

SUMMARY AND RECOMMENDATIONS

Our government-funded employment and training system is largely still set up for a bricks and mortar world. Many employment advisers still source jobs through pre-existing relationships with businesses when [85 percent of jobs](#) are posted on the internet. Almost all of the system's training recommendations are for college and university programs, even though there's an increasing supply of short, high-quality online courses from providers like Coursera and Udemy that might be more appropriate for many job seekers.

Attempts are underway to reform the system, but they are disconnected. At least three provinces ([Ontario](#), [Nova Scotia](#) and [Newfoundland and Labrador](#)) have set up incubation and acceleration labs, while the federal government is launching the [Future Skills Centre](#). These tend to support [promising but limited initiatives](#), such as a [better approach to apprenticeship in the construction industry](#) or a [pathway for career progression in the childcare sector](#). Meanwhile, jurisdictions are building their own [small platforms](#) or [considering local agreements with companies like LinkedIn and Monster.com](#). This raises questions about personal data privacy and, as jurisdictions choose different partners, the system will become even more fragmented; the lack of an integrated platform is frustrating efforts to

Policy-makers today face complex issues about employment. Permanent, full-time employment is in long-term decline, workers are changing jobs at an increasing pace, and outdated training programs are failing to connect with what businesses need. Jurisdictions are wrestling with how to modernize their employment and training systems by incorporating technology. But they are coming up with small, disconnected solutions that are insufficient for the challenges ahead. We need to think bigger:

- **Technology alone won't solve the challenges facing Canada's workforce. But a robust employment and training technology platform with open standards would be an extraordinary enabler for public policy innovation and the individual efforts of workers and companies. It would build resiliency into the system and give workers the tools they need to help themselves in a time of rapid change**
- **The ideal system would require a new, independent and international organization. Given the failures of national governments to build technology at scale, it is unrealistic for Canada, or any one country, to build such a solution on its own. Partnerships with large technology companies are also problematic, particularly due to concerns around data ownership and privacy**
- **Several countries working together could gather the funding and critical mass of data required to create a truly transformative platform—one akin in scale and ambition to the International Space Station built in the 1990s. If such a platform could be operated independent of bureaucracy, be managed like a tech company, and follow strict data privacy, a new "Space Station for Work" could help prepare us for the ongoing transformation of our labour markets**
- **Canada, with its significant talent pool in artificial intelligence, large existing commitment to innovation, and strong reputation on the diplomatic stage, is well positioned to champion such a project**

take solutions to scale. In a digital age, we can do better.

We need bold new thinking. What would the perfect employment and training system look like? How can we bring together the reach and resources of government and the dynamism of the technology sector to build the system we need? How can we elevate the challenge to a global level, and how could Canada be a catalyst for action?

A trusted platform and marketplace for the labour supply chain

The ideal platform for the labour supply chain would understand people's skills, competencies and interests, both traditional and non-traditional, as well as their mobility and availability for work. It would have access to all available jobs, permanent and freelance, and would match people with their best possible opportunities. It would know all the training options if people need upskilling and could track, verify and provide credentials for their progress. It would continuously monitor the labour market and make suggestions to help people transition into more secure work *before* they lose their income.

Employers, meanwhile, would have access to tools to remove bias from the hiring process, leading to better outcomes both for companies and job seekers. The platform would use open standards and be interoperable, enabling employment and training companies to access clients seamlessly. For government, it would organize labour market information in a way that allows them to better target interventions like training and wage subsidies, and enable the long-term tracking of outcomes. As employers hire available talent, tax-credit and subsidy paperwork would be processed automatically, decreasing red tape and making programs more effective.

None of this is science fiction

This technology already exists, and private sector companies, government agencies and non-profits have created tools that address many of these needs. For example, [Pairin](#) uses testing to identify core skills, [Credly](#) provides credentials for non-traditional training and [Jobiri](#) is an online career coach. There are hundreds like this, along with established organizations like [Indeed](#) for recruiting and [Khan Academy](#) for training.

