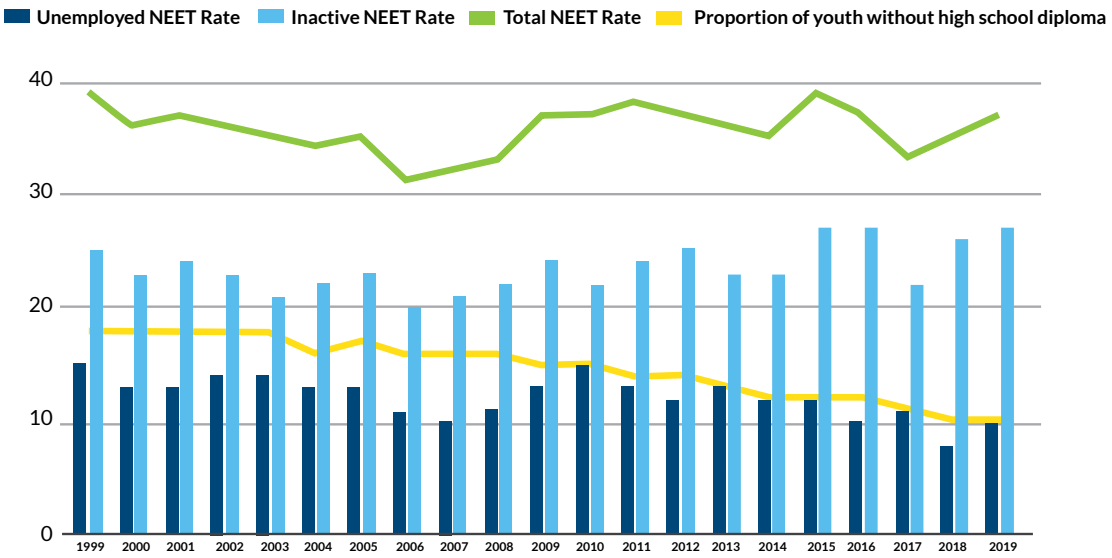
NEET: 20 to 24-year olds in Canada

Between 2001 and 2019, the NEET rate for 20- to 24-year-old Canadians has ranged from a high of 15 per cent in 2009 to a recent low of 12 per cent in 2019. In 2019, 287,400 youth were neither employed nor in school – a similar rate observed before the 2008/09 recession. At 13 per cent, the NEET rate in 2017 for young people aged 20 to 24 was the 13th lowest among the 34 countries that provided data to OECD for that year.

For the past 20 years, the number of young people aged 20 to 24 who have not obtained their high school diploma has continued to decline (see below). However, those young people who have not obtained their high school diploma are particularly at risk of being NEET – 37 per cent of them are NEET in 2019 and this proportion is higher among women (47 per cent) than men (30 per cent). Most of these NEETs without a high school diploma were inactive NEETs (not looking for work). For employment services, **it will be important to better understand the reasons why young people aged 20 to 24 did not obtain their high school diploma, as these youth are particularly at risk of finding themselves in a NEET situation.**

Proportion of Youth 20 to 24 Years without a High School Diploma and Not Attending School

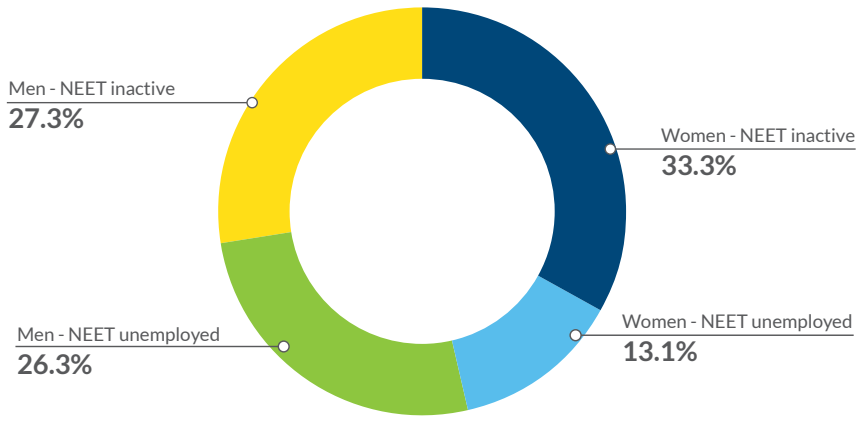
NEET Rates in Canada, 1999-2019



The proportion of women and men represented in this age group is relatively similar, however, female NEETs are 2.5 times more likely to be inactive than unemployed (likely due to the presence of children). Men are also two times more likely than women to be NEETs.

Distribution of NEET Aged 20 to 24

By Gender and NEET Type in Canada in 2019

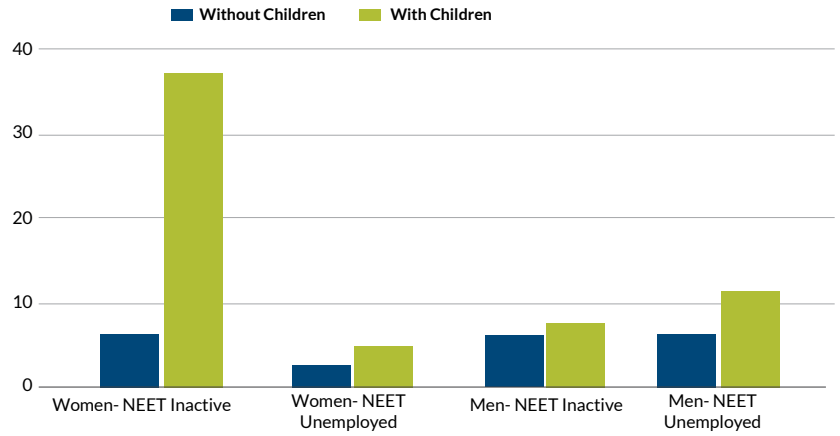


Among the NEETs aged 20 to 24 in 2019, 60 per cent were inactive NEETs (not looking for a job), while 40 per cent were unemployed NEETs (looking for a job). A low proportion of this age group have children, but **their presence has a significant impact on women's participation in the labour market and their eventual re-entry.**

Contrary to what is observed for women, children in the household do not significantly impact men's inactive NEET rates.

NEET Rates for 20 to 24 year olds

By Gender, Children Presence, and NEET Type in Canada in 2019



There are significant differences for this age group across provinces and territories.

Newfoundland and Labrador, Nunavut and Northwest Territories had significantly higher NEET rates than the national average of 11 per cent at 17 per cent, 53 per cent, and 35 per cent, respectively. No significant differences are observed, however, between rural and urban areas except for Manitoba where women in rural areas were more likely to be inactive NEETs than women residing in population centres.

NEET: 25- to 29-year-olds in Canada

In 2018, 73 per cent of young Canadians aged 25 to 29 years old were no longer in school and were working, while only 12 per cent were still in school. The remaining 15 per cent (376,000 Canadians) were young NEET adults.

The NEET rates among young people aged 25 is higher than other age groups year over year in Canada, as well as in most other OECD countries. In 2017, the NEET rate of 25- to 29-year-olds in Canada (16 per cent) ranked 15th out of the 32 countries that reported data that year.

In Canada, women (12 per cent) are more likely to be inactive NEETs than men (7 per cent) while men (6 per cent) are more likely to be unemployed NEETs than women (4 per cent). 14 per cent of inactive NEET individuals report that they want a job, with a higher proportion of men than women. Almost 70 per cent of inactive NEETs say they do not want to work.

Reasons for not looking for work included:

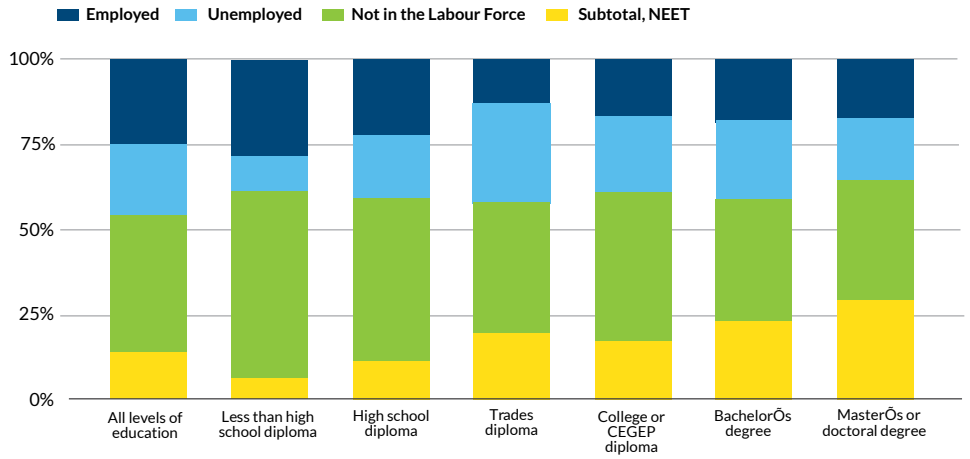
1. Discouragement
2. Illness
3. Caring for children, elderly or other family
4. Waiting for call-back from employer
5. Other reasons

There is a strong association of high inactive NEET women between the ages of 25 and 29 and motherhood. Contrary to what is observed for women, children in the household do not significantly impact men's inactive NEET rates. A similar situation is observed in each province, with the smallest gap observed in Quebec at 11 per cent and the largest ones in Manitoba, Alberta, and British Columbia at 26 per cent. **Quebec's beneficial family policies may explain why such a small gap is observed in this province,** as more affordable daycare and greater involvement of fathers with their children are likely to encourage young mothers to enter the job market.

Young women between 25 and 29 years with low levels of education have particularly high inactive NEET rates.

Inactive and Unemployed NEET Rates for 25 to 29 Year Olds

By Gender and NEET Type in Canada in 2019



Source: Statistics Canada, Labour Force Survey, 2018

NEET: Activities

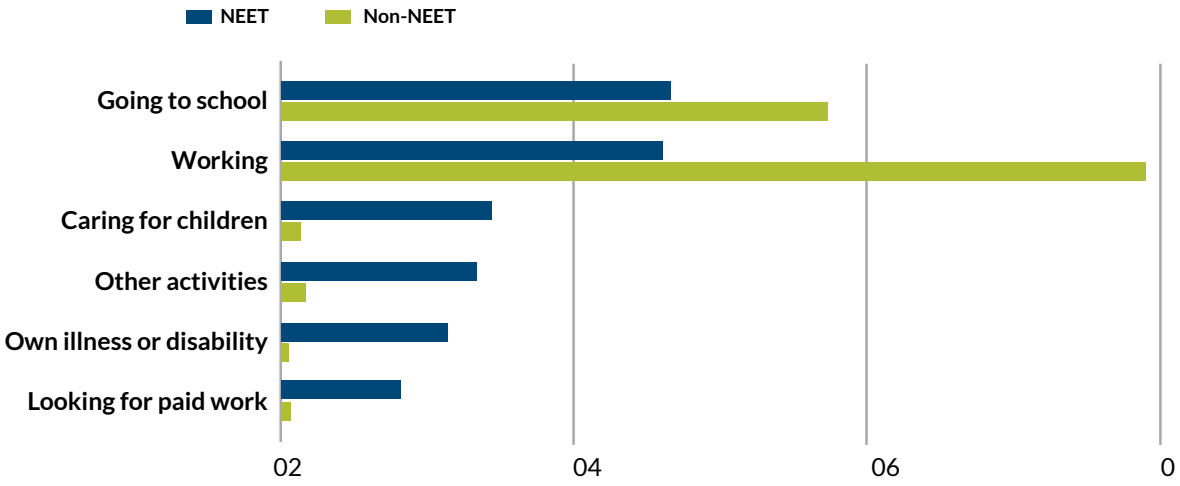
As outlined above, those aged 25 to 29 comprise the largest proportion of young people who are NEET, followed by 20- to 24-year-olds, and 15- to 19-year-olds. In order to understand the barriers and paths that youth face, it is important to also evaluate where they are commonly in the employment journey.

