

Engineers Canada Strategic Plan Strengths, weaknesses, opportunities and threats (SWOT) and strategic risks analysis 2022-2024

The Environmental scan for the 2022-2024 Engineers Canada Strategic Plan highlights major trends that are, or may impact regulators, Engineers Canada and the profession. The goal of this document is to leverage these trends to identify key strengths, weaknesses, opportunities and threats (SWOT), as well as to undertake a strategic risk analysis to inform the development of the 2022-2024 Engineers Canada Strategic Plan 2022-2024. The analysis is organized by the ten purposes of Engineers Canada:

1. Accrediting undergraduate engineering programs.
2. Facilitating and fostering working relationships between and among the regulators.
3. Providing services and tools that enable the assessment of engineering qualifications, foster excellence in engineering practice and regulation, and facilitate mobility of practitioners within Canada.
4. Offering national programs.
5. Advocating to the federal government.
6. Actively monitoring, researching, and advising on changes and advances that impact the Canadian regulatory environment and the engineering profession.
7. Managing risks and opportunities associated with mobility of work and practitioners internationally.
8. Fostering recognition of the value and contribution of the profession to society and sparking interest in the next generation of professionals.
9. Promoting diversity and inclusivity in the profession that reflects Canadian society.
10. Protecting any word(s), mark, design, slogan, or logo, or any literary, or other work, as the case may be, pertaining to the engineering profession or to its objects.

For each purpose, the following categories and definitions were used to frame the analysis:

- **Strengths and weaknesses** are internal, operational factors that might impact Engineers Canada’s ability to deliver on its operational or strategic priorities.
- **Opportunities and threats** are external factors that are not realized yet but that could be leveraged or derail Engineers Canada’s ability to meet its strategic priorities.
- **Risks:** are potentialities that if realized, become issues that should be addressed. Risk management is the process of identifying, categorizing, prioritizing, and planning for risks before they become issues.
- **Strategic risks** are external risks that might lead to a change in organizational priorities. Identifying and monitoring these risks is the responsibility of the Board, (who delegate their in-depth review to its Finance, Audit and Risk (FAR) Committee), and monitor strategic risks regularly. Strategic risks with a parenthetical reference refer to risks identified in Engineers Canada’s risk register. A legend at the end of this document describes each abbreviation.
- **Operational risks:** are external and internal risks that might impact the organization’s ability to achieve the current strategic plan. The Board provides oversight to the CEO who is responsible for managing these risks. These risks were not included in this document as they were outside the scope of the information required to inform the development of the 2022-2024 Engineers Canada Strategic Plan.

Appendix 1 contains a heat map of all strategic risks.

Purposes	Strengths	Weaknesses	Opportunities	Threats	Strategic Risks
Engineers Canada upholds the honour, integrity, and interests of the engineering profession by supporting consistent high standards in the regulation of engineering, encouraging the growth of the profession in Canada, and inspiring public confidence	- Well established, respected, self-regulation system across Canada. - Reduction in the duplication of effort and creates economies of scale for regulators.	- Lack of clear evidence of how engineering self-regulation protects public interest. - Lack of capacity to monitor all regulatory issues across the 12 jurisdictions and at the national level. - Limited resources.	- A common, national definition of engineering (including design, principles and public interest) for the whole assessment of applicants (competencies, CEAB and non-CEAB streams). - Many associations facing similar challenges and we can learn from each other.	- Provincial/territorial governments change engineering acts. - Provincial/territorial governments rethink approach to self-regulation. - Provincial/territorial governments adopt demand-side legislation that allows others to perform engineering. - Provincial/territorial government grants technologists the right to practice engineering technology. - Human rights court decision may dictate changes to requirements and/or processes. - Negative press coverage; negative social media comments. - Lack of willingness to compromise among regulators.	- Future of engineering profession is challenged by threats to self-regulation. - A lack of vision, direction or strategy (RR 1) - Changing demographic of profession affects viability of current structure of federation.
1. Accrediting undergraduate engineering programs.	- Established and respected accreditation system. - Established network of international partners and HEIs. - Strong network of volunteers. - Involved parties share common goal of high-quality engineering education in Canada for the profession.	- Definition of Accreditation Units (AUs) makes it harder for higher education institutions (HEIs) to offer online courses, strike international partnerships, and creates a discrepancy between of CEAB and non-CEAB requirements. - Several levels of unclear requirements (criteria, interpretative statements, volunteers' interpretation of both). - CEAB has a broad mandate that is mostly delivered by a limited number of volunteers, who cannot be held accountable to the same level as if they were staff. - Consultation process is lengthy and does not clearly demonstrate how received feedback is incorporated in decision-making.	Increased confidence in international institution programs (substantial equivalency and Washington Accord) might allow regulators to reduce academic assessment requirements for international candidates.	- Dissatisfaction of HEIs with accreditation. - Dissatisfaction of regulators with accreditation.	HEI or regulator withdraws from the accreditation system (RR26)
2. Facilitating and fostering working relationships between and among the regulators.	Established committees that discuss a variety of issues that cover most aspect of self-regulation.	Lack of buy-in from regulators to collaborate for common, national interest.	Regulators see benefits of working together on common issues.	- Dissatisfaction of the regulators. - Lack of engagement of regulators.	Holism of the federation. (RR 35)

