

LEVERAGING UNIVERSITY- GENERATED INTELLECTUAL PROPERTY TO BENEFIT CANADIAN INDUSTRY

EXPLORING NEW ROLES FOR UNIVERSITIES IN CONTRIBUTING TO AN IP AND INNOVATION STRATEGY

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Key Points

- Intellectual property (IP) is the currency of value in the innovation economy (with intangible assets representing five-sixths of the value of the S&P 500 Index). It is thus imperative that Canadian policy makers explore how best to support domestic businesses in overcoming IP challenges they may have, and how to support commercialization of IP generated in Canadian universities.
- Universities are a rich source of IP that can be commercialized and leveraged to support industry's activities and challenges.
- Existing commercialization activities engaged in by universities are suboptimal and specific opportunities that may help Canadian companies address their IP challenges have been overlooked.
- Alternative approaches that replace and/or augment existing approaches to commercialization of university-generated IP could be adopted to better support industry's IP challenges and activities.

The Existing IP Landscape and Associated Issues

Canada continues to perform comparatively well in terms of public research and development (R&D) spending, ranking eighth out of 16 peer countries,¹ with more than \$12 billion being spent by Canadian universities and teaching hospitals for research in various fields. Canada also produces scientific research that is well respected around the world. It is not as effective as other countries, however, in ensuring that this research and its associated IP can be successfully commercialized.

Research conducted by CIGI's International Law Research Program (ILRP) concludes that university-generated IP is not optimally leveraged to support Canadian companies.² The number of spinoff companies and revenues generated by commercialization activities is insignificant when compared to the public investment in universities for R&D. In addition, it appears that specific opportunities have been overlooked that could help Canadian companies innovate better and overcome challenges.

The findings result from a literature review of commercialization activities at universities within and outside Canada, as well as through a series of interviews conducted with various stakeholders and agents in the commercialization process. Technology transfer officers (TTOs) at universities, business development professionals at campus- and community-based incubators and accelerators, venture capitalists, entrepreneurs and members of the legal

1 Conference Board of Canada, *How Canada Performs: A Report Card on Canada* (Ottawa: Conference Board of Canada, 2015), online: <www.conferenceboard.ca/hcp/provincial/innovation/patents.aspx> [*How Canada Performs*].

2 See Karima Bawa, "Driving Innovation: Leveraging University-Generated Intellectual Property," CIGI Paper [forthcoming in 2016]. See also Myra Tawfik, "Addressing a Gap in Canada's Global Innovation Strategy: Capacity Building in IP Literacy, IP Strategy and Access to Affordable IP Legal Services", CIGI Special Report, September 2016.

profession in Alberta, British Columbia, Ontario and Quebec were interviewed for the study.

The findings and recommendations are also the result of the principal investigator's personal knowledge of the IP issues facing Canadian technology companies as they attempt to scale and expand into international markets, and the challenges she encountered in managing an extensive international IP portfolio, including overseeing global IP litigation.

Canadian universities currently support commercialization activities through:

- Creating companies that are centred around university-generated IP, commonly referred to as “spinoffs.” The number of spinoffs and their scale tend to be limited.
- Collaboration with industry in the form of R&D projects. While often effective to compensate for the lack of business R&D spending in Canada,³ such collaborations are often fraught with challenges in the contracting process.
- Licensing activities. These tend to be limited to licensing-specific technologies and/or IP for a licensing fee. This approach may not be optimal for the following reasons: the upfront licensing fees are often unaffordable for start-ups; it does not help Canadian companies address the issues they experience as a result of their suboptimal IP portfolios; and licensing arrangements without additional support do not generally lead to new innovation.⁴

An overarching issue that undermines the impact of universities on Canada's innovation performance is the lack of a clear, agreed-upon articulation of the role that universities should play, beyond training in the STEM (science, technology, engineering and math) disciplines, in our innovation economy. Many within the university community state that their job is not to support innovation and argue that innovation is the responsibility of industry. Others say that universities are simply not designed to support innovation. Couple these differing views with confusion at the public policy level between a Science and Technology Strategy (S&T Strategy) and an IP & Innovation

3 *How Canada Performs*, *supra* note 1. The Organisation for Economic Co-operation and Development (OECD) ranked Canada twenty-second among OECD countries for business investment on R&D. Canada was ranked 15 out of 16 peer countries (Australia, Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Japan, the Netherlands, Norway, Sweden, Switzerland, the United Kingdom and the United States) in terms of private R&D spending across all industries.

4 A recent study shows that when companies took a patent license from a university as a result of a licensing request or lawsuit, the license typically did not include technology transfer, transfer of personnel or consulting arrangements or joint ventures, and the license did not result in new innovations for the licensee. See Robin Feldman & Mark A Lemley, “Do Patent Licensing Demands Mean Innovation?” (2015) 101 *Iowa LRev*; Stanford Law and Economics Olin Working Paper No 473; Stanford Public Law Working Paper No 2565292; UC Hastings Research Paper No 135.

Strategy, and suboptimal outcomes are essentially guaranteed. An IP & Innovation Strategy (distinct from an S&T Strategy) should address whether and how universities can provide better support to industry's challenges in an innovation economy. An IP & Innovation Strategy that perpetuates the ambiguous role of universities, or fails to equip universities with the capacity to take on new roles of partnership with industry, will inevitably undermine the impact universities can have in contributing to an innovation economy.

