



A case for
**PAN-CANADIAN
COMPETENCY
FRAMEWORKS**

MATCHUP

architect

power engineer

geologist

industrial electrician

project manager

network dispatch operator

home inspector

**CANADAWEST
FOUNDATION**

**HUMAN
CAPITAL
CENTRE**

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**JANET LANE &
JEFF GRIFFITHS**

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EXECUTIVE SUMMARY

There are 400,000 Canadian jobs looking for people, and more than 1.32 million Canadians looking for jobs. These unfilled jobs mean unnecessary unemployment, costs to individuals and communities, and lost productivity and profit for employers. One study estimated that skills gaps and mismatches in Ontario alone cost that economy \$24.3 billion a year.

Four reasons for this mismatch are identified:

-
- 01 Formal education and apprenticeships do not teach all, or even the right, skills and competencies to the right levels needed by employers.**

 - 02 Unrecognized skills: Many people have skills and competencies that their official credentials do not address. They also may not be able to articulate the skills that go beyond official credentials that they possess, or their value. Therefore, unsurprisingly, employers may not be aware of the varied and specific skills that people have.**

 - 03 Employers are not sure what skills and competencies they need, or are unable to articulate what they are.**

 - 04 Foreign credentials, which are otherwise adequate in terms of skills and competencies, are not recognized.**

One ambitious solution – a competency-based, pan-Canadian qualifications framework – would help to eliminate the mismatch problem by addressing all of these issues.

Competencies are things people can actually do, and that an individual must demonstrate to be effective in a job, role, function, task or duty.

More than 140 countries have already embraced a system of competency frameworks. Canada should too. A competency framework goes beyond our official credentialing system, which is insufficient. It is an instrument for the development, classification and recognition of skills, knowledge and competencies across a hierarchy of defined levels, with links to recognized qualifications and associated occupations. Frameworks enable the assembly of competencies to define job requirements, and the development of associated qualifications.

In developing its own frameworks, Canada would benefit from the experience of other countries that are further ahead in implementing and refining these frameworks. For example, the European Qualifications Framework allows workers across Europe to determine what competencies they may need to develop to be eligible to work in other European countries. This shows that a single pan-Canadian framework would work for all 13 jurisdictions in the country.

This paper discusses the components of competency frameworks, including tasks (the things that people do in their jobs), skills and knowledge required to accomplish each task, the levels of competency required by each task, and how competency is assessed. It suggests a made-in-Canada governance model based on the Standards Council of Canada, a Crown agency.

We recommend that a steering committee of interested stakeholders be formed to decide in which sector to begin building Canada's competency frameworks – we suggest manufacturing. From there, a working group can determine the number of levels to be included and the common vocabulary and structure to be used in the framework. This work will be made much easier by using the work of earlier adopters in other countries, which have already identified competencies and the criteria for their assessment.

IF CANADA WANTS:

- Fewer unfilled jobs;
- Fewer unemployed Canadians;
- Less time between employment transitions for individuals;
- Faster and less expensive recruitment by firms; and
- Better hires – lower turnover, higher productivity, greater safety,

then the sooner we get started building our own competency-based qualifications framework, the better.

Building a

PAN-CANADIAN COMPETENCY FRAMEWORK

**Matching people with the right jobs –
and jobs with the right people**

Problem:

**400,000 Canadian jobs looking for people, and
more than 1.32 million Canadians looking for jobs**

Mismatch caused by:

**Formal education/apprenticeships
do not teach all skills and competencies**

Unrecognized skills

**Employers are not sure what skills and
competencies they need**

Foreign credentials are not recognized

*A competency-based, qualifications
framework will result in:*

Fewer unfilled jobs;

Fewer unemployed Canadians;

**Less time between employment
transitions for individuals;**

**Faster and less expensive
recruitment by firms; and**

Better hires



In Canada, there are

1.32 MILLION

people without jobs, yet there are

400,000

jobs needing people



THE PROBLEM

There are 400,000 Canadian jobs looking for people, and more than 1.32 million Canadians looking for jobs. The mismatch means unnecessary unemployment, costs to individuals and communities, and lost productivity and profit for employers. The Conference Board of Canada estimated that skills gaps and mismatches in Ontario alone cost that economy \$24.3 billion a year.¹

The mismatch of skills and jobs is not new. The problem persists despite repeated attempts to fix it. Perhaps what is needed is a new way at looking at the problem – a better way to develop and deploy Canada’s workforce.

Four major reasons for this mismatch are identified:

- 01 Formal education and apprenticeships do not teach all, or even the right, skills and competencies to the right levels needed by employers.**
- 02 Unrecognized skills: Many people have skills and competencies that their official credentials do not address. They also may not be able to articulate the skills they possess, or their value. Therefore, unsurprisingly, employers may not be aware of the skills that people have.**
- 03 Employers are not sure what skills and competencies they need, or are unable to articulate what they are.**

04 Foreign credentials which are otherwise adequate in terms of skills and competencies are not recognized.

Key is a lack of recognition by both employers and people looking for jobs of what people know and can do, no matter how they learned it.

01

FORMAL EDUCATION AND APPRENTICESHIPS DO NOT TEACH ALL, OR EVEN THE RIGHT, SKILLS AND COMPETENCIES NEEDED, TO THE RIGHT LEVELS.

This is true, despite the fact that people living in Canada are some of the best educated in the world.

More than half of the country’s adult population has a post-secondary credential; about 85 per cent of young people enter some form of post-secondary education.² Almost all do so in order to find a good job. Even so, “At least thirty per cent of university and college graduates have essential skills shortages for their jobs.”³

Post-secondary programs and apprenticeships do not always teach the full breadth of technical subjects. Consequently, tradespeople can achieve a Red Seal Certification without ever having done some of the tasks associated with the trade. This has serious repercussions for worker safety, according to preliminary results from a manufacturing case study conducted by the Canada West Foundation.

One study estimated that skills gaps and mismatches in Ontario alone cost that economy

\$24.3
BILLION A YEAR

About **85%** of young people enter some form of post-secondary education

¹ Stuckey, James, and Daniel Munro. “The need to make skills work: The cost of Ontario’s skills gap.” *Ottawa: The Conference Board of Canada*. 2013. p11

² http://www.keepeek.com/Digital-Asset-Management/oced/education/education-at-a-glance-2016_eag-2016-en#.WHO9bvkrKUK#page39 (OECD, p. 37)

³ Lane and Murray, 2015, “Smarten Up: It’s time to build essential skills” Canada West Foundation.

86%
of tech employers
find it hard to find
people with the
skills they need

While program advisory committees are in place at most colleges and polytechnics and in some university settings, these committees do not always achieve their goals. Ideally, through these committees, the employers and other stakeholders advising post-secondary program developers are able to articulate all the skills and competencies they look for in graduates. In practice, this is rarely achieved. Anecdotal evidence suggests that some program advisory committees meet sporadically, and others have been disbanded.

The situation is predicted to get worse as the rate of technological change and innovation increases. Many new jobs require different skills than those our education or apprenticeship systems are currently set up to deliver. Automation and robotics, for example, are changing workplaces faster than anticipated; there is a growing need for people who can work with and maintain this new type of machinery.⁴

According to Indeed.com, a major job posting website, 86 per cent of tech employers find it hard to find people with the skills they need.⁵ Some jobs are highly specialized, and current programs often deliver only a broad understanding of the subject matter required.

Yet this problem is by no means limited to technology skills. Many jobs require other competencies such as working in a team, ability to communicate effectively (writing or speaking), time management, interpersonal skills, risk-taking, analytical skills, problem-solving – the list goes on. Post-secondary programs may claim to address these personal and workplace competencies, yet they do not explicitly form part of the credential and so are not always taught or assessed.

This is why understanding what competencies specific jobs require, and how schools and apprenticeship programs could respond, is key.

⁴ https://mowatcentre.ca/wp-content/uploads/publications/132_working_without_a_net.pdf

⁵ <http://blog.indeed.com/2016/12/05/impact-of-tech-talent-shortage/>

02

UNRECOGNIZED SKILLS: MANY PEOPLE HAVE SKILLS AND COMPETENCIES THAT THEIR OFFICIAL CREDENTIALS DO NOT ADDRESS. THEY ALSO MAY NOT BE ABLE TO ARTICULATE THE SKILLS THEY POSSESS, OR THEIR VALUE. THEREFORE, UNSURPRISINGLY, EMPLOYERS MAY NOT BE AWARE OF THE SKILLS THAT PEOPLE HAVE.