Purposes	Strengths	Weaknesses	Opportunities	Threats	Strategic Risks
	- Valued meetings that foster cooperation and sharing of best practice among regulator staff. - Helps Engineers Canada gain knowledge and foster a national perspective on issues.	Smaller jurisdictions have the same staff participating on several committees (between this and QB), overextending resources.			
3. Providing services and tools that enable the assessment of engineering qualifications, foster excellence in engineering practice and regulation, and facilitate mobility of practitioners within Canada.	- Supports the adoption of similar tools and requirements across jurisdictions, strengthening the legal defensibility of the system. - Supports smaller regulators and levels the playing field. - Strong network of volunteers. - Produces high quality documents.	- Duplication of topics between officials groups and CEQB, and between CEQB's guidelines and syllabi and regulators' guidelines and syllabi. - CEQB has broad mandate that is mostly delivered by a limited number of volunteers. - Constant validation with various committees with everchanging membership, which causes consultation fatigue (especially for smaller jurisdictions) and delays. - Reliance on regulators staff's expertise to develop products.	Regulators see benefits of working together on common issues.	Regulators feel work is not aligned with their imperatives.	Lack of national position as to why non-CEAB applicants are assessed differently across the country.
4. Offering national programs.	A comprehensive suite of benefits that might not otherwise be available to regulators or individual registrants.	Limited financial resources.	Potential opportunities for non-participating regulators to benefit from existing programs.	- Decreasing desire to see Engineers Canada participate in affinity arrangements. - Desire of some regulators to pursue their own arrangements. - Changing demographics of the profession may affect Engineers Canada and regulator funding levels.	Stability of long-term funding of Engineers Canada.
5. Advocating to the federal government.	- Recognized as the national voice of the regulators and the profession. - Engineers Canada has dual regulatory and advocacy functions. - A well-focused Public Affairs Advisory Committee	- Limited financial resources. - Progress in this area very difficult to measure.	- Government focus on issues may align with established national positions. - New government programs may present funding opportunities. - New government policies may warrant new national positions being developed. - Legislation introduced with demand-side engineering opportunities.	Other organizations competing for the federal government's attention on similar issues or taking contradictory stances on similar issues.	Confusion at the national level as to who represents the profession.
6. Actively monitoring, researching, and advising on changes and advances that impact the Canadian regulatory environment and the engineering profession.	Supports smaller regulators and levels the playing field.	- Uneven acceptance of the definition of "advancing the profession." - Lack of knowledge about emerging engineering disciplines. - Limited resources.	Many thought-leaders in regulatory affairs, education, diversity and inclusion, and outreach across the country and internationally who could be used as a resource.	Lack of consensus on research needs.	