Recommendations

At a policy level, if the goal is to maximize the impact that universities have on the innovation ecosystem, then policy makers should encourage universities to adopt alternative approaches that replace and/or augment existing approaches to commercialization. These approaches should be designed to better support industry's challenges and activities, and could include the following:

- Making the engagement between universities and industry more efficient by having universities use standardized, balanced and flexible agreements for licensing and for collaboration activities. If the contracting process is fair and efficient, then industry may more frequently engage universities to undertake R&D for them, since businesses in Canada often do not have the staff or facilities required to undertake advanced R&D.
- Providing better access to universities' research outputs, including the associated IP. This could be accomplished through universities creating standardized, user-friendly databases of research outputs, including details of innovations, the stage of patent or other IP filing processes, and a description of the development stage of the innovation. These sorts of databases would allow companies to search out technologies or IP that may support their commercialization activities and would also facilitate the activities of entrepreneurs to search out university technologies to spin out of the university setting. In addition, these types of databases could be used to find “prior art” that could help companies to defend against third-party assertions.
- Creating a university-based organization that would assume a role akin to a defensive patent aggregator (following the model that is used in the private sector⁵) by aggregating patents and making them available to members for

5 A prominent defensive patent aggregation company is RPX Corporation, which is a holding company that protects its members against patent trolls by acquiring patents on the market. RPX members have a license to these patents. The patents can also be made available for use by a member in a countersuit against a non-member who has initiated litigation against that member.

defensive purposes. For example, patents that are otherwise not being commercially exploited could be aggregated from various universities and made available to Canadian companies that become members of the university-based aggregator. This would enable these companies to use the patents for countersuit purposes, should that member be sued by a foreign operating company. The model, once tested, might even expand to allow member companies, under certain conditions, to be able to license patents for offensive purposes or to assert them against foreign operators where the activities of these operators are having a significant detrimental impact on the operations of the member company.

- Contributing university-generated patents to an independent entity, drawing on the experience with sovereign patent funds in France, Japan, South Korea and Taiwan, using public funds to support the growth of innovation firms. Such an appropriately structured Canadian entity could help companies address their IP challenges.
- Having universities engage with intermediaries or industry players to monetize patents and technology in a way that would not disadvantage Canadian companies or taxpayers.
- Offering, on a royalty-free basis, some university-generated IP — especially IP that is uncertain, underdeveloped or that they have no intention of monetizing. Another approach might be for universities to offer a complete deferral of royalties unless and until the technology and/or IP can be commercialized. They could do this on their own or through partnerships with other universities where complementary technologies are pooled together. This approach would offer the benefit of potentially spurring commercialization, as well as facilitating stronger relationships between universities and industry. It could easily augment existing programs at universities, since the level of effort required on the part of TTOs under such a regime would be fairly minimal.⁶

These various approaches are examples of the types of measures that universities could be encouraged to adopt to improve the innovation outcomes arising from the university-industry relationship. As noted, however, the fundamental policy question to be addressed at the outset is the role that universities should play in Canada's innovation ecosystem.

⁶ More Canadian universities could join an international collective of universities called Easy Access IP, which currently enjoys participation from two universities in Canada (the University of Ottawa and École de technologie supérieure), as well as universities in Australia, China, Denmark, Germany, Sweden, Switzerland and the United Kingdom. Easy Access IP is committed to transferring as much IP into commercial use as possible by making it available for free, thus maximizing the amount of freely disseminated knowledge. Alternatively, Canadian universities could collectively or independently adopt the approach taken by Easy Access IP.

Conclusion

Canada continues to perform comparatively well in terms of public R&D spending by Canadian universities and teaching hospitals for producing world-class scientific research. However, it is not particularly effective at ensuring that this research and associated IP are successfully commercialized. The current strategies and outputs also fail to help Canadian companies to innovate, scale and compete globally. Given the level of public spending associated with supporting universities, and given the fact that Canadian universities are strong at R&D, it is vital that Canadian policy makers take measures to optimize the potential commercial impact of scientific research and the resulting technology and IP.

Canadian policy makers should explore alternative avenues for using publicly funded R&D, technology and IP to help Canadian companies overcome their shortcomings in terms of their own R&D efforts and IP portfolios. Canada's global innovation performance may depend on this.

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The International Law Research Program (ILRP) at CIGI is an integrated multidisciplinary research program that provides leading academics, government and private sector legal experts, as well as students from Canada and abroad, with the opportunity to contribute to advancements in international law.

The ILRP strives to be the world's leading international law research program, with recognized impact on how international law is brought to bear on significant global issues. The program's mission is to connect knowledge, policy and practice to build the international law framework — the globalized rule of law — to support international governance of the future. Its founding belief is that better international governance, including a strengthened international law framework, can improve the lives of people everywhere, increase prosperity, ensure global sustainability, address inequality, safeguard human rights and promote a more secure world.

The ILRP focuses on the areas of international law that are most important to global innovation, prosperity and sustainability: international economic law, international intellectual property law and international environmental law.

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