

Centre for Skills and Post-Secondary Education (SPSE).



Skills
Knowledge

The image features the words "Skills" and "Knowledge" written in a casual, handwritten style. The word "Skills" is positioned above "Knowledge". The letters 'S', 'K', and 'S' in both words are highlighted in red, while the remaining letters are black. A thin, light grey circular line is drawn around the text, with two black markers (one on the left and one on the right) appearing to have just finished drawing it. The background is a plain, light-colored surface.

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Purpose

The Conference Board is launching the Centre for Skills and Post-Secondary Education (SPSE)—a major five-year initiative—to address the advanced skills and education challenges facing Canada today.

Skills and education are very closely linked. We define skills in a broad sense, so that: *A skilled person is a person who, through education, training, and experience, makes a useful contribution to the economy and society.*

While education is a provincial government responsibility, improving the skills and post-secondary education system is a national priority. It will require a broad collaboration of public and private sector stakeholders to accomplish the task. We see the need for a large, multifaceted, broadly-based, concentrated effort in order to identify some of the changes that will help the Canadian post-secondary system compete successfully in an increasingly crowded international arena. We owe this effort in order to enable the PSE sector to better serve the needs of both learners and society in general.¹

As Chad Gaffield, President of the Social Sciences and Humanities Research Council of Canada, notes: “A concerted federal-provincial, multi-layered approach is now essential to build upon Canada’s deep and successful commitment to developing its intellectual assets, its human capital, while also advancing knowledge and building understanding about the past and present. We must act now to ensure that Canada’s fourth chapter in the making of a successful society ends well.”²

The SPSE will address Canada’s advanced skills needs by helping to update and clarify the roles, structure, activities, and impact of the post-secondary education (PSE) system, while promoting its operational sustainability.

Goals

SPSE’s goals are to:

- Create a *Skills and PSE Strategy for Canada* that embodies a shared vision for the future of PSE in Canada, specific goals, and actions to achieve the required changes in the medium to long term.
- Track and report on the system’s performance in achieving the Strategy’s vision and goals.
- Build a strong empirical base and foster dialogue among skills and PSE stakeholders to generate common understanding, shared purpose and collaborative action.

¹ Altbach, Philip. “Long-term thinking needed in higher education.” *University World News: The Global Window on Higher Education*, August 13, 2013.

² Gaffield, Chad. “Knowledge, Understanding and Talent in the Making of Successful Societies: Canada’s Fourth Chapter,” *Higher Education in Canada: Proceedings from the 20th Reddin Symposium*. Conference held at Bowling Green State University, January 13, 2007. 43.

- Raise public awareness of the nature and importance of skills and the PSE sector to Canada's economy, society, and culture.
- Clarify the mix of structures, investments, and pathways for learners.

Success means creating a *Skills and PSE Strategy for Canada* that the many stakeholders will support and operationalize. This will require a combination of research, convening, and communications to stimulate evidence-based public understanding, and engage all players in the PSE system.

Context and Issues

Canada's public post-secondary education system is composed of several parts, including:

- Colleges and Cégeps
- Polytechnics
- Special purpose institutions
- Universities

Post-secondary education is predominantly a provincial responsibility in Canada, with the organization and funding of these various institutions varying considerably by province. Each province has its set of enabling legislation. In each province, the delivery of programs—from adult learning, apprenticeship programs, and diplomas and bachelor degrees to advanced graduate degrees and post-graduate training—is organized differently. The ability to transfer credits and prior learning among colleges, special purpose institutions, polytechnics, and universities varies widely. Also, in each province, the legal status of categories of institutions, governance procedures, and accountability requirements varies substantially. In short, in the Canadian PSE sector, the proverbial “one size” is best thought of as fitting one institution or one province at a time.

The federal level supports some elements of Canada's post-secondary system, including one military institution, several institutions and programs geared to Canada's indigenous populations, and aspects of vocational training.

Canada's private sector contributes to post-secondary education in multiple ways. For example, PSE institutions include:

- Private career training institutions
- Private faith-based colleges
- Private universities

The private sector provides support for apprenticeships, co-op placements, internships, and so on. Private sector investments in workplace training and development are another important element of the Canadian PSE landscape, as are private philanthropic contributions to everything from bricks and mortar to individual scholarships. Additionally, there is a high level of private sector investment in the research component of Canada's PSE system.

Collectively, all PSE stakeholders, institutions, and funders are being challenged to respond to the changing needs of society. In response, a broad consensus is emerging, built on widely varying motivations, that changes are needed. As Canada's national performance slips,³ as students demand streamlined pathways and alternative approaches to their post-secondary options, and as new stakeholders, competitors, and partners emerge on the PSE landscape, there is an imperative for action that enhances Canada's system.

PSE has become more central to Canada's economic life in recent decades. In addition to their long-standing prominence in teaching and in basic and applied research, PSE institutions are being challenged by government and business to play a larger role in developing highly skilled graduates for Canada's economy and society.

Likewise, funders of PSE must grapple with limits on the available pool of resources to finance these institutions. They need to develop new strategies for managing the efficient use of resources.

Advanced skills—defined as those skills acquired beyond secondary school and gained through educational achievement, training, and experience⁴—are increasingly important to innovation, productivity, economic growth, and competitiveness. As Canada competes globally and Canadian firms face off against the global best in international and domestic markets, they will become even more crucial. They are also vital to the well-being of individual Canadians who need satisfying work and good jobs and careers in order to enjoy a high standard of living. Together, they build the capacity of our people to contribute to Canada economically, socially, and culturally.

