Ontario’s Higher Education System: Moving Forward in Innovation

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Ontario’s Higher Education System: Moving Forward in Innovation

The Canadian education system is one of the most successful, high-performing systems in the world (Hargreaves & Shirley, 2012). It has been internationally recognized for its commitment to equity, high performance and inclusivity, which have inspired and informed education policies around the world (Hargreaves & Shirley, 2012; OECD, 2011; OECD, 2014). In spite of this, one area of growth that has been identified in Canada’s province of Ontario is higher education innovation. Higher education institutions (HEIs) in Ontario are lagging to keep up with the growing demands of the 21st century and global economy (OECD, 2012). Analysis of this problem has revealed three associated factors contributing to the limited innovation in the province: a lack of provincial innovation culture, limited system-wide quality assurance of HEIs, and little variation in institutional differentiation. It is clear that the limited progress in Ontario’s innovation stems from two sources: a system-wide level and an institutional one. Thus, for the purposes of this paper, “innovation” will be defined in two ways. First, innovation at the systems level will be defined by the “Triple Helix System” that relates university, industry and government in promoting innovation through research & development, collaboration amongst HEIs, and individuals/institutional innovators (Ranga & Etzkowitz, 2013). Second, innovation at the institutional level will be defined by apparent curricula and pedagogies in Ontario HEIs that are promoting innovation. Furthermore, evidence from similarly high-performing education systems, Finland and Singapore, has informed three policy recommendations to improve innovation in Ontario: (1) creating a balance between internal and external higher education quality assurance, (2) re-formulation of funding strategies to better promote innovation, and (3) inclusion of collaboration in the differentiation of HEIs.
In this paper, the three policy alternatives outlined above will be analyzed and compared against one another to determine which option is the most feasible for promoting innovation in Ontario. The following steps outline the frameworks and methods of analysis that will be applied in this paper. First, Step One in Bardach’s Eightfold Path, “Define the Problem,” will be employed to describe the innovation problem in Ontario. A brief overview of the current higher education landscape followed by a discussion of the main associated factors and effects will provide context for the innovation status in Ontario. These implications will be supported by evidence from other high-performing countries, Finland and Singapore. Second, “positive deviants” within Ontario’s higher education system will be utilized as examples of institutions that are employing innovation to an aspirational degree. Third, Step Three in Bardach’s Eightfold Path, “Construct the Alternatives,” will be applied to provide an overview of each of the policy alternatives followed by a discussion of the strengths and limitations of each recommendation. Subsequently, the Fourth Step of Bardach’s Path, “Select the Criteria,” will be utilized to identify the criteria that will be used in this analysis. After assessing the full context, one policy alternative will be chosen as the best option for improving innovation in Ontario’s current higher education system. This policy recommendation will also be described using the logical framework. Finally, this paper will culminate with commentary about the implications and future work for this policy.

Summary of Ontario’s Higher Education Problem

Bardach’s Eightfold Path provides a set of steps that can assist with the art and science of policy analysis (Bardach, 2012). While all eight steps need not be used exclusively, they provide a logical approach to identifying, addressing, assessing, and providing a solution for a policy
problem. The First Step of Bardach’s Eightfold Path is critical: defining the problem (Bardach, 2012).

On a macro level, the World Economic Forum Global Competitiveness Index for Innovation and Sophistication factors (2014-2015), which measures the microeconomic and macroeconomic pillars of global competitiveness in innovation ranked Canada in 22nd place (out of 144 countries), falling behind other high-performing countries Finland (1st place) and Singapore (9th place) (Woicheshyn & Eriksson, 2014; World Economic Forum, 2014). This assessment strongly indicates that the limited progress in innovation in Ontario is a widespread problem that stems from a provincial and national level. The main factors associated with this problem support the wide scope of the issue: the lack of provincial innovation culture, limited quality assurance evidence amongst the institutions, and the absence of varied institutional differentiation (Watkins, 2014).

Missing Innovation in Education Culture

The disparity between the culture around education and innovation in Ontario is evidenced by education currently being at a premium and innovation resting at a standstill (OECD, 2014; Council of Canadian Academics, 2009; Lavoie, 2009). The implications of this contrast between education and innovation have impacted Ontario students’ performance in the labor market, where Ontario graduates are not being equipped with all the 21st century and higher-order skills to be competitive citizens in the global market (HEQCO, 2013). Evidence to support this arose from the “Innovation and Business Strategy: Why Canada Falls Short” that identified an education skills gap where Canadians were shown to have limited business, communication, and information and communications technology (ICT) skills compared to their U.S. counterparts (Council of Canadian Academics, 2009; Watkins, 2014). There has also been a
decrease in the production of masters and doctoral students with Canadian graduation rates for graduate students resting below the OECD average (OECD, 2012; Watkins, 2014).

**Limited System-Wide Quality Assurance of HEIs**

The second factor associated with Ontario’s limited innovation in higher education is a lack of evidence to corroborate quality assurance information about higher education policy research (Jones, 2014). Without a strong infrastructure for policy research and data generation, the implementation and decisions about higher education challenges, such as promotion of innovation, resultantly lags (Jones, 2014). The 2012 OECD Economic Survey on Canada articulated the significance of the relationship between quality assurance and higher education innovation by suggesting that provincial quality-assurance frameworks could be used to further improve the promotion of innovation skills at the tertiary education level (OECD, 2012). As a summary, for Ontario to be competitive in today’s knowledge-based economy, quality assurance in higher education needs to be met (Bernhard, 2009; Watkins, 2014).