For many university graduates, there is no relationship between their formal area of study and the jobs that are available when they graduate. While many do go on to find employment that is seemingly unrelated to their degree, the challenge they face is their inability to articulate broader skills such as critical thinking, communication and teamwork that they have developed through school and work experience. In addition, there are ways to apply their knowledge that may not be obvious to graduates. For example, anthropology majors are valuable in market research and product development when they apply their ability to understand human behaviour based on artifacts to understanding customers' purchase motivations from what they buy or already own.⁶

There are similar issues with trades credentialing. The 2015 Canada West Foundation report, *Building Blocks: Modular credentials for Canada's trades*, found that there is no mechanism for recognizing competent people who are working in perfectly good careers but have not completed the four years of trades training, and so do not have a credential.

People can work for years building skills that they themselves don't recognize, and that are not recognized in formal credentials or by their current employers and, consequently, potential employers.⁷ Similarly, employers can fail to find the competencies

⁶ <http://www.businessinsider.com/heres-why-companies-are-desperate-to-hire-anthropologists-2014-3>

⁷ Grant, Michael. "Brain gain 2015: the state of Canada's learning recognition system". Conference Board of Canada. 2016. (p. 53)

they need to fill their vacant jobs by not recognizing the competencies that their current employees, or job applicants, have. Most people acquire new skills after leaving formal credentialing programs, and many acquire skills without going through any formal learning at all. Canadian workers are learning informally and on the job all the time. But while traditional institutionalized learning is only one option open to people, there are few ways to recognize skills gained through these other means.

Individuals may also not be aware how to sell skills they have developed, and to whom. “Being able to list the competencies you have, and to what level – entry, supervisory, management, executive – makes finding a fit in a job easier for both employer and employee.”⁸ Without a common language to describe competencies, their description and even inclusion in a resume is idiosyncratic to each employee. No wonder employers rely upon credentials, as poor a surrogate as they are.

Many skills are common to more than one occupation, and more than one industry. But, there is no way to know for sure *which* skills are shared with *which* occupations, as occupational standards in Canada tend to be “stovepiped” along occupational lines. There is no way of knowing, for example, how many of the competencies for a human resources manager are similar (or identical) to the ones needed by a purchasing agent. Intuitively it appears that there is a crossover, but there is no way of visualizing the path from one to the other.

It is a problem, not just for those right out of school or other programs, but for those who have lost an existing job. With the current lack of common vocabulary to describe many of these competencies, it is difficult to know what competencies may be transferable from one occupation to another, or one industry to another.

In the case of job loss, competent individuals should be able to move between occupations and careers on the basis of their demonstrated abilities, not just the credits they have earned from an institution. One common solution to finding new work after a job loss is to start at the beginning and relearn many things that the individual already knows, or could learn quickly. This is inefficient, places a significant burden on the individual who has to requalify in every aspect of a new career, and makes the workforce far less flexible in responding to changes. This means that for many individuals, transitioning to a new career means starting from further back on the path than they really are. As noted in the 2008 Rae Report, there are not sufficient pathways, not only between school and work, but between occupations.⁹ Recognition of similar skills for a related occupation (or even an unrelated one) is difficult or impossible.

One example of competencies required by one occupation in the oil and gas sector, which are transferable to other occupations and industry sectors, is highlighted in Figure 2, on page 17.

The problem is even greater for the large number of occupations defined in the National Occupational Classification (NOC) system for which there really is no formal credential or training at all.¹⁰ For many jobs, such as sales support, food counter attendant, cleaning, trades helper and “unskilled” labourer, people are trained on the job. They have skills and competencies that would be applicable to other jobs, but that are not necessarily obvious to them or to potential employers. This makes it hard to shift gears after a layoff.

⁸ Lane, Janet and Christensen, Naomi. “Competence is the Best Credential.” Canada West Foundation. 2015. (p. 8)

⁹ Rae, Bob. “Ontario: A Leader in Learning: Report and Recommendations.” Ontario Ministry of Training, Colleges and Universities, Toronto, 2005.

¹⁰ <http://noc.esdc.gc.ca/English/noc/Introduction.aspx?ver=16#crit>

Experience counts. No matter what job a person is doing, there is some learning going on. Recognizing learning from experience on the job, in life and through informal learning opportunities is one of the keys to helping people find jobs – and jobs to find people.

Article 28 (g) of UNESCO's recent Recommendation on Adult Learning and Education, states in part:

"... Learning outcomes from participation in non-formal and informal adult learning and education should be recognized, validated and accredited as having equivalent values to those granted by formal education (e.g. in accordance with National Qualification Frameworks) to allow for continuing education and access to the labour market, without facing discrimination barriers" (emphasis by the authors).¹¹

03

EMPLOYERS AREN'T SURE WHAT SKILLS AND COMPETENCIES THEY NEED, OR ARE UNABLE TO ARTICULATE WHAT THEY ARE

Employers create job descriptions regularly as they build, or replace the people in their workforce. But, there is no standard way to identify the type and level of skills and knowledge required by the jobs for which they are hiring. Credentials are used as a proxy for the type of skills; years of experience are often used as a proxy for level of skill. Employers then tend to over-hire, and consequently under-employ, young graduates in particular, or leave a job empty, finding no one "qualified" for the pay level.¹²

Employers need a way to articulate the knowledge and skills required by jobs

While there are many standard occupations, there is no common vocabulary to describe skills that are

useful across different occupations and industries. Even for standardized occupational analysis processes within an organization, for example in the Red Seal National Occupational Analyses (NOA), a similar skill may be described differently depending on the trade in question. For instance, interpreting and using blueprints and drawings, and maintaining tools and equipment are framed slightly differently in the profiles of many trades.

OCCUPATIONAL ANALYSIS

Often an exercise in duplication of effort

Company A was asked to produce an occupational analysis for health and safety specialists within a certain industry. It had previously completed the same task in another industry. After two days of working with a focus group of skilled practitioners, it was clear that the only substantive difference between one of their health and safety specialists, and one from any other industry, was a relatively small amount of industry-specific legislation and regulation, and the fact that the name of the industry was added ahead of the job title.

Unfortunately, this duplication creates most of the effort in creating occupational analyses and is all too common across numerous occupations and industries.

Standard language that describes the skill required, and to what level, would help employers to more accurately develop job descriptions, and identify qualified candidates. With better job descriptions people with the needed competencies may be more likely to apply. All of which would make the hiring process more efficient, and effective.

Much of our Labour Market Information (LMI) is based at the level of occupations – National Occupational Classifications (NOC codes). This is not particularly helpful at more than a macro level.

¹¹ UNESCO. "Recommendation on Adult Learning and Education, 2015." *United Nations Educational, Scientific and Cultural Organization* (2016).

¹² www.washingtonpost.com/news/grade-point/wp/2016/12/16/why-are-so-many-students-failing-to-find-good-jobs-after-college/?utm_term=.0dd5fefca993

The Canadian Occupational Projection System (COPS) provides data for 292 occupations out of the nearly 500 defined in NOC codes (some occupations are combined because of small numbers).¹³ COPS is based on surveys of employers. Employers are routinely asked to provide information about the numbers of people and the occupations for which they hire, and expect to hire in the future. However, the 4-digit NOC does not provide enough granularity to understand the skills that are in demand.

For example, the COPS provides information for NOC code 2243, which includes *Industrial instrument technician and mechanics & Aircraft instrument, electrical and avionics mechanics, technician and inspectors* – and yet these are widely different occupations with different levels of knowledge and different degrees of responsibility. If there is a shortage projected (and for this NOC there is) there is no way to know for which particular occupation or if a shortage exists in all of them. And as noted earlier, nor is it known which specific skills might allow someone to transfer into or between these occupations.

There is, for example, a shortage of people who can repair the automated machinery and robotics used in Alberta's agri-food industry, but that occupation does not even have its own occupation profile. The job requires some of the competencies of an instrumentation technician, some of an industrial electrician, and some of a millwright. There could be specialized, unemployed oil and gas workers who have enough of those competencies that they would be partially qualified to fill those jobs – if the information provided in COPS was detailed enough.

Ideally, this information would be accurate enough that policy decisions on the number of places and types of skills offered in training programs is adjusted to meet the changing supply and demand. In practice, this rarely happens.

To better meet the needs of both the employers who require trained workers, and the institutions that educate and train those workers, more specific information about exactly which skills are needed is critical.

04

FOREIGN CREDENTIALS WHICH ARE OTHERWISE ADEQUATE IN TERMS OF SKILLS AND COMPETENCIES, ARE NOT RECOGNIZED

A 2015 study estimates that more than half a million immigrants could have unrecognized credentials, at a cost to those individuals of up to \$20,136 per year in lost wages and salaries, with corresponding reduced purchasing power, community prosperity and tax revenue.¹⁴ Many of these individuals are working in lower-skilled jobs, and are therefore underemployed, at a great loss to their ability to support themselves and their families. Meanwhile, their underused skills atrophy.

