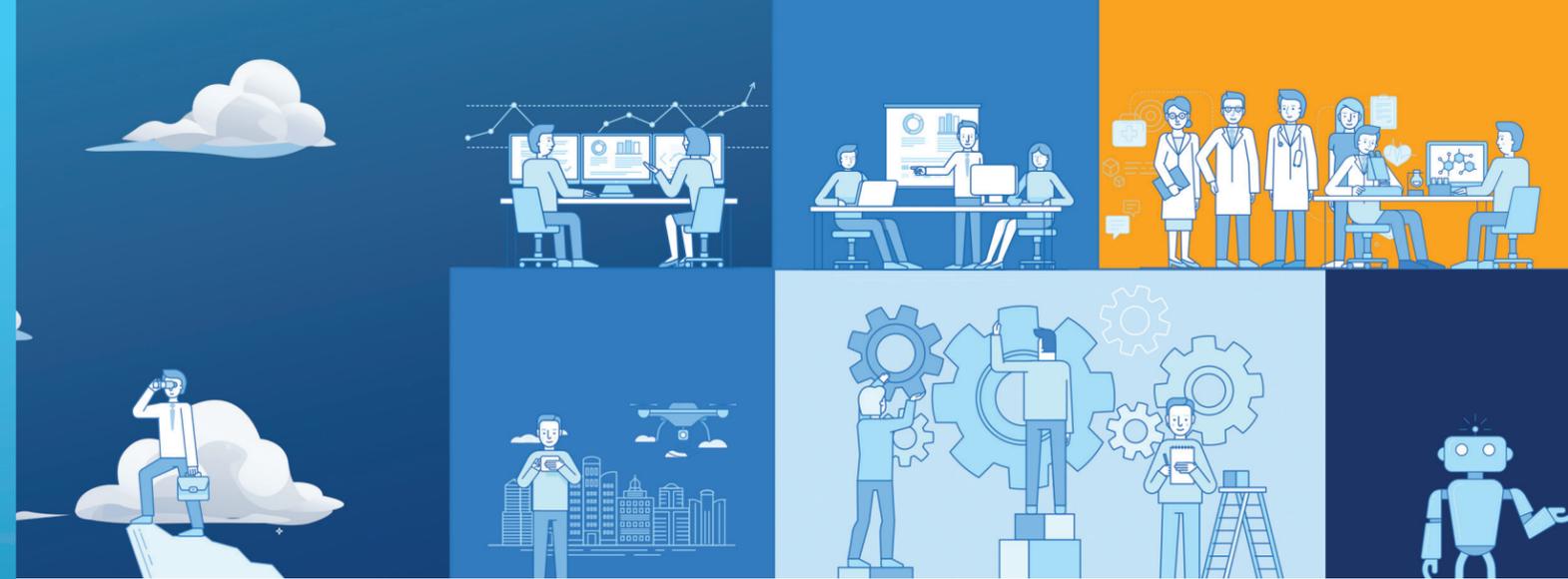


# Bridging the Gap

What Canadians told us about the skills revolution





# Listen. Say. Do.

A year ago RBC launched *Humans Wanted: How Canadian youth can thrive in the age of disruption*, a ground-breaking research report that examined the coming skills revolution in Canada.

We found that for Canada to thrive in a time of profound economic and technological change, we need to develop a workforce that is highly mobile and equipped with the skills critical to the jobs of the future.

As part of *Humans Wanted*, you told us you wanted to be heard on the subject of Canada's skills disconnect. So we went out and we listened. Over the course of 10 months we visited 12 cities, held 36 events and roundtable discussions, and engaged with more than 5,000 Canadians, ranging from youth and workers to employers, educators and policymakers, each with perspectives on how Canada can prepare for a disrupted future.

What follows is a series of themes and ideas that emerged from that journey about the opportunities for Canada as we enter the 2020s.

RBC's *Humans Wanted* and its subsequent research on the future of skills is part of Future Launch, RBC's decade-long commitment to helping Canadian youth prepare for the skills economy of the 2020s and beyond.