Over 12 months between September 2017 to 2018, the NEET population reported a variety of main activities. Just over a quarter (26.5 per cent) reported that they had been attending school, while a similar percentage (26.1 per cent) reported they had been working.

Other NEET reported caring for children, being ill or having a disability, looking for paid work or other activities.

Main Activity in the Previous 12 Months for People Aged 15 to 29

By NEET Status, 2018



This demonstrates that more than half of the NEET population as of September 2018 indicated that their main activity in the last 12 months was either going to school or working (52.6 per cent). This simply means that some NEET individuals could have been in- between jobs or transitioning from school to the labour force but were unsuccessful in doing so.

Youth Characteristics, Needs and Barriers to Employment

While the level of youth NEET seems to be trending down in Canada and continues to stay below the OECD average serving as a positive indicator, vulnerable youth facing barriers to employment opportunities are likely to be compounded with the changing transitions the future of work may bring. Temporary or gig work, automation and Artificial Intelligence (AI), and a shorter shelf life of technical skills in the workplace are not easily accommodated by those already facing existing barriers, such as racialization, disabilities or illness, mental health challenges, homelessness, family responsibilities and low educational attainment.

The following section explores some of the leading research in Canada investigating youth barriers to employment, including a systematic literature review by the Social Program Evaluation Group (SPEG) on employment-related issues for NEET populations and work done by Canada's Expert Panel on Youth Employment.

Youth NEET Characteristics

As mentioned previously, youth NEET should not be viewed as a homogeneous group. They often possess a wide spectrum of needs based on their individual identities, life circumstances, social context, personal health (physical and mental) and, more increasingly, their occupational background. These youth are often presented with multiple barriers to entering and staying within the labour force, unlike most of their counterparts. Understanding these unique and often intersecting characteristics is needed to design program interventions effectively.

The following table summarizes possible risk factors organized by three categories: personal, family and social. These risk factors are often characteristic of youth NEET and were sourced from a variety of studies gathered by Queen's SPEG (2019) (which included Canada 2020, 2014; Canadian Council for Social Development, 2017; Government of Canada, 2017c; Inui, 2005; Marshall, 2012; Mawn et al., 2017; Mendolia & Walker, 2015; Pullman & Finnie, 2018; St. Stephen's Community Housing & Access Alliance, 2016; Zudina, 2017), research done by the Youth Employment Research Project (2019) and analysis conducted by Statistics Canada (2019).

TABLE 2: INVENTORY OF POSSIBLE RISK FACTORS FOR YOUTH NEET

Personal	Family	Social
• Low socio-economic status • Live in an "at-risk" community • Racialized/visible minority • Homelessness • Immigrant status or background • Newcomer (in Canada for less than five years) • Poor health (physical, mental and/or emotional) • Young caregivers/parents • Disability • Marginalized gender, sexual or spiritual/religious identity • Experience with substance abuse • Experienced domestic violence as an adult or child • Low self-esteem • Low motivation	• Low household income • Poor housing • Living in small rural and remote settlements • Immigrant status • Single-parent family • Unemployed parents • Parents with low levels of education • Low parental interest and poor or no career guidance • Early parenting, dependent young children or caring for a dependent	• In foster care, left foster care, on the edge of foster care • Low educational attainment (i.e., lack of high school credential) • Negative experience of education (e.g., educational failures, low teacher expectations or interest) • Challenges with literacy and numeracy at school • Experienced bullying at school • Suspended and/or expelled from school • Early school leaver • Lack of work experience, lack of Canadian work experience • Experience in the criminal justice system • Ineffective youth employment supports and services • Weak social capital / network ties

Source: Queen's SPEG 2019; YERP 2019; Author.

Box 1: The Youth Unemployment Research Project (2019)

In an effort to better understand very specific and systemic factors that might lead to employment barriers for youth, a group called the Youth Unemployment Research Project (YURP) conducted a youth-led, community-based study in 2015, which focused on youth living in low-income neighbourhoods along Jane Street, Toronto, who were youth NEET or at high risk of becoming youth NEET.

Study results show that youth in low-income neighbourhoods become NEET or at risk of NEET for diverse reasons and are closely linked to their socio-economic circumstances. At the individual level, the research project found that possible characteristic and circumstantial barriers to employment may include the following interrelated factors:

1. Lack of high school credential
2. Lack of labour market experience
3. Homelessness or housing instability and/or lack of basic necessities
4. History of child welfare involvement
5. Criminal involvement or record
6. Early parenting, dependent young children or caring for a dependent
7. Weak social capital and network ties
8. Learning challenges or disabilities
9. Low confidence or personal motivation
10. Mental health and substance abuse problems

And these can be grouped into relating to one of the following four categories of youth NEET from the study:

- **NEET youth with an education gap:** youth are early leavers from the school system, unprepared school graduates or are youth in precarious post-secondary education.
- **NEET youth in conflict with the law:** youth have a criminal record or face criminalization and stigmatization in their communities.
- **NEET youth caring for family:** youth are typically females caring for their own children or looking after their siblings to support the household.
- **NEET youth with a long-term disability or health condition:** youth are excluded workers who are often unaware of supports or what is required of them to access employment, education and training opportunities.

Source: Core Team of the Youth Unemployment Research Project, "Tired of the Hustle: Youth Voices on Unemployment - A Youth-Led Community-Based Research Project in Toronto's Jane Street Neighbourhood," 2018.

Demographic Factors

In Canada, demographic factors also prevent many youths from accessing employment opportunities and can overlap with other factors. These include age, gender and ethnic background. Almost all youth who are unemployed for more than six months are aged 20 and up, and two-thirds of these are male. Indigenous youth, particularly males, are at a heightened risk of unemployment and labour force exclusion, but research suggests this may be highly dependent on rural vs. urban status.

Racialized and immigrant status often overlap with recently arrived immigrant youth working in lower-skilled employment, experiencing racism and linguistic discrimination, and having difficulties with foreign credential recognition. Even if they have been in Canada for many years, immigrant youth are far less likely than Canadian-born youth to have worked during high school or post-secondary education.

They are also less likely to have accumulated resources such as job references, networks, job skills and work ethics that lead to better economic outcomes as adults.

Not all negative employment outcomes for youth are as anticipated or expected.

Recent research found that racialized youth, especially those aged 18 to 21 years, who were from middle and high socio- economic status (SES) households face significant barriers to employment, but those from low SES households do not. The authors of the study suggest that they may be seeking lower-skilled jobs, where they may be encountering fewer barriers.

Psycho-social Factors

Beyond youth NEET profiles by traditional socio-demographic characteristics and systemic factors in education and employment, a recent study by Statistics Canada aimed to explore whether different subgroups of youth NEET experience similar psycho-social characteristics in their employment journey, using data from three recent Canadian Community Health Survey cycles (2015 to 2017). The study examined a profile of Canadian youth NEET (aged 18 to 29) compared with youth non-NEET. Youth NEET were further divided into three subgroups according to their reported main activity—looking for paid work, caring for children and "other":

- 38 per cent were looking for paid work
- 27.5 per cent were caring for children
- 34.5 per cent were classified as "other"

Youth NEET are more likely to experience multiple economic, health and psycho-social challenges simultaneously, such as poor labour market outcomes (i.e., long-term unemployment), poor housing conditions, early parenthood, depression and social exclusion. In the study, youth NEET were more likely to have poorer self-reported physical and mental health and lower physical activity levels, as well as more likely to report mood and anxiety disorders and to have suicidal thoughts. Focus on psycho-social well-being is particularly important given the role of mental health in successful transitions from school to employment or to further education or training in young adulthood. This finding was supported by similar conclusions in the work conducted by the YURP.

Physical Health

On average, youth NEET are more likely to report poorer general physical health than youth non-NEET. Youth NEET are less likely than youth non-NEET to report activity levels at or over the Canadian Physical Activity Guidelines (CPAG). Those youth NEET caring for children reported better health levels at 62.9 per cent, while only 58.8 per cent of those looking for paid work reported very good or excellent health.

Again, these findings also highlight the diversity of characteristics of youth NEET, suggesting that it can be misleading to treat youth NEET as a homogeneous group.

While some findings from the Statistics Canada study mirror previous studies (i.e., Henderson et al. 2017, Ose and Jensen 2017) in finding that youth NEET on average report both poorer general health and lower levels of physical activity, differences can be observed within youth NEET sub-groups that better reflect trends observed in youth NEET.

Mental Health

Mental health issues among youth NEET continue to be a major concern. Overall, youth NEET report poorer mental health than youth non-NEET, with almost 15 per cent of youth NEET reporting poor or fair mental health, compared to 7.8 per cent of youth non- NEET. Those youth NEET caring for children are generally more like youth non-NEET, while those looking for paid work and in the "other" category are more likely to report poor or fair mental health, including mood and anxiety disorders.

Most significantly, almost one-quarter of youth NEET reported seriously contemplating suicide in the past year in the study, compared with 15 per cent of youth non-NEET.

The primary takeaway for mental health conditions of youth NEET is that those looking for paid work or in the "other" category consistently reported poorer mental health characteristics from mood, anxiety disorders and suicide compared to youth non-NEET. Those caring for children in the youth NEET category mirrored patterns found in youth non-NEET.

Social Well-being

From a social well-being perspective, youth NEET are more likely to be less satisfied with their lives than non-NEET youth. Research has shown that youth's perceptions of their transition to adulthood (i.e., parenthood, higher education, obtaining work, etc.) may influence how they rate their well-being, which may explain why youth NEET who care for children report higher levels of life satisfaction much closer to those reported by youth non-NEET.

A Summary: Youth Barriers to Employment

In 2017, Canada's Expert Panel on Youth Employment identified a variety of the major barriers to finding and maintaining employment faced by Canadian youth. The Panel focused on vulnerable youth, including Indigenous youth; youth with disabilities; recent immigrant youth and youth without post-secondary education.

