Improving support for graduate studies and research to stimulate Canada's innovation and economic competitiveness

Brief from École de technologie supérieure (ÉTS)

Submitted to the Standing Committee on Science and Research

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Background

École de technologie supérieure (ÉTS) is committed to working with the government on all initiatives aimed at stimulating Canadian innovation and economic growth, to enable Canada to maintain its momentum and success on the international stage. In a context of instability and major challenges for the economy, the environment, security and health, it has become imperative to rely on science and research to find the answers to complex issues. ÉTS is a key player in the sustainable economy and in technological innovation. It is renowned for its ability to promote new businesses and to develop close collaborations with industry when it comes to research, training and entrepreneurship. With our unique cooperative model and our special connection with industry, we strive to be on the front lines of Canadian scientific research and innovation, but to achieve that goal, we need significantly more government support.

We believe that our recommendations will contribute to strengthening Canada's innovation sector while benefiting Canada's economy and society.

Recommendations

Recommendation 1: **Increase the value of Canada's graduate scholarships and post-doctoral fellowships by 50% and index them to inflation**. The value of scholarships has practically stagnated over the past 20 years while the cost of living has increased tremendously. There is an urgent need to substantially increase the value of scholarships so that we can attract more talent to careers in research.

Recommendation 2: **Double the number of graduate scholarships**. In a hot labour market, retaining the best talent in research is a major challenge. In engineering in particular, new undergraduate degree holders are being offered such high salaries by industry that it is critical for universities to offer acceptable financial conditions to retain the most talented among them for a career in research.

Recommendation 3: **Extend Canada's graduate scholarships at the master's level from 12 months to 24 months and at the doctoral level from 36 months to 48 months**, to reflect the duration of most master's and doctoral programs. This is a common-sense measure that would simply ensure that the scholarship lasts as long as the actual duration of the programs they support.

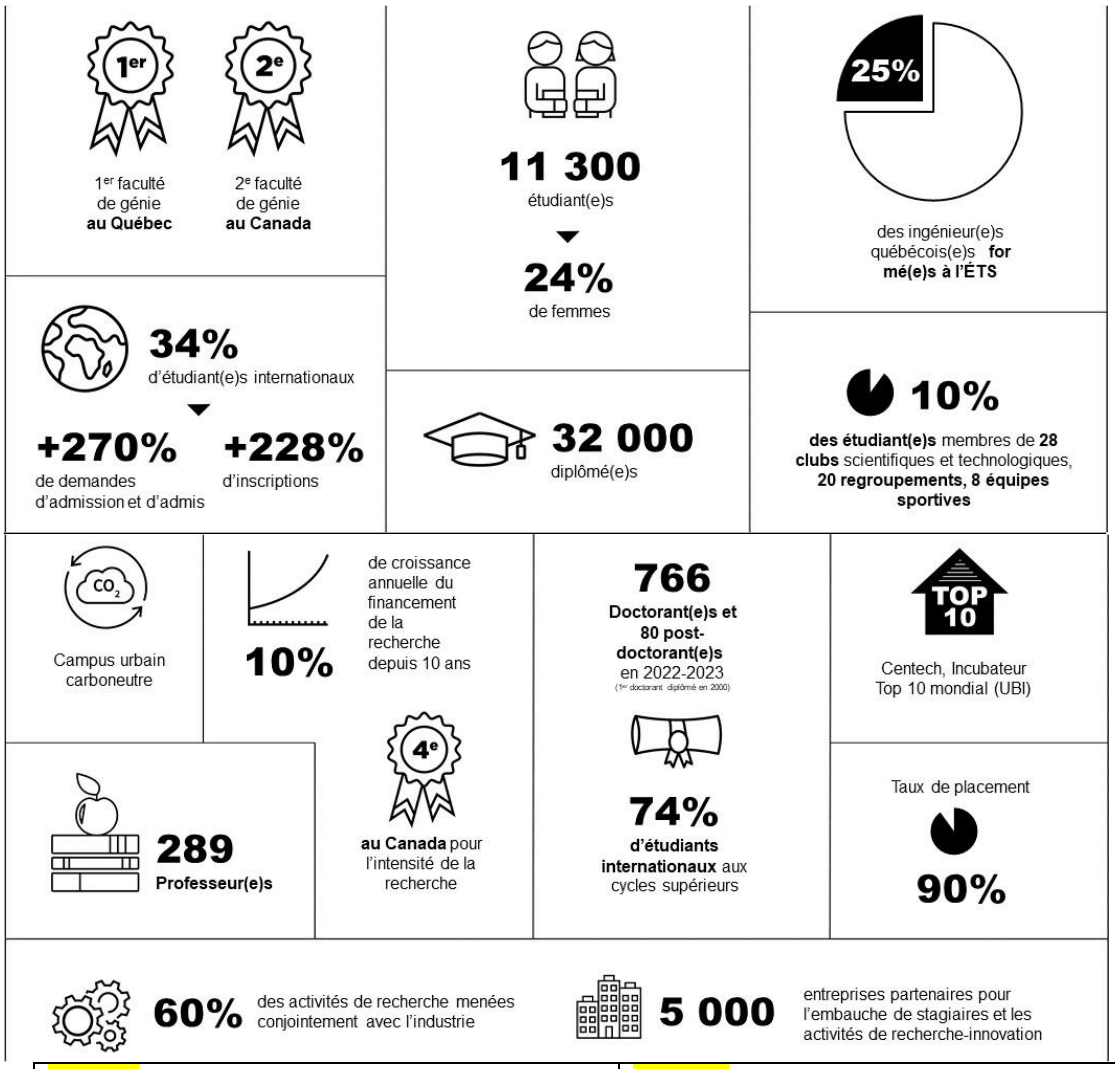
Recommendation 4: **Increase the granting agencies' total base budget by 10% per year for five years** to adequately support their research programs and ensure that more resources are made available to researchers and graduate and post-doctoral students. Canada lags far behind most G20 countries when it comes to funding research, so it is critical that major efforts are made to return Canada to its rightful place as a leader in scientific research and innovation.