[rbc.com/futurelaunch](http://rbc.com/futurelaunch)



# Key findings from *Humans Wanted*

1. More than 25% of Canadian jobs will be heavily disrupted by technology in the coming decade. Fully half will go through a significant overhaul of the skills required.
2. An assessment of 20,000 skills rankings across 300 occupations, shows an increasing demand for foundational skills such as critical thinking, co-ordination, social perceptiveness, active listening and complex problem solving.
3. Despite projected heavy job displacement, the Canadian economy is expected to add 2.4 million jobs over four years, all requiring this new mix of skills.
4. Canada's education system, training programs and labour market initiatives are inadequately designed to help youth navigate this new skills economy.
5. Canadian employers are generally not prepared to recruit and develop the skills needed to make their organizations more competitive in a digital economy.
6. Our researchers identified a new way of grouping jobs into six "clusters," based on essential skills by occupation rather than by industry.
7. By focusing on the foundational skills required within each of these clusters, a high degree of mobility is possible between jobs.
8. Digital fluency will be essential to all new jobs. This does not mean we need a nation of coders, but a nation that is digitally literate.
9. Global competencies like cultural awareness, language, and adaptability will be in demand.
10. Virtually all job openings will place significant importance on judgment and decision making and more than two thirds will value an ability to manage people and resources.



## What you Told Us

Don't lose sight  
of Liberal Arts

Place more value  
on extra-curriculars

Connect teachers with  
the labour market

Bring management  
skills to the tech sector

Increase Indigenous  
youth training

Help small businesses  
hire students

Promote digital skills  
in non-digital industries

# 1

## Don't lose sight of Liberal Arts

### THE CHALLENGE

Liberal Arts programs are in decline. But demand for the skills they cultivate is growing. As more tasks become automated in the workplace, there is an increasing demand for people with the skills to both complement and collaborate with technology. Critical thinking, reading comprehension and communication skills are needed more than ever,

yet fewer youth are choosing Liberal Arts programs that deepen these competencies. Heading into the 2020s, we need more curiosity and creativity. Employers told us that, candidates with strengths in language and problem solving get hired. As a result, interdisciplinary learning is needed to push the capabilities offered by a Liberal Arts education.

### THE NUMBERS

17.5%

Decrease in enrolment in Humanities programs in Canada, 2011-2017.<sup>1</sup>

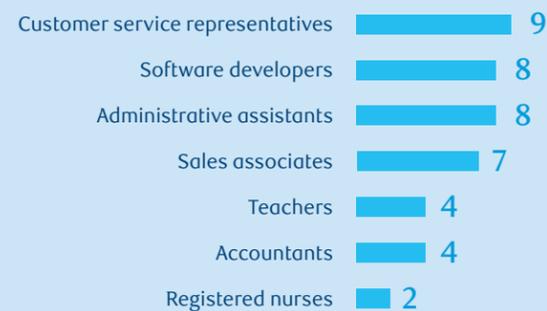
45%

Increase in enrolment in Mathematics, Computer and Information Sciences programs, 2011-2017.<sup>1</sup>

92%

of recruiters say that soft skills matter as much or more than hard skills.<sup>2</sup>

#### AVERAGE NUMBER OF SOFT SKILLS LISTED (NUMBER OF SOFT SKILLS IN JOB ADS<sup>3</sup>)



#### SOFT SKILLS EMPLOYERS NEED BUT HAVE A HARD TIME FINDING:<sup>2</sup>

1. Creativity
2. Persuasion
3. Collaboration
4. Adaptability
5. Time management

### THE CONVERSATION

“Because we are in the Humanities, we question whether we are able to pursue careers beyond our discipline.”