Informed, Empowered, and Talented Learners

To meet these challenges, change will be needed in many PSE institutions. The following quote from Derek Bok describes the situation in the American college (that is, university) system. His comments are just as valid in the Canadian university context. While the pace of change and innovation may be different among colleges, polytechnics, and universities, the general sentiment remains:

While pockets of innovation exist throughout American higher education, most professors teach as they traditionally have, confident that the ways that have worked well enough in the past will continue to serve in the future. Though trained in research themselves, they continue to ignore the accumulating body of experimental work suggesting that forms of teaching that engage students actively in the learning process do significantly better than conventional methods in achieving goals, such as critical thinking and problem-solving, that faculties everywhere hold dear. Now is hardly the time for such complacency. Our society is growing ever more complex, requiring greater skill and knowledge from its public servants, its professionals, its executives, and its citizens. Our college graduates face increasing competition from ambitious,

³ How Canada Performs: A Report Card on Canada. See www.conferenceboard.ca/hcp.

⁴ CBI. *Tomorrow's Growth: New routes to higher skills*: July, 2013. London: CBI, 2013. 6.

intelligent young people overseas, eager to claim whatever skilled work can be digitized and outsourced to distant places around the globe. Sensing the opportunities, governments in other advanced and developing countries are beginning to pay more attention to improving their universities. In such an environment, the moment has surely come for America's colleges to take a more candid look at their weaknesses and think more boldly about setting higher education standards for themselves.⁵

Students at the PSE level are more informed, more empowered, and more talented than ever before. They and their interests must be central to the thinking on the skills development, educational attainment, and experiential learning opportunities presented to them by the PSE system. Today's learners must help shape these opportunities, and developing additional avenues for them to do so will enhance Canada's competitive position.

Getting the mix of structures, investments, and pathways right for learners is a central goal of this SPSE initiative.

Preparation for Employment

Pressures on the PSE system to develop advanced skills come from multiple sources in our advanced knowledge-based economy. Changing industrial and service needs in an increasingly knowledge-intensive economy are driving labour market demand for increased numbers of highly skilled graduates with both the skill sets that employers seek and the ingredients that enable learners to have productive, fulfilling, and rewarding careers.

Canadian businesses lag far behind competitors in the U.S. and Europe in real spending on training and development, having gradually but steadily cut training investment levels for more than 20 years.⁶ Today, they expect PSE to graduate students who are "job ready." In effect, traditional skills development responsibilities have been transferred from the workplace to advanced education and training institutions. While employers will need to improve their own efforts to support employees' skills development, at the same time, PSE institutions—whether colleges, polytechnics, or universities—will need to play a more active role in preparing students for post-graduation success in the workplace. That could range from adjusting the content of course curricula to offering customized short courses for industry.

Some stakeholders in Canada's PSE system have adopted a proactive approach to preparing learners for employment or, as in the case of career colleges, community colleges, and polytechnics, have always embraced the role. Some stakeholders resist acknowledging the importance of building skills and preparing students for work, although "vocational" programs and professional schools in such disciplines as business, teaching, engineering, medicine, nursing, law, and architecture have always tended to see this as a core part of their role.

⁵ Bok, Derek. *Our Underachieving Colleges: A candid look at how much students learn and why they should be learning more*. New Jersey: Princeton University Press, 2006. 312.

⁶ Training and Development Outlook 2012 (The Conference Board of Canada, 2012).

Developing highly skilled graduates (HSGs)—sometimes referred to as highly qualified personnel (HQPs) or highly qualified and skilled personnel (HQSPs)—has been widely embraced by PSE stakeholders. The reality of skills development in PSE today is actually more impressive than the institutions’ public communications might indicate. Accredited professional programs that produce HSGs who are workforce ready include virtually all apprenticeships and college programs, in addition to engineering, commerce and business, education, health sciences, most bachelor degrees in agriculture, animal science, human nutrition, forestry, earth sciences, chemistry, physics and parts of psychology, the fine arts, law, economics, and linguistics. We can add to this list graduates in the humanities and social sciences who obtain a wide range of advanced skills in writing, critical thinking, and analysis that are much prized by employers in all sectors of the economy.

Economic and Societal Roles

PSE institutions are about more than research and preparing students for jobs. They have a foundational role in the economic and societal well-being of families, communities, and countries. Investments in PSE yield tremendous returns for the individuals involved, while also serving to develop a functioning society.

Consider, for example, the role that some PSE institutions play in facilitating the extremely difficult terrain of credential recognition for newcomers to Canada. Amid a perplexing array of obstacles, there are successes to be found among bridging programs designed to help immigrants acquire recognition for their internationally acquired skills and credentials and expedite their entry to a relevant Canadian workplace.

Business-education partnerships, as well as industry advisory groups that are created and managed by PSE institutions, also serve important roles in connecting major PSE investments, program design, and experiential learning opportunities with the explicit needs of society.

PSE institutions have, furthermore, played a central role in the introduction, innovation, and use of technology. Computers have provided a vast array of materials, information, and data to students, effectively converting learners into “apprentice researchers”⁷ early in their careers. Students have recognized that the skill set developed in research efforts is of great interest to employers, both public and private.⁸ The emergence of the “knowledge economy” has placed a premium on these skills, as well as on all of the digital literacy skills that characterize those familiar with social media communication techniques.

In *The Idea of a University* (1891), John Henry Newman argued that the university’s function is to develop an individual’s intellectual culture in a broad way: “It educates the intellect to reason well in all matters, to reach out towards truth, and to grasp it.” The role defined by Cardinal Newman in the 19th century remains relevant: In addition to pursuing knowledge “as its own end,” universities educate individuals for the responsibilities of citizenship, as

⁷ Gaffield, Chad. “Embracing the New Metaphor for 21st Century Universities.” *CAUT/ACPPU Distinguished Academic 2007 Award Acceptance Address*. Held at Ottawa, April 28, 2007. 9.

