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Transforming Ideas into Opportunities

AUTM 2019 Canadian Region Director's Forum Report

Executive Summary

On June 26, 2019, thirty-six senior technology transfer and partnership professionals representing Canadian universities, colleges, research hospitals, and government agencies met for a full day of discussions centered around the common challenges facing the profession and idea gathering for improvements going forward.

The morning session focused on the value proposition of technology transfer (TT) activities and related metrics, while the afternoon session focused on our role within the broader commercialization ecosystem, including existing and needed supports. Throughout this document we use the term "TTO" to refer to both university/hospital technology transfer offices, and college/polytechnic applied research offices.

Several broad themes and key ideas emerged, including:

1. **The role of the TTO is expanding.** The TT profession has changed dramatically over the past two decades, and the supports required from TTOs have increased in kind. University TTOs are no longer simply the office that files patents to license technology to existing companies. All TTOs now support entrepreneurship education and the creation of start-up companies; act as brand ambassadors for their institutions; provide industry liaison support to recruit sponsored research partnerships; assist with grant applications and knowledge mobilization; and contribute to local economic development.

2. **ROI disconnects for stakeholders.** As the importance of entrepreneurship, sponsored research, and local economic development has increased, the importance of royalty revenues from license agreements has correspondingly decreased, creating a disconnect for some stakeholders with respect to the visible return on investment provided by TTOs.

3. **Increasing demands with declining supports.** While the demands on TTOs are changing and increasing, many offices are feeling a concurrent decline in the supports from royalty revenues, governments, and institutions that previously were provided to deliver on these demands.

4. **Metrics needed to accurately reflect ROI.** The metrics kept by most TTOs are insufficient on their own to illustrate their current role, and the community must consider additional metrics to track performance across this expanded mandate and provide a closer reflection of return on investment to institutions, governments, and other stakeholders.

This report is provided as a record of proceedings of a one-day brainstorming session. It should not be interpreted as specific, collective recommendations of the meeting participants or of AUTM.

Background

On June 26, 2019, the 2019 AUTM Canadian Region Director's Forum (CRDF) was held in Toronto. This meeting is a senior-level workshop attended primarily by Director-level or senior professionals in technology transfer and partnership offices at Canadian universities, colleges, and research hospitals, as well as participants from relevant government agencies. The Director's Forum typically focuses on broad issues of strategy and policy that are of interest to senior administrators. Thirty-six individuals spanning nine Canadian provinces attended the 2019 Forum.

The technology transfer community has been the object of significant scrutiny in recent years, being accused in the national press of poor commercialization results, transferring intellectual property (IP) outside the country to the detriment of Canada, and of being bureaucratic obstacles to would-be partners and investors.

While a more nuanced view of these issues would present a very different story, it is a reality that most Canadian commercialization offices do not generate royalty or other revenues that exceed their costs of payroll and IP protection – or if they do so, it generally is not sustained once a rare home-run patent expires. It should be noted that this is not a Canadian issue; the same can be said for of all but a handful of US and other international technology transfer offices.

Given this reality, most Canadian technology transfer offices and applied research offices (collectively, TTOs) cannot hope to justify their existence solely as net institutional revenue-generating entities. No participants of the 2019 Forum felt that royalty revenues should be the primary measure of success, and some argued it should not be reported at all, despite the attention paid to this metric in many analyses of technology transfer impact. So, if revenue generation is not the core deliverable, what are technology transfer offices doing that really matters? Finding common answers to that question was the catalyst for the CRDF discussion.

The goal of the 2019 CRDF was to create a discussion document on these issues that could be shared with senior university/college/hospital administrators and other interested parties; not as absolute truth, but as the collected reflections of many of Canada's most experienced partnership and commercialization professionals as of the date of this discussion. It is hoped that this discussion paper helps to explain our views of our own profession and provides context on how to encapsulate (and measure) our value to institutions of higher education in Canada.
The day's discussions were broken into two segments:

1. Defining and Measuring Our Value
2. Our Role in the Research and Commercialization Ecosystem

The following pages summarize the discussions that took place, with focus on the value proposition that we believe we provide.

The 2019 CRDF co-chairs were Steve De Brabandere (University of Guelph) and Mike Szarka (University of Waterloo). Other members of the organizing committee included Lisa Cechetto (Western University, Lawson Health Research Institute), John Wilson (Innovate Calgary), Janet Scholz (Xilix Corp.), Ben Rogers (Seneca College), and Jennifer Fraser (University of Toronto).