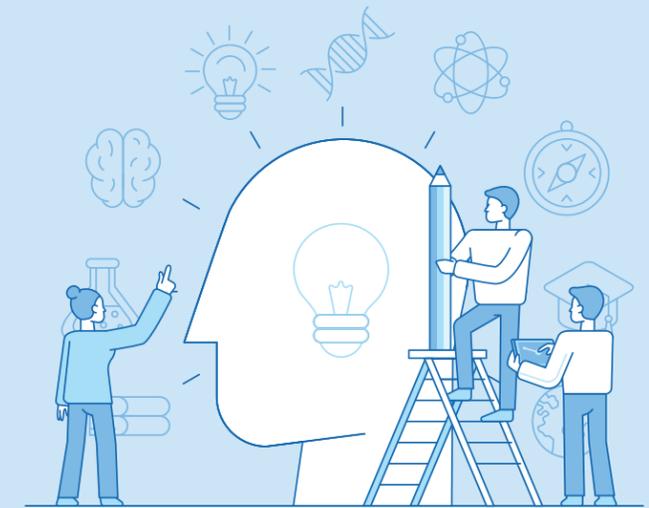
*Tahir Adatia, Philosophy student, UBC, Vancouver, BC*

“We need to cultivate the ‘C-Generation’ of collaborators, communicators and critical thinkers, that bring these power skills to every job.”

*François Bertrand, Director of Research and Innovation, Polytechnique Montreal, Montreal, QC*

“Parents, governments and society at large underestimate the critical skills fostered in the Humanities – this is a long-term systemic and cultural problem.”

*Patrick Deane, Incoming Principal and Vice-Chancellor, Queen's University, Kingston, ON*



### THE TRAILBLAZERS

ADaPT (Advanced Digital and Professional Training) is a skills development and work placement program for recent graduates, run by Ryerson University. The program trains young workers from diverse social sciences disciplines with over

70 hours of hands-on workshops in digital literacy, communications and business financials, and provides short work placements with industry partners, setting them up to tackle the business and technology roles that demand their soft skills.

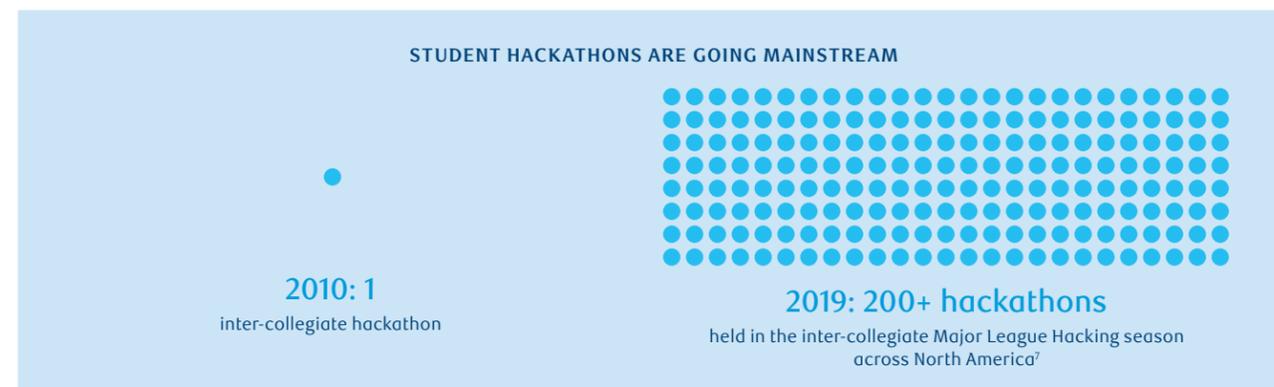
# 2 Place more value on extra-curriculars

## THE CHALLENGE

Young job seekers can verify their credentials for employers with their transcripts, but when demonstrating their “soft” skills they are left on their own. While most post-secondary institutions offer a co-curricular record – a document that lists non-academic, on-campus activities – few students and even fewer employers are aware this document exists. In our conversations with young Canadians, we heard a frustration over hiring practices in which

employers are looking for them to “check the boxes” for credentials and experience, often blocking them out through resume screening algorithms. At the same time, they feel that prospective employers are overlooking the critical thinking, co-ordination and problem-solving skills they have gained through hackathons, entrepreneurial competitions and other extra-curricular activities.

## THE NUMBERS



## THE CONVERSATION

“The skills students gain as part of an entrepreneurship team are invaluable to any job after graduation. We get to create and drive projects, beyond what’s possible in the classroom.”