They concluded that the six key barriers for youth in finding and maintaining employment in Canada at the group level are:

1. **Uninformed:** A lack of labour market information for youth
2. **Underrated:** Reluctance and uncertainty by employers in employing young people
3. **Uncertain:** Uncertainty faced by youth is caused by two factors:
    a. A rapidly changing world
    b. An increasing number of young people who find themselves in less stable part-time / contract employment
4. **Underprepared:** Inadequate preparation for the workplace
5. **Unaccepted:** Systemic and indirect discrimination experienced by marginalized youth
6. **Under-resourced:** A lack of resources for Indigenous youth and other marginalized youth

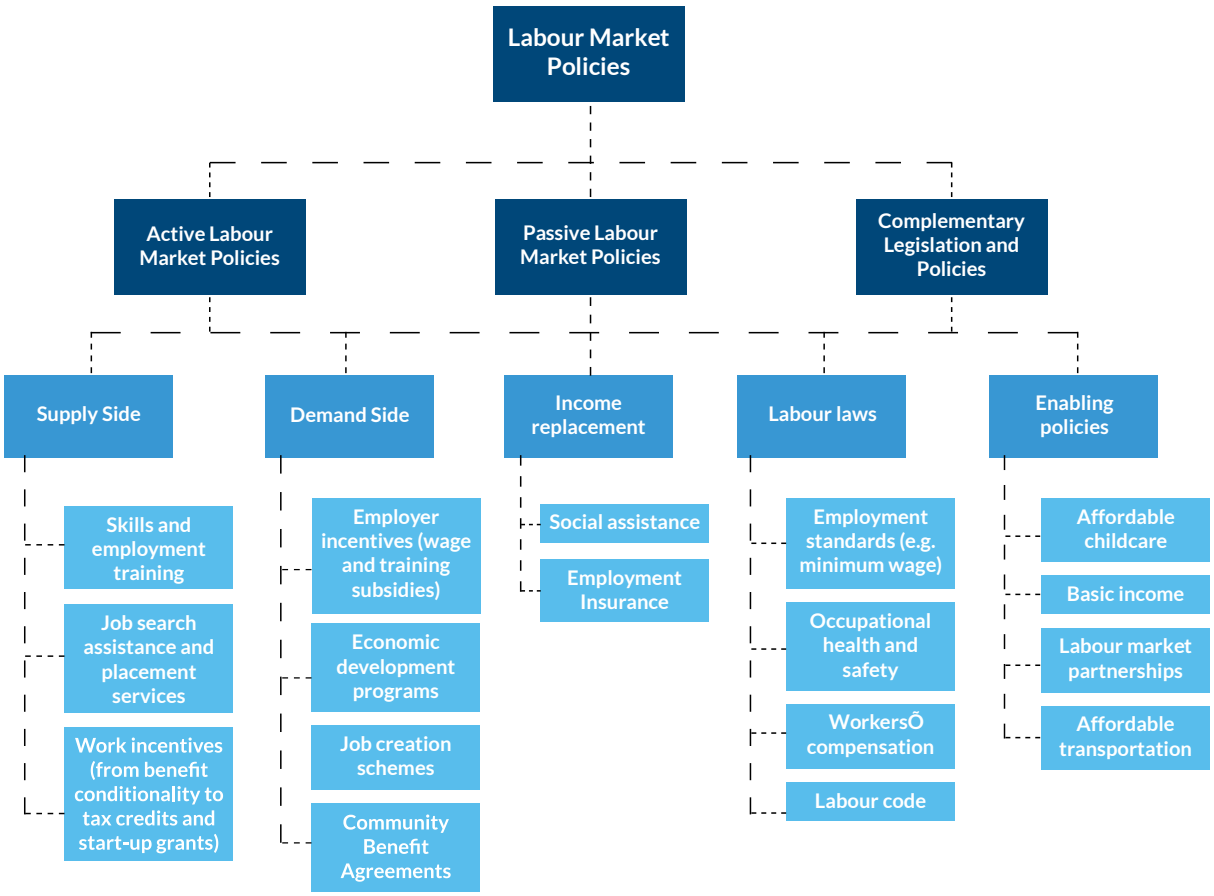
The Panel's recommendations for change primarily address federal policy measures, including improving statistical data to better capture youth employment information and developing "a holistic definition of skills and competencies needed for a constantly evolving workplace" that reflects "globally accepted attributes needed for the modern workplace".[19] While federal improvements are needed, **there is also a significant role that regional employment service networks can play in better addressing these six fundamental barriers.**

[19] *Initiatives to develop a national skills taxonomy connected to the National Occupational Code (NOC) System are currently being considered by ESDC and Statistics Canada, in partnership with the Labour Market Information Council (LMIC) and BII+E.*

Canada's Workforce Development Ecosystem

A local workforce system can be defined generally as the organizations and activities that prepare people for employment, help workers advance in their careers and ensure a skilled workforce exists to support local industry and the local economy over time. This can include skills and employment training, job search assistance and placement services, economic development programs and labour market partnerships, as well as a range of complementary laws and policies. In Canada, the federal, provincial and territorial governments share jurisdiction over labour market development policy. The Government of Canada's involvement is largely through the Labour Market Transfer Agreements (LMTAs), which are funding transfers that support skills and employment training and programming. Provinces and territories are responsible for designing and delivering programs using LMTAs and other sources of funding through one of three policies: Active Labour Market Policies (ALMPs), Passive Labour Market Policies (PLMPs) and complementary legislation policies.[20]

DIAGRAM 2: LABOUR MARKET POLICY SYSTEM IN CANADA



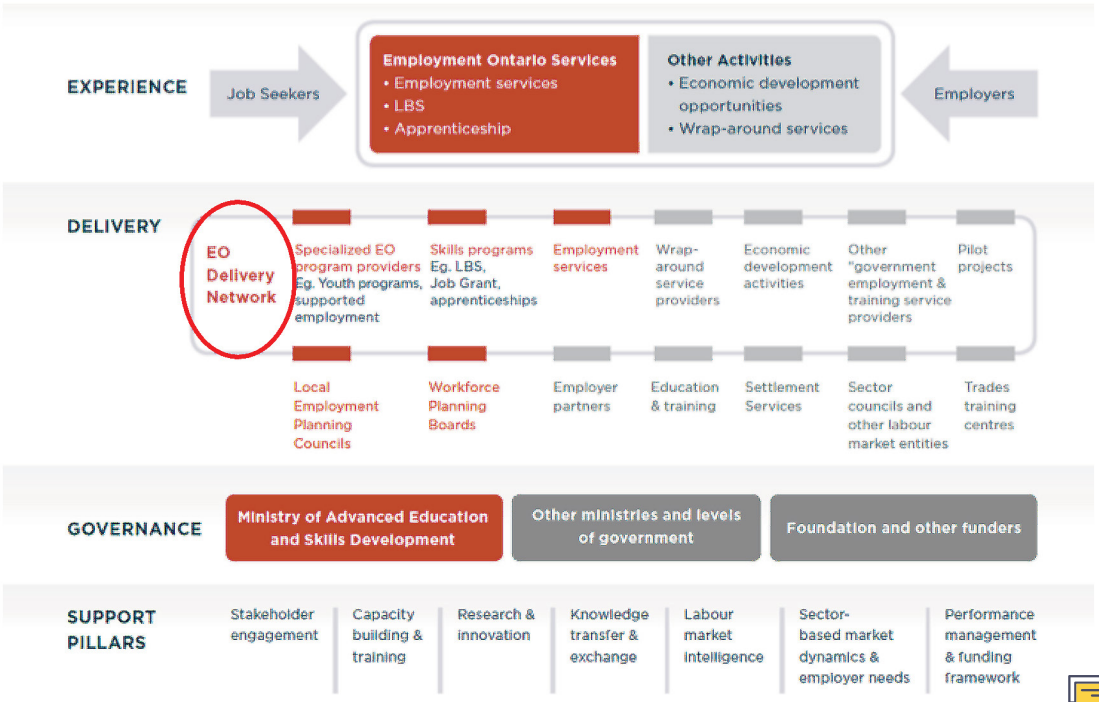
Employment Services and Training

To understand local workforce systems, how they administer labour market policies in Canada, and technology enablers and barriers they face, it is essential to understand the specific government-funded programs and services at the local level.

Employment supports in Canada often involve the collaboration of governments, employers, unions, educational and training institutions and community-based organizations. A full mapping of employment services in Canada does not currently exist (most services can be mapped at the provincial level, but often with outdated data), representing a fragmented community of service providers and multiple levels of government involvement. For Canada, this has resulted in uneven service, a lack of coordination and inability to measure and track impact.

20 Momentum, "Towards an Economy that Works for Everyone," January 2019.

DIAGRAM 3: EXAMPLE - EMPLOYMENT SERVICES AND TRAINING ECOSYSTEM: ONTARIO



Current Policy and Funding Context in Canada

In Canada, the Federal Employment Insurance Act governs the majority of funding distributed to employment services. In parallel, the provinces also invest heavily and take on the responsibility of designing their own models for front-line service delivery. Across provinces, social assistance, labour market programs and employment service programs are not integrated or coordinated, making it difficult for both youth and employers to connect.

This is important to consider when evaluating potential leverage points for integration and longer-term transformation. As outlined by research done by the Urban Institute, "the policy and funding landscape affects how local leaders plan for and organize their local workforce systems."[21] As it currently stands, the existing service environment in Canada persists as a network of providers often competing for funding and youth with limited ability or incentive to engage with employers and external stakeholders. Critiques of this kind of "patchwork system" exist elsewhere and are not unique to Canada (see Box 2), but there may be lessons to learn for informing better coordination and integration mechanisms.[22]

Box 2: Policy and Funding Structures in the United States

Local workforce programs and activities in the United States are often coordinated through the state and local structures created by the Workforce Innovation and Opportunity Act (WIOA). Under WIOA, local workforce development boards (WDBs) administer the core workforce programs offered, with guidance and oversight from state workforce agencies. Workforce development boards also coordinate with a range of other publicly funded programs (i.e., childcare subsidies, housing and career and technical education) to ensure workforce customers can access the assistance they need.

In addition, WDBs address such issues as skills shortages by engaging employers and industry in preparing workers for available jobs. This structure forms a network of programs that is the public workforce system, with the level of services provided, coordination across programs and organizations, and state and local policies differing across the country.

Source: The Urban Institute, 2016.

[21] Urban Institute, "Understanding Local Workforce Systems," 2016.
[22] Good and Strong, "Reimaging Workforce Policy in the United States," 2015.
[23] Findings included in the "13 Ways to Modernize Youth Employment in Canada" by the Expert Panel on Youth Employment (2017).

Complicated Support System for Youth and Employers

Navigating the current system of youth employment services and supports in Canada is complex and often requires a significant investment of time and expertise for all participants involved. Many of the policies connected to youth employment are provincial or territorial, which often complicates youth mobility with programs changing frequently and available only to youth who meet very specific age, income and education criteria for short bursts of time. This means that employers may be challenged to invest time and resources in accessing young workers through these programs.[23]

In addressing some of the key challenges youth currently face in navigating the employment services ecosystem in Canada, the Expert Panel on Youth Employment recommended that the Government of Canada rethink the delivery of youth employment programming at a federal level in collaboration with provincial and territorial governments through the Forum of Labour Market Ministers and enhancing the Youth Employment Strategy (YES).