Defining and Measuring Our Value

The value of the Business Development and Technology Transfer (TT) function of a post-secondary institution goes well beyond licensing revenue. In fact, technology transfer is an important function that enhances an institution's key missions; education and research. In defining our value proposition, four key themes were identified:

1. Economic Development and Brand
2. Education and Attraction
3. Research Collaboration/Industry Partnerships
4. Enhancing the Culture of Innovation

Economic Development and Brand

An institution's reputation for excellence in innovation attracts investment to its region, bringing opportunities for research collaborations that address real world problems. The innovation rankings our institutions receive are in part based on the number of patents co-owned with industry partners. Ultimately, research partners will want access to the IP created during the course of the collaboration and the TTO is in position to codify those rights, whether they be exclusive or non-exclusive. Failure to do so affects the institution's reputation for working cohesively with industry, potentially diminishing the attractive effect of an anchor institution on the local economy.

TTOs are also instrumental in creating or assisting in the creation of high growth start-ups. Both start-up creation and industry collaboration are training platforms for highly qualified personnel (HQP) whose future works will boost institutional reputations, strengthen industry relations and add value to local economies.

The following are metrics the group felt could help capture the significance of the impact created through economic development and branding. It should be noted that, for the purposes of this discussion, the AUTM Survey metrics (e.g. patent filings, royalties, start-ups, etc.) would continue to be something offices measure (at least for the foreseeable future). It was also noted that both quantitative and qualitative metrics were needed to successfully capture the breadth and depth of activities.

a. Start-ups created and based on research:
   i. Relative to total research dollars
   ii. Per invention disclosure
   iii. Number of start-ups still operating at some point in future (i.e. 3 years, 5 years)

b. Research collaborations:
   i. Number of collaborations and total dollar value
   ii. Partner location (local, national, international)
   iii. Funding sources (industry, not-for-profit, government contracts, granting agencies, etc.)
   iv. Repeat and new industry clients

c. Third-party stories (press releases, etc.)

d. Jobs: The participants noted the difficulty in capturing meaningful data on jobs, i.e. companies often unmotivated/unwilling to disclose. Attribution may also be suspect as many start-ups go through different touch points in the ecosystem with all groups wanting to take credit.

e. Products on market resulting from collaborative R&D

f. Number of IP disclosures/number of IP disclosures accepted for active management (indicator of quality)

g. Client satisfaction: Internal (researchers) and external (i.e. client surveys such as those done by Stanford)

Education and Attraction

The ultimate goal of any post-secondary institution is to educate, whether through research or academic programming. TTOs play important roles creating an innovation ecosystem that can be beneficial in recruiting both students and faculty to post-secondary institutions.

To remain competitive with other institutions, post-secondary institutions must provide enhanced student experiences, such as opportunities for experiential learning, research at the undergraduate level, and services to assist with innovation and entrepreneurship. Each of these areas are supported by TTOs, including Applied Research (AR) offices, at universities and colleges.

The provision of TT services at universities and AR services at colleges and polytechnics provide different types of value to these institutions; yet in both cases, and whether faculty have an academic background or an industry background, providing faculty with alternative means to apply their skills and maintain industry currency through applied research or commercialization can assist with attracting and retaining excellent faculty.

Below are the means by which TTOs could capture their activities and impact created through education and attraction related activities:

a. Activities (mostly useful for internal benchmarking, not for institutional reporting)
   i. Number of events
   ii. Number of engagements/connections/networking
   iii. Number of meetings with faculty (new)
   iv. Number of presentations/seminars
   v. Number of training sessions

b. Participation in activities (mostly useful for internal benchmarking)
   i. Number of participants (faculty, students, staff, alumni companies)
   ii. Equity, Diversity and Inclusion (EDI)
   iii. Repeat vs new participants (at same events or different events)
   iv. Feedback

c. Outcomes (most useful externally; overlap with some outcomes from previous theme)
   i. Number of start-ups
   ii. Number of students hired by partner organizations
   iii. Partnership grants relating to industry/requiring industry participation

d. Storytelling (most useful externally)
   i. Media stories/coverage – internal/external
   ii. Success stories

Note: Connection to Advancement can be very helpful in compiling stories related to student outcomes post-graduation.