*Megan Rizzo, Business student, Lambton College Sarnia, ON*

“I have always been interested in technology, but it wasn’t until my first hackathon that I found entrepreneurship.”

*Pranav Menon, Integrated Engineering student, UBC Vancouver, BC*

“Few employers hear students’ stories and make the connection between their skills and the job requirements.”

*Shalaleh Rismani, CIO, Generation R Consulting; young entrepreneur Vancouver, BC*



## THE TRAILBLAZERS

Enactus Canada is a campus-based entrepreneurial leadership program that puts students in charge of multi-year community projects with social impact. Enactus allows students to demonstrate their

leadership, creativity and problem solving to prospective employers. Many students attributed their job offers to presentations made directly to business groups or at an Enactus competition.

# 3

## Connect teachers with the labour market



### THE CHALLENGE

Canada is an education superpower, with the world’s highest proportion of working-age adults who have pursued post-secondary education. Yet 40% of recent university graduates aged 25 to 34 occupy jobs that require less formal education.<sup>8</sup> We heard from employers and educators that the link between teaching and the workforce is eroding: Teachers are too far removed from the realities of a rapidly

changing labour market and challenged to guide students on what skills today’s workforce requires. There is an appetite to experiment with co-ops for teachers. Collaborations between school boards and chambers of commerce could give educators better knowledge of the local job market and the real career opportunities for their students.

### THE NUMBERS

**16 years**

Average number of years Canadian teachers have been in their roles.<sup>9</sup>

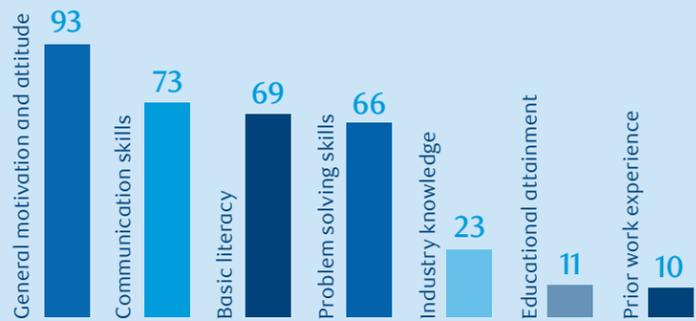
**84%**

Share of high school students who change their career paths before they turn 25.<sup>10</sup>

**37%**

Rate of small business owners satisfied with job-readiness of university graduates.<sup>11</sup>

KEY SKILLS WHEN HIRING YOUTH <sup>11</sup>  
(% RESPONDENTS RATING “VERY IMPORTANT”)



### THE CONVERSATION

“If you don’t know what you want to do coming out of high school, you will get lost in the system.”

*Pallavi Panigrahi, Psychology student, UBC  
Vancouver, BC*

“Do teachers lose touch with the practical aspect? Is there room for students to teach teachers about their co-op experiences?”

*Sarah Reid, Cheese Maker, Blyth Farm Cheese; young professional  
Blyth, ON*

“I encourage teachers to be curious about the future of work and ways to equip students in dealing with ambiguity.”

*Kari Marken, Education graduate student, UBC  
Vancouver, BC*

### THE TRAILBLAZERS

Pennsylvania’s Department of Labor provides grants to local businesses for “Teachers in the Workplace” programs, which aim to help teachers enhance students’ readiness for the careers ahead of them.

It connects industry leaders with teachers, counsellors and administrators to share industry trends, needs and opportunities that can be taken back to the classroom.

# 4

## Bring management skills to the tech sector

### THE CHALLENGE

Canada's tech industry is turning out more start-ups each year, but it lacks enough experienced managers to scale them up. The industry is expected to need at least 200,000 more digitally skilled workers by 2021, far outstripping domestic supply. The steady flow of young, highly skilled Canadian tech workers to Silicon Valley and New York City has only worsened

the problem. A lack of young workers today means further widening of the industry's management gap tomorrow. We heard from tech leaders that they need builders, not just coders. To get there, tech companies need to focus on finding experienced managers from outside the sector, who can bring much needed leadership skills into the industry.