Like many unemployed or underemployed immigrants, there are large groups of people who experience greater than average difficulty attaching to the workforce, including youth, people who have disabilities, and Indigenous people.^{15,16,17} These groups all have higher than average unemployment or underemployment rates. Further, they often have skills that are not recognized through our education or credentialing systems. This paper recommends a competency-based approach to help match people with jobs generally; there are additional challenges beyond the scope of this paper in matching people in these groups with jobs.

A 2015 study estimates that more than $\frac{1}{2}$ MILLION immigrants could have unrecognized credentials

¹³ COPS: <http://occupations.esdc.gc.ca/sppc-cops/w.2lc.4m.2@-eng.jsp>

¹⁴ Grant, Michael. "Brain gain 2015: the state of Canada's learning recognition system". Conference Board of Canada. 2016. p 18, 62

¹⁵ <http://www.statcan.gc.ca/daily-quotidien/160708/dq160708a-eng.htm>

¹⁶ <http://www.statcan.gc.ca/pub/75-006-x/2014001/article/14115-eng.htm>

¹⁷ <http://www.statcan.gc.ca/pub/89-656-x/89-656-x2015001-eng.htm>



To better

MATCH PEOPLE & JOBS,

Canada should embrace a system of competency frameworks, like much of the world already has



THE SOLUTION

To better match people and jobs, Canada should embrace a system of competency frameworks, like much of the world already has. These competency frameworks would form the basis of a pan-Canadian qualifications framework. Implementing these frameworks would mean:

- Fewer unfilled jobs;
- Fewer unemployed Canadians;
- Less time between employment transitions for individuals;
- Faster and less expensive recruitment by firms; and
- Better hires – lower turnover, higher productivity, greater safety.

THE FRAMEWORKS WILL ENABLE:

- Better awareness and articulation of skills and job requirements leading to a more efficient labour market.
- Education and apprenticeship training to teach the competencies needed for jobs.
- People to articulate the skills and competencies that they have, and understand better their value.
- Employers to be better aware of the skills and competencies they need, and better able to articulate what they are.
- Potential employers to recognize the competencies of people with foreign credentials that are otherwise not officially recognized.

More than

140 COUNTRIES

have adopted the competency approach, including those in the European Union and many in Asia



COMPETENCY FRAMEWORKS

During the last 20 years, there has been a growing international movement toward competency-based or outcomes-based education. More than 140 countries have adopted the competency approach, including those in the European Union and many in Asia, to standardize and quantify skills in a way that is meaningful to the economy, individuals, employers and education and training providers.¹⁸

Canada is a laggard in adopting the competency approach, but now has the advantage of others' experience. The 2015 Canada West Foundation report, *Competence is the Best Credential*, examined competency frameworks around the world and the body of lessons learned on which to draw.¹⁹ There are some frameworks that have achieved their goals, and there are others where results have been disappointing. Frameworks are most successful in countries where there is already effective political governance, established respect for individual and collective rights, high-quality post-secondary education institutions, and an industrial economy. Canada clearly falls into the category of countries where the preconditions for success are met.

The European Qualifications Framework is a good basis for development of a Canadian framework. Qualifications in the European framework are competency-based – that is, they are defined by what an individual can do. They detail the practical application of knowledge in a particular workplace context. Higher levels of a framework imply deeper and broader knowledge, as well as the ability to apply that knowledge in creative ways to solve problems in multiple contexts.

This section summarizes the following:

- What is competency?
- What are competency and qualifications frameworks?
- What are the components required to develop and use competency frameworks?
- How can Canada begin to build its own frameworks?

WHAT IS COMPETENCY?

Competencies are things that people can actually do, and that an individual must demonstrate to be effective in a job, role, function, task, or duty. These include job-relevant behavior (what a person says or does that results in good or poor performance), motivation (how a person feels about a job, organization, or geographic location), and technical knowledge/skills (what a person knows about facts, technologies, a profession, procedures, a job, an organization, etc.). Competencies help to describe “how” work gets accomplished by engaging knowledge, skills, and abilities.²⁰

A competency can be defined broadly, to apply across many jobs. Or, it can be a very specific skill and knowledge, but which, sometimes surprisingly, may also be useful in what may be very different roles. For an example of a specific competency and how it would be applicable to many jobs, see Appendix 2, on page 34.

¹⁸ Bjornavold, Jens, Slava Pevec-Grm, Michael Graham, Arjen Deij, Madhu Singh, Borhène Charkoun, and Shivani Agrawal. “Global National Qualifications Framework Inventory.” *Cedefop-European Centre for the Development of Vocational Training* (2013).

¹⁹ Lane, Janet and Christensen, Naomi. “Competence is the Best Credential.” Canada West Foundation. 2015.

²⁰ www.campuservices.harvard.edu/system/files/documents/1865/harvard_competency_dictionary_complete.pdf

WHAT ARE COMPETENCY AND QUALIFICATIONS FRAMEWORKS?

A competency framework is an instrument for the development, classification and recognition of skills, knowledge and competencies across a hierarchy of defined levels, with links to recognized qualifications and associated occupations. It enables the assembly of competencies to define job requirements and credentials.

The framework envisioned for Canada is a three-dimensional matrix that brings together occupations, task-based work (which may be done by people from different occupations), and a system of assessment and awarding of qualifications so that what people can do is recognized in a coherent way by the economy.

Qualifications are layered – higher levels denote more complex learning, and more complex ways in which that learning is applied. Occupations tied to these qualifications would be similarly layered based on the number and complexity of the skills needed to be successfully employed.

There can be any number of levels of depth of competence defined in a framework, but international consensus seems to be coalescing around 8-10 levels. The European Qualifications Framework (EQF), which defines competence for occupations across all 28 European Union countries, is built on eight levels.²¹ These levels are shown in the table in Appendix 1. The EQF is a good match for many of the credentials Canada currently has, and could be a good basis for development of a Canadian framework.

National frameworks provide guidelines that aid sector-based organizations to build their own competency frameworks that can be interlinked. Interlinked competency frameworks then aid workforce development, transferability and mobility

across occupations, and provide a standardized mechanism for recognizing learning that is independent of formal education.

A competency framework includes a number of components:

- Tasks
- Skills and knowledge
- Levels
- Assessment and equivalencies, and
- A governance model to ensure that the framework will achieve its goals.

Each is addressed below.

COMPONENTS OF A COMPETENCY FRAMEWORK

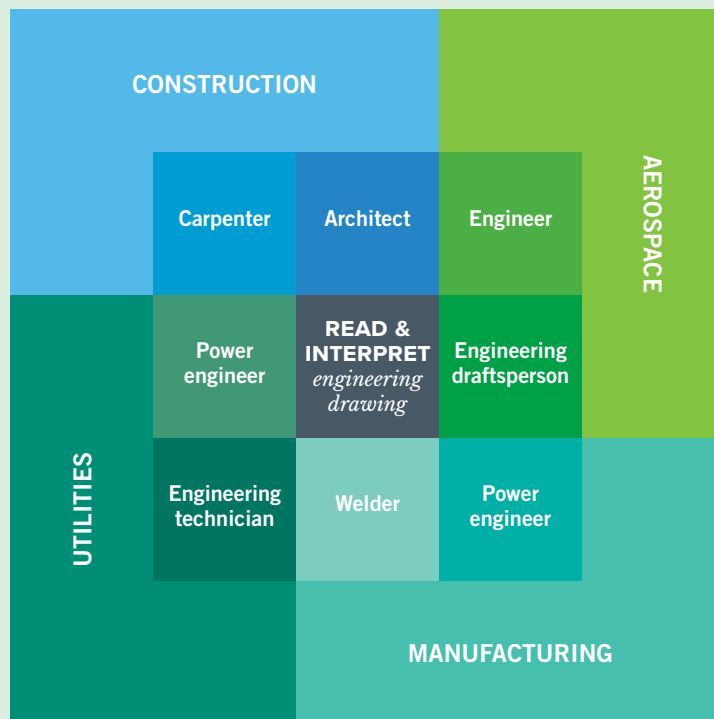
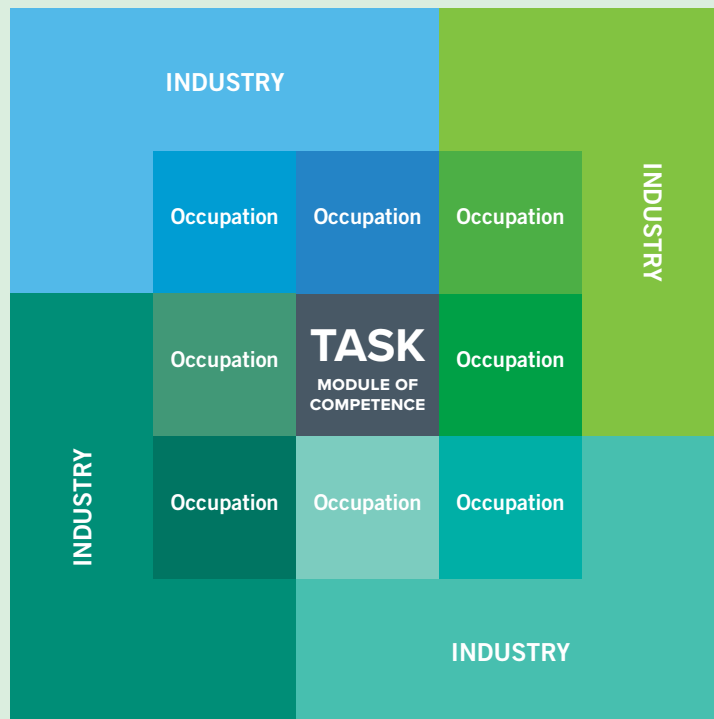
Tasks