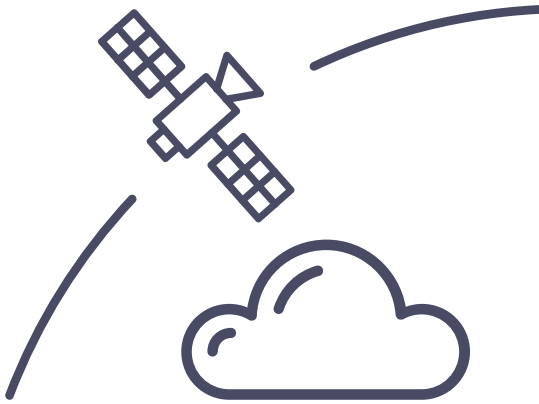
The recommendation was put forward in light of three large barriers in the current system:

1. Overlaps and gaps in provincial, territorial and federal programming;
2. Difficulty navigating the system for all users; and
3. The need for regional context to be considered in program delivery.

The limits, necessary transformations and existing leverage points have been further explored in other comprehensive studies, including the Commission on the Reform of Ontario's Public Services and the Commission for Review of Social Assistance in Ontario. While these are Ontario-based studies, similar issues exist in many provinces. Supported by the literature outlined in this foundational report, Project Integrate aims to identify leverage points of systematic integration of youth employment services enabled by digital tools and assessment to solve points two and three above. The following sections outline these technology factors for integration in detail.

Many of the policies connected to youth employment are provincial or territorial, which often complicates youth mobility with programs changing frequently and available only to youth who meet very specific age, income and education criteria for short bursts of time.

DIGITAL TOOLS AND ASSESSMENTS FOR ESPS



Coaching, counseling, preparing, matching and placing youth in employment, while also ensuring successful and sustained employment placement, is a complex process. Programs and services assisting youth offer varying micro-services, such as providing resume and profile coaching, networking, skills assessments and more, that can be further scaled and supported through digital tools and service delivery.

Why Use Digital Tools and Assessments?

Extensive research by the U.S. Department of Labour and the O*NET Resource Center shows that using effective digital tools and assessments are likely to reduce the degree of making an error in decisions like exploration, preparing, hiring and coaching during the career guidance process.[24] For example, in a report outlining their approach to employment and skills development programming, YMCA Toronto states that they use "a wide variety of intake and assessment tools, since we believe that a thorough intake assessment enables us to support [participants] to make more informed choices."[25] In the Government of Ontario's Ministry of Advanced Education and Skills Development (MAESD)'s presentation on transforming employment and training services, they argued that a common assessment process supported by digital tools and assessments would provide a more consistent method of assessing employment and training needs and matching them to the appropriate level of service.

At a high level, well-developed digital tools and assessments allow service providers to:

1. More accurately identify and target the competencies and skills youth need;
2. Allow them to reach youth and deliver services on a larger scale; and
3. Better coordinate other stakeholders like employers in matching youth to opportunities.

The use of digital tools and assessments help ensure that the time spent by both the youth and provider add value to the employment / training journey by more effectively addressing youth barriers and needs (see Table 3 below).

[24] *Based on research outlined in O*NET's "Testing and Assessment: An Employer's Guide to Good Practices."*
[25] *YMCA Toronto, "YMCA Toronto Approach to Employment and Skills Development Programming," 2010.*

TABLE 3: YOUTH NEEDS AND BARRIERS TO EMPLOYMENT IN CANADA – OPPORTUNITIES FOR DIGITAL TOOLS AND ASSESSMENTS

Barriers	Needs
Uninformed	• Information about the world of work in terms of requirements and opportunities. • Information about themselves (skills, abilities, interests, motivations, etc.).
Underrated	• Myths that young people are lazy, entitled and uncommitted busted. • Value placed on creativity and insight. • Identification of skills, knowledge and abilities under non- Canadian education credentials and work experience.
Uncertain	• Less "serial contracting," temp jobs and gig work, lack of benefits and certainty. • Financial security. • Leadership skills training.
Underprepared	• Ways to demonstrate transferable skills in the workplace. • Knowledge of office skills. • Holistic and personalized training for disabled youth.
Unaccepted	• End to discrimination based on a variety of traits (ethnicity, race, sexuality, gender, age, etc.) and circumstances. • Information about human rights in the employment process.
Under-resourced	• Better resourcing of schools in rural areas. • Support for youth who travel to find extra resources. • Support for youth who are transitioning from difficult circumstances.

Source: YERP 2019; Queen's SPEG 2019; Author.

The Market for Emerging Digital Tools and Assessments

Serving as the cornerstone of both employment and learning, assessment design, delivery, grading and feedback has gone through a significant digital transformation over the past 15 years.[26] Recent advances in technologies like artificial intelligence (AI), cloud storage, augmented and virtual reality (AR/VR) and mobile have significantly reduced costs for implementing assessments across the workforce ecosystem. Digital tools and assessments can now be delivered personalized, at scale and in modular forms on mobile devices for a fraction of the expected cost.

Some of the most recent trends in adoption of digital tools and assessments have driven completely new categories that weren't available just a few years ago. Now far beyond multiple-choice question banks, digital tools and assessment methods are enabling everything from online proctoring allowing youth to take tests remotely, tools that convert handwriting and audio to text, analysis of video assessments and interviews, robust peer-grading systems, immersive gamified experiences and more expansive career exploration. (See Appendix 1 for full list of emerging categories list.)

Outlined below are some of the key market dynamics driving both the supply of and demand for digital tools and assessments in the employment and skilling space.

Supply Trends

- **Changing technology landscape of what's available:** Transformative innovations in cloud computing, big data, cybersecurity and artificial intelligence have spurred tremendous growth in Information Technology (IT) over the past decade, placing new capacities into the hands of individuals and organizations. ESPs should view this as an opportunity to help young people and individuals facing barriers or in transition to access supports such as coaching, training, online learning and high-quality employment personalized to their needs.
- **Strong employer demand is driving further investment:** Investor activity in the assessment space is robust and can be used as a barometer of strong adoption and market activity. High consolidation, merger and acquisition activity indicate that the market is growing, increasing the supply of assessment tools in the marketplace. Numerous companies are now emerging with new approaches for assessment and item development and delivery. More established players like ACT (American College Test), ETS (Educational Testing Service) and Microsoft are working to evolve their offerings with a more demand-driven, skills-based approach to assessment tools.[27]

Demand Trends

- **Digital skills are now considered essential in the workforce:** A study by the Urban Institute (2019) on "Foundational Digital Skills for Career Progress" critically points out that the importance of digital skills for workers goes beyond just the rising demand in the workplace. Digital skills are now a fundamental skill set to navigate society: through high school classrooms, banking, shopping, interactions with government and social assistance, entertainment and social connection. Just as well, digital skills are critical for the job search and learning additional skills throughout one's career. Entry-level and middle- skill jobs increasingly require digital skills and not possessing these can hold youth back even further both in applying to opportunities and being successful in them. Using digital tools and assessments in the service delivery process can further support youth digital skill development.
- **Improved technology drives down adoption costs:** Driven by major technology breakthroughs in the 80s and 90s, computing devices like laptops, mobile phones and other mobile gadgets are now highly accessible to diverse segments of the population. Cloud storage and digitization has allowed many types of organizations to access new digital tools, ways of working and delivering services. Previously, adopting technology as part of employment journey was time and resource intensive, and the technology used was not available to many people that lacked a desktop computer and internet connection. Now, higher rates of access to mobile devices and increased familiarity with apps and digital services shows great potential for employment services digitization.

While emerging categories of tools show promising potential for employment services integration, the success of those efforts will critically hinge on the adoption rates of those they're designed for. The following section outlines the literature behind conceptual models, key enablers and barriers, and an implementation framework adapted to the ESP context for enabling technology adoption in employment services.

[26] *As outlined by HolonIQ research on the 2019 Global Learning Landscape. https://globallearninglandscape.org/#a-section*
[27] *For example, see Microsoft's recent move into the "HR Tech" space: https://joshbersin.com/2019/12/microsoft-formally- enters-the-hr-tech-space-and-the-strategy-is- compelling/*

ENABLERS AND BARRIERS TO TECHNOLOGY ADOPTION

ESPs and non-profits have the opportunity to benefit from emerging technologies in enhancing the services they deliver. By utilizing cloud computing systems, modern databases and integrations, social media and mobile technology, ESPs can effectively increase the quality of service and quantity of clients served. For workforce development workers and agencies, digital accelerators can further their impact, including the use of digital assessments, digital collaboration, digital learning, and data and analytics tools – all of which are commonly associated with increased organizational capacity and efficiency.

TABLE 4: FOUR KEY ACCELERATOR TOOLS FOR WORKFORCE DEVELOPMENT NON-PROFITS

	Digital Collaboration	Digital Assessments	Digital Learning	Data and Analytics
Description	Digital collaboration is the use of digital devices to share knowledge, manage information and contribute user-generated content.	Digital assessments collect and evaluate information about stakeholders. They provide data to inform decision making on an individual and organizational level.	Digital learning uses technology as the means to drive learning outcomes. It requires a combination of technology, digital content and instruction.	Data and analytics tools use quantitative methods to derive insights from data, which can be used to shape decisions and program design.
Value for Beneficiaries	Medium	High	High	High
Value for Operational Efficiency	High	High	Medium	High
Level of Investment	Low to Medium	Low	Medium	Low to Medium
Examples	G Suite Dropbox Confluence Skype	Google Forms IQ Matrix Knack Mybestbets.com	S2S Academy Coursera Lynda.com Fishtree	SPSS Tableau BI Tools Google Analytics / Sheets

Source: Accenture, 2017.

User-Level

Almost all organizations are digital now or are quickly becoming that way. For individuals working in the non-profit sector, digital tools can empower people to embrace new ways of managing transactions, completing daily tasks, creating online identities and connecting to new opportunities. In the workforce development space, digital accelerators can enable ESP staff to better serve their beneficiaries through the adoption of digital assessments, digital collaboration tools, digital learning and data analytics. But often **when these digital tools and platforms are introduced, organizations focus narrowly on deployment, not adoption.** It is therefore critical to have a theoretical model to understand key barriers and enablers to technological adoption at the individual user level to enable successful digital acceleration, as well as key best practices in its implementation.