**Lack of Differentiation in Higher Education Institutions**

Finally, the third cause of Ontario’s higher education challenge is a lack of differentiation between HEIs dedicated to research or teaching (OECD, 2012). The limited differentiation of institutions is negatively associated with innovation by impacting on the faculty’s role in the institution and reinforcing of performance-based outcomes funding that stifles creativity and risk-taking in higher education (OECD, 2012; Woiceshyn & Erikkson, 2014). Ontario professors’ perception that professional research versus teaching would better aid in the acquisition of tenure or promotion depletes time dedicated to teaching innovation and development (OCUFA, 2008). This has also resulted in the influx of sessional teachers, which have led to larger class sizes, less one-on-one time for students with faculty (CAUT, 2011).
Furthermore, Ontario currently uses key performance indicators (KPIs) in performance-based outcomes funding, which may be averting institutions from implementing new, innovative practices at the risk of being penalized financially if there is a decline in KPIs (OECD, 2012; HEQCO, 2013; Sherren, 2008). Differentiation amongst institutions would help to address this by holding each institution accountable, but not restricted by outcomes that are not pertinent to their KPI objectives as an institution. The combination of these factors has led to a decrease in higher education quality in the province (Ontario Ministry of Finance, 2012; Watkins, 2014).

Overall, the heterogeneity of Ontario’s higher education policies and strategies compounded with the lack of system-wide quality assurance data and isolated funding models are some of the key factors that are underlying the stagnation of higher education innovation (Jones, 2014; Lavoie, 2009; Watkins, 2014).

**Trends from Other Countries: Looking at the High Performers**

To gain insights into how to address these three factors associated with Ontario’s innovation challenge, an overview of the higher education reform strategies employed in Finland and Singapore can provide insights into the trends in support of Ontario’s next policy steps (Levin, 1998).

**Comparing the Context of Ontario with Finland and Singapore**

Both Finland and Singapore’s higher education systems can be compared and contrasted against Ontario’s higher education system. First, similar to Ontario, Singapore and Finland are top performers on the Programme for International Student Assessment (PISA) test and employ a decentralized approach to managing education within their countries (Hargreaves & Shirley, 2012), normalizing the higher education landscape of these countries. On the other hand, Finland and Singapore have successfully promoted innovation in higher education through system-wide
reforms to establish “world-class university” standards and the development of creativity, critical thinking, lifelong learning, and innovation (Koh, Tan & Ng, 2012). The reform strategies from these countries have revealed several trends that provide evidence for innovation promotion in higher education in a context such as Ontario. These trends are: a cultural emphasis on innovation in higher education; accountability from quality assurance assessments and evaluation; autonomy for HEIs; network-based collaborative approach for funding that connects HEIs with industry; and, differentiation amongst institutions (Watkins, 2014).

**Cultural Emphasis on Innovation**

The strong nation-wide cultural emphasis on innovation in Finland and Singapore developed following education reforms in response to globalization and the increasing demands from the knowledge economy at the tertiary level (Gopinathan & Lee, 2011). The governance in both countries emphasized the production of quality research and contributions to scientific knowledge with a focus on global competition (Haapakorpi, 2011; Woicheshyn & Eriksson, 2014). For example, one derivative of the higher education reform was the “Innovation University” or the “Entrepreneurial University” (Woicheshyn & Eriksson, 2014). This type of “new university” was constructed as a representation of Finland’s commitment to encouraging innovation and promoted a variety of functions including, encouragement of collaboration and innovation amongst disciplines and alignment with the needs of the labor market to promote economic development (Pinheiro & Stensaker, 2013; Gjerding et al., 2006; Watkins, 2014).

**Accountability and Quality Assurance in the System**

Quality assurance assessment and evaluations were implemented in Finland and Singapore to monitor the higher education institutional improvement and accountability during reform (Haapakorpi, 2011). In Singapore, higher education is governed through “an authoritarian
mode of liberalism” combined with the state-led development model, which also acts as a tool in re-modeling the higher education landscape to align with the government’s economic goals (Lo, 2014). To further promote quality in response to the knowledge-based economy a differentiated system of universities were implemented in both countries to generate more autonomy and diversity in the system (Ng & Tan, 2010; Watkins, 2014).

**Collaborative Funding Strategies and Autonomy**

As a result of the autonomy given to HEIs, Finland and Singapore’s funding models reflect strong collaboration between institutions and industries. Universities are connected with various industries, which are supported by policies from the national level (Woicheshyn & Eriksson, 2014). For example, the Finnish government employed an integrated innovation policy approach with broad policy measures, such as public funding of research and development and joining the European Union, which were used to mobilize the economy (Ahola & Mesikammen, 2003). In Singapore, HEIs were given greater autonomy by the state allowing them to be able to manage matters of internal governance, tuition fees, admissions, remuneration, and funding from a set budget to promote innovations and educational change (Ng & Tan, 2010; Watkins, 2014).

**Differentiation**

In Singapore’s attempt to create a “market economy” in the higher education sector, diversity and autonomy were promoted through a differentiated system of universities, which included: world class universities, local universities, and private universities (Ng & Tan, 2010). World-class universities (e.g., Johns Hopkins and MIT) established satellite “centers of excellence” in the country as opportunities to promote research and development and to promote Singapore as an “education hub” (Ng & Tan, 2010, p.180). Also, HEIs were given greater autonomy by the state allowing them to be able to manage matters of internal governance, tuition
fees, admissions, remuneration, and funding from a set budget to promote innovations and educational change (Ng & Tan, 2010; Watkins, 2014).

