



CONNECT TO INNOVATE

THE BUSINESS – UNIVERSITY COLLABORATION IMPERATIVE

KEY FINDINGS & RECOMMENDATIONS

EXECUTIVE SUMMARY

The Ontario Economic Summit (OES) was formed in 2004 as a forum for economic leaders to discuss how to tackle the challenges of the day, pursue new opportunities for growth and find concrete solutions to making Ontario a more prosperous and competitive province. Within the context of the current economic climate, our shared economic stewardship is more crucial today than ever before. Previous Summits have highlighted the need for a dialogue on how business-academia collaborations might be enhanced. A more effective framework will help sustain a robust innovation climate in Ontario - essential if we are to be globally competitive in the next decade.

OES “Connect to Innovate” workshops were held in Sudbury, London and the York Region in June 2010 and were developed in direct response to the annual OES dialogue and key recommendations made. The OES partnered with the Council of Ontario Universities to develop the Connect to Innovate workshops and involved the Vice Presidents of Research from Laurentian University, the University of Western Ontario and York University as well as local chambers to organize three pilots projects. Universities presented jointly with one of their research partners from the business sector. Partners were asked to address the best practices and challenges they may have faced throughout the relationship and their key recommendations for others. An audience of primarily business and non-governmental representatives participated at the events, hosted by local chambers of commerce. Our forum would not have been complete without representatives from the Ministry of Research and Innovation (MRI) and the Ontario Centres of Excellence (OCE), who provided clarification on the existing resources available to businesses.

Evaluation surveys collected at the close of each event confirmed that:

1. The OES had made significant strides in bridging the gap between the three universities and the business community.
2. The OES facilitated an honest debate about research partnerships, vital to helping the parties better understand each other's objectives and expectations.
3. The OES raised awareness of resources and research funding programs available to business and;
4. The OES infused a more positive mindset and gained the commitment of participants to take a more active role in facilitating linkages between business and university research capacity.

We take this opportunity to thank all of our supportive "Connect to Innovate" partners. Without their support and passion for this important exercise, the initiative would not have taken place. In particular, special recognition is extended to the Council of Ontario Universities and our local chamber partners for their contribution in making this debate become a reality. The Ontario Economic Summit program as a whole is supported by a number of public and private sector partners.

APPROACH

To ensure we addressed the most critical issues and had a valid means of comparing the results from each location, a consistent thematic line of questioning was employed at all workshops. It was comprised of the following elements:

- ***Primary point of contact at universities: To whom should business reach out?***
- ***Timelines: What can business expect in terms of getting an answer of yes or no about a research collaboration with the university?***
- ***Intellectual Property Rights (IPR): How universities negotiate IPR - who owns what?***
- ***Fees: What fees should a company expect to pay for university research and how are fees calculated?***
- ***Long-term benefits of collaboration: What has been the upside in terms of growing the business?***
- ***Key recommendations: How can the landscape be improved so that universities and businesses partner more effectively and improve collaborative activities?***

SIMILARITIES AND DIFFERENCES BETWEEN REGIONS/CITIES

1) Primary Point of Contact

According to all of the universities involved, the first point of contact for the business community should be the Office of the Vice President of Research.

“If you don’t know who to approach, approach me directly and I will put you in touch with the right person and the right resources.”

Dr. Patrice Sawyer, VP Research & Graduate Studies, Laurentian University

Without this feedback, one possible approach would be to search for the right contact through online listings and directories. There are two major issues with this: i) certain faculty members may not necessarily be looking to work with business, especially if they are driven by a sole desire to publish and; ii) the records may be outdated. Contacting the Office of the VP Research can minimize these problems.

The above is reflective of a cultural shift taking place at various institutions across the province. There is a full understanding that research offices have to be closely involved with faculty members to foster collaborations and work at the speed of business. Universities need, and want to be seen as “matchmakers”. But a shift is also required from the business side, needing to understand that faculty members interact differently and have different perceptions of time, deadlines and priorities. Using VPs of Research as the primary point of contact will help bridge this gap.

“If you think of yourself as a leader, you have to work with people the way they are...By knowing this, and understanding the idiosyncrasies, you can enhance the benefits of working with universities.”

Peter Pekos, President & CEO, Dalton Pharma Services

Business owners must also be aware of other challenges. How one goes about approaching an institution often depends on the size of the company and the representative's own knowledge of the institution. A small company or start up will not necessarily have the contacts within the institution and therefore will not know who to turn to. On the other hand, if one comes from the university world, the culture is more easily understood, the contacts already established, and the understanding of what the university can or cannot do for the business already known. These factors make it much easier to access the right people and resources. Failing this, collaborating with other organizations (associations, OCE) can be extremely beneficial. When a second level of collaboration is required, it is crucial for the business to come in with their fair share of the investment to best leverage the relationship. In the long term, such leverage will benefit the community as a whole. As a business leader, there is more to gain by looking at the bigger picture and the role everyone plays.