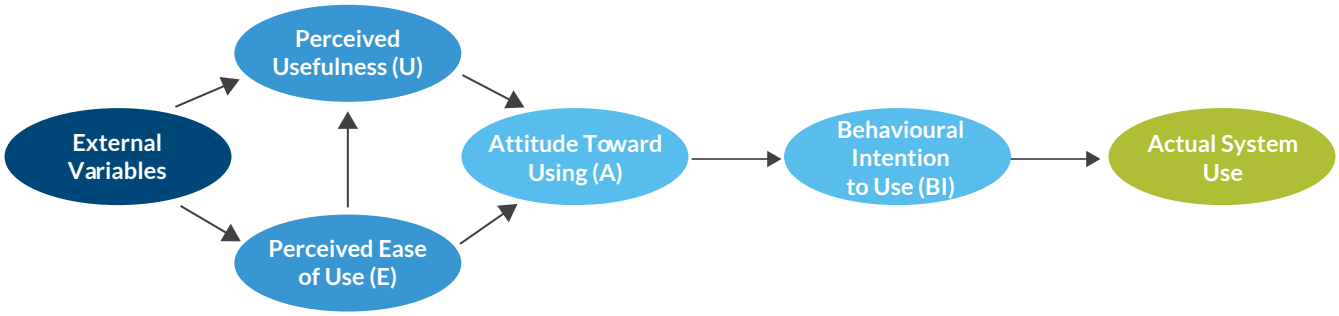
Technology Acceptance Model

The technology acceptance model (TAM), well known in the technology adoption literature as a means of explaining user acceptance of technology, is an information systems theory developed and first introduced by Fred Davis in 1989. The model suggests that when users are presented with a new technology, several factors influence their decision about how and when they will use it, notably:

- **Perceived usefulness (PU)** – This was defined by Fred Davis as "the degree to which a person believes that using a particular system would enhance his or her job performance."
- **Perceived ease-of-use (PEOU)** – Davis defined this as "the degree to which a person believes that using a particular system would be free from effort."

The original variables of TAM include Beliefs, Attitudes, Behaviour, Usefulness and Ease of Use. Usefulness and Ease of Use constitute an individual's cognitive response and decision to use a particular technology, which affects the response or attitude towards that technology, and ultimately drives the behavioural response about whether to use the technology.

DIAGRAM 4: TECHNOLOGY ACCEPTANCE MODEL (TAM)



Source: Davis, 1989

In an extension of the TAM framework, Lise Anne Slatten (2010) conducted a research study in applying the framework to the non-profit environment. Her key insight explained in detail below concluded that people will use or not use a certain system to the extent that they believe it will help them to perform their job better and, at the same time, should not present undue difficulty in the context of limited resources.

Individual Factor #1: Perceived Usefulness

Usefulness plays an important role in forming a user's behavioural intent in using the technology. How the value and worth of the technology – at the individual and organizational level – is communicated and then perceived by the worker is likely to have a profound effect on adoption. In other research, perceived usefulness was confirmed as one of the most important factors to influence user technology acceptance.

Individual Factor #2: Perceived Ease of Use

Individuals inside organizations have specific beliefs about their performance capabilities based on a variety of individual experience, cognitive and personality factors. Research has suggested that many will choose to avoid

learning something new because of the perceived or real difficulty and risk associated with the pursuit. The same can easily be said of a new set of technologies that may take months to fully integrate and adopt.

Individual Factor #3: Attitudinal Factors Davis et al (1989) suggests that behavioural intention is viewed as being jointly determined by the person's attitude toward using the system and its perceived usefulness. Executive leadership and managers in the organization may ultimately make the decisions that control how the organization (and system) eventually acquires and implements resources for technological adoption. Leadership personality may have a significant impact on overall behavioural intention of the user.

Leaders of a digital transformation should serve as the leading champions and advocates as they seek to develop and implement new ideas and processes at work.

Individual Factor #4: Perceived Access Barriers Related to Resources (External Variables)

Barriers unique to a non-profit environment relate to securing required resources to implement technological systems and may be financial, human or time-related – especially those that take away from or distract from normal service delivery.

Access to necessary resources, allocation of time and competition for scarce donations and funding are all components of economics related to non-profit organizations that influence the perceived opportunity cost of adopting technology.

Organization Level

Although there is a large market of use cases demonstrating the effectiveness of various technologies, ESPs and non-profits do not practise the same high levels of technology uptake and integration as other environments (See Appendix 2 for full list.). However, those that do are experiencing tremendous gains in their effectiveness and social impact – up to 91 per cent reported efficiency gains through the adoption of relevant digital accelerators according to Accenture research.[28]

Organizational Barriers to Technology Adoption

In order to integrate technological innovations and improve service delivery, however, it's crucial that organizations overcome some critical barriers, including lack of funding and resources and barriers imposed by funders, as well as continue to upgrade their own knowledge and expertise. While critical barriers are experienced by any kind of organization looking to integrate digital transformation at scale, below we list four primary barriers to technological adoption commonly experienced by the non-profit sector.

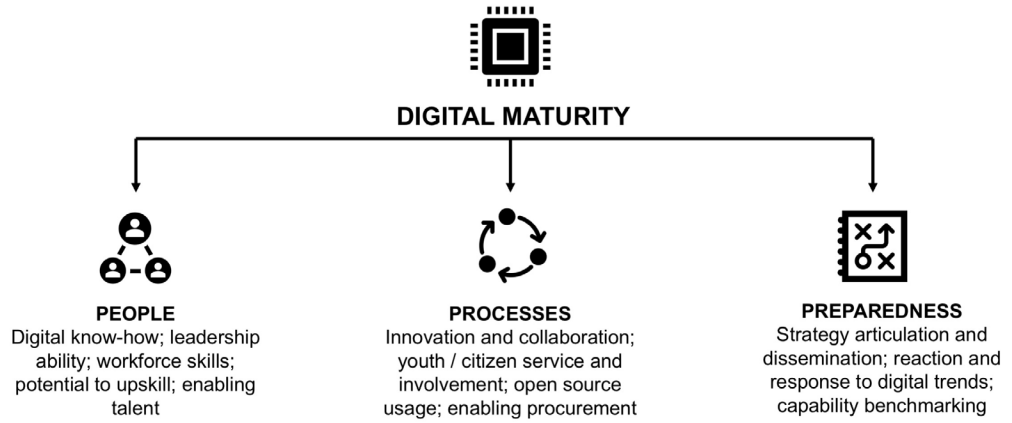
TABLE 5: CHARACTERISTICS OF A DIGITALLY MATURING ORGANIZATION

	Early	Developing	Maturing
Strategy	Aimed at cost reduction	Aimed at improving customer experience and decision making	Aimed at fundamental transformation of processes
Leadership	Lacks awareness and skills	Digitally aware	Digitally sophisticated
Workforce Development	Insufficient investment	Moderate investment	Adequate investment
User Focus	Absent	Gaining traction	Central to digital transformation
Culture	Risk averse; disintegrated	Risk tolerant; accommodates innovation and collaboration	Risk receptive; fosters innovation and collaboration

Source: Deloitte Digital, "The journey to government's digital transformation," 2015.

28 Accenture, "Digital Adoption: How workforce development nonprofits can accelerate employment and entrepreneurship outcomes at scale," 2017.

DIAGRAM 5: DIGITAL MATURITY MODEL APPLIED TO ESPS / NON-PROFIT SERVICES



DIGITAL MATURITY MODEL: FOR ESP / NONPROFIT SECTOR
Digital maturity refers to the extent to which digital and intelligent technologies have transformed and been integrated across an organization's or system's processes, talent engagement, and citizen service models.

Source: based on Deloitte Digital's Digital Maturity Model for the Public Sector, 2015

Organizational Barrier #1: Knowledge and Expertise

In a survey of 10,500 non-profits, charities, and Non-Governmental Organizations (NGOs), researchers at TechSoup Global found that 60 per cent claimed lack of knowledge is the single greatest barrier to new technological advancement adoption. This barrier was mentioned more frequently by smaller organizations.[29] Other research shows that education is critical to teach non-profits how to bridge social impact missions with technology innovation, understand the cause and effect of technology investments that lead to intended social impact, and train staff in mobile strategies.[30] Although non-profits increasingly attempt to train employees, several other factors can impede progress, such as resistance to change at all levels of staff, absence of a coherent training plan and lack of inclusion of staff in the digital change management and redesign process.

Organizational Barrier #2: Resources and Cost

Cost-based issues are the second largest category of barriers and explain a large proportion of non-profits' inability to integrate advanced technologies into operations, although many technology providers will offer discounts to non-profit organizations.31 The three most common types of resource shortages faced include lack of funds, time and IT. In particular, key challenges for non-profits in developing and sustaining integrated solutions are the lack of much-needed resources, such as growing and reliable capital and the tendency of foundations to fund initial innovation, but not sustain support for them. Technology distribution methods that often rely on annual subscription services are difficult for non-profits to commit to on a recurring basis due to funding timelines.

Organizational Barrier #3: Funders

As a result of the fast pace of technological change, many funders do not know the benefits of technology trends and do not develop technology-funding plans. Funders are also faced with competing funding priorities and a lack of clarity about how technological integration maps directly to increased social impact.

Organizational Barrier #4: Concern of Data Loss, Security and Privacy According to a 2015 NTEN report on the state of the use of cloud technologies in the non-profit sector, researchers found that reliable, safe access from any location is one of the most significant concerns when making cloud service decisions, with keeping out unauthorized people a distant second. In TechSoup's 2012 report, 45 per cent of respondents reported that data security and data loss is a significant barrier to adopting technology.

Organizational Enablers to Technology Adoption

While significant barriers remain in the non-profit space, many of them can be overcome by highlighting some key advantages as motivators. In the 2012 TechSoup study,

29 TechSoup Global, "2012 Global Cloud Computing Survey Results," 2012.
30 Gahran and Perlsein, "Funding mobile strategies for social impact," 2012.
31 Such as the AWS NonProfit Credits Program, Google Data Solutions for Change, and the Azure Cloud Solutions for Nonprofits from Microsoft.

motivators for adopting integrated cloud-based solutions varied by size of organization and included the enablers outlined below in detail. The study importantly highlights the fact that motivators were generally cited at lower rates than perceived advantages, indicating that there is not one single thing that would motivate adoption, but rather a combination of factors. In the NTEN study, they observed similar findings in their U.S. survey results, citing: "The decision to use a cloud-based software package is a matter of weighing features, cost and time, just like any other kind of software."32

Organizational Enabler #1: Reduction of Costs

The most significant motivator to increasing adoption by non-profits is reducing costs of the technology or adjustments made to the budget to afford the monthly fees. This motivator is more pronounced in larger organizations.

Organizational Enabler #2: Ease of Setup

Ease of setup, customization, integrations and services setup is a specifically large motivator for larger organizations that likely possess more complex existing technology ecosystems and processes.

Organizational Enabler #3: Training and Workforce Agility

Organizations indicated they were willing to learn and adopt technology if they received extra training and remote consulting.

Adopting digital and intelligent technologies in non-profits also allows those organizations to enable a "liquid workforce," empowering traditionally less technical organizations to identify and recruit additional talent with specialized skills on a short-term or as-needed basis. With additional training along the digital implementation journey, organizations can respond more effectively to the shifting needs of beneficiaries and overcome any organizational capacity.

Organizational Enabler #4: Trust

Organizations also report that recommendations or being advised on the technology from a trusted source would further motivate them to follow through on adoption. This is consistent with other results that show a lack of trust has been a barrier to cloud app adoption.