Overall, lessons from Finland and Singapore can be used as evidence in support of policy recommendations for improving innovation in Ontario given the similarities between Ontario, Finland, and Singapore, as high performing education systems. Specifically, improvement of the quality assurance system, funding formulae, and increased differentiation are important lessons for Ontario’s next policy steps towards higher education innovation.

**Positive Deviants in Ontario**

In spite of the innovation challenges throughout the province as a whole, there are several HEIs that are currently employing a variety of innovative practices that promote innovation and 21st century skill development acting as examples of positive deviants in innovation (CPRN, 2006; Pascale, Sternin & Sternin, 2010). The positive deviance process is worth investigating in this context given that the innovation changes that need to happen in Ontario are largely rooted in social and behavioral change, which are some of the reasons to employ positive deviance when evaluating alternatives (Pascale, Sternin & Sternin, 2010). Two universities to highlight as representative examples are: the University of Waterloo and McMaster University.

**The University of Waterloo: “Entrepreneurial Research University”**

The University of Waterloo is one of the research-intensive universities in Ontario that has been characterized as an “entrepreneurial research university” and leader in integrating the needs of the knowledge-based economy (Bramwell & Wolfe, 2008). The University of Waterloo’s integration of co-operative education programs, entrepreneurial culture, and intellectual property policy adoption have helped to contribute to economic development and
improvements in R&D (Downey et al., 2002; Bramwell & Wolfe, 2008). Waterloo also maintains strong connections with industry by being at the center of high-tech companies and firms, more so than any other HEI in Ontario. Furthermore, the university’s strong grounding in innovation has been the source for attracting highly skilled and high-preforming students and researchers perpetuating its growth and success (Bramwell & Wolfe, 2008; Watkins, 2014).

**McMaster University: Innovative Pedagogy and Programs**

Similarly, McMaster University was the first university to employ problem-based learning (PBL) in its medical school, promoting collaboration in small groups and a self-directed learning pedagogy (Vajoczki, Watt & Vine, 2011; CPRN, 2006). McMaster University has also employed inquiry-based learning (IBL), which is a pedagogical tool that works to promote critical thinking, personal engagement, communication skills, and lifelong learning during and after higher education studies (Justice et al., 2009). While often used in science-based curriculum, IBL has transformed curricular practices at the university and promoted skill-development resulting in deeper learning for students (Justice et al., 2009). Similar to the University of Waterloo, these innovative practices have also been a source of attracting high caliber students and faculty member to the university (Justice et al., 2009; Watkins, 2014).

**Implications of These Positive Deviants in Ontario**

While these universities have demonstrated a commitment to higher education innovation, there is still a lack of information about the effectiveness and scalability of these institutions’ practices (CPRN, 2006). In general, innovative changes at the pedagogical and curricular levels are not strongly influenced by external public policies. External policy incentives mostly promote changes at the institutional levels, such as R&D and teaching & learning innovations (CPRN, 2006). In order for Ontario to compete in today’s knowledge-based
economy, quality in higher education needs to be supported by evidence to overcome internal conflicts and barriers that could prevent future scalability in other HEIs in Ontario (Bernhard, 2009). Overall, the University of Waterloo and McMaster University are strong examples of positive deviants in the province of Ontario’s higher education system and act as sources of inspiration for the next phase of Ontario’s strides towards innovation (Watkins, 2014).

**Policy Alternatives for Ontario’s Higher Education System**

The Third Step in Bardach’s Eightfold Path describes the construction of alternatives (Bardach, 2012). Bardach discusses a design process whereby the alternatives convey a strategy for change that would take the identified problem from its current state to the projected state (i.e., where the circumstances have been improved). The three alternatives that have been constructed using the process described by Bardach are: (1) creating a balance between internal and external higher education quality assurance; (2) re-formulation of funding strategies to better promote innovation; and (3) Institutional collaboration in the differentiation of higher education institutions (HEIs). The following provides an overview of each of the policy alternatives with a discussion of the current strengths and limitations that would be projected in the context of Ontario.

**1) Balance Internal and External Quality Assurance in Higher Education**

As Ontario’s higher education system moves forward in innovation, the first step is defining quality in relation to the objectives for post-secondary education (PSE). As seen in Singapore and Finland, accountability and quality assurance are key factors in promoting innovation and growth in a PSE system. Without this strong infrastructure for policy research and data generation, the implementation and decisions about higher education challenges, such as promotion of innovation, resultantly lags at a system-wide level (Jones, 2014).
Policy Alternative Overview

This policy recommendation underscores the need for a higher education quality assurance system that strikes a balance between internal and external evaluation of the system. Currently in Ontario there is well-developed internal quality assurance system amongst institutions, called the Institutional Quality Assurance Process (IQAP), which measures academic standards, program improvement, funding priorities, and degree level expectations (Ontario Universities Council on Quality Assurance, 2010). However, this information is not available to the public nor does it capture quality assurance of system-wide objectives being achieved by HEIs collective efforts (Canadian Council on Learning, 2009). For Ontario to become more competitive on the PSE global market, there needs to be clear communication to international and domestic students about the sustainability, competitiveness, and benefits of studying in Ontario, Canada. A stronger external quality assurance system will help to produce information about the international comparability of PSE qualifications in Ontario and also better inform domestic students about their options in Ontario (Canadian Council on Learning, 2009). This information can be associated with performance measurements and accountability frameworks that emphasize the promotion of innovation, growth, and 21st century learning.