⁸ Ibid.

future leaders and contributors to all aspects of government, society, culture, and the economy.

While dated, Newman continues to attract attention to this day across the entire PSE sector. A careful reading of the context in which Newman wrote his famous lectures provides a number of surprising parallels with contemporary society. As Chapter 3 of Stefan Collini's *What Are Universities For?* shows, the demands of PSE critics, who claim that “the studies carried on in universities are outdated, irrelevant, or, in a word, useless, and that they need to be made to serve national needs more effectively and more directly—to become, in other words, most useful” have, in fact, been repeated since the early 19th century.⁹

Others have developed similar views from a different perspective. Commenting on the need for a steady stream of people with advanced skills, Bernard Robaire observes that governments view universities as a major source of highly qualified manpower and build their policies around the development of a knowledge-based society, a “société du savoir.”¹⁰ Commenting on what is needed to reach the goal of a dynamic, knowledge-based economy, Robaire states: “If we are to move towards this goal, then the only place where these people will be trained is in our universities. As a consequence, universities are pushed not only to accept more students, but also to make sure these students are able to find jobs quickly upon graduation; this coincides with students’ expectations of quick employment. This drive for a ‘pragmatic education’ has the tendency to decrease the intellectual endeavour of the university, the curiosity-oriented approach, the development of the mind as one of the primary drives. These opposing forces create great concern within the university.”¹¹

While the concern is real within the universities, “pragmatic education” is viewed as a core pillar of academic programs in colleges and polytechnics. Anxiety in the universities notwithstanding, the entire PSE sector will be required to meet the needs of modern society. Knowledge and advanced skills are fundamentally important to our increasingly diverse, multi-cultural, knowledge-based society. These dimensions of PSE will be addressed in the Strategy.

Labour Force Mobility

Retraining for adults needing updated skills or skills for transfer to new jobs is becoming increasingly common, for a variety of reasons. These include, but are not limited to, preparing to exit work in a declining or “sunset” sector so as to move to an emerging sector of the economy and responding to changes in the skills composition of jobs in a workplace or sector being altered by the impact of technology on products, services, and processes. Dynamic international competition in the production of people with advanced skills is another important factor. Colleges, in particular, are already playing a major role in adult training and retraining.

⁹ Collini, Stefan. *What Are Universities For?* London: Penguin Books, 2012. 39.

¹⁰ Robaire, Bernard. “Challenges and opportunities in integrating teaching, research and contributions to the community in a changing university.” *CAUT Distinguished Academic Award 2006 Paper Presentation*. Held at Ottawa, April 27, 2006. 7.

¹¹ Ibid.

International Students, Immigrants, and Credentialing

The higher skills needed for the economy come from four main sources: those that we develop domestically through our advanced education and training systems; those that we develop through training, mentoring, and experiential learning in the workplace; those that we import in the form of immigrants and temporary foreign workers; and those that come from the comparatively few Canadian-born citizens who obtain their advanced skills internationally. Of the four, the domestic system is much the largest source for most areas of advanced skills for our economy and society.

However, we also have a core challenge to help our immigrants. Canada relies heavily on immigrants for population growth and advanced skills, yet we do not do an effective job of recognizing their international credentials and getting them through formal education and retraining programs in Canada. As a result, too many of them remain as outsiders looking in at the good jobs in our labour markets, excluded from making the important contribution that they could otherwise make to the economy, society, and their own well-being.¹²

Given the demand for skills, it is not surprising that post-secondary education—including both advanced education and skills training—is now experienced by the majority of young Canadians, as well as many adults, who need advanced qualifications and skills to find rewarding employment and satisfying career opportunities.

PSE System Issues

System change is needed for PSE to meet the rising demands for advanced, skills-related high performance while coping with major financial constraints from governments burdened by competing demands for funding health care, structural deficits, and mounting debt.

The post-secondary system's performance in delivering on the demand for advanced skills affects all of us, directly or indirectly, through our jobs, our economy, our families, and ultimately our quality of life. Yet, despite its crucial economic, social, and cultural importance and its rapid growth since 1970, our modern PSE system is facing tremendous challenges—and it may no longer be sustainable in its current form.

Traditional Delivery

¹² M. Bloom and M. Grant, *Brain Gain*, (The Conference Board of Canada, 2001). The gap between actual workforce earnings and expected earning based on level of education credentials held is substantial. Immigrants no longer, as they once did, close the income gap with the Canadian-born over a period of years after they enter the labour force in Canada. The annual cost to immigrants of the lack of recognition of their educational credentials and the resulting higher unemployment and underemployment rates amounted to \$3-4 billion in 2001.

The problems PSE faces are compounded by traditional systems and structures that have long been at the core of PSE institutions, which can make change difficult to accomplish and easy to resist by those working within universities and colleges.

Despite the enormous growth of our PSE institutions and the rise of new technologies and pedagogical techniques that have altered subject matter, disciplines, and curriculum content, much of the structure of the learning system remains substantially unchanged from an earlier era. Many of the core systems and customs of our institutions date back to a period when advanced learning was provided to a small proportion of the population through then up-to-date technologies and pedagogical methods, such as printed books and papers, course and public lectures, disputations, and oral examinations, in geographically separated institutions with very few mechanisms for collaboration.