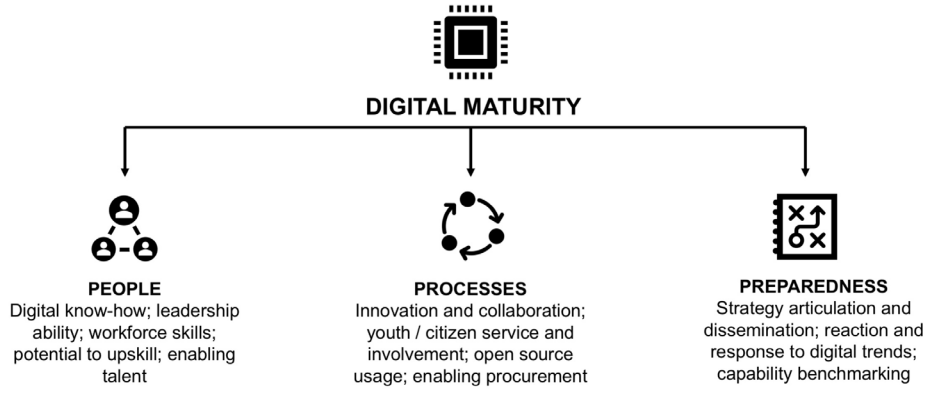
Systems Level

Based on a literature review of existing "patchwork gaps" in employment services in Canada, it is clear that incentivizing technology adoption and digital maturity can be improved at a system level. Common in a network of non-profit organizations, these barriers can include some of the policy, funding and training disincentives discussed in previous sections (see Section: Canada's Workforce Development Ecosystem.)

Systems Barriers to Technology Adoption

While difficult to understand the specifics and local dynamics of the employment services and training ecosystem in multiple provinces and territories across Canada, three main systems-level barriers may exist when it comes to technological adoption and integration among non-profit agencies, public services and ESPs.

DIAGRAM 5: DIGITAL MATURITY MODEL APPLIED TO ESPS / NON-PROFIT SERVICES



DIGITAL MATURITY MODEL: FOR ESP / NONPROFIT SECTOR
Digital maturity refers to the extent to which digital and intelligent technologies have transformed and been integrated across an organization's or system's processes, talent engagement, and citizen service models.

Source: based on Deloitte Digital's Digital Maturity Model for the Public Sector, 2015

32 NTEN, "The State of the Nonprofit Cloud," February 2016.

Systems Barrier #1: Legacy Systems and Clear Digital Strategy

According to research conducted by Accenture, legacy IT systems are the foremost barrier to implementing and integrating intelligent technology at the systems level. Despite the gradual shift to digital administration, delivery and governance of programming, legacy systems are especially prevalent in data management and core transaction processing – particularly those with tight legal restrictions in social security. It is relatively rare to have made strides in improving data quality and utilizing unstructured, big and third-party data sources in this sector. Progress here, however, is essential to realize modern technology's benefits and should be done so through a clear digital strategy.

Systems Barrier #2: Lack of Leadership Support or Understanding of Potential

In a survey conducted by Accenture, 83 per cent reported that senior leadership and management is able and willing to adopt and support new technologies in the

organization, but lack a clear understanding of the benefits and implementation challenges. This lack of clarity often weakens or delays the implementation process. Having technical leaders and champions that understand new technologies can help mitigate this common barrier.

Systems Barrier #3: Lack of Internal Skills or Ability to Hire

Finding the right talent and skill sets in employment service organizations to fulfil the potential of intelligent technologies is a critical challenge facing most public service entities. There does not only include a need to develop in-house skills and recruit other intelligent technology specialists, but also to find those with experience in delivering successful intelligent technology projects.

Systems Enablers to Technology Adoption

Modern technologies and integration among service providers have the potential to transform the ESP and non-profit services experience for both youth and employees, but providers and agencies need to proactively set the conditions for change.

Systems Enabler #1: Migration to the Cloud to address Legacy Systems

Addressing legacy integration should be a priority as providers and agencies look to deliver real value from seamless, intelligent technologies. Supporting analytics initiatives from the cloud, consolidating data centres and virtualizing infrastructure can help to sidestep legacy data silos and systems. Full migration to a cloud environment will increase agility and flexibility and enable implementation of new services quickly, allowing them to change in response to changing labour market conditions.

Systems Enabler #2: Build a Quick-Fire Business Case

Service agencies should build a business case in order to gain strong support from senior leadership by providing a clear picture of what's achievable. Including increased employee job satisfaction and more effective services, supplementing with both hard and soft metrics used to validate success, will help further integrate business support.

Systems Enabler #3: Audit and Create Interesting Jobs

Adoption of intelligent technologies can offer new skills and opportunities for existing employees, help retain the best talent and attract new talent. It's important that agencies retain the deep sector knowledge of existing employees and their prior knowledge of services. Individuals who combine some technical expertise and an understanding of agency/youth focuses are key to successful and sustained technology adoption.

Systems Enabler #4: Welcome Private Sector Collaboration and Co-Creation

76 per cent of government agencies surveyed said that they look first to successful implementations in the private sector.33 Difficult implementation problems and skills gaps can be solved by cross-sharing of information and experiences with the private sector and other third parties. Across all kinds of agencies and service environments, there is a strong willingness to embrace public-private partnerships to help develop intelligent technology projects. Innovative approaches often manifest when crowdsourcing solutions or bringing in volunteers, citizens and youth in the technology design and development.

Systems Enabler #5: Embrace a Digital Operating Model

Truly integrated technology will manifest itself in the day-to-day processes of the agency or provider. In fact, 40 per cent of those surveyed through Accenture reported that they made significant structural changes to their workforce and processes in order to implement real change. This does not mean, however, that service agencies need

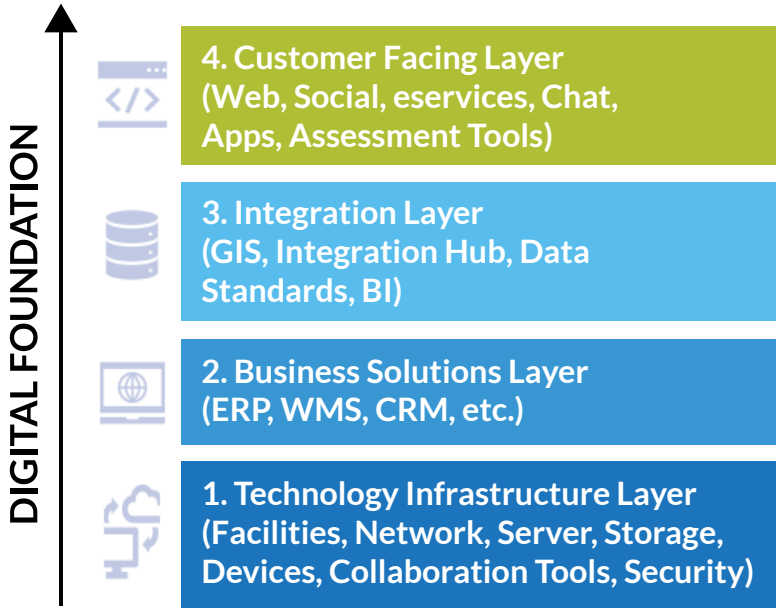
33 Accenture, "Smart Move: Intelligent Technologies Make Their Mark on Public Service," 2016.

to reinvent their systems from scratch. But by evolving their existing operations, processes and systems, while also embedding new technologies and new ways of working and partnering, agencies can turn change to their advantage.

Building a Comprehensive Framework for Technology Adoption among ESPs

The following section attempts to build a comprehensive model to barriers and enablers to technological adoption for integrated systems change among ESPs. It is essential, however, that before any kind of technological implementation can be successful at the user, organization or systems level, ESPs must be supported in the digitization of their processes with a digital foundation as a fundamental requirement. In many non-profit sectors, it's likely that processes such as work management, file records, finance, application intake and admin functions are still paper-based. Digitization is required before any kind of platform or digital assessment environment can be implemented and used. Digitized platforms support electronic end-to-end processes as shown below:

DIAGRAM 6: DIGITAL FOUNDATION LAYERS SUPPORTING SERVICE DELIVERY



Digitized platforms and assessment tools are traditionally centered upon a powerful central core of business systems such as Enterprise Resource Planning, Customer Relationship Management, Work Management, etc., that drive most of the operation of ESPs. These core business systems are common and shared.

Strategically planned digitization allows ESPs to track their own processes, share information between staff and different providers, track important management metrics and measure employment service impact, further enabling systematic integration as a whole.

Literature Review of Theoretical Models

Once digitization is supported, successful integration needs to consider a variety of factors unique to the technology and people on three dimensions: individual users, the organization and the system.

A secondary research scan of leading theoretical models for technology adoption was conducted to understand potential factors that likely influence the adoption of technology systems in the ESP context as a subset of the non-profit sector. The final ESP technology adoption framework is adapted from a variety of models illustrated through applications across different sectors (e.g., healthcare, international business, social sciences, etc.).

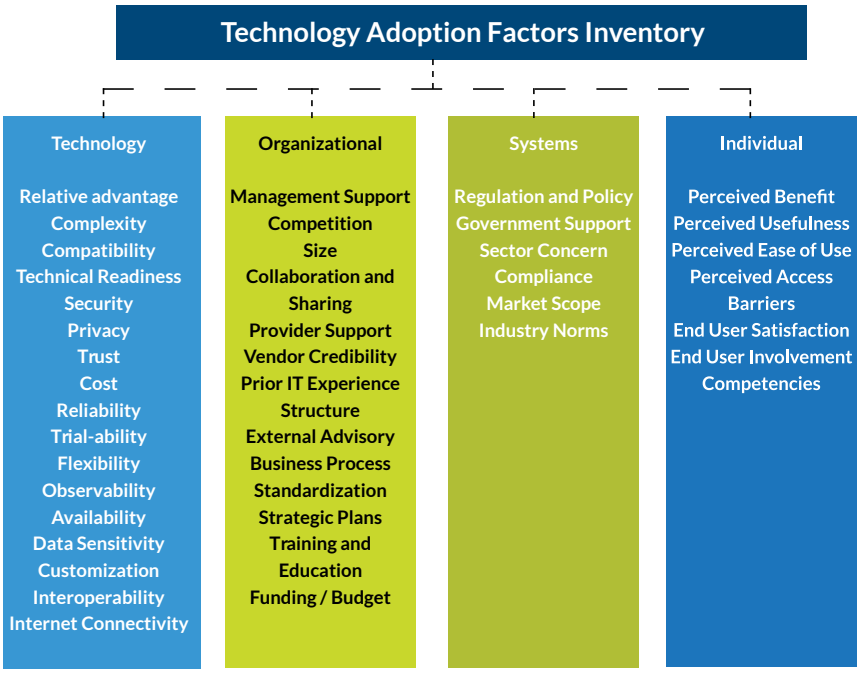
TABLE 6: THEORETICAL MODELS CONSIDERED

Model	Level	Description
Theory of Reasoned Action (TRA)	Individual	TRA is based on the assumption that individuals will act reasonably. They collect and evaluate all available information about the target behaviour on a regular basis, consider the effect and outcome of the actions, and then decide ba sed on reasoning whether or not to carry out the action.
Technology Acceptance Model (TAM)	Individual	Based on TRA (above) for modeling the topic of information technology adoption by users. This model provides an explanation of the factors influencing computer acceptance by users; it is a model at the level of individual factors and considers the factors of perceived usefulness and perceived ease of technology use.
Diffusion of Innovation Theory (DOI)	System	DOI considers the diffusion of innovation as a specific type of communication process in which a message about a new idea is passed from one person to another in the social system. In this theory, it is assumed that the acceptance rate is determined by the perception of individuals about the characteristics of an innovation.
Technology-Organization-Environment (TOE)	Organization	Used to understand the critical factors affecting the application of new information technology in an organization. This framework encompasses the three main organizational, technological and environmental factors that influence the process of applying technological innovation
Unified Theory of Acceptance and Use of Technology (UTAUT)	Individual	UTAUT is a model of technology adoption that aims to achieve a unified view of user acceptance. This theory consists of four components that influence the adoption of technology: willingness to use, performance expectancy, effort expectancy, social impact and facilitating conditions. It helps managers assess the likelihood of adopting new technology within the organization and identifies factors that drive the adoption of new technologies.
Human, Organization, and Technology-Fit (HOT-Fit)	All	Comprises four human components (level of use, knowledge, perceived usefulness, and user satisfaction), two organizational components (management support and strategy), and the environment (communication and competition).
Information Systems Triangle (IST)	Organization	Important for creating alignment between concepts such as business, organization and information and to increase strategic and business value added to other frameworks such as TOE.