Research Collaboration/Industry Partnerships

Colleges and universities contribute to regional and national economic development through industry engagement and research collaboration. The TTO is responsible for facilitating industry-academic research partnerships and often plays a role in supporting new ventures started by the institution's faculty or students. Colleges and universities have research capability and expertise that may not be available in industry. Therefore, industry often turns to colleges and universities to answer research questions, advance intellectual property, and solve business and technical challenges. Research partnerships support the academic research and training enterprise, particularly through support of salaries of graduate students and post-docs. The results of research projects enable these companies to grow, attract more business and generate jobs. The role of the TTO is to build and facilitate such partnerships through:

a. Business development activities to identify and match partners with academic expertise;
b. Partnership development to establish rules of engagement, priorities and expectations (including contract negotiation); and
c. Relationship management to resolve issues, track progress, and encourage follow-on partnership.

The TTO must have a deep understanding of the research capacity of the institution and marry that capacity with industry need.

The creation of start-up companies is another contributor to the regional economy. The entrepreneurial mindset and capacity of students and faculty to generate innovative ideas means that universities and colleges are often start-up hubs. Some institutions have multiple incubators/accelerators and the TTO is often integrally involved in their operation:

a. Facilitating the transfer of intellectual property from the institution or faculty to start-ups;
b. Providing educational programming around entrepreneurship;
c. Connecting start-ups with networks of investors; and
d. Assisting with identifying and securing non-dilutive/grant funding.

Suggested metrics related to research partnerships as highlighted by the group are listed below.
Please refer to previous sections for metrics related to start-up companies.

a. Industry funding dollar value (local, SME, Can, other)
b. Leveraged funding dollar value
c. In-kind contributions (can be vague and difficult – some funding agencies are moving away from reporting in-kind)
d. Unique engagements/partners (local, national, international)
e. Repeat engagements/partners (local, national, international)
f. Number of HQP engaged with industry/number of HQP hired by industry (local, national, international)
g. Number of interactions (not necessarily projects, e.g. number of NDAs)
h. Number of new technologies
i. Co-publications with industry
j. Post-graduation statistics (can be gathered from others)

Enhancing the Culture of Innovation

By breaking down barriers and by providing support and commercialization expertise, the TTO fosters a culture of innovation. An innovative culture attracts faculty and students interested in having societal impact, who are willing and eager to work with industry. A track record of success and the presence of colleagues who have successfully participated in the commercialization process are huge influences in changing campus culture.

Below are suggested metrics to help measure the culture of innovation across campus. The group noted that for these metrics, trends over time is an important element in order to highlight changes in their respective ecosystems.

a. Number of IP disclosures
b. Number of IP licenses (active and/or executed per year)
c. Funding or leveraged dollar value (third party, not necessarily industry) plus in-kind (with caveats as above)
d. Repeat/serial champions, mentors, clients (internal and external)
e. Number of awards for innovation (external)
f. Number of active faculty in TTO portfolio/number of new faculty (or disclosers) per year
g. External rankings (Thompson Reuters Top 100, UBI, Shanghai, etc.)

Our Role in the Research and Commercialization Ecosystem

In the afternoon sessions, attendees reflected on our roles within our institutions and within the broader commercialization ecosystem. Participants identified components that are working well; those that require more support; and industry trends.

The key messages are:

1. Much more is on the rise than on the decline. TTOs are being asked to manage a wider range of tasks than ever before and with little increase in resources.
2. The TTO connects with the post-secondary institution in both strategic and tactical ways, in particular with advancement and government relations.
3. Start-ups and entrepreneurship are catching up to or supplanting licensing as the main activity within many TTOs.

Office Operations and Commercialization Resources

What Is Working Well

Professional Networks: Several networks exist to provide practitioners access to expertise, mentors and collaboration to promote best practice. These include AUTM and its committees; CTTP, a group that organizes monthly teleconference calls for technology transfer practitioners; and four Canadian regional groups that organize local meetings and events. Relationships with the local economic development communities were highlighted as being strong.

Programs to Encourage Collaboration: Highlighted programs were Mitacs, which helps fund undergraduate students in colleges and polytechnics, and graduate students and post-doctoral experiential and post-doctoral experiential learning at research-intensive companies; and IRAP, a federal program that helps small and medium sized companies expand their innovation capacity.

Established Process: Existing processes for how to license intellectual property, or how to enter a research partnership were identified as strong, with a good amount of flexibility.