The building blocks of the qualifications in the framework are tasks. Regardless of an individual's job or occupation, the things they do are defined as tasks – “modules of competence” that have a beginning, an end and some measurable result. Just as tasks are the building blocks of qualifications, so too are they the building blocks for occupations. Some tasks (and qualifications) may be very specific to particular occupations and industries, while others are occupation and industry agnostic – that is, they may be associated with multiple occupations, in any number of different industries (see Figure 1 on page 15).

As an example, think of the management task of coaching subordinates. It is a discrete activity with a beginning and an end, and there is a measurable output (the extent to which the individual being coached has improved). It is applicable to anyone in a leadership or supervisory position in any industry,

²¹ <https://www.gov.uk/government/organisations/ofqual>

FIGURE 1: A SINGLE TASK CAN APPLY TO MULTIPLE OCCUPATIONS IN MULTIPLE INDUSTRIES



but can also be applicable to an experienced line worker providing informal assistance to a less experienced colleague. This is what is meant by occupation and industry agnostic tasks.

See text box below for examples of how tasks can be applicable across occupations.

EXAMPLE 1

Preparing meat products in batches for human consumption

- Applicable to food service preparation trades (cook, chef), food processing/manufacturing operators.
- Most elements would be similar for meat products prepared for animal consumption, with higher standards of sanitation etc. for human consumption.

EXAMPLE 2

Deep cleaning equipment and surfaces

- Applicable to retail food service, industrial food service, agri-food manufacturing operations, agri-food manufacturing maintenance, service occupations
- Some elements would also be applicable in other manufacturing and service environments (general industrial maintenance, hair salons)



Skills and knowledge

In order to accomplish a given task, an individual requires certain underlying skills, knowledge and competencies, some of which may be relevant to more than one particular task (see Figure 2). Tasks, and the component parts that make them up, are inherently modular – it is possible for them to be used across different occupations, different industries, and different qualifications. It is also true that there are elements that are unique to specific occupations or specific industries. Individual employers and even different locations with a single employer can have very unique and specific elements. The complexity can be confusing, but it is enough to understand that there are elements of work that are modular, and thus transferable.

Levels

Tasks and occupations exist at levels in the same way that qualifications do. Because levels are indicative of the breadth and depth of knowledge and how it is applied, a task could be relevant to different occupations, at different levels.

This means that the associated skills, knowledge and competencies within a task are also applicable across levels. This allows for advanced standing in a training program for an occupation that may share particular competencies, and also provides the pathway for bridging (to an occupation/qualification at the same level) and laddering (between occupations/qualifications at different levels). Sometimes, it is the knowledge that is applicable when moving vertically, not the associated skills. For instance, an electrician and an electrical engineer both require a detailed knowledge of the electrical code, but the application of that knowledge (a skill) in the task of, say, wiring up an electrical panel is relevant to the electrician, but not necessarily to the engineer. In this case, knowledge is transferable to a higher-level occupation, where it may be applied in a different way.

FIGURE 2: COMPETENCIES OF ONE OCCUPATION ARE USEFUL IN OTHER OCCUPATIONS ACROSS MULTIPLE INDUSTRIES



Source: O-net (O-net is a US based organization that determines the skills and competencies demanded by job categories.)



*People working in different occupations,
in different industries, may use the*

**SAME
COMPETENCIES**

– but at

**DIFFERENT
LEVELS**

As shown, given the fluid nature of competencies, task and levels, there is flexibility within a competency framework. This flexible, modular nature of the framework is what gives it value.

Assessment and equivalency

The notion of equivalency is an important part of the whole.

The framework described does not specify how competency is achieved, only what competent performance is and how it can be measured. Behind each task in a fully developed framework are the various criteria for how to observe and measure competence in the task. Assessment is still required, and a competency-based qualifications system is only as credible as the assessment processes – how people are assessed, and who assesses them. There are elements of this in place already for other aspects of our lives. For example, new drivers are assessed in a standardized manner by competent evaluators who are not part of the training system. A similar approach is necessary for the framework (see text box on Vametric on page 22, an example of technological solutions that lower the cost and increase the efficiency for assessment).

In order to perform a task, an individual requires underlying knowledge, skills and basic essential skills. These may be learned in any number of ways: through formal training, through experience gained on the job, through self-directed learning, or from any combination of these methods. The framework is not specific about how or where something is learned. This means that when someone is able to demonstrate their ability to perform a task, and articulate why they are doing it in a particular way and what other options might be available and optimal in other circumstances – in other words, that they are competent – then it does not matter

how or where they acquired that competence. Equivalencies can shorten learning pathways.

“It doesn’t matter where you learned it or how you learned it or who you learned it from; being able to do it is proof that learning has occurred.”

– **Dirk Volschenk**

CEO, Actura Performance Inc.

(and one of the developers of the South African qualifications framework).

In Canada, there are a number of recognized professional certifications, which usually require particular academic credentials as part of the certification process. However, some of these certifications offer alternative pathways that allow an individual to gain the certification without formal academic credentials. In these cases, the professional certification is rarely seen as the equivalent to the academic credential that could have been used to partially fulfill the requirements of certification. Under a framework approach, an individual who is able to demonstrate proficiency at a level consistent with a particular academic credential would be recognized as the equivalent: a degree in Human Resources, or a rigorously assessed, competency-based Certified Human Resources Professional (CHRP) designation; a degree in adult learning, or a rigorously assessed, competency-based Certified Training and Development Professional (CTDP) certification. This does not mean a post-secondary diploma or degree is granted in addition to the external qualification, merely the recognition that achieving the external qualification demonstrates the equivalent in skill and knowledge. This creates

an alternative way for people with unrecognized or undocumented skills to gain useful credentials and increase their economic opportunity, while expanding the number of potential candidates from which an employer could select.

In addition, a robust framework can also provide a mechanism for comparing different qualifications, and tracing a learning pathway between them, which can result in a more streamlined, flexible and adaptable workforce development system.

Governance of a competency framework

Any framework needs to be part of a larger system for workforce development and credentialing, and in fact, part of a larger overarching industrial and economic strategy. In themselves, frameworks are not panaceas for workforce development. Other countries' experience demonstrates that without proper policy guidance and a governance structure in place, a framework will be ineffective and may not gain enough traction to be a useful tool.

The International Labour Organization (ILO) Qualification Frameworks (QFs) guidelines includes the following governance model elements:

- Management of the framework
- Guidelines for standards and qualifications development
- Assessment and certification protocols
- Quality assurance of education and training providers who can provide knowledge and skills that lead to a qualification.

This seems to be a larger factor in some countries where there may be very little oversight and

regulation for education institutions, and as such quality can vary widely. In Canada, where stringent controls and accreditation standards at the provincial level for post-secondary institutions is the norm, quality assurance is much less of an issue. Accreditation may still be required in Canada for some disciplines, such as engineering, business and counselling psychology.