Strengths and Limitations

The implications of this policy recommendation occur at the institutional, provincial, and national levels. In looking at the strengths of this policy recommendation, a balanced quality assurance system can be beneficial on a nation-wide level since there has been a need for a common measurement system that would inform Canadian Ministers of Education about standards of Canada-wide quality within higher education (Canadian Council on Learning, 2009). Furthermore, on a provincial level, this quality assurance system would provide the data
and information needed for the province to better make decisions and develop policies that promote learning for the knowledge-based economy and to improve Ontario’s competitiveness as an innovating province. At the institutional level, this policy would be able to provide information to some of the most capable and high-performing students, both internationally and domestically, about the benefits of an Ontarian PSE. On the other hand, one of the limitations of this policy exists at the institutional level between larger research institutions and smaller undergraduate-focused institutions. As informed by an internal conflict in 2009, the larger universities clashed with the colleges and smaller universities about the use of quality assurance information (Canadian Council on Learning, 2009). This information also seemed in favor of the larger research universities and there was concern over the reinforcement of unofficial hierarchy in the system.

Overall, a balanced quality assurance system will address one of the first steps in securing Ontario’s promotion as an innovating higher education system by providing information and data to key PSE stakeholders, students, and sending a signal to the global market about the advantage of an Canadian education.

(2) Re-formulation of Funding Strategies for Better Innovation

In Canada, higher education systems are funded at the provincial/territorial level given the positive externalities associated with obtaining a post-secondary education (PSE) in the country (OECD, 2012). As identified by high-performing higher education systems, the funding system is important for promoting an innovative education agenda. In these contexts, a proportion of funding is directly tied to innovative outcomes and the structure entails a strong connection between institutions and industry. In the current political environment of Ontario, it would be difficult to promote further collaboration with industry given the recent pushback from
HEIs in response to a change in external funding in the province. However, modifications to the current formulation of funding are feasible and effective means for employing the government to drive system-wide change.

Policy Alternative Overview

The re-formulation of funding strategies in Ontario is one of the ways that the government can promote effective system-wide innovative changes (HEQCO, 2013a). The current funding structure employed in the province is problematic since funding is tied to outcomes that reinforce homogenization amongst institutions, rather than diversity and innovation. A re-formulation of the present funding strategies would improve the system by associating funding with specific outcomes and targeted goals that are rooted in innovation. To optimize the use of funds, a combination of external validation requirements, an a priori commitment to innovation outcomes from HEIs, and evidence from institutions about how funding would be used to promote and improve innovation would be key factors to future implementation. To secure funding, institutions would also have to report on measurable innovation outcomes. These outcomes could be taken from the Collegiate Learning Assessment (CLA) used in the United States, which assesses student measures on critical thinking, analytic reasoning, problem solving, and written communication skills (HEQCO, 2013a). These outcomes are aggregated as an institutional outcome and provide an indicator for the cognitive skills developed in PSE.

Strengths and Limitations

The implications for this policy alternative occur at the provincial and institutional levels. Funding is one of the most powerful instruments available to the provincial government to influence change and the behavior of HEIs (HEQCO, 2013a). Therefore, funding formulas are
key for promoting innovation and interrupting the current funding cycle that promotes homogeneity in the system rather than emphasizing differences that align with the demands of the knowledge-based economy (HEQCO, 2013a). The incorporation of innovation learning outcomes with funding would be an effective way for the government to drive change in the direction of improved innovation. On the contrary, funding as a motivator of change could be a limitation for system-level impact by deferring institutions from looking at the overall system plan and instead focusing on their own interests for funding (HEQCO, 2013a; Marshall, 2008). This may be difficult for some institutions to accept given that funding may not be distributed in the same ways as the current model.

(3) Increased Collaboration in Differentiation of Higher Education Institutions (HEIs)

The current landscape of Ontario’s higher education system is comprised of universities, public colleges, and private colleges. Discussions surrounding further differentiation in the system have been on the education policy agenda since 2013; however, system-wide changes have not yet been implemented (Ontario Ministry of Training, Colleges and Universities, 2013). In other high-performing higher education systems, such as Singapore, differentiation has been identified as one of the strategies for fostering innovation in PSE by catering to the needs of the labor market and promoting the development of specific skills sets in fields, such as information and communications technology. A strong undertone in differentiation frameworks is the need for collaboration at varying levels of system. There is demand for increased collaboration amongst the government, key stakeholders (e.g., institutions and faculty), and students. There is also the strong encouragement for institutions to collaborate to better meet the needs of students and the demands of the 21st century knowledge-based economy by preventing overlap in the
system and providing an experience where students can easily transfer between different institutions.

Policy Alternative Overview

For Ontario to protect the benefits that have been gained in PSE over the last decade, one of the main goals is to improve the global competitiveness of its HEIs through differentiation and collaboration. In Ontario’s 2013 Differentiation Policy Framework, six key components were identified with one of them being a focus on “jobs, innovation, and economic development” (Ontario Ministry of Training, Colleges and Universities, 2013). This aligns with the need for Ontario to improve its entrepreneurial culture, social and economic development, and innovation and research capacity. With these goals at the forefront of this policy alternative, Ontario cannot only maintain the gains it has made over the last ten years in PSE, but it can also improve its status for world-class research and innovation while developing HEIs as innovative hubs in the province. For these objectives to be achieved, an emphasis on collaboration at the system level and at the institutional level will be important for creating a strong multi-sectoral system of HEIs that functions well at institutional levels and at the system level (Ng & Tan, 2010).