“Collaboration should be for the mutual benefit of all involved.”

Marc Boudreau, President & CEO, Bestech

2) Timelines

This is an area that requires further clarification. The consensus reached at the sessions was that timelines vary depending on the nature, scope and complexity of projects. However, a business will find out fairly quickly if a university can help or not. If the answer is “no, we cannot help”, this will normally happen within a day or two. Additionally, the institution can help find

other universities or colleges that might be able to provide the expertise. In this case, the university will often facilitate a call to a partner organization, typically through an industry liaison office. If the answer is “yes, we can help”, the company can move straight to the negotiation phase of a research contract. To facilitate this process and any future projects/negotiations, Western and other institutions will often propose an umbrella agreement, especially when working with a firm for the first time. This business-oriented service may represent a cultural shift within institutions and has been received positively by the business community. At York University, typical turnaround times range from a couple of weeks to as much as eight months, depending on the nature of the project.

Universities and businesses operate at different speeds. It is crucial for all parties to be aware of this. While universities move as quickly as possible with the resources they have, various factors come into play that business needs to recognize. For example: are students/technicians readily available or do they need to be recruited? Do intellectual property rights need to be negotiated? Is a survey and/or an ethics review required? Does the project involve funding from other sources?

Universities are seasonal and therefore behave in different ways throughout the year. Research facilities and staff may not be available during certain periods and access to resources might be impaired, which can be very problematic for private sector partners. All of these issues need to be addressed at the outset of the relationship as they can hamper innovation/commercialization efforts. If each partner outlines their needs and requirements at the very beginning, the process is much more efficient.

Bestech’s advice is reassuring:

“Although the process can be difficult, it is a necessary one to get through, especially if you are serious about collaborating, have a really good idea and want to move forward with it.”

Marc Boudreau, President & CEO, Bestech

In the simplest of terms, research projects can be broken down into three types of collaborations, each with different timelines:

- 1) Short-term: For example, this may be a sample analysis or a material science question. The turnaround time for an answer on whether or not the university can help would generally be one day. A sample analysis would typically take one week.
- 2) Medium-term: This could be a prototype development. The appropriate faculty would step in and would aim to fulfill the business need within a week.
- 3) Long-term Collaborative Research: A “yes” or “no” answer to go forward would be obtained within a matter of weeks or months. This is when timelines become an issue and are open-ended. This type of collaboration rarely gets done within the timeframe originally anticipated. The process therefore requires patience and flexibility.

For business, innovation happens so quickly that if one waits six months, a market opportunity may have disappeared. However, many businesses and universities have developed practices, as their relationship matures, to bring a higher level of efficiency to the entire process.

3) Intellectual Property Rights (IPR)

The issue of IPR goes hand in hand with innovation. Never is the meaning of genuine, open and balanced collaboration truer than when considering ownership and usage of intellectual property. Universities have become more progressive in their thinking of IPR and there is a spirit of greater flexibility and cooperation on the issue.

The general consensus we received in every city was that a university's main business is to produce knowledge and develop talented people to contribute to our economy. Professors look to publish their work (e.g. processes, experiments, results) and use this knowledge for teaching purposes. Understandably, the danger for business is that they do not want commercial secrets to be public knowledge. The line between protecting an idea/product and publishing knowledge for teaching purposes is very fine and needs to be carefully considered.

All institutions agree that the issue of ownership needs to be addressed and decided upon at the outset. Other decisions to be made at this time include licensing fees, royalties, who will pay for multi-country patent rights and their maintenance, etc. This is an extremely arduous exercise for business, given that they cannot always assess the value of the work they do and the impact it will ultimately have on their business productivity or value. Additionally, university researchers can sometimes be naïve about the value of their IP and how quickly it will create a return on the investment. A researcher looking for an upfront royalty payment within the first year may have unrealistic expectations.

At Laurentian, the IP initially belongs to the researcher but this can be negotiated: the IP can be wholly owned by the researcher or by the business but this decision needs to be made at the outset in order to avoid future complications. When Marc Boudreau (President & CEO, Bestech) looked to partner with Laurentian's Centre for Excellence in Mining Innovation (CEMI), he was told the professor would own 100% of the IP, and this became an issue for him. He was not told that this was open to negotiation.