Management of the framework

Experience in other countries varies from highly centralized and tightly-controlled national programs where the national government runs all aspects of the system (as in South Africa), to more distributed approaches, such as in the U.K. In England, for example, the Office of Qualifications and Examinations Regulation (OFQUAL) is a national government agency that oversees qualifications and sets the standards for how they are developed and maintained.²¹ The qualifications themselves are designed by industry, through the Sector Skills Councils, which are organized around skills pertinent to particular industries. The Councils work with industry to develop national occupational standards and use these to develop qualifications. Individuals earn qualifications when they can demonstrate their competency to awarding bodies that are arm's-length organizations separated from both the standards development bodies and the education or training providers. This distribution of responsibilities within an overarching framework allows key stakeholders to participate in an adaptive system that can respond to changing requirements in the economy.

The key is to strike a balance between central control and distributed execution, and the goals the framework is put in place to achieve. In the South African example, tight central control was implemented because the new qualifications

²¹ <https://www.gov.uk/government/organisations/ofqual>

framework was a central piece of an overall approach to generating significant social change in the post-apartheid era, whereas in the U.K., the more decentralized, distributed approach recognized that a one-size-fits-all approach would be ineffective. It would also likely have been resisted – given the many different institutions, qualifications, professions, etc. that pre-dated the development of the framework.

The important thing to note is that different jurisdictions will have different policy agendas and different objectives, which necessitate different governance structures. Some countries have tried – generally unsuccessfully – to simply transplant the policies and processes of a particular national framework from another jurisdiction. Every governance structure needs to be customized to the specific political, social and economic needs of the jurisdiction in which it is implemented.

Guidelines for standards and qualifications development

We know from international experience that for the framework to be effective, there needs to be consistency in the way individual standards and qualifications are developed, the way qualifications are awarded, as well as the way the different components of the system link vertically and laterally within the framework. While there is value in allowing some flexibility in the way the framework is applied, to get full value from the links and transferability features of the framework we have described, the standards will need to be rigid.

But, rigidity does not necessarily mean an extremely cumbersome and bureaucratic structure. There are some very complex global systems that we can use as models. (See text box: The Internet)

THE INTERNET

The Internet is an example of a distributed system that is not owned or managed by any one agency. In simple terms, it works because it is based on a set of agreed rules, standards and protocols for how different elements fit together, communicate with each other, and so on. Any device that follows the rules can connect to and interact with the network. The rules allow the Internet to grow and shift dynamically without any “central brain” running the show – it is almost organic in that sense.



Another example is Wikipedia (and other open-source tools). A worldwide community contributes freely to their creation and maintenance, following a fairly simple set of rules, within a framework that provides value. They are flexible, responsive – and they work.

Establishing the protocols for this sort of open-source approach from scratch could be difficult, time-consuming and expensive to construct. Fortunately, Europe in particular, as well as other OECD countries, have already developed many of the protocols. There are a number of different approaches, but the key is to simply adopt processes and standards from other jurisdictions that fit well with the way portions of the credentialing system already work in Canada.

If a Canadian framework is developed using the linking standards and rules of international partners such as the ILO, UNESCO, or the EU (with whom Canada now has a trade agreement that includes free movement of skills) then as well as saving time, effort and money, the resulting Canadian framework would have “plug and play” compatibility with other frameworks around the world. This opens the door to a “World Wide Web” of competency – essentially an “Internet of skills.”

Assessment and certification protocols

For the system to have value, the awarded qualifications that are based on it must have credibility. Key to this is the assessment and awards system.

First, how competency is assessed, and by whom, must be established and agreed upon. Determining standards for who does the assessing, and how, are key. These can be adapted from international approaches. International experience on this varies. In the U.K., awarding bodies have been established. These agencies are often attached to the standards-setting agencies, and are separated from training and education agencies to ensure independence in assessment. There is a significant cost associated with this sort of third-party assessment, which would have to be born either by individuals being assessed, employers, government, or a combination of these.

Fortunately, new technology offers some ways to significantly lower the cost (see text box on Vametric).

REMOTE ASSESSMENT

Technology makes it possible

Third-party assessment of competency can be an expensive proposition, particularly in a country as large and sparsely populated as Canada. The cost of bringing a qualified third-party assessor to verify the competency of an individual in a workplace setting is one of the principal arguments cited against the use of practical tests of competency. However, technology now exists to allow this assessment to be done remotely and asynchronously by trained assessors. One system, by Vametric (www.vametric.com), uses video streaming technology to provide reliable, remote, evidence-based assessment of competency at surprisingly low cost. The system has been used for military and defence, medical/health care, skilled trades, education and other industries – essentially, any criterion-based competency can be assessed, and a permanent record of competence maintained, using this approach.

Another option is to have industry associations conduct assessments. This has merit, as these bodies have a keen understanding of the competency requirements of their industry. This could mean setting up assessment capability within these industry associations, but cost recovery would still be an issue.

Still another option is to allow qualified staff at the employer level to assess competence and recommend awards. This leads to issues of impartiality and conflict of interest, which must be addressed. And, of course, there may also be concerns with consistency in assessments across the country. To overcome this, some form of quality audit function needs to be established.

A hybrid, which combines elements of each of these approaches, and meets the particular needs of different occupations and different industries in a flexible and effective way, can also be used. For example, the most critical or most safety-sensitive aspects could require independent verification of competence, while less rigorous methods could be applied elsewhere.

A CANADIAN EXAMPLE OF COMPETENCY ASSESSMENT

The Petroleum Competency Program is a joint effort of the Petroleum Services Association of Canada and ENFORM, and uses internal company assessors to evaluate competency and recommend the awarding of qualifications. Where it has been used, the approach has worked, and this may be due to the industry's (and employers') focus on safety as a key component in competency – unsafe workers do not gain qualifications.

Defining

COMPETENCY FRAMEWORKS

Competency

Competencies are things that people can actually do, and that an individual must demonstrate to be effective in a job, role, function, task, or duty.

Competency Framework

A competency framework is an instrument for the development, classification and recognition of skills, knowledge and competencies across a hierarchy of defined levels, with links to recognized qualifications and associated occupations.

A competency framework includes a number of components:

- **Tasks**
- **Skills and knowledge**
- **Levels**
- **Assessment and equivalencies, and**
- **A governance model to ensure that the framework will achieve its goals.**

*A pan-Canadian
competency framework must be*

**USEFUL, USEABLE
& SUSTAINABLE.**

*It must be developed recognizing
provincial and federal jurisdictions.*



How Canada could build and implement a **PAN-CANADIAN FRAMEWORK**

There are, no doubt, various approaches to developing a pan-Canadian competency framework, but the authors suggest the following approach, noting that any framework must:

- Be useful, useable and sustainable.
- Be developed recognizing provincial and federal jurisdictions.

IT MUST BE USEFUL, USEABLE AND SUSTAINABLE

Three underlying principles must be embedded in its design:

- **Useful** – The framework must be designed to be useful in achieving its goals of better matching people and jobs, supporting labour mobility across firms, sectors, regions, countries and over time.
- **Usable** – A framework that is workable in different contexts and relatively easy to implement will more likely be adopted and implemented. Making it complementary to existing systems also encourages adoption and reduces resistance.
- **Sustainable** – If the framework is sustainable for all stakeholders, in terms of time and cost, this will make broad adoption more likely and therefore of more value for any one adopter.

The framework needs to be clear and easy to use so that the broadest number of stakeholders will be able to employ it to meet their needs. An individual should be able to determine their learning path to a

qualification or credential. Employers should be able to use it to create job descriptions and staffing plans based on the qualifications and competency. Training providers should be able to use it as a reference point for developing curricula, etc. Assessment should be considered at the design stage so that it does not become either unwieldy, inconvenient or expensive for these stakeholders.

The framework does not have to be all things to all people initially – but it must provide value for some. The idea is to start with a minimum viable product that will be useful for a specific group of stakeholders. Because the framework exhibits network effects in its adoption, it can be useful to a single employer, but it is much more useful if it is also adopted by similar users who can share the development costs; provides a critical mass of employers for whom training is required and is therefore more attractive to educational institutions; and, provides valid skill forecasting to enable the development of new credentials.

From this base, the framework can expand to other stakeholder groups, by adding features and capabilities of value to them. Manufacturing is an area that is sufficiently broad, deep and economically important to the country making it a good starting point for developing a framework that will have value.

Regardless of how it is created, and the benefits derived, the framework will cost money to put in place, even on a limited scale. There have been Canadian efforts to create competency-based

occupational products, notably through the federally sponsored Sector Council program, and a significant body of work was created. In many cases, however, there was no sustainment plan, and as a result many of these products were not adopted by the industries involved, and withered on the vine. A key component of the framework approach must be to determine not only how it can be designed, built, maintained and improved, but also how these efforts will be paid for – and by whom.