Strengths and Limitations

As a result, the implications for this policy alternative are recognized at the system-wide level and at the institutional level. One of the limitations of the recommendation is the concern that HEIs that are undergraduate-focused versus research-focused face once differentiation is implemented and funding is associated with outcomes that may favor larger universities who are R&D inclined (Ontario Ministry of Training, Colleges and Universities, 2013; Marshall, 2008). There is also concern from smaller institutions that collaboration with the larger HEIs in Ontario in a differentiation framework could impact their enrolment rates since highly capable domestic
and international students may want to matriculate at the more recognized institution. While these concerns are valid, there are also strong implications for positive outcomes from increasing collaboration in the differentiation of HEIs in Ontario. In the context of the whole higher education system, differentiation and collaboration act as drivers of social and economic development by improving productivity, increasing jobs, and contributing to the foundation of a viable community (Ontario Ministry of Training, Colleges and Universities, 2013). Differentiation is also an opportunity for the development of advanced innovative partnerships amongst PSE stakeholders, which would also function to build international competitiveness for the province (Ontario Ministry of Training, Colleges and Universities, 2013). Lastly, to counteract the limitations of this policy recommendation, collaboration can help HEIs refine their projected student outcomes and clearly distinguish themselves from other HEIs through communication and discussion. This would result in HEIs being able to offer specific innovative skills sets in order to attract the best-suited students.

**Criteria for Evaluating Policy Alternatives**

To proceed to the next stage in Bardach’s Eightfold Path, the fourth step entails the selection of criteria for assessing the alternatives previously identified. Bardach discusses that these criteria are measures to assess the projected outcomes of each alternative (i.e., policy alternative) as a process for deciding which option/alternative will lead to the best possible outcomes (Bardach, 2012). For this paper, these criteria will serve as the basis for comparing the outcomes of each of the three policy recommendations, as previously mentioned, to ultimately reveal one policy recommendation for Ontario’s higher education system. The four criteria that will be used are: efficiency, political feasibility, ease of implementation, and achievement of innovation output.
Efficiency

Efficiency was chosen to assess the policy recommendations for Ontario for two reasons. In Bardarch, 2000, efficiency was highlighted as a commonly used evaluative criterion for evaluating economical growth and productivity (Bardach, 2012). Efficiency is valuable in this analysis as it is able to capture the cost-benefit analysis of each policy recommendation in Ontario and represent the degree to which the alternative would improve or further burden the system. This is important given that one of the main outcomes of promoting innovation in Ontario’s higher education system is to foster growth in the economy and strengthen the relationship between education and the labor market (OECD, 2012). Overall, inclusion of this metric accounts for the economical impacts on society of each of the policy alternatives.

Political Feasibility

The political feasibility criterion is a strong item in evaluating the policy alternatives by serving as a qualitative index of the political and regulatory environment in Ontario’s higher education system. The political environment in which the policy alternatives are being applied is essential for determining the viability and feasibility of the recommendations being suggested. In the context of Ontario, this criterion evaluates both the culture of the educational environment in the province, as well as accounting for the attitudes and apparent support from the main stakeholders involved.

Ease of Implementation

The third item that was chosen for assessing the policy alternatives for Ontario was ease of implementation. This item provides a glimpse into the next phase of the policy-making process, which is the implementation phase. As a result, this was an important choice for the analysis of these policies since addressing innovation is a timely problem and the implications of
these alternatives are critical in moving Ontario forward efficiently. Therefore, this metric can offer a preview of how these policy alternatives can be achieved in Ontario’s current education and political landscape and the potential impact from available resources (e.g., funding); the cultural climate around education; and, the previously set goals for improving innovation in the province.

**Achievement of Innovation Output**

The main goal of these policy alternatives is to elevate Ontario to a higher level of innovation in its education sector. This criterion speaks to this goal by evaluating the extent to which the policy alternative will improve innovation outcomes in the province’s higher education system. The innovation output sub-items that would be able to measure the degree to which Ontario is improving in higher education innovation are inspired by the components identified in the Triple Helix System (Ranga & Etzkowitz, 2013). As mentioned previously, the Triple Helix System describes an “innovation system” that relates university, industry and government through: increase in R&D and non-R&D innovators, ‘single’ sphere and ‘multi-sphere’ institutions\(^1\), and individual innovators and institutional innovators (Ranga & Etzkowitz, 2013).

Overall, these criteria give strong measures that are important for judging which of these policy alternatives would be best suited for promoting innovation in Ontario.

**Evaluating the Policy Alternatives**

The following reveals how the criteria described above will be applied to each of the three policy alternatives for improving innovation in higher education context (Appendix A).