### THE NUMBERS

<p><b>216,000</b></p> <p>Expected job openings for digitally skilled workers by 2021.<sup>12</sup></p>	<p><b>30%</b></p> <p>Rate of Computer Science and Computer Engineering grads leaving Canada, from top-ranked tech programs.<sup>13</sup></p>	<p><b>US\$140K</b></p> <p>Average tech sector salary in San Francisco, compared to US\$73,000 in Toronto.<sup>13</sup></p>
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**BIGGEST GAPS IN SENIOR MANAGEMENT AT CANADA'S RAPIDLY GROWING TECH COMPANIES<sup>14</sup>** 1. Sales 2. Marketing 3. Organizational design 4. Product management



### THE CONVERSATION

“We don’t have enough talent that have built and scaled companies from 10 or 30 employees to IPO.”

*Lauren Robinson, General Partner, Highline Beta Vancouver, BC*

“I would have liked to stay in Canada, but the Valley is where the action is.”

*Will Lawrence, Economics student, UBC Vancouver, BC*

“Absence of anchor companies furthers the struggle to find the ‘next level’ management team.”

*Karimah Es Sabar, CEO and Partner, Quark Ventures Vancouver, BC*

### THE TRAILBLAZERS

The Lazaridis Executive Master’s in Technology Management at Wilfrid Laurier University is an 11-month intensive program for working managers to enhance their innovation management, digital literacy and design thinking for multiple industries.

The program includes a one-week residency in Silicon Valley. In its first four years, the program has produced 28 graduates from other sectors who have taken senior roles in top Canadian tech companies.

# 5 Increase Indigenous youth training

## THE CHALLENGE

Indigenous youth are Canada's fastest growing demographic, with close to 300,000 young people on the cusp of entering the workforce. Their impact in the labour market will be strongly felt, particularly in Manitoba and Saskatchewan where 24% of 15 to 24 year olds are Indigenous. Wide and persistent gaps in income, education and labour participation between Canada's Indigenous and non-Indigenous populations have resulted in billions in missed

economic and societal gains. This cohort of youth represent perhaps the strongest case for closing the skills gap – and fast. Yet automation may have an outsized impact on Indigenous workers, due to their concentration in jobs at higher risk of disruption. Equipping the next generation of Indigenous workers with future-proof skills is vital to supplying tomorrow's economy.

## THE NUMBERS

**284,000**

Number of Indigenous Canadians aged 15-24.<sup>16</sup>

**\$36 billion**

Potential GDP expansion over 10 years from closing education, employment and participation gaps for Indigenous Canadians.<sup>17</sup>

**1.2%**

Share of Indigenous workers in Information and Communications Technology jobs.<sup>18</sup>

5 YEAR GROWTH IN LABOUR FORCE

3% Indigenous  
0.7% National Average



MORE INDIGENOUS WORKERS ARE IN AUTOMATABLE JOBS, AND FEWER IN KNOWLEDGE-DRIVEN JOBS COMPARED WITH GENERAL WORKFORCE.<sup>19</sup>

SHARE OF HIGH RISK JOBS*		SHARE OF LOW RISK JOBS*	
+4.0%	Sales and service workers	-3.0%	Management roles
+4.5%	Equipment operators	-3.5%	STEM fields

\* percentage points difference compared to general workforce

## THE CONVERSATION

“Funding is central, but not the only path to closing the education gap within a generation; Indigenous students must be welcomed and heard in every post-secondary space.”

Roberta Jamieson, CEO,  
Indspire  
Ohsweken, ON

“There needs to be more access to training opportunities, where education comes to our communities and builds up the skills to fill the jobs here.”

Hannah Fregin, recent Tourism graduate,  
Thompson Rivers University  
Haida Gwaii, BC

“Indigenous workers face a disproportionate risk of automation.”

JP Gladu, President & CEO,  
Canadian Council for Aboriginal Business  
Toronto, ON



## THE TRAILBLAZERS

The University of Victoria created work-integrated learning programs specific to Indigenous students after discovering that few of its students were participating in co-op placements. The dedicated program, with an Indigenous co-op coordinator,

has helped tailor career development opportunities and reduce funding barriers. After a decade, Indigenous student participation in co-op programs at UVic has climbed from near-zero to 19%.