IT MUST BE DEVELOPED RECOGNIZING PROVINCIAL AND FEDERAL JURISDICTIONS

In order for any competency framework to be successfully implemented in Canada, some basic political issues must be addressed:

- Provincial governments have jurisdiction over education, professional credentialing and workforce training.
- Educational institutions operate with a large degree of autonomy from the provinces who certify them.
- For many occupations, certification requirements differ between provinces.
- Assessment is normally the purview of educators.

The framework does not dictate what is taught (curriculum) or how educators do their jobs (instructional delivery). With or without the framework, educators will continue to teach bodies of knowledge, conduct valuable research, and develop students. Institutions that sign on to participate in the framework will, however, establish a competitive advantage in attracting students. For example, within universities, engineering, counselling

psychology and business faculties have chosen to participate in accreditation practices that include assessment of learning goals which are in some ways similar to competencies. These assessments may or may not form part of the academic grade.

Throughout the paper there has been discussion of the pan-Canadian nature of the framework. It is clear that provinces and territories have jurisdiction over education, training and workforce development. Each province and territory could develop its own frameworks independently. A Canadian framework could serve as a translator that equates these provincial frameworks to each other; this is how the European Qualification Framework (EQF) functions between the sovereign states of the EU. However, there are a number of reasons to avoid this approach:

- The complexity and expense of developing 13 frameworks, (one for each province and territory) plus a co-ordinating national framework for a nation of only 35 million people, and a workforce of fewer than 20 million, would be expensive and would duplicate effort.
- Competencies are not regional or provincial, or in fact even national. They are increasingly global. Real differences between the provincial frameworks would likely be very small and the cost to the system to address compatibility would surely be greater than the benefits of distinctiveness.
- The framework as proposed does not impact provincial control and jurisdiction over the delivery of education and training, and as such there is no apparent constitutional reason why a single framework could not be created to provide guidance – as long as there is sufficient involvement from all stakeholders (including the provinces) in creating it.

There are already efforts being made to harmonize credentialing standards for different occupations between the provinces: for apprenticeable trades (via the CCDA Red Seal, as well as harmonization efforts among the Atlantic provinces and the New West Partnership trade agreement between BC, AB, SK and now MB); in the medical field (Nurse Practitioners, Emergency Medical Technicians, Respiratory Therapists); and other fields such as the recent changes to the accounting designations. It is important to recognize and honour these efforts, but also to provide guidance for efforts in other fields.

It makes sense to appoint an agency to provide high-level oversight, co-ordinate existing and future efforts, and ensure consistency for both the development and the application of the framework, as well as ensuring links to international efforts in this space. An agency modeled on the current Canadian Council of Directors of Apprenticeship (CCDA) approach, which includes representatives from each province and other stakeholders, with administrative support from ESDC at the federal level, is one option.

Another option is a Crown agency, like the Standards Council of Canada that has a “mandate to promote efficient and effective voluntary standardization in Canada where standardization is not expressly provided for by law...”.²² The Standards Council liaises closely with International Organization for Standardization (ISO) and other national standards agencies in other jurisdictions on areas of mutual concern, all with a view of creating comprehensive standards that apply internationally. In this model, the views of various stakeholders are represented through formal consultation processes.

Of the two, the Standards Council model is better suited for this purpose. Establishing a new organization with a clear focus and mandate that is independent of (but accountable to) federal and provincial governments, and that is linked to similar international organizations would make the Canadian framework more compatible with other frameworks around the world, and therefore, more useful. This new (hypothetical) organization would be called the “Canadian Skills and Qualifications Agency” (CSQA), and it would be responsible for creating and administering the guidelines for development of the framework, as well as maintaining the standards and protocols for its various component parts.

²² Standards Council of Canada Act. R.S.C., 1985, c.S-16, Section 4(1). Ottawa. 1985 (last amended 2010)

CONCLUSION

A good pan-Canadian competency framework will significantly improve matching people with the right jobs – and jobs with the right people. A framework consists of standards of competence, for the various tasks of a job, by type and level of competence (with the relevant criteria for observing and certifying those standards). Visually, a framework would be a three-dimensional network, showing the links between competencies across occupations and by levels of competence.

This approach will not only help fill critical employment needs for firms and help people transition to jobs as they evolve due to technological or economic or other changes, it will also help us to crack some of our most difficult employability challenges. In addition to the population at large, Indigenous people, immigrants, youth and people with disabilities could all benefit: They – and potential employers – can each recognize what they actually can do, rather than what they cannot.

This discussion paper recommends beginning with creating a competency framework for occupations in the manufacturing and/or logistics sectors. This framework should be flexible enough that other occupations in other sectors can be added over time.

A good pan-Canadian competency framework will significantly improve

**MATCHING PEOPLE WITH
THE RIGHT JOB – AND JOBS
WITH THE RIGHT PEOPLE**

NEXT STEPS

The first step is to bring relevant stakeholders together.

ESTABLISH AN INITIAL STEERING COMMITTEE

A steering committee must be made up of representatives from the stakeholders who will ultimately use the framework. At a minimum, this group would include representatives from employers, labour, government (federal and provincial/territorial), and education and training providers. The committee would provide initial direction on how to set up a competency framework. Government would support the framework development, but not dictate it. Similarly, the education and training community, which understands bodies of knowledge, and how to create and measure learning, can and should be enlisted to provide vital support – but should not dictate economic outcomes.

To determine a starting point, the committee should think about:

- Where would the framework have the biggest impact?
- Where would the framework be easiest to implement?
- Where is industry demanding greater granularity on skills/competency?
- Where is the least impact to existing practice?

The answers to these questions will make it easier to recruit potential industries, occupation associations and user communities that will be more likely to be committed not only to developing, but more importantly to using, the initial framework.

ESTABLISH A WORKING GROUP

A working group should be a subset of the steering group, focused on creating a “useful, usable, sustainable” framework that can be tested. Demonstrating in one industry, or even segment of an industry, that the concept will work, will provide evidence to encourage others to adopt the approach. It is necessary to pick an industry from among those that show up in the Step 1 scan, and recruit champions.

The working group will:

Determine the number of levels

International consensus seems to be moving toward 8-10 levels in the framework as a standard, and this coincides well with our current credentialing systems.

Select occupations to be developed

For this, the existing National Occupational Classification system codes can be a starting point. NOC codes categorize the labour force by “skill type” and “skill level,” allowing similar or related occupations to be grouped together. This makes them a reasonable starting point for developing a more detailed framework. The framework would

build on the NOC codes to better articulate tasks, competencies and the modular qualifications that are applicable to them. It may be easier to begin with occupations that are not currently regulated or documented; as long as the linking and laddering mechanisms and protocols are established, other occupations can be added later as needed to expand the framework. This tends to put the focus, at least initially, on the lower to middle levels of the framework. In Scotland, for example, the framework was initially focused on vocational competencies and qualifications (Level 2, 3, 4)²³ as these were deemed to be where the framework could have the most benefit, and be least disruptive to existing practices. A similar approach has merit for Canada.

There may be some benefit to beginning with occupations that currently have no formal qualifications (manufacturing production, logistics), and/or select occupations where national (or even international) qualifications already exist (IT, supply chain management, management consulting, as examples).

Develop a common vocabulary, structure and formatting for the framework elements

One of the problems with current Canadian occupational standards and related products is a lack of consistency in the way they are structured or how things are described. When “standards” are not standardized, comparisons between them are impossible. During the Sector Council program, some attempts were made to standardize (under The Alliance of Sector Councils) but the guidelines developed were essentially an overview of methods employed by different sector councils, so that people new to the process could pick something they liked – or create a hybrid.²⁴ Within the current occupational landscape, the Interprovincial “Red Seal” program for the skilled trades demonstrates consistency

²³ <http://www.scof.org.uk/framework-diagram/Framework.htm>

through common formatting and other conventions make comparisons between occupations easier.

NOC vs NOS

What is the difference?

National Occupational Classification (NOC) is a coded system used to group occupations according to “skill level” and “skill type.” The 2016 revision to the NOC can be found online: <http://noc.esdc.gc.ca/English/noc/Introduction.aspx?ver=16#crit>, and includes 500 occupations, each of which is designated by a 4-digit code.

It is also important to note that the 2016 Canadian NOC is comparable in most respects to the latest revisions to the International Labour Organizations International Standard Classification of Occupations Labour Organization (ISCO-08).

National Occupational Standards (NOS) define the specific things that people in an occupation may do. In Canada, these tend to be a top-level document and are developed for each occupation, which can make comparison difficult. In other countries (the U.K., for example) NOS are defined at the task level, and may be applicable to multiple occupations at multiple levels. NOS developed in this way are “occupation agnostic” and inherently modular and transferable.