Source: Multiple; Author Literature Review.

The following technology adoption factors inventory provides a foundation for developing a framework adapted to the ESP context and has four primary factors: technological, organizational, systems and individual user.

DIAGRAM 7: TECHNOLOGY ADOPTION FACTORS INVENTORY - NON-SECTOR SPECIFIC



Incorporating our inventory of technology adoption factors, Diagram 8 illustrates a framework adapted to the ESP context, including factors and subfactors for enabling the individual user, organization and system to adopt technology into services and processes. For a comprehensive Best Practices list see Appendix 3.

People
Blue = Behavioural Factors Green = Environment Factors Yellow = Capacity Factors

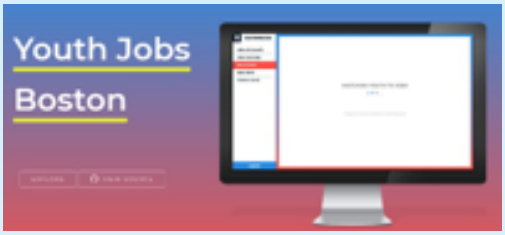
Technology
Blue = Selection Factors
Green = Protection / Risk Factors
Yellow = Usage Factors

DIAGRAM 8: A FRAMEWORK FOR TECHNOLOGY ADOPTION IN ESPS

	Individual User		Organization		System	
People	**Attitudinal**	1. Perception (Ease of use, benefits, usefulness) 2. Trust	**Social and Cultural**	1. Leadership 2. Trust 3. Comms / Collaboration	**Cultural**	1. Perception (Ease of use, benefits, usefulness) 2. Trust
	Roles and Responsibilities	1. Authority 2. Process 3. Work Activities	**Legal and Financial**	1. Funding / Cost 2. Regulation 3. Strategic Alignment	**Policy and Support**	1. Federal 2. Regional 3. Local
	Competencies	1. Knowledge 2. Skills 3. Abilities	**Operations**	1. Size 2. Management Practices 3. Client Services	**Talent and Development (ESPs)**	1. Adaptability 2. Expectations 3. Competencies
Technology	**Compatibility**	1. Interoperability 2. Access	**Reliability**	1. Proof of Value 2. Connectivity 3. Maintenance	**Availability**	1. Scale 2. Response Time 3. Point of Access / Service
	Performance	1. Function 2. Purpose 3. Response Time	**Security and Privacy**	1. Protocols 2. Encryption 3. Terms of Use	**Security and Privacy**	1. Protocols 2. Encryption 3. Terms of Use
	Usability and Complexity	1. Mode* 2. UX / UI – Features and Design	**Supporting Infrastructure**	1. Network 2. Business Solutions 3. Integrations	**Interoperability**	1. Customization 2. Data Capability 3. Flexibility
Best Practices	• Ensure supporting digitization is supported throughout the organization and system. • Implement a strategic planning process driven by leadership / management support, including funding resources. • Take a collaborative approach, building capacity and support throughout the organization (committees, training, etc.). • Develop and maintain training elements required, ensuring sufficient accessibility by all users. • Advance stakeholder alignment, both internal and external. • Ensure continual leadership engagement. • Establish ongoing measurement framework and define success of implementation.					
Notes	*Mode refers to the mode in which the technology is delivered and accessed: mobile, desktop, internal application, external application, etc.					

Box 3: Case Study in Technology Integration - Digitizing and Delivering the Youth Jobs Boston Program

SuccessLink provides Boston youth with summer jobs in City agencies or local non-profits. In 2013, Boston mayor Marty Walsh announced a commitment to place 10,000 youths in summer jobs with a target of 3,000 through the City-run SuccessLink program. At that time, the application and placement processes were largely manual, difficult for youth and required weeks of staff time to complete.



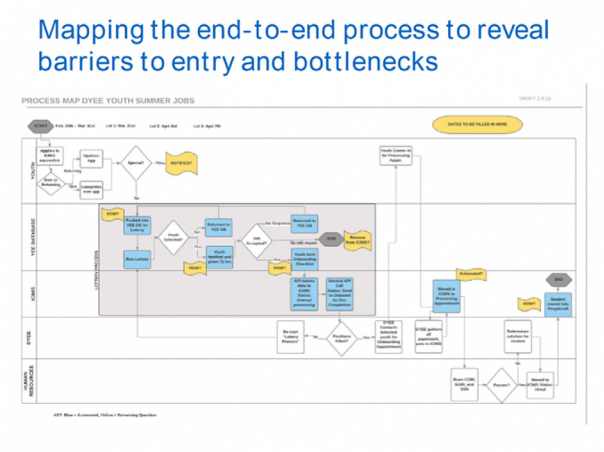
To address these challenges, partners from across Boston along with youth representatives collaborated to map the end-to-end process and redesign several key program elements of SuccessLink and develop the Youth Jobs Platform. The team developed a creative algorithm for matching youth to desired jobs and a system to notify applicants of matches via email and text message. They also updated the previous application form to be mobile-friendly.

Process Mapping

Interviews and process mapping enabled the Youth Jobs Platform team to develop a holistic understanding of the challenges involved in the application process, intake and in-office processes. Key challenges included: limitations in how the City notified students upon acceptance; general administrative process management across the various departments involved; challenges in student acceptances and retention; and limited data collection over the course of the annual application cycle.

The Youth Jobs Platform demonstrated that tailoring services to meet the needs of youth results in higher participation and frees up staff for program enhancements. The new system also allowed staff real-time access to program data and enabled youth to monitor their status throughout the application process.

Source: Civic Tech & Data Collaborative, "Using Data & Technology to Link Boston Youth to Jobs," 2018.



CONCLUSION: EQUIPPING YOUTH EMPLOYMENT SERVICES FOR THE FUTURE OF WORK

As one study put it, "Integrating resources is hard."[34] Those trying to move the needle on important integration challenges must attempt to weave together multiple programs housed in many agencies faced with multi-dimensional barriers in order to achieve aligned work. While emerging categories of digital tools and assessment provide a promising picture of what the future workforce ecosystem could look like, the first step is identifying present barriers in the Canadian system and then anticipating the evolving needs of both youth and employers to inform systems change.

The context of an ever-changing future of work that has been introduced here poses additional challenges that could be explored to a much deeper level in terms of their implications for employment services: employment is taking on varied forms; remote work means that work now often happens beyond a 9-5 structure; increased volatility is resulting in youth underemployment; youth require more and more skilling resources throughout their careers; and technology is being adopted at a faster rate among employers than anywhere else in the workforce system.

Supporting Integration for the Future of Work

In support of Phase 1 activities prioritized by Project Integrate , this foundational report concludes this secondary research assessment by highlighting key strategies and points of consideration for better equipping youth employment services for the future of work in Canada, divided into two key themes: 1) Strategies for Designing Future-Focused Employment Services for Youth and 2) Key Considerations for Employment Service Integration.

Strategies for Designing Future-Focused Employment Services for Youth

- Consider youth barriers in the context of the future of work: Youth, particularly youth NEET, facing barriers in today's employment system are
- bound to bear even more challenges in the context of the future of work. It is important for any employment systems change and integration efforts to seriously consider the additional barriers that more frequent job and skills transitions might mean for them in the future.
- Provide flexible support offerings for all work and youth: Distinguished by more frequent work and learning disruptions, the future of work means more transitions for all throughout various points of one's career. Employment services and their integration should evolve in providing flexible, modular supports that are able to adapt to the unique needs of youth, with a focus on those most underserved. Unlike common forms of social security like Employment Insurance and health benefits that hinge on certain types of past employment, employment service integration should keep flexibility and accessibility at the forefront.

34 Good and Strong, 2015.
35 More on this outlined in "Working Together: Implementing a demand-led employment and training system" by Social Capital Partners and Deloitte, 2019.

Key Considerations for Employment Service Integration

- Transform the supply-demand interface with employers: Canada is spending billions of dollars on employment and training services to build skills and capabilities that are not in demand in the marketplace. Any integration efforts should look to better integrate the employer for a demand- driven employment system, particularly in the context of a rapidly evolving labour market.35
- Consider a provincial / territorial data strategy for long-term accountability: To ensure its highest level of success, integration efforts within provinces and territories will require thoughtful leadership and strategy in identifying, measuring, managing and funding the system on the achievement of successful employment outcomes. This means taking the time to identify data currently being tracked, data required in order to fill measurement gaps and data-connectivity issues. Initiatives like the Employment Ontario Geo Hub show promising signs of data strategies taking place, but lack longer-term impact measures and identification of services overlap (e.g., beyond three-month placement, overlap with disability programs, etc.).36
- Recognize and plan to address individual, organizational and system enablers at the earliest beginnings of technology implementation design: Beyond technical criteria and usability factors alone, digital tools and assessments should be scoped, designed and implemented for employment service integration with a clear understanding of the behavioural, environmental and capacity enablers required (as outlined in this report).
- This report finds that one of the most common and crucial enablers for encouraging technology adoption is capacity supports, such as on-going staff training and development. The most promising opportunities to achieve successful employment services integration is likely to be an iterative process of experimentation and learning, as both the organization and system grows into digital maturity and is supported by both the necessary people and technology.
- At the systems and organization levels, build a strong digital foundation designed for collaboration, not competition. It's one thing for singular ESPs to be digitized and eventually reach digital maturity, but a sustained, integrated employment system will require collaboration across what is currently a disconnected and fragmented workforce ecosystem in Canada. Digital strategies and policies that include knowledge sharing, data portability and system interoperability will require the collaboration of multiple providers offering diverse services across multiple audiences. Surveying the technical and leadership resources required for implementation is likely an area for future research, starting with a comprehensive system mapping of ESPs and their stakeholders to identify unique leverage points.