About ÉTS

Founded in 1974, École de technologie supérieure is known for its commitment to applied research and technological innovation. We are a top school for engineers in Quebec, training more than 25% of Quebec's future engineers and ranking second in Canada in terms of engineering graduates. ÉTS offers more than 66 graduate programs, including master's, doctorates, and post doctorates, that play an essential role in research and innovation in Canada. These programs, which attract more than 3,000 students from across Canada and around the world, contribute to training the highly qualified personnel needed to maintain a strong, competitive Canadian economy.

ÉTS trains the next generation of highly qualified personnel through research programs and projects rooted in the needs of industry and society. From the first internships at the undergraduate level to the graduate programs, our students are exposed to the realities of the industry. More than 60% of the research projects are conducted in close collaboration with industry partners, and the majority lead to innovations that benefit society, in fields like green technologies, robotics, advanced manufacturing, artificial intelligence, and security. These innovations are being applied in several key sectors of society that ÉTS has chosen to focus on, namely health, climate change adaptation, security and accessibility, and entrepreneurship. To continue its mission, ÉTS, like many Canadian universities, needs increased financial support from the government.

ÉTS in brief



French	*English*
1er faculté de génie **au Québec**	1st faculty of engineering **in Quebec**
2e faculté de génie **au Canada**	2nd faculty of engineering **in Canada**
11 300 étudiant(e)s	**11,300** students
24% de femmes	**24%** women
25% des ingénieur(e)s québécois(e)s **formé(e)s à l'ÉTS**	25% of Quebec engineers **studied at ÉTS**
34% d'étudiant(e)s internationaux	**34%** international students
+270% de demandes d'admission et d'admis	**+270%** in applications and acceptances
+228% d'inscriptions	**+228%** in registrations
32 000 diplomé(e)s	**32,000** graduates

10% des étudiant(e)s membres de **28 clubs** scientifiques et technologiques, **20 regroupements, 8 équipes sportives**	**10% of students** belong to embres **28 science and technology clubs**, **20 groups, 8 sports teams**
Campus urbain carboneutre	Carbon-neutral urban campus
10% de croissance annuelle du financement de la recherche depuis 10 ans	**10%** annual growth in research funding over the past 10 years
4e au Canada pour l'intensité de la recherche	**4th in Canada** in research intensity
289 Professeur(e)s	**289 Professors**
766 Doctorant(e)s et 80 post-doctorant(e)s en 2022-2023 (1er doctorant diplômé en 2000)	**766 PhD students and 80 post-doctoral fellows** in 2022-2023 (1st PhD awarded in 2000)
75% d'étudiants internationaux aux cycles supérieurs	**75% international graduate students**
Top 10: Centech, Incubateur Top 10 mondial (UBI)	Top 10: Centech, Incubator World Top 10 (UBI)
Taux de placement: **90%**	Placement rate: **90%**
60% des activités de recherche meneés conjointement avec l'industrie	**60%** of research activities carried out jointly with industry
5 000 entreprises partenaires pour l'embauche de stagiaires et les activités de recherche-innovation	**5,000** partner companies hiring interns and collaborating on research-innovation activities

Need to increase financial support

ÉTS strongly supports the recommendation to increase the value of Canadian graduate scholarships and post-doctoral fellowships by 50% and to index them to inflation. Over the past few years, the cost of living has increased by more than 30%, while the value of scholarships has practically stagnated. This situation puts considerable financial pressure on graduate students, especially those who are in a relationship or who have young, dependent children, which is not uncommon. It is vital that scholarships provide enough money to allow them to focus fully on their studies and their research without having to worry about their financial needs.