Of course, not all is tradition. In some areas, PSE institutions have embraced substantial change. For example, the spread of co-op education, other forms of experiential education, community service learning, and international internships have heightened the importance of experience in the PSE educational process. These efforts place students in settings in which they must develop both their knowledge and their skills to succeed. Colleges readily subscribe to these approaches. Universities do not typically call these initiatives “skills based,” or “skills development.” They tend instead to use terms such as “applied learning” and “engaged scholarship,” but they are, in fact, effective ways for students to develop skills. They include both “hard” skills such as computing techniques and critical “soft” skills—employability skills—such as learning how to work with others, problem solving, taking personal responsibility, accessing information, and communication techniques. The question is how can PSE take progress in these programs to a radically heightened level required to deliver on the full range of skills that their students will require?

Technology and Pedagogy

Recent improvements in video and digital learning technologies make possible “blended solution” improvements in learning delivery that combine live instruction and supervision with online and technology-supported learning to achieve effectiveness and efficiency gains. New methods and models of learning delivery, collaborative learning, mentoring, and group research have the potential of lowering costs of instruction per student. These could alleviate the financial pressure on the PSE system while enhancing our capacity to meet the economy’s need for increased numbers of skilled people.

Technology will help to meet students’ rising expectations. The next generation of high school graduates entering PSE will want and expect to be offered different ways to learn and acquire advanced skills. The challenge for advocates of technology lies in obtaining sufficient institutional buy-in to enable technology to perform a positive or useful “disruptive” innovative function in bringing about radical change to pedagogical systems and structures—to drive innovation in an otherwise traditional system.

In sum, the slow pace of system change relative to the fast pace of demands in the economy, lack of system support for technology adoption and maintenance, reward systems that do not adequately recognize the value of technology in delivery and learning outcomes, and

resistance to scaling up the use of new technologies and teaching methods limit the capacity of PSE institutions to innovate and collaborate to advantage. This, in turn, inhibits their ability to improve their efficiency and effectiveness and enhance economic impact.

Institutional and Jurisdictional Silos

Today, important original research often involves methods and techniques that are shared by many disciplines; yet institutions offer only limited support for interdisciplinary work. Challenges in adjusting to modern interdisciplinary realities include an unwillingness to create seamless collaboration among departments, faculties, and programs and among PSE institutions, which, at times, behave as silo bureaucracies. The difficulty of sustaining and strengthening interdisciplinary programs is heightened by limited budgets. For reasons usually related to costs and political will, there is also limited success linking institutions across geographical and jurisdictional boundaries, both domestic and international.

International collaboration within the same discipline is on the rise among Canadian researchers, with 43 per cent of all papers co-authored with one or more international collaborators.¹³ However, interdisciplinary collaboration, to meet the needs of learners for skills that cross academic disciplines' boundaries, is recognized as a need, but lags in implementation. Such collaboration is limited and is rarely encouraged within PSE institutions through their promotion, reward, and recognition mechanisms. The lack of incentives for interdisciplinary collaboration also reduces the PSE system's capacity for effective knowledge generation across cultures and nations.

Institutional Differentiation and Specialization

One major impediment to better systemic performance is that PSE institutions suffer from "mission creep," causing them to take on broader responsibilities for research, teaching, skills development, innovation, and more. This causes them to compete with one another across a broad spectrum of activities. Yet, financial constraints make it hard for even the largest universities and colleges to achieve excellence across their full range of roles and offerings. And, by all competing in every category, they miss out on the advantages that specialization could offer: excellence, financial viability, niche appeal, and heightened international reputation.

In fact, there are signs that colleges and universities are coming to see the value of differentiation. Fifteen of Canada's largest research-intensive universities make up the U15, which began in 1991 with 10 members (then known as the G10) as a means to heighten cooperation and further build their research capacity to achieve top-echelon research status globally. Collectively, the U15 undertake 80 per cent of competitive university research annually and produce more than 75 per cent of earned doctorates in Canada.

A second important area of specialization is embodied in the recently established U4 League. A group of small, undergraduate-focused teaching universities, comprising Mount Allison,

¹³ Expert Panel on the State of Science and Technology in Canada, *The State of Science and Technology in Canada*, 2012 (Ottawa: Canadian Council of Academies, 2012), 83.

Acadia, St. Francis Xavier, and Bishop's, created the U4 League to formalize institutional collaboration. They seek to promote their model of high-quality undergraduate education and to enhance the quality of their offerings. By offering excellence as teaching and learning institutions without trying to be outstanding in original research, they give students an important alternative to the research-intensive environments offered elsewhere.

Specialization is taking place among colleges. In 2003, Polytechnics Canada was formed by a group of eight (now 11) large applied research-intensive, publicly funded colleges and technical institutes offering degrees and extensive skilled trades programs. They continue the college and technical institute focus on relevance to industry as well as students but on a very large scale, collectively offering 1,300 certificate and diploma programs, over 100 bachelor degrees (including 24 in partnership with universities), 225 apprenticeships, and 200 graduate certificate programs. Polytechnics Canada's members seek to enhance productivity and innovation by collaborating with industry, especially on late-stage commercialization.

Specialization is still a work in progress in Canada—much more could be done to differentiate offerings to serve niche student markets, specific industry sectors, skills development needs, and research interests.

Credential Recognition and Accreditation

As noted above, PSE institutions within Canada have a highly variable track record of recognizing foreign learning credentials and credentials earned in other jurisdictions. Immigrants in particular are often required to repeat advanced programs they have successfully completed elsewhere in order to qualify for jobs in Canada. The issue is shared with professional accreditation groups, provincial regulatory bodies, and governments; it needs to be addressed collaboratively.