Moving Forward

In support of Project Integrate's primary objective – to test the feasibility of a technology-enabled employment and training pathway this foundational report has sought to provide a fundamental knowledge base on the use of assessment, competency and employment pathway tools and technologies in the youth employment services system and to assess the factors that support or inhibit their adoption through secondary research in the context of the future of work for youth in Canada. Additional Phase 1 activities conducted by project partners have included pre-surveys, roundtable sessions, interviews, field testing, user surveys and post-surveys with both youth and ESPs across Canada.

Beginning in early 2020, Phase 2 of Project Integrate will build upon the primary and secondary research conducted by its project partners in preparation for designing a proposed implementation of a stacked deployment of competency assessment and labour market analytics tools in an effort to improve the navigation experience of employment pathways for youth.

36 See: https://www.eo-geohub.com/.

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Terms and Definitions

Term	Definition
Automation Risk	Refers to the composition of a certain job in terms of the percentage of tasks, skills, etc., that might be highly likely to be automated within the next 10-15 years.
Delayed Adulthood	A side effect caused by the transition to adulthood becoming more protracted and less orderly. This may cause fewer young people to occupy adult roles and experience the social control associated with these roles. Behaviours associated with the teenage years may spill over into older age groups, reflecting postponed entrance into full social adulthood.
Digitization	Also commonly referred to as "digitalization," digitization refers to transforming information into digital format. It is commonly referenced as a primary component of digital transformation in the organizational context, requiring that key processes and procedures be conducted via digital means.
Employment	Employed persons are those who do any work for pay or profit or had a job and were absent from work.
Employment Rate	Number of employed persons expressed as a percentage of the population 15 years of age and over. The employment rate for a particular group (i.e., youth) is the number employed in that group expressed as a percentage of the population for that group.
Essential Skills	Skills considered required in effectively getting work done; includes soft skills like Communication, Teamwork or Collaboration, as well as basic office skills like typing and email.
Gig Economy	Free market system in which temporary positions are common and organizations contract with independent workers for short-term engagements; mostly refers to the evolving economy of temporary work and employment facilitated by technological change.
Industry	General nature of the business carried out in the establishment where the person worked (main job only), based on the 2011 North American Industry Classification System (NAICS).
Labour Force	Civilian non-institutional population 15 years of age and over who are either employed or unemployed.
Labour Force Participation Rate	Total labour force expressed as a percentage of the population aged 15 years and over. The participation rate for a particular group (i.e., youth) is the labour force in that group expressed as a percentage of the population for that group.
Non-standard Work	Entails workers outside traditional full-time employment arrangements, including non-traditional workers in contingent, consultant, contractual, part-time, freelance and/or virtual workers.
Stacked Deployment	A technology stack, tech stack, or stacked deployment refers to a set of technologies, software, data, and tools that are used in the development and deployment of websites, apps, and other digital products.
Technical Skills	Skills that require technical expertise or experience in effectively getting work done; includes skills like Microsoft Excel, Python, SQL.

Underemployment	The condition when those who may be employed are not fully utilizing their skills, education or availability to work.
Unemployment	Unemployed persons are those who are available for work and are either on temporary layoff, had looked for work in the past four weeks or had a job to start within the next four weeks.
Unemployment Rate	Number of unemployed persons expressed as a percentage of the labour force. The unemployment rate for a particular group (i.e., youth) is the number unemployed in that group expressed as a percentage of the labour force for that group.
Wage Scarring	The deterioration of labour market prospects stemming directly from an initial spell of unemployment is sometimes termed a 'scar'; and can come in the form of either higher unemployment or a lower subsequent wage or a combination of both.

APPENDIX

Appendix 1: Emerging Categories of Digital Tools and Assessments

1. Career Path Analytics

As labour market information and professional / social profiles become more commonplace in a world of big data, career path analytics take career exploration to a new level. More than just career discovery tools, career path analytics tools like Pathbase for individuals and PaddleHR for companies are built off of millions of data points from both labour market information on how jobs and skills are trending to online profiles of how segments of the workforce have moved throughout their career. AI is often embedded within a robust recommendation engine to recommend next step roles or resources for career growth.

2.XR: Mixed, AR & VR Applications

XR, or Extended Reality, refers to virtual reality (VR), augmented reality (AR) and mixed reality (MR). XR has shown the potential to solve learning and assessment challenges such as engagement and accuracy, but also offers the opportunity to extend high-cost training at a much lower price, particularly in higher stakes situations such as safety, medical, defense and aerospace. VR applications like Ontario's InStage recreate interactions such as job interviews, elevator pitches or public speaking opportunities for students to practise oral communication skills in a re-created virtual environment using VR.

3. Video Assessment

With the rise and popularity of continuous "life-long learning," video assessment tools enable scalable skill development and help organizations capture progress. As a step towards integrating more "experiential learning" opportunities at scale, video assignments, virtual classrooms and advanced feedback capabilities can be delivered through a seamless solution through platforms like Bongo.

4. Peer-to-Peer Assessment

Peer feedback or peer assessments tools are an innovative means to crowdsource feedback and support at scale. Simply put, these tools allow peers to assess one another's work and give helpful and constructive feedback. Research has shown that incorporating peer feedback can help youth improve critical thinking, engage in higher-order thinking, learn through teaching and take ownership of their learning. While tools like Peergrade are most often deployed in classroom settings, their value to learning and skills development can be applied elsewhere in the workforce development ecosystem.

5. Social Media & Email Analytics

Advanced social media analytics refer to employer's methods of reviewing and sourcing candidates from their digital activity. While traditional profile tools on social networks like LinkedIn and Twitter can extend a youth's reach in terms of employment positioning, employers now use these channels beyond what is displayed on a public-facing profile. Using social media "likes," word usage and follower statuses can all be scraped and used to provide "talent signals" that may indicate a candidate's cognitive ability or personality. Advanced predictive solutions like Crystal make it even easier as a one-click plug-in to assess LinkedIn profiles and email text, which then predict personality measures and communication styles.

6. Voice and Chat

Voice-enabled and chatbot assistants are now becoming more commonplace as a tool for finding and applying to jobs. Recent experiments like the ones conducted by McDonald's are looking at ways that voice technologies like Alexa and Google Assistant can be used to innovate the job application process. According to reporting by The Verge, "Apply Thru" is McDonald's way of giving young people more ways to start entry-level careers at the chain. According to research by Deloitte, once inside an organization, more and more of the standard HR processes are also being outsourced to voice and chat technologies in functions from onboarding to payroll to performance management.

7. Gamification / Simulated Assessments

Gamification is the application of gaming elements, principles and techniques in a non-game context. It is mostly used in making traditional assessment channels like quizzes, surveys and interviews more accurate and learning and devel-

opment more engaging. Gamification tools are also becoming more commonplace in organizational environments to increase user engagement, organizational productivity and sourcing success, often delivered through mobile solutions, such as MindmetriQ and Owiwi. New simulated assessment solutions that replicate game-like environments, such as Imbellus, aim to "evaluate how people think, not just what they know."

8. Culture Fit Assessments

Driven by recent research that "culture fit" can cost an organization as much as 50-60 per cent of a person's annual salary, assessing for culture fit first and skills second is now becoming more common. While a close cousin of behavioural and psychometric assessments, this culture focus has driven a new kind of assessment suite that places culture above all else. Tools like Humantelligence and psychometric-blended versions like Koru attempt to solve talent sourcing and development challenges by measuring behaviours, motivators and preferences to optimize for culture fit. Emphasis on culture – defined as an organization's values, goals and practices – and defining assessment outcomes based on the "fit" of the culture to the individual has been criticized, however, as leading to discrimination and a lack of diversity.

Appendix 2: Cloud Technology Categories and Use by ESPs and Non-profits in Employment Services

Category	Types of Applications
Communications, conferencing, collaboration	Collaboration software Email Email marketing Project management Social networking/Web 2.0 SMS/text messaging Training Web conferencing
Office Productivity	Office productivity
Databases, file storage, backup, document management	Client database File storage/sharing Data backup/storage/sync Disaster recovery
Desktop back office (VoIP, VPN, security, antivirus)	Telephone and voice services/VoIP Antivirus/spam filtering/anti-malware Remote access/VPN Security
Enterprise back office (ERP, SCM, business intelligence, web hosting, e-commerce)	Data analytics Media monitoring Website hosting Compliance with legal and government regulations E-commerce/transaction processing
Finance, accounting, HR	Accounting/financial management Billing and invoicing Human resources Payroll
Fund and volunteer management	Donor management Grant management Volunteer management
Front-end service delivery	Client apps and integrations

Appendix 3: Best Practices Implementation Guide to Increase User Adoption in the Non-profit Sector

Best Practice	Description	Strategies
Implement a Strategic Planning Process	Designed for technology planning and involves several steps.	• Audit of current technology software and hardware and usage • Identify/indicate organization goals and priorities • Identify existing gaps or duplication to meet organizational goals/priorities • Assess staff technical capacity, investment and talent • Development/review of budget • Leadership support for new technology and training
Take a Collaborative Approach	Meant to review new tools across teams; it's important to include representatives to collectively identify needs, goals, capacity and alignment.	• A standing agenda item for leadership to discuss technology planning and/or initiatives with directors or staff • Creating a technology advisory committee • A dedicated position to technology training and talent development
Develop Training Elements	When identifying and assessing new tools to add to a technology portfolio, it is important to consider training across all levels of introduction and implementation.	• Overall training goal(s) o Define the measure of success (adoption/usage) • Staff capacity and training needs o Identify early adopters/champions o Identify power users o Training plans for other types of users – secondary, tertiary o Training mediums and documentation o Ongoing training plan • Processes directly impacted – direct and indirect o Identify documentation that needs to be updated o Specialized training for communicating changes in process (not technology training) o Ongoing assessment and refining opportunities
Advance Stakeholder Alignment	Stakeholders – external and internal – are constituents who have an interest in the assessment, decision and implementation of new technology tools, beyond being directly impacted as a user.	• Internal stakeholders – these can be colleagues from your department or other departments within one division impacted by how your tools or processes change. • External stakeholders – these can be other departments, specifically your organization's IT department, finance department or communications office, or other software vendor/partners.

Engage Leadership	Whether the organization is large or small, leadership plays a vital role as the champion of technology adoption.	• Communicating the benefits that existing or new technology will provide; • Being transparent throughout the process about goals, impact and expectations; • Offering ongoing and dedicated training and support to maximize employee adoption; • Being open to feedback and ongoing communication.
Measure Success	Success for technology adoption can be defined in several ways – depending on your organization's goals. For some it can be resolving a gap to a key process, and for others, 100 per cent usage of a new tool by all organization staff. Either way, defining the goal for bringing new technology into the mix and aligning it to a specific organizational priority/ goal it addresses is the first step.	• Reducing inefficiency (i.e., manual processes, duplication, etc.) • New and more efficient processes (i.e., eliminating sacred cows) • Enhanced collaboration and/or communication • Staff development W– increased skills and capacity • Percentage of users using new technology

Source: Based on the framework developed by the Association of Advancement Services Professionals, "Best Practice in Technology Adoption," 2017.