What's missing is a platform or marketplace to tie everything together, much as Apple's App Store provides a trusted place to buy tools for your phone. The private sector currently consists of a number of closed systems, and the tools that exist use different technologies that largely don't speak to each other. An open platform that's easy to plug into, with great technology for work and training matching, widespread usage and trusted data protection would be the foundation on which a powerful and helpful system could develop.

The benefits would be enormous

Let's say you juggle shifts for Tim Hortons and Lyft, but you've completed an online assessment that identifies you have core skills to succeed in software engineering. The tool recommends a set of online courses to help you get started and track your progress. Your data is anonymously aggregated and the government is informed that a number of people like you live in the area, helping them convince Shopify to open their new data centre in the area and train local workers like you. Underemployed individuals get a career breakthrough, while Shopify finds skilled workers.

This technology would amplify our "lab" investments. For example, the career pathways program



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in the childcare sector identified above provides wrap-around supports to help transition low-income workers into stable, living-wage jobs. Our platform could identify candidates for this program and track their progress into employment, making it much easier to scale and more efficient to operate.

Our current training system is built to be reactive. We try to guess what skills will be needed in the future, and then slowly change our education systems to suit. But predicting the future is a fool's errand. A robust employment and training platform, based on real-time information, would help build adaptability and resiliency into the system. It would help the public and private sectors provide training for the skills actually demanded by the market. This would enable our workers to stay ahead of the curve in a time of rapid change.

Despite extraordinary potential, significant barriers exist

Governments are bad at delivering on large-scale technology projects, which easily become ammunition for partisan attacks. Procurement regulations lead to poorly motivated contractors. The Phoe-

nix pay system is a great example of what can go wrong. In the case of employment and training, federal-provincial jurisdictional issues would make governance and decision making challenging.

Global private sector technology platform companies would also struggle to build a solution. They generally make their money by keeping their platforms closed and making people pay to use them. Think of Apple's iTunes, Uber or Microsoft Office. Our system would require open standards and a focus on enabling other private sector companies and public sector programs. Some of the most useful employment platforms, like LinkedIn and Google for Jobs, are closed and disconnected and therefore couldn't support what's described here. And even if a company did agree to create an open-source system, the government is still unlikely to partner at a national level with a single technology company. There would be many issues, from how to pay for it to how to manage people's private data.

The ideal platform: An 'International Space Station for work'

If our government can't build it, and the private sector won't build it, what's next? The platform



LARGE-SCALE IT FAILURES

National governments have a track record of failure when they attempt to build technology at scale. Just a few examples:

PHOENIX

A report estimates the Phoenix payroll system has cost the Canadian government more than \$1 billion and could require an additional \$500 million a year until it is fixed.

HEALTHCARE.GOV

This U.S. government healthcare website was plagued with user difficulties that required significant repairs. The Department of Health and Human Services says the website cost \$834 million. A report by Bloomberg says the government now estimates the cost at \$2.1 billion.

NHS NATIONAL PROGRAMME FOR IT

The U.K. government's attempt to implement a top-down digitization of healthcare in the National Health Service (NHS) was ultimately abandoned after the costs incurred grew to somewhere between £10 billion and £11.4 billion.



described here is what Silicon Valley would call a “moonshot.” Named after John F. Kennedy’s 1961 speech in which he committed to putting a man on the moon—without any idea how he was going to do it—moonshots are ambitious, risky ventures with an enormous potential payoff.

Google has a “moonshot factory” called X, where they make massive investments in things like robotics and driverless cars. Like those projects, our moonshot platform would need significant funding, access to resources and top talent. It would also require independence from bureaucracy to avoid the pitfalls that cause government technology projects to fail.

In the late 1990s, as the world was healing from the scars of the Cold War, Canada joined 14 other countries in building the International Space Station. By looking at space as a collective opportunity rather than a jurisdictional competition, these countries created a far better platform than any one country could have built itself. It was structured as an independent organization, with a specific mandate to remove it from political considerations, and funded by multiple countries that each contributed particular expertise.

The same ambitious, international approach could make this platform for work a reality.