Decisions need to be made on how the various components of the framework are defined. For example, in Canada we have traditionally viewed the “National Occupational Standard” (NOS) as the complete profile for a particular occupation, incorporating all of the duties, tasks, skills,

²⁴ Alliance of Sector Councils. “Setting the standard: Accepted Principles and Recommended Practices for National Occupational Standards, Certification Programs, and Accreditation Programs. Ottawa, undated. p 3-10.

knowledge, foundation skills and job contexts that might be associated with that occupation. This makes for a very broad and inclusive NOS, but it also means that it is rare for an individual to be competent across the entire scope of the occupation. In contrast, the practice in the U.K. is to articulate the NOS at the task level, which inherently makes them applicable across multiple occupations, and therefore portable and modular. An occupation description would be constructed from a combination of many NOS. We believe that adopting international approaches to frameworks will be easier than developing a unique Canadian approach. As noted above, adopting international approaches also helps to ensure compatibility with other countries, which can help individual labour mobility for immigrants and to comply with trade agreement stipulations.

Use what already exists (where possible)

There has been a great deal of work done in Canada over the last couple of decades on occupations and competency, and it is important to leverage that effort. For example, there were more than 1,000 occupational standards and related products created under the now-defunct Sector Council program. Efforts have been made or are underway at the federal government level (ESDC) to collect and archive these materials wherever possible, so they can be used for future reference. While it is true that changes to structure and nomenclature would be necessary (it is unlikely that any of these artifacts could be used without modification), they do form a base that would shorten the development process. As noted, we should also look at international frameworks that already exist for similar types of work – many skills are global. Underlying bodies of knowledge, critical competencies, and even standards of competence may prove startlingly similar.

Define the outcomes of tasks from the “customer perspective” whenever possible

This is important – rather than create tasks based on a process paradigm (run machine X to produce Y), a customer-based outcome means that any machine or means could be used to create the desired outcome. Unless the specific process or technique or tool is critical to success, there is no need to specify it – and even if it is critical, there is still no need to specify how the task is completed – only the outcomes desired and the conditions under which they are to be produced. Industry (employers and labour) is the best source for this type of information – it knows what the work looks like, what skills are needed, and what the outcomes must be.

Work iteratively to develop unified standards

These would be for outcomes down to the underlying knowledge, skills and levels of proficiency and upwards to job descriptions and industry specific contexts. This automatically begins to address the notion of modules of competence that are applicable across more than one occupation.

Create qualifications

Group the standards into modules that are meaningful to individuals and employers and establish core and optional elements.

Test

While validation activities would be carried out at every stage, at this stage there would be beta testing of processes to determine if the framework and its elements meet our “useful, usable, sustainable” criteria.

In parallel with these activities, it will be necessary to:

Create policies, procedures and protocols for assessing competence, awarding qualifications, and maintaining adequate records of qualifications. These can be adapted from processes used in other jurisdictions.

Establish a sustainable funding model for the development, maintenance and improvement of the framework. Given the pan-Canadian nature, it makes sense that funding is also cross-jurisdictional or perhaps federal. It makes sense for the various user groups and beneficiaries to contribute in some fashion. Consultation and consensus-building to allocate new funds, or reallocate existing funds, will be required.

The pan-Canadian framework could follow the open-source paradigm. If it is agreed that the framework as described has value, then the various stakeholders should be able to establish rules and protocols to enable the framework to connect together. Once the rules have been established, in an open-source paradigm, stakeholders could contribute in a sensible and co-ordinated way, generating shared value in the process. With rules and standards accepted, a small administrative organization coupled with some database infrastructure at the national level, the system could grow and evolve over time.

OTHER CONSIDERATIONS

To guard against the undertaking bogging down in process, development committees should be small and autonomous, but representative. The focus should be on the rapid development of a minimum viable product that can be deployed to the industry and used as quickly as possible. This will help create traction and ensure it is useable. The world of work is changing rapidly, and lengthy development periods will inevitably result in creating a product that is obsolete before it is put into use. The minimum viable product must be rolled out and put to use, feedback gathered, and then improvements made quickly (in weeks, not years) and new features added iteratively. If we have learned nothing else from innovation research, it is that failing fast in a culture of experimentation and testing will yield a better product in the end than one that is built behind a firewall until “perfection” is achieved.

APPENDIX 1

The European Qualifications Framework

EQF LEVEL	TYPE OF QUALIFICATION	GENERAL DESCRIPTION
8	Doctoral degree, Senior Management Vocational Qualification	Jobs requiring the knowledge, creativity and leadership skills to deal with complex and unpredictable situations
7	Master's degree; Specialist Professional Qualifications; Senior Manager Vocational Qualification	Specialist knowledge-based professional work; high-level management responsibilities
6	Bachelors degree/Honours degree; Professional Qualifications; Middle Manager Vocational Qualification	Knowledge-based professional work; management responsibilities
5	Higher Education Certificate and Diploma; Technician/Specialist VQ; Para professional Qualification; Advanced Vocational Qualification	Highly skilled employment; management training
4	Senior school exit criteria, Advanced Craft Vocational Qualification; Supervisory Vocational Qualification	Fully skilled employment; independent operative; supervisory responsibilities
3	Junior school exit qualifications, Intermediate Vocational Qualification	Skilled/semi-skilled employment
2	Basic Vocational Qualification	Skills required to function in the workplace
1	Basic literacy and numeracy qualifications	Skills required to enter the workplace and undertake vocational training

APPENDIX 2

Competency example → applicable to many occupations.

(From the Harvard Dictionary²⁵)

Adaptability

Maintaining effectiveness when experiencing major changes in work tasks or the work environment; adjusting effectively to work within new work structures, processes, requirements, or cultures.

Key actions

Tries to understand changes – Tries to understand changes in work tasks, situations, and environment as well as the logic or basis for change; actively seeks information about new work situations.

Approaches change or newness positively – Treats change and new situations as opportunities for learning or growth; focuses on the beneficial aspects of change; speaks positively about the change to others.

Adjusts behavior – Quickly modifies behavior to deal effectively with changes in the work environment; readily tries new approaches appropriate for new or changed situations; does not persist with ineffective behaviors.

Sample job activities

- Adapt successfully to major changes in policies.
- Adapt successfully to major changes in administrative procedures.
- Maintain effectiveness when working closely with people of diverse cultures or backgrounds.
- Adapt effectively to culture change efforts.
- Adjust effectively to frequently changing work assignments.

²⁵ Harvard University. "Competency Dictionary." https://www.campuservices.harvard.edu/system/files/documents/1865/harvard_competency_dictionary_complete.pdf

BIBLIOGRAPHY

- "About the NOC." *Government of Canada*. <http://noc.esdc.gc.ca/English/noc/Introduction.aspx?ver=16#crit>
- Ades, Julie, Fields, Daniel, Macdonald, Alicia and Matthew Stewart. "A Long-Term View of Canada's Changing Demographics: Are Higher Immigration Levels an Appropriate Response to Canada's Aging Population?" Conference Board of Canada, Ottawa, 2016.
- Allais, Stephanie, Raffe, David, Strathdee, Rob, Wheelahan, Leesa and Michael Young. "Employment Sector, Employment Working Paper No. 45: Learning from the First qualifications frameworks." International Labour Office, Geneva, 2009.
- Allais, Stephanie. *Selling Out Education: National Qualifications Frameworks and the Neglect of Knowledge*. Rotterdam: Sense Publishers, 2014.
- Allais, Stephanie. "The implementation and impact of National Qualifications Frameworks: Report of a study in 16 countries." International Labour Office, Geneva, 2010.
- The Alliance of Sector Council (TASC). "Setting the Standard: Accepted Principles and Recommended Practices for national Occupational Standards, Certification Programs, and Accreditation Programs." TASC, Ottawa.
- ASEM Education Ministers Conference. "Global National Qualifications Framework Inventory." Presentation at the ASEMME 4 conference, Kuala Lumpur, 2013.
- Baer, Drake. "Here's Why Companies Are Desperate To Hire Anthropologists." *Business Insider*, Mar. 27, 2014. Available at: <http://www.businessinsider.com/heres-why-companies-aredesperateto-hireanthropologists-2014-3>
- Bjornavold, Jens, Pevec-Grm, Slava, Graham, Michael, Deij, Arjen, Singh, Madhu, Charkoun, Borhène and Shivani Agrawal. "Global National Qualifications Framework Inventory." Cedefop-European Centre for the Development of Vocational Training, Thessaloniki, 2013.
- Bloom, Michael and Michael Grant. "Brain Gain: The Economic Benefits of Recognizing Learning and Learning Credentials in Canada." Conference Board of Canada, Ottawa, 2001.
- Cabreba, Ana Maria. "Qualifications Frameworks: Implementation and Impact. Background case study on Chile." Skills and Employability Department, ILO, Geneva, 2010.
- Coles, Mike, Keevy, James, Bateman, Andrew and Jack Keating. "Flying blind: Policy rationales for national qualifications frameworks and how they tend to evolve." *International Journal of Continuing Education and Lifelong Learning* 7, no. 1 (2014): 17-46.
- The Daily. "Job Vacancy and Wage Survey, second quarter 2016." Statistics Canada, Ottawa, 2016.
- De Anda, Maria Luisa. "Qualifications Frameworks: Implementation and Impact. Background case study on Mexico." Skills and Employability Department, ILO, Geneva, 2010.
- Deij, Arjgen, Pevec Grm, Slava and Madhu Singh. "Global Inventory on National Qualifications Frameworks (NQFs)." Fourth Asia-Europe Meeting of Ministers for Education, Kuala Lumpur, 2013.
- Di Paola, Miriam. "Labour market impact of the NQF in France." International Labour Organization, Geneva, 2015.
- Employment and Social Development Canada (ESDC). "Canadian Occupational Projection System (COPS)." *Government of Canada*. Last modified Feb. 24, 2016. <http://occupations.esdc.gc.ca/sppc-cops/w.2lc.4m.2@-eng.jsp>
- Essential Skills Ontario. "From Better Skills to Better Work: How Career Ladders can Support the Transition from Low-Skill to High-Skill Work." Essential Skills Ontario, Toronto, 2013.