“For the collaboration to work, there has to be a win-win relationship. If a company looks to partner with a University, and a true collaboration is to be established, then the IP needs to be shared.”

Marc Boudreau, President & CEO, Bestech

Western has developed a very effective relationship building model whereby staff approach potential business partners and negotiate IP issues to conduct new research. Technology transfer officers thus become a key component of managing this process. The objective is to determine: i) what the real needs of business are and; ii) whether the business needs to own the IP. This is all the more crucial as they manage public funds and have a responsibility to taxpayers.

At York University, a clear framework is worked out from day one. An agreement will be written out quickly with high-level guidelines to ensure everyone knows exactly where they stand. If researchers own the IP as a starting point, it encourages innovation as it provides faculty members the incentive to work with business and promotes innovation.

There is consensus that these issues need to be outlined very clearly and right from the start. Universities can follow these few simple guidelines (already being applied by some):

- 1) You get credit for whatever you bring to the table.
- 2) Whoever invests benefits. As a business, if you expect to own 100% of the IP, you will typically pay 100% of the research costs.

In addition, business and universities should be aware that:

- Universities are not looking to “get rich” on someone else’s invention. They look to collaborate and stimulate more R&D and invention. They know many things are sitting on shelves and Ontario may be losing out to other countries as a result.
- Business needs to be aware that IP has teaching and training value. If the university can further develop the idea for another product/service, they will want a fair deal and will want to negotiate fair terms.
- No one wants to lose a deal because of badly managed IP. This is why early discussions and agreements need to be put in place.
- As a business, if you have an idea/product and need to access university resources, contacting the VP Research as a first step will often help to minimize legal delays.

4) Fees & Access to Funding

All three institutions confirmed they did not exist to make a profit. Applicable fees help cover the costs of administering contracts, research assistants and overheads.

When a business approaches Laurentian University, they generally arrive with an idea and a budget. The basic fee will be approximately 35% of this budget. They also work with other partners including MRI and the Ontario Partnership for Innovation and Commercialization (OPIC) to limit the overall costs to business partners.

At Western, fees vary and their structure is unique. They have established themselves as an organization offering services to business. Fees are established upfront and businesses receive the service they need. If a project becomes more complex and has a long-term outlook, the university will look to calibrate the costs based on the time and resources needed (graduates, post doctorates, the cost of materials & equipment to be acquired). They apply an overhead rate of 40% depending on whether or not the work is done on site. Business partners, such as Marvin DeVries (President, Trojan Technologies), find this pricing structure generally competitive.

Typically, fees will fall under a three-tiered structure:

- Standard fee for a service (e.g.: sample analysis). At York, this will be 40% overhead on actual costs and will include legal costs and the use of laboratories. This is a formula all Universities across Ontario try to be consistent with.
- Contract research fees where the business owns the IP and pays a higher overhead rate.
- Full collaborative research & development fees: these will be approximately 40-50%

Some cost-savings for business, associated with university-business partnerships, include:

- Salaries: A salary cost-saving of 20% can often be achieved by working with a university.
- Management fees: Lower management fees can be achieved as a result of business not having to pay related administrative costs.
- On-site resources: Business benefits from access to equipment and tangible resources.

5) Long-Term Benefits of Collaboration

“As a business, you need to find the right university to complement what you are already bringing to the table.”

Marvin DeVries, President, Trojan Technologies

“The power of the relationship lies in gaining access to resources. Universities are experts at leveraging and can provide access to funding programs business would not be aware of, or would not be able to access themselves, such as government funds. But as a business, you have to be committed and come up with some of the funding as well. Once you have that, then you have a commitment.”

Marc Boudreau, President & CEO, Bestech

Bestech highlighted a recent partnership towards developing energy management solutions which led them to being awarded \$5M in funding. They wanted to develop mining-related technologies further and built a consortium of companies to win a grant for a “Proof of Concept”. This was a necessary step as government does not provide funds directly. They created a \$5M dollar project (with Vale and Xstrata as partners), provided a solid line share of capital whereby everyone threw in the same amount of money. With the partners and funds in place, approaching CEMI was a straightforward process. The result was \$35 million dollars of funding for the region.

6) Key Recommendations

We asked business and university representatives to provide clarification on actions they were taking to improve the entire process to stimulate partnerships and offer some recommendations.