# 6

## Help small businesses hire students

### THE CHALLENGE

There are more than 1.1 million small businesses in Canada, employing close to 70% of private-sector workers. Yet small businesses face the biggest barriers to participation in work-integrated learning programs, which teach students the job-ready skills that employers are looking for. Small business owners want access to student workers but have fewer resources

in terms of time, money and attention, making it challenging for them to efficiently obtain grants, recruit students and create meaningful work placements. Local business groups or innovation hubs could help bridge the gap for entrepreneurs by taking on the responsibilities of selecting, training and placing students in work placement programs.

### THE NUMBERS



#### BARRIERS FOR SMALL BUSINESSES HIRING STUDENTS

1. Staff are unfamiliar in working with youth
2. Placements are too short to impact the business
3. Selecting, onboarding and managing students is time intensive
4. Often unable to offer a full-time job, even to high performers

### THE CONVERSATION

“Students can get really integrated into a small company, where their learning can be elevated through mentorship, sharing of ideas and gaining a sense of value.”

*Madison Sameshima, Commerce graduate, Lakehead University, Thunder Bay, ON*

“Small- and medium-sized businesses offer students big opportunities, with work experiences that will make them the innovators of the future.”

*Geordie Walker, Executive Vice-President, Walker Industries, Niagara Falls, ON*

“For a small business, time and money are key barriers to taking on a student. These can be reduced with a coordinator managing the process for a number of small firms.”

*Jim Hanlon, CEO, Institute for Ocean Research Enterprise, Halifax, NS*



### THE TRAILBLAZERS

Venture for Canada’s Atlantic Internship Program selects, trains and matches students with work placements in start-ups and small businesses across the Atlantic provinces. The program leverages federal student work subsidies and is open to students studying science, technology,

engineering, math and business anywhere in the country. A pre-qualification process and training camp readies them, while a digital platform matches them with businesses looking for their skills. To date, more than 1,000 students have been hired by small businesses through the program.

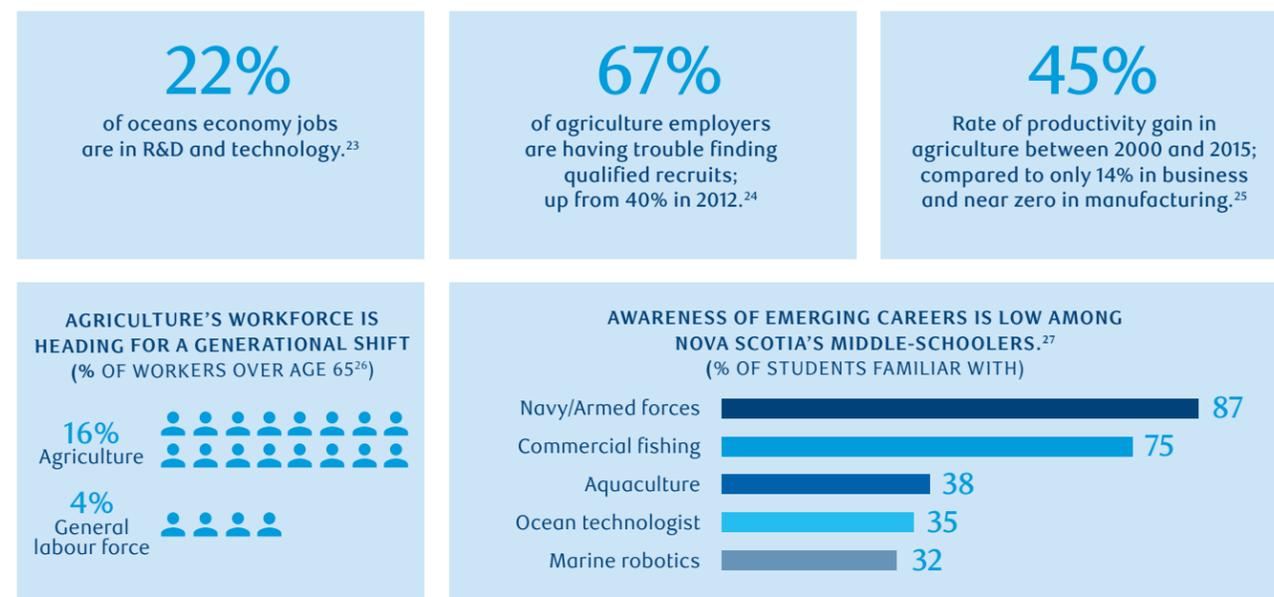
# 7 Promote digital skills in non-digital industries