Canada should enlist the cooperation of other countries, all of whom have the same challenges in reforming their employment and training systems in the face of a rapidly changing economy. We should create a new, independent organization with a streamlined governance structure so it can be as nimble as a technology company. With the right

“investor” countries involved, we’d have both the funding and the critical mass of data required to drive widespread adoption of a new, open platform. By adopting a stringent set of standards for security and data protection and housing data in each investor country, the platform could comply with regulations internationally while ensuring individuals’ data rights are fully respected.

Recently, the World Economic Forum signalled its support for more collective and systemic action to create a next-level reskilling platform. And there is a model out there that combines government support, entrepreneurial initiative and technology: [Bob Emploi](#)—an online employment coaching tool for unemployed people in France, built by a non-profit called Bayes Impact. Its co-founder, Silicon Valley data scientist Paul Duan, was tired of building algorithms to sell advertising and wanted to use his skills in the public interest. Because of that mission alignment, the French government was willing to trust Bayes with crucial employment data, and their platform has grown to 150,000 clients since it was launched in 2016. Of those on the platform who have re-entered employment, [42 percent](#) said Bob’s coaching contributed to their success. True to its start-up mentality, Bob Emploi is moving quickly to scale. True to its commitment to the public interest, the tool is open source, meaning anyone can use it or build on it.

Building an action plan

Bayes illustrates how entrepreneurial talent, funding and access to data can produce powerful tools, and our moonshot platform would need lots of each. With 10 investor countries contributing, the project would be amply funded at [a fraction of most developed countries’ current spend on employment and training](#). Each country would also contribute employment data to fuel the matching plat-

form. To lead the project, we'd focus on people who have technology chops and demonstrated mission alignment, like Jennifer Pahlka at Code for America or Marten Kaevats of Estonia's digital government—proven technologists and team builders who would attract world-class talent.

It is best to start with a framework of six key principles:

- 1 Embrace risk.** Accept that this is a risky venture, and that to succeed we need to think like a tech company, and not a government.
- 2 Ensure independence.** Create a light-touch, tech-savvy governance structure to enable the agility and the quick decision making required.
- 3 Protect data rights.** As the world wrestles with how to ensure people can control, protect and be compensated for their personal data, this project would be a perfect “live” experiment.
- 4 Marshal existing resources.** Canada and others are making large investments in artificial intelligence innovation at their universities; this would be the perfect project for dedicating those resources.
- 5 Design for users.** To achieve maximum impact, both employers and actors within employment and training systems will need to

see real value in the platform.

- 6 Make it open source and flexible.** The system has to be adaptable to different national contexts, and open so that people can build off it and plug into it.

Established non-government partners would also help. The World Economic Forum set up the Centre for the Fourth Industrial Revolution specifically to encourage projects like this.¹ Similarly, OpenAI, the research centre funded by some of technology's biggest names, is focused on making artificial intelligence a force for good.

With the right design and early commitments from leading countries, an impressive, well-resourced coalition could quickly be built.

Canada can be the catalyst

Canada is in the perfect position to champion such a project. We have significant artificial intelligence skill at home, a massive pre-existing commitment to innovation, and a strong position on the international diplomatic stage. And with \$363 million committed to fund innovative employment and training initiatives with the Future Skills Centre, there's already a pool of money.

To get the ball rolling, we could offer to partner with France on the Bob Emploi project, ensure the newly created Future Skills Council explores international cooperation as part of its mandate, and commit to leading a working group on this topic

¹ The WEF's Center for the Fourth Industrial Revolution published a pamphlet entitled “Artificial Intelligence and Machine Learning” to describe how they want to partner on similar projects

through the G7 and G20.

For public policy makers, the window to be a leader in building the employment and training platform of the future, and therefore to influence the critical decisions as to how it serves people, is closing quickly. Choosing a risky path, with great urgency, has never been a hallmark of government. But transformative technology, talent and resources are available right now. It's time to build the International Space Station for Work.

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For their feedback and insights, the author would like to thank David Nordfors, Nick Ellis, Hamoon Ekhtiari and Jack Graham.