Another major issue is the problem of university-college transfers. Despite a trend to larger numbers of students moving between the two types of institutions, many institutions maintain a set of institutional relationships established during the rapid growth period of the '60s and '70s. These relationships have come to be viewed by many as relationships in which "turf" is protected. Students are often caught in the crossfire, finding it difficult to transfer and to obtain appropriate recognition for the programs and courses completed, and credentials received, in one type of institution when they move to the other.

Until these challenges are addressed, students will continue to experience disconnected learning pathways that make it hard (and expensive in multiple ways—time, money, opportunity costs, spillover effects on family members) to navigate a course to acquire the full set of advanced skills they will need to succeed in future jobs and careers.

Sustaining Research as a Priority

Developing highly skilled graduates should not get in the way of continuing to perform basic and applied research on a large scale. The freedom to carry out research without being overly constrained by skills development priorities needs to be factored into the vision for the future of PSE.

Unlike skills development, which can be expected to yield demonstrable benefits in the short-term through its immediate impact on students while they are still studying, research should not be constrained by the need to produce measurable benefits in the short term. This is because the future application or market value of research is notoriously difficult to forecast and so is exceedingly difficult to value appropriately in the present. In fact, applications sometimes lag discovery by decades.

Not surprisingly, business, governments, and granting councils have a well-established record of evolutionary change. Embracing radical change is very risky and they tend to avoid it. An illustrative case is the nano-scale revolution in science. The energy industry of 1990 did not foresee much use for nano-scale new materials. Yet, today it benefits hugely from new welding and piping technology drawing on the nano-scale research. Nano-scale sensors are saving millions of dollars by diagnosing equipment and structural failure early, before catastrophic events. Similarly, medical imaging, quantum computing, voice recognition software, computational linguistics, and advanced health care systems for patient recuperation all stem from research that did not predict them directly. None of these areas would be embraced in a model limited to matching university capacity to current job vacancies or projected employment requirements.

From Teaching to Learning, From Theory to Application

Currently some pedagogical elements of the PSE system remain overly focused on teaching delivery; in future, there will need to be a greater focus by all PSE stakeholders on student learning. The emphasis on teaching is linked with the tradition of expert professionals offering knowledge to students within their own explanatory “frame,” which may not provide a ready translation into how the learner can use the knowledge subsequently in their work and life. Learners, too, are developing new preferred means of shaping their own explanatory frames and creating their own channels for immediate application of new knowledge. Few learners today value a heavy emphasis on theory in the absence of translation into “useful” knowledge linked to skills that can be applied in work and other practical contexts. A reset of the balance between theory and application will help shift the focus towards student learning and skills outcomes.

Skills and Learning Roadmap for Learners

PSE learners need a skills and learning “road map” that shows them how they can manage their own skills development throughout the PSE system by identifying and combining opportunities in different institutions and settings. Linked to the road map, is the need for much improved dissemination of information and advice to learners so that they can fully understand the road map and appreciate precisely what they can expect to gain at each step.

Roles and Impact

PSE is confronted by challenges and questions about its role, relevance, impact, and economic, social and cultural “value added” in relation to the investment made—both public and private. It is a system which fulfills several roles through a widely varied set of

institutions, programs, partnerships, experiences, and funded activities. These roles can be grouped into several overarching categories, including:

- discovery and innovation (through pure and applied research, expert and professional advisory services, and business and government R&D);
- learning and skills development (through teaching, training, and mentoring); and
- expert advice and capacity building (policy analysis and professional advisory services).

Each of these areas must manage evolving needs, priorities, and challenges as PSE institutions are called on to provide additional support and services to individuals, businesses, government, and communities.

Performance

Our collective future depends on a viable and sustainable PSE sector that supports high post-secondary participation rates and can achieve stronger results in discovery, learning outcomes, and capacity building. Our public policy objectives relating to innovation and productivity, economic competitiveness and growth, social development, and individual well-being cannot be achieved unless the PSE sector is performing well. PSE performance is crucial to employers, too: It determines the quality, quantity, and relevance of the advanced skills the system produces.

Performance needs to be measured in order to demonstrate the value of the investments made in the system. Performance measurement provides an empirical basis for linking performance to funding—a link that is needed in order to maintain the necessary funding base to operate the system sustainably. Some within the PSE system argue that society cannot reliably evaluate their performance because it is far too complex and should simply trust them to operate it to best advantage. This begs the issue: PSE institutions need to agree on a methodology to show government and society the value of money spent or risk losing significant funding in the future and experiencing contraction or partial replacement by alternative, less costly alternative providers (such as technology-driven learning systems).

Skills are part of the value of PSE that government will want to see demonstrated in the future. Yet, currently, the metrics of performance do not include transparent measurements of advanced skills gained by students through education and experiential learning programs.

Funding

The ability of our public PSE to perform well is threatened by the prospect of serious funding cuts and competition from others. Provincial governments are finding that PSE, in its current form, is not sustainable due to their weakening revenues and competition from other priorities, most notably health care. As governments retrench, tuition costs rise. They are becoming burdensome for many students (and their families), who can expect to pay an even higher proportion of the costs of their post-secondary education in the future. One consequence is that participation rates for “at risk” populations, including members of low-income families, Aboriginals and the disabled are in danger of slipping. Some of them may

abandon PSE because they are discouraged by the risks of higher personal debt (from student loans)—viewing education as an unaffordable cost rather than an investment.

Funding cuts or freezes undermine the capacity of PSE to maintain and modernize its mission-critical libraries, labs, buildings, equipment, and infrastructure. They also limit our ability to hire leading researchers to sustain our advanced R&D capacity, a key underpinning of innovation and productivity in the economy.

Trying to achieve the desired performance outcomes by cutting is not the way. New transformational restructuring and reconfiguring linked to a bold vision for change is required. Success will involve working with governments to achieve mutual goals in the face of ongoing financial constraints.