## THE CHALLENGE

Lingering misperceptions about the marine and agricultural sectors are holding these sectors back from attracting the skilled workers they need to grow. From Canada's coastlines to rural communities, robotics, telemetrics and data analytics are sparking exciting opportunities for entrepreneurs and digitally enabled workers. Ports are using AI to sort and store shipping containers, while

marine robotics are mapping the ocean floor in 3D. Farmers are using drones to monitor crop health and deploy pesticides, while autonomous fruit pickers are nearing human-level effectiveness. The technology is growing; the challenge ahead is to ensure there are enough skilled workers in our oceans and food economies to compete globally.

## THE NUMBERS



## THE CONVERSATION

“Digital is making rural companies much more competitive, with many platforms available for businesses to grow. Being rural isn't a disadvantage.”

*Grant Sparling, Chief Development Officer, Cowbell Breweries; young professional Blyth, ON*

“The demand for robotic milkers is so high that farms and vendors are competing for the same workers with the skills to operate them.”

*Dominique Jatou, Manager, Technico-Lait Coaticook, QC*

“Young people and their parents still have a very narrow perception of what the marine industry is. They are not looking for opportunities in the ocean tech industry.”

*Sherry Scully, Director, Learning and Organizational Development, Centre for Ocean Ventures and Entrepreneurship (COVE) Halifax, NS*



## THE TRAILBLAZERS

The Canadian Agricultural Human Resources Council works with 170 industry associations and educators to define the skills needed in modern agriculture for 70 different roles. Under its AgriJobs and AgriSkills programs, CAHRC develops HR tools for farmers

to help them recruit, train and retain the workers they need to stay competitive, and helps smaller agricultural businesses manage talent as they adopt new technologies and scale up.

# Bridging the Gap

## IDEAS FROM THE FRONT

Through our conversations with thousands of Canadian students, employers, educators and policy makers, a range of solutions to the skills gap were uncovered. The ideas below emerged as steps – big and small – that Canada can take now to prepare for a disrupted future.

**Institute a nationwide credit transfer system** that makes it easier for post-secondary students to take courses at different schools and study in different parts of the country, all while meeting their program requirements.

**Launch a national initiative on a “GPA for skills,”** led by post-secondary leaders, which would define how skills such as communication, collaboration, critical thinking and creativity can be measured and presented on student transcripts.

**Deliver diverse learning programs in remote communities for Indigenous youth** – through partnerships among colleges, universities and First Nations councils – to develop the skills needed by local employers.

**Challenge Canada’s biggest employers to hire more Liberal Arts graduates** and provide them with job-specific training to complement their soft skills.

Develop training opportunities through tech associations to **expand digital fluency among non-tech managers,** in order to address the shortage of mid- to senior-level tech managers.

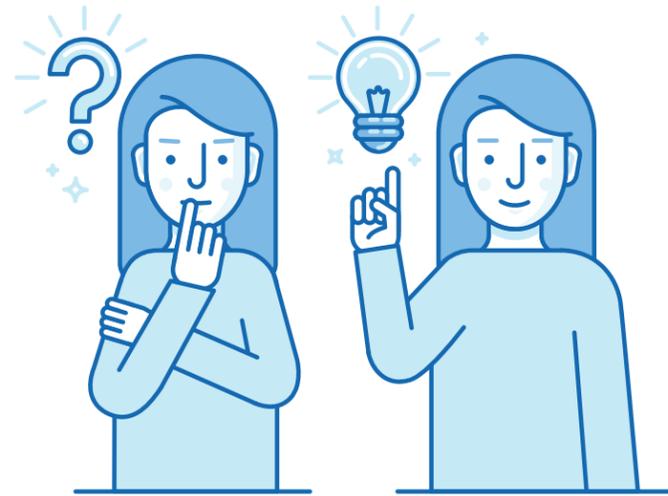
**Establish a national high school student exchange program,** supported by ministries of education, which increases youth exposure to different parts of the country while earning course credits.