- Europe 2020. "An Agenda for new skills and jobs: A European contribution towards full employment." European Union, Brussels, 2011.
- European Centre for the Development of Vocation Training. "Overview of national Qualifications Framework Developments in Europe." CEDEFOP, Thessaloniki, 2015.
- Forum of Labour Market Ministers. "A Pan-Canadian Framework for the Assessment and Recognition of Foreign Qualifications." Government of Canada, Ottawa, 2009.
- Gajaweera, G.A.K. "Qualifications Frameworks: Implementation and Impact. Background Case Study on Sri Lanka." Skills and Employability Department, ILO, Geneva, 2010.
- Grant, Michael. "Brain Gain 2015: The State of Canada's Learning Recognition System." Conference Board of Canada, Ottawa, 2016.
- Griffin, Tabatha. "Costs and benefits of education and training for the economy, business and individuals." National Centre for Vocational Education Research, Adelaide, 2016.
- Harvard University. "Competency Dictionary." https://www.campuservices.harvard.edu/system/files/documents/1865/harvard_competency_dictionary_complete.pdf
- International Labour Office. "A Skilled Workforce for Strong, Sustainable and Balanced Growth: A G20 Training Strategy." International Labour Organization, Geneva, 2010.
- International Labour Organization. "Benchmarking of qualifications frameworks: A report on potential comparability between the Bangladesh technical and vocational qualifications frameworks and qualifications frameworks of other countries of origin and destination of migrant workers." ILO Country Office for Bangladesh, Gulshan, 2015.
- International Labour Organization. "National Training and Vocational Qualifications Framework (NTVQF) Fact Sheet." ILO, Geneva, 2013.
- Johal, Sunil and Jordann Thirgood. "Working Without a Net: Rethinking Canada's social policy in the new age of work." Mowat Centre, Toronto, 2016.
- Johnson, Keith. "Towards a Pan-Canadian Framework for the Assessment of Internationally Educated Respiratory Therapists." National Alliance of Respiratory Therapy Regulatory Bodies, Montreal, 2010.
- Keating, Jack. "Qualifications Systems and National Qualifications Frameworks." Paper presented to Monash University-ACER Centre for the Economics of Education and Training Annual Conference, Melbourne, 2008.
- Lane, Janet and Naomi Christensen. "Competence is the Best Credential." Canada West Foundation, Calgary, 2015.
- Lane, Janet and Scott Murray. "Smarten Up: It's time to build essential skills." Canada West Foundation, Calgary, 2015.
- Lerman, Robert I. "Should Employer-Led Training be the Framework for Workforce Development?" Atlantic Council, Washington, 2013.
- Marock, Carmel. "Qualifications Framework: Implementation and Impact. Background case study on Mauritius." Skills and Employability Department, ILO, Geneva, 2010.
- Miner, Rich. "Jobs Without People: Ontario's Labour Market Future." Miner Management Consultants, Toronto, 2010.
- Miner, Rich. "The Great Canadian Skills Mismatch: People Without Jobs, Jobs Without People and MORE." Miner Management Consultants, Toronto, 2014.
- OECD. "Education at a Glance 2016: OECD Indicators." OECD, Paris, 2016.
- OECD. "The G20 Skills Strategy for Developing and Using Skills for the 21st Century." Paper presented for the Third G20 Employment Working Group Meeting, Turkey, 23-24 July 2015.
- "Ofqual." *UK Government*. <https://www.gov.uk/government/organisations/ofqual>

- Policy Horizons Canada. "Canada and the Changing Nature of Work." Government of Canada, Ottawa, 2016.
- Qualifications & Credit Framework. "Guidelines for writing credit-based units of assessment for the Qualifications and Credit Framework, Version 4." Qualifications and Curriculum Development Agency, Coventry, 2010.
- Rae, Bob. "Ontario: A Leader in Learning: Report and Recommendations." Ontario Ministry of Training, Colleges and Universities, Toronto, 2005.
- Raffe, David. "The Scottish Credit and Qualifications Framework: A case study of a very 'early starter.'" Skills and Employability Department, ILO, Geneva, 2010.
- "The Scottish Credit and Qualifications Framework." <http://www.scqf.org.uk/framework-diagram/Framework.htm>
- Selingo, Jeffrey J. "Why are so many students failing to find good jobs after college?" *Washington Post* (Washington, DC), Dec. 16, 2016.
- Standards Council of Canada Act. R.S.C., 1985, c.S-16, Section 4(1).* <http://laws.justice.gc.ca/eng/acts/S-16/FullText.html>
- Statistics Canada. "Portrait of Canada's Labour Force." Statistics Canada, Ottawa, 2013.
- Statistics Canada. "Variant for analysis by NOC skill level." Statistics Canada, Ottawa, 2016. Available at: <http://www23.statcan.gc.ca/imdb/p3VD.pl?Function=getVD&TVD=136582&CVD=136583&CPV=d&CST=01012011&CLV=1&MLV=4>
- Stradthede, Rob. "The implementation and impact of the New Zealand National Qualifications Framework." Skills and Employability Department, ILO, Geneva, 2010.
- Stuckey, James, and Daniel Munro. "The need to make skills work: The cost of Ontario's skills gap." The Conference Board of Canada, Ottawa, 2013.
- Tau, Daniel and Stanslaus T. Modesto. "Qualifications Frameworks: Implementation and Impact. Background case study on Botswana." Skills and Employability Department, ILO, Geneva, 2010.
- Tuck, Ron. "An Introductory Guide to National Qualifications Frameworks: Conceptual and Practical issues for Policy Makers." Skills and Employability Department, International Labour Office (ILO), Geneva, 2007.
- Tutlys, Vidmantas. "Qualifications Frameworks: Implementation and impact. Background case study on Lithuania." Skills and Employability Department, ILO, Geneva, 2010.
- UNESCO. "Global Inventory of Regional and National Qualifications Frameworks, Volume I: Thematic Chapters." UNESCO Institute for Lifelong Learning, Hamburg, 2015.
- UNESCO. "Global Inventory of Regional and National Qualifications Frameworks, Volume II: National and Regional Cases." UNESCO Institute for Lifelong Learning, Hamburg, 2015.
- UNESCO. "Level-setting and recognition of learning outcomes: The use of level descriptors in the twenty-first century." UNESCO, Paris, 2015.
- UNESCO. "Recommendation on Adult Learning and Education 2015." UNESCO, Paris, 2016.
- "Viametric." *Viametric*. <http://www.vametric.com/>
- Wheelahan, Leesa. "From old to new: The Australian Qualifications Framework." Skills and Employability Department, ILO, Geneva, 2010.
- Young, Jolee and Elaine Chapman. "Generic Competency Frameworks: A Brief Historical Overview." *Education Research and Perspectives* 37, no. 1 (2010): 1-24.
- Young, Michael. "National qualifications frameworks: Their feasibility for effective implementation in developing countries." International Labour Office, Geneva, 2005.
- Young, Michael. "National Vocational Qualifications in the United Kingdom: Their origins and legacy." Skills and Employability Department, ILO, Geneva, 2010.

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