Faculty, Teachers, Trainers, and Mentors

Global competition for top talent is heating up, elevating the costs of attracting and retaining leading experts in teaching roles and jeopardizing the financial capacity of institutions to compete with top international PSE institutions and private, strongly endowed institutions. The burden is harder to bear because Canadian institutions have limited means to expand revenues by increasing tuition or numbers of students. Nor can they collect revenues from employees' services to industry and government or as teachers to external fee-paying audiences. Most university professors act as independent operators beyond their formal commitments to teaching and research. The entrepreneurial among them may find additional sources of revenue on their own but this money does not flow back to their institution.

In the specific case of universities, the cost of instruction, delivered by a combination of tenured professors and sessional instructors, is a concern. Average teaching workloads for permanent faculty in universities, measured by number of courses or hours of instruction, are lower than in the past, yet real salaries are the same or higher. As a result, real direct teaching costs have risen, only partly offset by the use of sessionals.

PSE institutions face an additional challenge of aging faculty. Legislative changes have ended mandated retirement ages, meaning more highly paid employees are staying in the workplace longer, increasing the average salary costs and financial pressure on institutions. At the same time, the older instructors occupy posts that would otherwise go to less expensive younger talent who are faced with many years in poorly paid sessional roles before accessing senior or tenure-track positions. In fact, PSE institutions are managing financial problems by employing contract instructors. Currently, about half of all courses are taught by sessionals and contractors, who are paid only about half the per course rate received by assistant professors. This has widely recognized quality implications; yet resolving the practice would pose a serious new financial burden on already fiscally constrained institutions.

Challenges Facing the PSE Sector

Major issues facing the PSE sector today include:

Operating Environment

- Student demographic and socio-economic diversity
- Demography and changing enrolment levels
- International competition for students and resources
- Institutional and jurisdictional competition, fuelled by globalization
- Multiple communities with learning needs
- Reduced funding streams

Goals

- Broaden the PSE mission
- Establish a shared systemic perspective on values and outcomes
- Improve instructional quality, technology and pedagogy, quality/skills of graduates
- Enhance and demonstrate relevance to innovation, productivity, health, infrastructure, cities and urban agendas

Processes

- Ability of administrations to authorize and direct institutional change
- Conflicting claims of employee groups, including unions, professors, staff, students, communities, business, governments
- The inhibiting impact of government funding models on change processes

Resources

- Government funding and tuition cuts and freezes
- Research funding limitations
- Infrastructure and overhead costs, indirect costs of research

Metrics

- Performance outcomes—research, innovation, successful careers
- Value added from investment
- Impact on innovation and productivity
- Resource inputs, participation and graduation rates

Post-Secondary Education Facts

- The PSE sector comprises several major components, including universities, polytechnics and community colleges, private career colleges, and higher skills training programs for trades and technical occupations, including apprenticeships.

- Nationally, annual expenditures on colleges and universities in 2009 totalled \$37 billion;¹⁴ current expenditures are estimated to top \$40 billion.
- Over 250,000 people work in PSE systems as administrators, instructors, researchers, and staff. Many thousands more work in the supply chains and service institutions that support PSE institutions.
- In 2009, 49 per cent of Canadian adults had completed either university or college. An additional 12 per cent of adults had completed other post-secondary education such as apprenticeships or certificates or diplomas from vocational schools.¹⁵
- PSE is a major source of research and development for government and business; its researchers carry out more than \$5 billion of R&D annually and contribute substantially to Canada's innovation and commercialization performance.
- Universities and colleges graduate most of the leaders running Canada's public and private sector organizations—with qualifications in business, engineering, finance, management, law, and other key fields.

Strategic Dimensions: Key Stakeholders' Roles

Stakeholder Groups	Value/Role/Impact			
	Teaching Excellence/ Impact	Research Excellence/ Impact	Business/ Economic Impact	Community Impact
Learners and their families				
Aboriginal Groups				
Communities				
Business				
Colleges and Polytechnics				
Universities				
Granting Bodies and Agencies				
Accrediting Bodies				
Apprenticeship Systems				
Skilled Trades Systems				
Specialized Adult Education and Training Institutions				
Federal Government				
Provincial Governments				
Municipal Governments				
International Partners				

¹⁴ Statistics Canada, CANSIM Table 385-0007

¹⁵ Statistics Canada, *Canada Year Book, 2012*, Ch. 10.

Activities, Projects, and Deliverables

Based on the needs and suggestions of the Centre investors and advisors, and on the level of funding obtained, the Conference Board will undertake substantial research and dialogue.

Research

SPSE will complete three phases of research that will be fundamental to achieving the goals of the Centre:

1. *Diagnostic Foundational Studies* will identify the objectives and assess the performance of the PSE system in order to identify areas of strong and weak performance, challenges to the system, opportunities for improvement, and barriers to reform.
2. *The Desired State of PSE in Canada* research will investigate options for, and articulate a vision of, an improved PSE system in Canada.
3. *Solutions and Strategies* projects will articulate strategies for key stakeholders to achieve a shared vision for PSE and provide system users with tools to make effective use of the options available for their skill development.

As part of these three phases, we will undertake a set of projects that will examine important issues facing the sector and its institutions, and identify viable solutions that can be achieved through the efforts of the sector, governments, and the broader community. Ideas for an initial set of projects are presented below.

The number of projects that can be carried out will depend on the level of funding secured. Priorities for the research projects will be identified through dialogue and consultation with the SPSE Collaborating Stakeholders, Investors, and Partners. Ideas for additional projects will be canvassed widely.