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\(^1\) Single sphere institutions describe HEIs that do not interact with industry and the government given rigid structures that prevent the three components from collaborating. Multi-sphere institutions represent a balance between the three components and demonstrate interaction between HEIs, the government and industry (Ranga & Etzkowitz, 2013).
Policy Alternative 1

In analyzing the first policy alternative, balance between internal and external higher education quality assurance, there were two criteria on which it scored moderately well: ease of implementation and achievement of innovation outcomes. This policy recommendation would be fairly easy to implement since there are examples of province-wide quality assurance systems for PSE being used in two other Canadian provinces, British Columbia and Alberta (Ontario Ministry of Training, Colleges and Universities, 2013). Also, Ontario already has an intra-institutional quality evaluation system that is currently being used across many HEIs in the province (Ontario Universities Council on Quality Assurance, 2010). One factor that would limit the ease of implementation in Ontario would be the need to employ an external, third party for the quality assessments and evaluations (Canadian Council on Learning, 2009; Ontario Universities Council on Quality Assurance, 2010). Similarly, this alternative scored moderately well on achievement of innovation outcomes since the policy would facilitate the improvement of accountability in the system towards innovative outcomes, as well as, foster global competitiveness of the system attracting students with strong talents both domestically and internationally.

On the other hand, this alternative did not score highly on the following two criteria: efficiency and political feasibility. This policy recommendation does not directly address how its implementation will help to stimulate growth in the economy and how its benefits will be received by society and at the individual level. Balanced internal and external higher education quality assurance would provide the information to help attract more students to Ontario HEIs and, thus, have some more job creation (Canadian Council on Learning, 2009). However, it is currently unclear if the costs of implementing this dynamic system would outweigh the benefits
received by society and pupils. Furthermore, this alternative did not score highly on political feasibility because of conflicting perspectives between larger research universities and undergraduate-focused universities, whereby the use of quality rankings would give preference to larger universities in the form of funding and student attraction. Also, the demand for a reliable quality assurance system extends beyond the province to a national level. This would require agreement from all Ministers of Education for this policy to have the desired impact on education that is currently needed in the Canadian setting (Canadian Council on Learning, 2009).

Policy Alternative 2

The second policy alternative—reformulation of funding strategies to better promote innovation—performed quite strongly on political feasibility and achievement of innovation outcomes, but lacked in efficiency and ease of implementation. This policy alternative had high political feasibility and achievement of innovation outcomes as a result of the current use of the targeted funding model through key performance indicators (KPIs) in higher education. While KPIs are not conducive to promoting innovation since they reinforce outcomes that prevent risk-taking in the classroom, targeted funding is still a strong model (Canadian Council on Learning, 2009; Jones, 2014). For this policy alternative, the provincial government would be able to clearly guide change using the targeted outcomes of interest (i.e., innovation outcomes) since funding strongly influences behavior of HEIs (HEQCO, 2013a). In addition, this policy alternative would also be able to impact the current innovation culture in Ontario’s higher education system since HEIs would be more inclined to promote an innovative culture in order to maintain high performance to obtain funding for necessary resources (HEQCO, 2013a). This alternative would also provide the opportunity for Ontario to develop a means of making
outcomes in PSE innovation measurable and reportable if the province would require the data to support funding structures.

Contrasting the ways in which this recommendation promotes innovation in higher education, the efficiency and ease of implementation of this alternative are limiting factors. Similar to the first policy recommendation, impact on the economic development of Ontario would have to be indirectly inferred in this alternative. It can be assumed that tying funding to innovative outcomes could promote growth of HEIs, which can lead to increased skill development and student preparedness for the labor market. However, it is generally unclear how the costs of changing the funding system would compare against the benefits of this recommendation in the short term, which could be a deterrent for immediately implementing this policy alternative. On a related note, it would be a lengthy process to change the funding formulation system and it would not be efficient to monitor the degree to which each of these institutions are meeting their goals in order for funding to be received.

**Policy Alternative 3**

In analyzing the criteria against the third policy recommendation, increase of collaboration in the differentiation of higher education institutions (HEIs), this alternative showed the strongest performance across all four criteria with a few minor limitations. This policy recommendation proved to be an efficient option given the strong associations between differentiation and economic development (CPRN, 2006). Differentiation is one of the main drivers of social and economic development in higher education by creating job opportunities, viable communities, and productivity (Ontario Ministry of Training, Colleges and Universities, 2013). When HEIs collaborate in the differentiation process, there is a greater focus on skill set development and clearer guidelines for accreditation processes based on nature of the institution.
Furthermore, there is currently an emphasis on including PSE differentiation on the policy agenda for Ontario and, in a recent policy framework document, one of the key components of this framework would be to motivate jobs, innovation, and economic development in the province (Ontario Ministry of Training, Colleges and Universities, 2013). This is one of the main sources of support for why this alternative is politically feasible.

While some institutions have some resistance to what this process would entail, there is generally a perspective the differentiation would help to promote growth and attract student talent domestically and internationally. Also, since differentiation was the first provincial strategic mandate agreement (SMA) submission identified by the Higher Education Quality Council of Ontario (HEQCO), this strengthens the ease of implementation for differentiation in the higher education system. Similarly, there is strong support for how this policy recommendation can achieve innovation outcomes in Ontario’s higher education system. As evidenced by the Triple Helix System, collaboration in differentiation encourages multi-sphere interactions between institutions, between institutions and government, and between institutions and industry (Ranga & Etzkowitz, 2013). Collaboration in differentiation will also motivate the need for criteria to monitor system-wide outcomes, such as research capacity, research focus, research impact, and international competitiveness.

Overall, the third policy alternative comes out on top following the analysis of efficiency, political feasibility, ease of implementation, and achievement of innovation outcomes.