Access to competitive scholarships is essential for attracting and retaining the most talented candidates at both the national and international levels. ÉTS, like many other higher education institutions in Canada, accepts a significant percentage of international applicants to its graduate programs (more than 75%). These students bring cultural diversity and unique perspectives to Canadian research, but in order to recruit them, Canada often has to compete with other countries that offer attractive scholarships. Accordingly, it is imperative that the Canadian government invest more in graduate scholarships to attract top Canadian or international talent.

Recommendation 1

Increase the value of Canadian graduate scholarships and post-graduate fellowships by 50% and index them to inflation.

Increasing the number of scholarships

Federal grants for research projects are barely meeting demand, which puts Canada at risk of losing its best talent to countries that offer better financial conditions.[1] By increasing the number of scholarships, we could target and encourage the best undergraduate students to pursue graduate studies in Canada. This will help us educate high-calibre researchers here in Canada who will be willing to contribute their expertise to Canadian society and Canada's economy, whether through academic research or by creating businesses that are highly competitive internationally. It is worth noting that, out of the 750 students who are eligible for graduate studies, only 15 (2%) currently have NSERC scholarships at ÉTS. We think that number is far too low and that too much talent is being lost due to inadequate funding.

Recommendation 2

Double the number of graduate scholarships.

[1] https://www.ledevoir.com/societe/science/789714/sciences-une-fuite-de-cerveaux-guette-la-recherche-canadienne

Extending the duration of scholarships

ÉTS also supports the idea of extending the duration of graduate scholarships in Canada from 12 months to 24 months at the master's level and from 36 months to 48 months at the doctoral level, to reflect the duration of most master's and doctorate programs. Currently, scholarships do not last long enough, so students are often forced to find other sources of funding during their studies, creating financial and mental pressure for them. Graduate and post-doctoral studies are a critical time for the development of their future career, and it is essential for them to be able to devote their full attention to their research without being distracted by financial worries.

Extending the duration of scholarships will also provide more support to students undertaking the complex, long-term research that is often needed to study major scientific and technological issues. Longer scholarships will provide students with the necessary financial stability to further their expertise and obtain significant results in their areas of research. This will contribute to enhancing the quality of research done in Canada and making Canada more competitive internationally.

Recommendation 3

Extend the duration of Canada's graduate scholarships from 12 months to 24 months at the master's level and from 36 months to 48 months at the doctoral level.

Increasing investment in the granting agencies

To enhance research and innovation in Canada, the granting agencies' total base budget must be increased by 10% per year for five years. This measure will help adequately support their research programs and provide more resources to graduate and post-doctoral researchers. Canada is lagging behind on investment in research and innovation and needs to catch up with other countries such as the United States and the United Kingdom. Over the past 20 years, Canada has reduced its research funding by 15%, lowering its share of GDP from 1.9% to 1.6%. Canada ranked 8th in the world in 2011 for the number of researchers per 1,000 people, but it dropped to 18th in 2019. One critical step it must take to catch up is to support our researchers so that they can achieve their full potential and contribute to this country's excellence in research and innovation.

Increased funding for the granting agencies is also essential for encouraging basic research and exploratory research, which are the foundation of scientific innovation and progress. These types of research are often risky and require long-term support, but they are also crucial for advancing knowledge and opening new avenues of technological development. By investing more in these areas, the Canadian government will be fostering major discoveries that will have a lasting impact on Canadian society and the Canadian economy.

Recommendation 4

Increase the granting agencies' total base budget by 10% per year for five years.

Recruitment and training of very high-calibre researchers

ÉTS believes in the importance of recruiting the most talented undergraduate students and offering them the opportunity to develop their full potential in graduate school. This creates a continuum, starting with the first research internships as an undergraduate student, all the way to obtaining a doctorate for those who choose to persevere to the very end. This process is intended to develop unique expertise profiles that will position Canada very favourably in key sectors of innovation and will encourage more Canadian students to choose careers in research. Our goal is to train very high-calibre researchers who will be an asset to Canada both at home and abroad.

Recruiting the top bachelor's students is all the more important now that the competition for the best minds has gone global. Canada has to compete with other countries to attract talented international candidates and entice them to pursue their graduate studies in Canada and to stay here. International students bring cultural diversity and unique perspectives that enrich Canadian research and enhance international collaboration. To attract and retain these candidates, the government must not only offer competitive scholarships, but also streamline the immigration process and provide a welcoming and inclusive environment for international students.

Conclusion

In conclusion, École de technologie supérieure is strongly in favour of making up the funding shortfall and reinvesting in research and in its infrastructure, and obviously, enhancing support for graduate studies to stimulate Canadian innovation and economic competitiveness. We are open to collaborating with the committee and the government on any initiative to make Canadian innovation more competitive and to meet the needs of Canadian society. By training top-calibre researchers, Canada will be able to prosper internationally by advancing academic research and promoting the creation of highly competitive businesses. ÉTS is committed to actively working to strengthen the future of research and innovation in Canada and meeting the biggest challenges of the 21st century.

We are certain that the recommendations in this brief will help the government take a step in the right direction in continuing to make Canada a major player in research and innovation worldwide.