The following ideas provide examples of potential investigation that could lead to significant future recommendations for action. As research work proceeds, the Conference Board will seek discussion among stakeholders on such ideas as these in order to refine research directions, animate discussions, and understand the dynamics of a complex system. Most of these ideas would require a substantial level of cooperation among orders of government, the PSE system, and societal stakeholders.

1. Create a national system that maximizes the opportunities for domestic and international student mobility across provinces and among institutional categories.
2. Create a national credit transfer and recognition facility similar to what currently exists in Western Canada.
3. Create a national credential recognition facility for newcomers to Canada.

4. Create within institutions a teaching/research/service environment that is more like the “actively interacting, intertwining, helical-like strands”¹⁶ called for by Bernard Robaire, rather than the 20th century silos observed by many.
5. Create opportunities for all learners—traditional and non-traditional, Aboriginal and other under-represented groups—to develop new and advanced skills at any point in their lives.
6. Take steps to encourage the evolution of global institutions, evolving from the existing system of binational international institutional agreements.¹⁷
7. Create an environment in which industry is invited to join with PSE institutions to provide learners the opportunities to accumulate direct employment experience while pursuing their credentials (similar to examples found in various places in Canada and beyond).

Core Projects

1. *Skills and PSE Strategy for Canada*

The most important initiative of the Centre will be to engage key stakeholders in creating a *PSE and Skills Strategy for Canada*. The Strategy will encompass a holistic approach to PSE in Canada, and will cover the full range of issues and themes that relate to the sector, including economic, social, and cultural dimensions.

It will answer central questions facing PSE: What institutional and organizational changes are required to ensure that our PSE system can produce adequate numbers of highly educated and highly skilled graduates with the right combination of skills and expertise to meet our needs for innovative, productive workers, managers, entrepreneurs, and leaders? How can these changes be accomplished and funded so that we create a sustainable system?

It will address fundamental research-related questions facing PSE: How can we sustain and enhance the research enterprise within our institutions, including excellence in basic research, applied research, research and development in partnership with government and business, company formation for innovation and commercialization, translational research, research and creative expression in the fine and performing arts, and research for the professions. It will also address the role of PSE institutions in educating individuals for the responsibilities of citizenship, as future leaders and contributors to all aspects of government, society, culture, and the economy.

¹⁶ Robaire, Bernard. “Challenges and opportunities in integrating teaching, research and contributions to the community in a changing university.” *CAUT Distinguished Academic Award 2006 Paper Presentation*. Held at Ottawa, April 27, 2006. 4.

¹⁷ Breton, Gilles. “Universities between globalization and a globalized world,” in *Building Success in a Global University: Government and Academia – Redefine Worldwide the Relationship*, eds. Carl G Amrhein and Britta Baron, 136-46. Germany: Kössinger AG, 2013. 144.

The Strategy will outline the vision, goals, actions, roles, and responsibilities of PSE institutions, governments, businesses, and not-for-profit organizations to implement the Strategy.

The process for creating the Strategy will involve research, analysis, and synthesis, the convening of stakeholders and experts, and a high level of collaboration in order to develop a shared understanding and set of shared goals among key players in the skills and PSE sector that will provide the basis for implementation and change.

2. Skills: Where Are We Today? An Overview of the State of Skills Production in Canada

This research project will provide a systems perspective on the state of skills production throughout all parts of the PSE world, including an inventory of the kinds of skills produced, locations, and quantities.

Phase 1 will closely examine colleges, universities, technical institutes, trades programs, and others in order to inventory the current state of efforts that relate to “skills” in a direct fashion. The inventory will include definitions of the many terms and concepts—including skills, competencies, standards, and credentials—used by PSE institutions, analysts, employers, and others to explain skills and skills performance measures and results. It will also summarize findings and information on skills-related performance data.

Initial results will be issued in a series of working papers used as a basis for dialogue and consultations. Final results from the research, incorporating input from experts, leaders, and others during the consultation process, will be published as a report. The findings will be used to inform development of the *Skills and Post-Secondary Education Strategy for Canada*.

3. Understanding the Operating Environment: Policies, Laws, and Regulations Governing Post-Secondary Education and Skills in Canada

This research project will examine the state of policies, laws, and regulations (PLRs) that affect the operation of post-secondary institutions. Provincial, federal, and municipal PLRs will be examined and analyzed.

Phase 1 will examine federal, provincial, and municipal PLRs that affect all or part of the PSE system in order to understand how the external environment shaped by PLRs affects the strategic direction, funding, and performance of universities, colleges, technical institutes, trades programs, and other skills-producing organizations.

Initial results will be issued in a series of working papers that will form the basis for dialogue and consultations. Final results from the research, incorporating input from experts, leaders, and others during the consultation process, will be published as a report. The findings will be used to inform development of the *Skills and Post-Secondary Education Strategy for Canada*.

4. The Impact of Canada's PSE Sector: 2013

This research project will measure and assess the *scale and scope* of the economic, social, and cultural impact of the PSE sector in Canada. The quantitative analysis of the economic role and significance of the sector will be widely communicated to governments, media, and the public. The purpose will be to increase their understanding of the sector's importance to employment, productivity, innovation, economic growth, and competitiveness.

Key questions that the research will answer include: What are the direct, indirect, and imputed economic impacts of the PSE sector? How much does the sector contribute to Canada's GDP? How many jobs are related to the sector? What contribution does the sector make to corporate performance? How well does it prepare people for work? How does it enhance communities, quality of life, and cultural expression? What role does PSE play in Canada's international relations?