**Ontario: Moving Forward with Policy Alternative 3**

Given the current landscape of Ontario’s higher education system, increasing differentiation and collaboration would serve Ontario well in moving towards innovation and
global competitiveness. In 2013, differentiation of HEIs in Ontario went on the policy agenda (Ontario Ministry of Training, Colleges and Universities, 2013). However, the problem of limited innovation in the province still persists. This refined policy recommendation proves to be efficient, politically feasible, implementable, and an avenue for achieving innovation outcomes to elevate Ontario from its current stagnant state (Appendix B).

**Theory of Action**

If Ontario promotes differentiation of HEIs with an emphasis on collaboration between institutions, then system-wide innovation will be improved by meeting the growing demands of the diversity of students in the 21st century.

**Implications**

Promoting collaboration in differentiation will propel Ontario socially and economically by steering the province towards innovation, productivity, more jobs, and a viable higher education system. This is one of the key ways that Ontario can keep up with the knowledge-based economy and the growing demands of diverse students looking for the opportunity to foster labor market-relevant skills and knowledge.

One of the limitations of this policy recommendation is the inter-institutional conflict regarding how institutional diversity can reinforce elitism and hierarchy in the system (Marshall, 2008). For example, colleges and universities in Ontario have had conflicts surrounding the transferability of credits between universities and colleges, with colleges wanting “one-to-one credit recognition” with universities (Marshall, 2008, p.5). Fellow Canadian provinces, British Columbia and Alberta, were able to provide a solution to this by creating credit transfer guidelines and establishing agencies to assist with this conflict (Marshall, 2008). Similarly, another limitation of promoting collaboration in institutional differentiation is the concern of
losing institutional autonomy. While institutional autonomy could be compromised temporarily throughout implementation, evidence from England’s differentiation process suggests otherwise (McCaig, 2010). Institutional autonomy can be strengthened as a result of institutions gaining a clear mission, resulting in changes in size and specified learning outcomes offered (McCaig, 2010). While the limitations of this policy are validated, there are ways in which Ontario can soothe the effects and potentially treat the causes of this problem.

**Next Steps: Implementation Strategies**

The following steps outline a seven-year trajectory of implementation strategies for Ontario’s next steps in moving forward with this policy. Within the next one to three years, Ontario would need to begin to transition the higher education system from its current bi-sector organization (universities and colleges) to a multi-sector one (e.g., research universities, regional universities, polytechnics, colleges, etc.) (Marshall, 2008). In conjunction with this, communication and collaboration between HEIs would also need to be promoted to begin the next phase, which is the mission design process. For the next two-year interval (year three to five), the mission and provision of education available in each of the education sectors would need to be clearly defined and communicated to key stakeholders in education, such as the students and parents. There also needs to be reliable and better information comparing and contrasting the different institutional sectors so students can make informed decisions about higher education. In the last two-year interval (year five to seven), degree recognition and quality assurance systems would have to be in place to ensure that students in Ontario are receiving an education that is aligned with innovation, 21st century learning, and can meet the needs of the knowledge-based economy.
Conclusion

Ontario’s education system is an equitable, high performing, and inclusive system. Over the last decade, post-secondary education (PSE) in the province has undergone changes that have helped to promote growth and accessibility throughout the sector. However, one area of growth that needs to be addressed in Ontario is the limited innovation that currently persists in the higher education system. The province and the country, as a whole, need to identify their desired innovation goals to best serve students and prepare them for the 21\textsuperscript{st} century.

This paper identified three policy recommendations that were assessed to be viable options for improving innovation in Ontario’s higher education system. Upon applying criteria that measured efficiency, political feasibility, ease of implementation, and achievement of innovation outcomes, one policy recommendation came out on top as the most viable option to enhance PSE in Ontario: increased collaboration and differentiation of HEIs. This policy alternative was able to meet the demands for innovation in Ontario’s current higher education system by improving the promotion of innovative skills sets, productivity, economic development, and supporting collaboration between institutions, government and industry. It is important to note that before Ontario can move forward with this policy strategies to improve inter-institutional communication and institutional autonomy need to be discussed to prevent conflict with differentiation. This policy follows a seven-year trajectory where steps to change the sector organization, institutional missions, quality assurance and degree recognition/value need to be implemented systematically and carefully to ensure success of the process. As Ontario moves forward as a high-performing province and system, intentional policies to improve the innovation culture in the province are essential. Emphasis on collaboration and differentiation within the system are strongly recommended for immediate consideration at the policy level.
## Appendix