**Create co-ops for teachers** through collaborations between school boards and chambers of commerce, giving educators workplace exposure to equip them with knowledge of the local job market and career opportunities for their students.

Mobilize business groups to **reduce barriers to work-integrated learning opportunities for students in small businesses.**

**Promote emerging opportunities in traditional sectors,** such as agriculture and oceans, through professional associations in science, tech and business.

# Response to our challenge



*Humans Wanted* called on Canadians to think boldly and take action on the mounting mismatch of skills in our workforce. Over the last year, a number of important steps have been taken toward these goals.

In *Humans Wanted*, we asked:

What if employees, employers and governments contributed to lifelong learning funds to finance reskilling, the way we finance retirement?

The Canada Training Benefit was announced in the federal Budget 2019. Under this program, Canadians at all career stages will have access to personal training credits as well as income support through expanded employment insurance. The credits are designed to offset up to half the costs of training programs, and will accumulate over time so workers can use them when they're ready.

What if foundational skills and career planning were built into K-12 programs across the country, and measured for their achievement?

British Columbia has introduced a modernized, competency based curriculum across K-12 that is designed around personalized learning. Beginning in 2018, high schools have expanded their career education courses and practical learning opportunities. Literacy and numeracy skills are assessed in grade 10 to inform their learning objectives.

What if, together, we recognized the coming skills revolution as critical to the future of Canada?

The Future Skills Centre, launched in February 2019, is a federally-funded initiative to identify and cultivate emerging skills within the Canadian workforce. It is designed to engage all stakeholders, and experiment with innovative approaches to preparing the next generation of Canada's workforce, and to support greater participation by under-represented groups.

## SOURCES:

- <sup>1</sup> Statistics Canada, 2019
- <sup>2</sup> LinkedIn Learning, 2019
- <sup>3</sup> LiveCareer, 2018
- <sup>4</sup> CareerArc, 2016
- <sup>5</sup> RBC Small Business Poll, 2018
- <sup>6</sup> University of Manitoba, 2016
- <sup>7</sup> Major League Hacking, 2019
- <sup>8</sup> Statistics Canada, 2018
- <sup>9</sup> Organisation for Economic Cooperation and Development, 2013
- <sup>10</sup> Statistics Canada, 2015
- <sup>11</sup> Canadian Federation of Small Business, 2018
- <sup>12</sup> Information and Communications Technology Council, 2018
- <sup>13</sup> Source: Spicer, Olmstead, Goodman, 2018; Rate of graduates from University of Toronto, University of British Columbia and University of Waterloo.
- <sup>14</sup> Lazaridis Institute, 2016
- <sup>15</sup> World Economic Forum, 2017
- <sup>16</sup> Statistics Canada, 2018
- <sup>17</sup> Centre for the Study of Living Standards, 2017
- <sup>18</sup> Information and Communications Technology Council, 2017
- <sup>19</sup> Statistics Canada, 2018; RBC calculations
- <sup>20</sup> Business Development Bank of Canada, 2018
- <sup>21</sup> Mowat Centre, 2019
- <sup>22</sup> Business/Higher Education Roundtable, 2018
- <sup>23</sup> Innovation, Science and Economic Development Canada, 2016
- <sup>24</sup> University of Guelph, 2017
- <sup>25</sup> Statistics Canada, 2018
- <sup>26</sup> Canadian Agricultural Human Resources Council, 2016
- <sup>27</sup> Institute for Ocean Research Enterprise, 2016

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Published by RBC

RBC Thought Leadership | May 2019

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