5. Skills and Learning Pathways Planning Tool

This research project will create a road map of the network of skills and learning pathways available to learners entering and transitioning at different stages of the PSE system. It will set out requirements for program entry for K-12 system students to plan their future career paths through PSE; identify processes and procedures for articulating between programs and institutions, including colleges and universities; connect programs with labour market data and information about past and projected demand for work by type of job, sector, and region; and identify sources of information and advice for selecting among the options available.

The Pathways Planning Tool will be available online and will be structured for targeted use by learners, their families and advisors, and skills and PSE planners.

Potential Research Projects

- 6. Advanced Skills for the New Economy***
- 7. Canada's Skills Performance: Annual Report Card***
- 8. International Best Practices in PSE Reform***
- 9. University and Colleges: Pathways to Skills and Careers***
- 10. Rethinking Universities and Colleges: New Forms for New Functions***
- 11. Learning in the Digital Age***
- 12. Productivity and PSE***
- 13. PSE Pathways to Innovation and Commercialization***
- 14. Capitalizing the PSE Sector: Funding Reform Options***

Convening

The Board's convening capacity enables us to bring together institutional leaders, representatives of the key service delivery groups, students, business, government, and community groups to share insights, dialogue about research results, and find common ground for the vision and action steps to achieve change. Convening activities will include:

National Summit on Skills and PSE—This annual conference will bring together global, national, provincial, and local stakeholders in Canada's PSE system. The 1st Summit will be held at the Metro Toronto Convention Centre on Nov 6–7, 2013. The Summit series will include the development and launch of a *Skills and PSE Strategy for Canada*.

Regional Consultations—The Conference Board will convene stakeholders regularly in various regions as part of the research work.

Reference Group Consultations—The Conference Board will convene specific groups of experts to inform the development of research questions, provide quantitative and qualitative information, and reflect on preliminary findings.

Quality Network for Universities—This long-standing Conference Board executive network of university vice-presidents will address issues pertaining to the SPSE agenda at each of its regular meetings.

Quality Network for Colleges and Polytechnics—A similar Conference Board executive network of college and polytechnic vice-presidents will also meet on the SPSE agenda.

Council on Education and Training in the Digital Age—The Conference Board will convene a new network of stakeholders who are active at the nexus of education and digital media.

Investors' Meetings—At least two annually, beginning in fall 2013.

Investor Engagement—Teleconferences to discuss research plans and draft reports.

Communications

A comprehensive communications plan will be developed and implemented to bring empirical findings and ideas for change to target audiences in formats that are credible and accessible. These formats will vary by audience. For example, governments and business will want public documents and special briefings, while others might want some of the results presented at academic congresses and specialist meetings.

The Conference Board of Canada Advantage

The Conference Board of Canada is uniquely suited to provide the Centre with the skills and experience required to undertake quantitative and related analysis of Canada's PSE and skills development systems and to facilitate dialogue and collaboration among the investors and stakeholders to achieve its mission. The Centre will draw on the Conference Board's multi-disciplinary team of experts, as well as external resources through our partnerships with organizations and key individuals. We have experience bringing together groups of like interest to build partnerships and have developed a reputation for high-impact research through our impartial and rigorous approach.

One of the Centre goals is to change the ways PSE is discussed by the public, media, political leaders, and policy-makers in Canada. Centre research will clearly articulate the important connections between PSE and the challenges our country faces in ensuring our national well-being and economic sustainability.

We are independently funded, non-partisan, and not an advocacy organization. We have a proven track record of influencing the shape of national dialogue on key issues affecting our country and will bring this experience and expertise to the Centre.

Who Should Invest in the Centre for Skills and Post-Secondary Education?

The SPSE will appeal to investors from both the public and private sectors. Membership from a range of these organizations will help to ensure that a balanced and holistic approach is adopted.

Public sector organizations have a strong interest in the future of Canada's PSE sector and the skills that it produces. They are responsible for the policy and regulatory environment in which the sector operates. In addition, they understand the interconnections between PSE, skills, and Canada's economic and social systems. They are also familiar with the complexities and interrelationships among federal departments and among these departments and their provincial counterparts.

Private sector firms have a strong interest in PSE's future because it produces the skilled people they employ and provides expertise that can be brought to bear in supporting corporate R&D, management, and innovation. As a source of advanced skills and expertise, the PSE system is fundamentally important to firm-level performance and competitiveness, both domestically and internationally.

Investment Levels

The Centre will be funded through membership fees from participating organizations. Centre members will include post-secondary institutions, foundations, governments, businesses, and key partners from the not-for-profit sector. *Investors will be asked to commit for an initial three-year period*, at one of three annual levels.

Champion Investors contribute \$50,000 annually, sit on the Centre's Steering Committee, and are deeply involved with Conference Board staff in drawing up the Centre's research plans and meeting agendas. Champions will be represented by a senior executive who will be invited to advise and participate in the overall planning, conduct, and decision-making for the Centre, including through specific activities such as helping to define the research agenda and selecting research projects. They will have access to Centre research results prior to public release. They will also have first priority in hosting the two SPSE plenary meetings to be held annually, as well as consultations and special events.

Partner Investors contribute \$25,000 annually, sit on the Centre's Steering Committee, and work with the Conference Board and Champion Investors to help develop the research plan and review the research in progress. They will have access to Centre research results prior to public release. They will be invited to host the two SPSE plenary meetings to be held annually, as well as consultations and special events.

Participant Investors contribute \$10,000 annually and sit on the Centre's Investors' Advisory Committee. They are invited to participate in the two SPSE plenary meetings to be held annually, as well as teleconferences, consultations, and special events. They will have access to the detailed research findings. They also provide input on the choice of research and meeting topics.

Insights. Understanding. Impact.



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