### A. Application of Criteria

<table>
<thead>
<tr>
<th></th>
<th>1) Balance between internal and external higher education quality assurance</th>
<th>2) Re-formulation of funding strategies for better innovation</th>
<th>3) Increased collaboration and differentiation of HEIs</th>
</tr>
</thead>
</table>
| **Efficiency** | **Score: 2.5**  
- Increase global competitiveness  
- Improve opportunities in the labor market since more students may be attracted to HEIs with more information about the quality of the system | **Score: 2.5**  
- Promotion of growth in HEIs  
- Aligning learning outcomes with the needs of the labor market and the knowledge-based economy  
- Outcomes that could be tied to funding → could promote better skills sets and ultimately increase job creation and productivity | **Score: 3.5**  
- Differentiation and collaboration are drivers of social and economic development → job creation, viable communities, productivity  
- Greater focus on development of specific skills sets to better prepare students for the labor market (more differentiation, better accreditation processes) |
| **Political Feasibility** | **Score: 2**  
- Public: strong interest in gaining more and better information about the quality of ON HEIs  
- Conflict between research-intensive and smaller universities/colleges and whether or not the larger universities would benefit more from this system  
- Can help to inform policy development  
- If impact at a national level is desired, going to need to get all of the Ministers of Education on board with this recommendation | **Score: 4**  
- Targeted funding used in HEIs in the past helped to contribute to growth in the system  
- External validation requirements for HEIs  
- Institutions may be concerned more with pushing their own agenda than using the provincial-level goals  
- May be hard for institutions to accept because it could mean in the short term that they will be receiving less funding than they currently have if their goals do not align with the government’s set requirements  
- Provincial government still has the locus of control here  
- Funding influences institutions to respond | **Score: 3**  
- Differentiation is already on the policy agenda  
- Institutions have had some resistance to it, but it ultimately may lead them to more opportunities for enhanced student talent, funding, growth  
- Collaboration, not just about seeing each institution separately  
- Fear of preference to research-intensive universities  
- Provincial government has already identified that differentiation is an area of growth in the higher education system |
<table>
<thead>
<tr>
<th>Criteria</th>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
</table>
| Ease of Implementation                       | 3     | - Similar systems have been started in other Canadian provinces (British Columbia and Alberta)  
- May need to engage a third party/external body to conduct some of the ways that quality can be measured  
- Already have the intra-institutional evaluation system |
| Score: 2                                      | 2     | - Ontario government currently uses KPI for targeted funding in PSE → would not be that big of a transition  
- However, KPIs are not effective towards promoting innovation  
- Lengthy process → change the whole formulation system  
- Decide on the targeted outcomes, then get all HEIs on board, then implement external body to monitor the degree to which each of these institutions are abiding by their achievement of these goals |
| Score: 4                                      | 4     | - Differentiation is already a part of the strategic mandate agreement → there is a framework in place for differentiation, so include an emphasis on collaboration should be feasible  
- Overall, HEIs would see that this would benefit individual institutions and the system as whole  
- Students would benefit from gaining access to the right set of skills and knowledge they need to be competitive in the knowledge-based economy |
| Achievement of Innovation Outcomes           | 3.5   | - Accountability in the system towards innovation outcomes  
- Quality is the first step in creating a sustainable, competitive and world-class education  
- Increase the attraction of students with strong talents (domestic and international)  
- Improvement of international comparability of education qualifications |
| Score: 4                                      | 4     | - Addresses the culture of the HEIs  
- Funds ties to desired outcomes → a prior commitment to innovation outcomes (HEIs)  
- Reduce homogenization in the system (institutional innovators are now promoted)  
- Help to propel the identification of innovation outcomes that are measurable and reportable |
| Score: 4                                      | 4     | - Differentiation will motivate the need for criteria to monitor sector-wide metrics: research capacity, research focus, research impact, international competitiveness  
- Promotes multi-sphere collaboration |
| Total (/20)                                   |       | 11                                                                  12.5                                                   14.5                                                                 |

Ranking for each criterion is based on a 5-point scale, with 5 being the highest score for a criterion
## B. Logical Framework: Policy Alternative 3

<table>
<thead>
<tr>
<th>Goal</th>
<th>Narrative Summary</th>
<th>Performance Indicators</th>
<th>Monitoring and Evaluation</th>
<th>Assumptions and risks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>To increase collaboration in differentiation amongst higher education institutions (HEIs) in Ontario, Canada within 7 years</td>
<td>Types of sectors in Ontario’s higher education system and number of collaborative programs between/within institutions/sectors</td>
<td>Number of inter-institutional paths and partnerships (e.g., college-college, college-university, etc.)</td>
<td>Conflicts between institutions regarding funding and financing preferences based on sector designation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Objective</th>
<th>Narrative Summary</th>
<th>Performance Indicators</th>
<th>Monitoring and Evaluation</th>
<th>Assumptions and risks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>To improve innovation in Ontario higher education within 7 years</td>
<td>Data from quality assurance systems about development of innovative skills for graduates</td>
<td>Employ the Collegiate Learning Assessment (USA) tool that surveys students and produces aggregated data for information on how the institutions is performing on innovative outcomes</td>
<td>Innovative outcomes can be measured and reliably captured</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Output</th>
<th>Narrative Summary</th>
<th>Performance Indicators</th>
<th>Monitoring and Evaluation</th>
<th>Assumptions and risks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ontario’s higher education will be multi-sectoral including research universities, regional universities, polytechnics, and colleges, where there is strong communication amongst the sectors</td>
<td>Number of institutions that fall into each of the desired higher education sectors for Ontario</td>
<td>Collect data on which institutions fall into the various sectors for HEIs (quality assurance system)</td>
<td>The majority, if not all, of HEIs in Ontario will fall into one of these sectors</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component Activities</th>
<th>Narrative Summary</th>
<th>Performance Indicators</th>
<th>Monitoring and Evaluation</th>
<th>Assumptions and risks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Assign current HEIs to determine which type of institution they are and promote the development of a mission that distinguishes it from other HEIs in Ontario</td>
<td>Number of HEI that participate in refining their mission and defining their intentions for PSE</td>
<td>Collect “mission statements” from HEIs</td>
<td>Mission statements will inform HEIs of which sector they belong in</td>
</tr>
</tbody>
</table>
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References


CAUT (Canadian Association of University Teachers) (2011), *CAUT Almanac of Post-secondary Education in Canada, 2011-2012*


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