Purposes	Strengths	Weaknesses	Opportunities	Threats	Strategic Risks
			Other regulatory associations researching complimentary areas.		
7. Managing risks and opportunities associated with mobility of work and practitioners internationally.	- Established relationships with countries and regulators. - Solid, defensible international agreements and accords.	- Lack of regulators' full understanding or confidence by regulators on how Washington Accord (WA) and Mutual Recognition Agreements (MRAs) accreditation and licensure/registration systems compare to Canada's. - Lack of recognition of the Engineers Canada national mobility register by other countries. - Lack of national approach to the offshoring of engineering work, or non-Canadian firms designing engineering products in other countries that are operationalized in Canada.	- Regulators see value in signing on to MRAs and international agreements and accords. - Demand for alternatives to the Canadian experience requirement. - HEIs programs to offer programs to help newcomers transition into the profession.	Regulators refusal to recognize international agreements and accords.	Loss of signatory status to international agreements and accords.
8. Fostering recognition of the value and contribution of the profession to society and sparking interest in the next generation of professionals.	- Well established, long standing brand. - Broad network that includes 12 jurisdictions, 290 000 engineering license holders, HEIs, the Canadian Federation of Engineering Students (CFES) and others.	- Lack of direct channels to engineers and industry. - Lack of knowledge on how to communicate effectively to younger generations. - Limited uptake of existing programs (e.g. Future City) - Limited resources available to promote the profession. - Impact of existing programs difficult to assess. - Limited use of potential strategic partners.	- Many programs are presently available; challenge is partnering with ones that will provide the greatest impact for Engineers Canada. - Micro targeting through social media a largely untapped promotional opportunity.	- Lack of knowledge, by students and their advisors, of what engineering really is. - Plethora of STEM programs with differing objectives.	Difficulty assessing the impact of outreach activities.
9. Promoting diversity and inclusivity in the profession that reflects Canadian society.	- Strong network with common goal of increasing female representation in engineering licensure. - Existing network to provide advice on Indigenous peoples' representation in engineering licensure.	- Resistance from individuals that do not think intervention is needed to increase female representation. - Lack of core Indigenous representation that can act as a springboard to recruit and retain them. - Lack of control over some potential solutions to increase diversity, such as elementary and secondary school activities and HEI recruitment and retention measures.	- All regulators and HEIs are committed to 30 by 30 goal. - Set up network to support inclusion of other diversity groups than women and Indigenous peoples.	- Stagnation of female representation. - Stagnation of Indigenous representation. - Competing diversity priorities lead to a lack of focus on Engineers Canada's chosen target areas. - Focus on Indigenous people in engineering has not been embraced by all regulators.	30 by 30 goal will not be met.

Purposes	Strengths	Weaknesses	Opportunities	Threats	Strategic Risks
		Proximity of targets diminish urgency of goals.			
10. Protecting any word(s), mark, design, slogan, or logo, or any literary, or other work, as the case may be, pertaining to the engineering profession or to its objects.	Successful protection of the engineering brand.	Limited resources.		- Adverse court decisions. - Offending trademark slips through the cracks	

The following table presents current strategic risks in the register, and potential strategic risks that are identified in the table above. In the left column, red risks are the risks currently showing in the Register, while others do not.

Current strategic risks

- RR1: A lack of vision, direction or strategy
- RR26: Accreditation Process
- RR35: Holism of the federation

Identified strategic risks

- Lack of national position as to why non-CEAB applicants are assessed differently across the country.
- Stability of long-term funding of Engineers Canada.
- Changing Demographic of profession affects viability of current structure of federation
- Future of engineering profession is challenged by threats to self-regulation.
- Loss of signatory status to international agreements and accords
- Difficulty assessing the impact of outreach activities.
- 30/30 targets will not be met.
- Confusion at the national level as to who represents the profession.

Appendix 1: Heat map of strategic risks

The following heat map is a visual representation of the current and identified strategic risks presented in the table above.