On the Rise

- Start-ups
- Entrepreneurship
- Research partnerships
- Impact stories

On the Decline

- Licensing revenue
- Patent budgets

Where More Support Is Needed

Metrics: More work is required on metrics to better align with activities, with some ideas identified in this document.

Funding Resources: There is inconsistency among various provincial and federal funding programs, both in terms of the platforms and processes of applying for funding, and the adjudication process. There is also a call for a program similar to the SBIR/STTR program in the US that directly supports start-up companies.

Advancement: Many participants agreed that cooperation between research/commercialization and advancement and alumni networks can be improved within institutions.

Start-Up Expertise: As start-ups and entrepreneurship training increase, there is an accompanying need for staff expertise and entrepreneurs in residence.

Research and Partnerships

What Is Working Well

NSERC, SSHRC: NSERC and SSHRC have a strong history of supporting partnership programming, such as CRD and I2I programs, and the College and Community Innovation Program.

Associations: Industry associations have been good partners, especially those that are able to support research that benefits an entire industry area, supporting longer-term research that answers larger problems.

Regions: Local economic development and regional innovation networks have strong relationships with several of the institutions.

Internal: The willingness and ability of faculty to engage in sponsored/applied research and commercialization is increasing.

Where More Support Is Needed

Complexity: Increasing complexity is a growing issue at most institutions, including administrative and regulatory creep in areas such as legal, ethics, material transfer, finance and reporting. Most of the rising complexity is not directly related to efforts to improve commercialization outcomes.

On the Rise

- Ancillary work i.e. MTAs, NDAs
- Support of grants
- Work with SMEs
- Faculty support needs
- Support to research services

On the Decline

- Gov't support for patenting and commercialization

Company Education: As institutions work with more companies and particularly more SMEs, there is in many cases an increasing gap in expectations or education among companies and faculty regarding research contracts, in particular as it relates to publication, intellectual property, confidentiality and speed.

Internal: Several institutions are seeing a duplication of effort at the internal institute or college level with respect to technology transfer or applied research activities. There was also a call to link support for commercialization directly to an institution's research budget.

Entrepreneurship and Innovation Culture

What Is Working Well

Mitacs and Other Programs: Mitacs is a great tool for attracting and providing funding for graduate students as well as undergraduates at colleges. The Canadian Institute for Advanced Research has strong programs in support of AI research. The federal supercluster program was also highlighted as a potential opportunity.

Patent Collective: The future patent collective program proposed by the federal government has potential to improve education among small and medium-sized companies regarding IP and to provide assistance in acquiring and defending IP rights.

Local Programs: Institutions cited strong support from companies within their regions and certain provincial programming, such as BC's Accelerate program.

Internal: Participants acknowledged that their technology transfer expertise and experience is valued at their institutions, and that student entrepreneurship is garnering increasing support.

On the Rise

- Entrepreneurship and IP education
- EDI
- Events/workshops
- Need to articulate value proposition
- Alumni engagement
- VPR support

On the Decline

- Silos in and between institutions
- Reliance on classroom for entrepreneurship
- POP money

Where More Support Is Needed

Older Entrepreneurs: Much of the support available for new entrepreneurs ends at age 39.

Incubation: Much of the support and space available for start-ups is focused on the ICT space.

Equity, Diversity and Inclusion: Attracting and engaging women faculty inventors needs some improvement.

Education: Engaging students in entrepreneurship across many disciplines requires further work at the curriculum level.

Proof of Principle: Internal funding for proof-of-concept and product development projects.

Short-Term Programs: Clusters and centres of excellence each build their own innovation infrastructure, duplicating services provided by others, then tear it down after 5-10 years when funding ends.

Inconsistency: Inconsistency within or between institutions can lead to confusion, including widely varying IP policies and institutional needs.

Government: Priorities at the federal and provincial levels may change with every election, which hampers long term strategy.

About AUTM

AUTM is the nonprofit leader in efforts to educate, promote and inspire professionals to support the development of academic research that changes the world and drives innovation forward. Its community is comprised of more than 3,000 members who work in more than 800 universities, research centers, hospitals, businesses and government organizations around the globe.

Its members work closely with commercial partners to transform ideas into opportunities, resulting in the creation each year of thousands of products, services and start-ups, and millions of dollars in economic development. First and foremost, their work means improved lives, every day, everywhere.

AUTM advocates and supports the full spectrum of its members' work — from corporate engagement to intellectual property protection — empowering dynamic, forward-leading professional practices and advancing current and future generations of leaders in the field of technology transfer.

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