The following is a summary of their comments:

- Laurentian University is creating a web-based directory of research faculty members to provide information on who the members are and what projects they are working on.
- Universities are looking at new models, such as encouraging companies to locate their primary research facility on campus.
- Startups and SMEs can benefit tremendously from using associations and third party organizations as a conduit to the university to help start the relationship.
- More clarity is required on IP ownership issues as these can be extremely time and energy consuming.
- Universities should understand the demographics of the companies that approach them for collaboration (startups, SMEs, large enterprises) to better understand their needs and make the most of the relationship.
- The fundamental structure of universities does not lend itself to conducting business with companies. Peer-reviewed publications with high impact are valued. Money that comes from an industrial research contract does not have the same prestige and this can be a disincentive for researchers to get engaged in collaborative efforts.

“We need to improve on this situation, increase the level of collaboration and make it an honorable and recognized item in the researchers’ performance appraisals. Some faculties are putting incentives in place for researchers to work with industry but we need to see more of this.”

Peter Pekos, President & CEO, Dalton Pharma Services

- Establish more Industry Liaison Offices and market them more effectively. Once this is established, alignment and purpose follow.
- One point of contact is needed, ideally a business office that understands the timeframes, knows the university environment, the experts and how to access them.
- Have standardized templates to streamline the process to make it go faster.

“The University is open to establishing strong relationships with companies, near and far, large and small. We are very serious about that. If we can help you, we are with you from A to Z, as our “customers” are going to be our best clients to help the economy grow and move forward.”

Ted Hewitt, VP, Research & International Relations, University of Western Ontario

“Any University that can deliver on time and on task would be miles ahead of its peers.”

Marvin DeVries, President, Trojan Technologies

- Industry Liaison Offices, Regional Innovation Centres and Business Development Officers are recognized as true assets and more will be integrated in Ontario’s institutions as we move along. They are there to help business get ahead of the curve and more easily

navigate the university maze.

- MRI's message is that there is a need to maximize the economic impact of institutions. Education is needed on both sides to clarify expectations as the respective objectives differ. Relationships work better when programs are defined and relationships leveraged. Minimum expectations need to be set in terms of what the universities can provide and what they cannot, and the same applies to business. As a province, we need to understand how universities can play a critical role to help business solve problems and help the economy of Ontario move forward.
- The efforts of the MRI and the OCE need to be applauded in terms of helping researchers commercialize and provide the necessary resources to all parties involved. By providing real-time communication, the "ivory tower experience" is slowly retracting. For example, MRI has set up the Ontario Network of Excellence/Regional Innovation Centres to bring together all the resources (research, mentors, capital) to help leverage innovation through one portal. This is regionally-based, but will ultimately stretch across the entire province.
- The OCE are also a tremendous asset. They market their programs to communities mainly through their website. Projects are based on a competitive process. OCE funds those with the highest potential for economic impact. Their measure of success is the growth of the companies they support and how many new jobs are created. To date, OCE has invested close to \$40M in research projects. Industry partners are required to match the contribution.
- While Tax Credits (Federal and Provincial) are available, a "one-stop shop" for these resources would improve the experience for business.
- Universities should continue to develop repositories (for example, a list of every single piece of hardware that people might find interesting to use in their business production plan). This is a work-in-progress at most institutions.
- Local Chambers reinforced their commitment to reach out more to their members and connect them to the right resources, through newsletters, workshops, consultations.

JOINING FORCES: THE POWER OF COLLABORATION

Throughout the Connect to Innovate discussions, the desire for a more productive collaboration environment became clear. All agreed that by working in silos, Ontario will miss out on the many opportunities lying ahead. To be a part of big commercial wins, we need to be working together towards a common goal. The good news is that this vision is shared by all universities and business partners. As one participant noted, "***We need to unite and not duplicate efforts. We need to work together to be stronger and everyone needs to support this.***" Universities know they are not doing a perfect job and could be doing more. Likewise, business requires a

better understanding of university structure, limitations and mandates.

CONCLUSION

The OES and its related initiatives are not designed with an aim to prescribe what government should do. They are about all stakeholders taking joint responsibility for Ontario's prosperity. As a first step, we are confident we are moving in the right direction. The discussions that took place at each of our workshops demonstrated a strong willingness from all to foster a more innovative and competitive Ontario. They have helped re-engage key stakeholders in a crucial debate, reinforced the notion that collaborations are beneficial and more are needed. Most importantly, they provided insight and this should lead to more concrete solutions being developed.

“We have to leave the comfortable and the traditional relationships and get used to dealing with the uncomfortable and the unknown...We must rise to those challenges because they hold great opportunities.”

Warren Jestin, Chief Economist, Scotiabank (2009 Ontario Economic Summit)

Universities and business across the province are shifting their mindsets and opening themselves up to such new collaborations, or building on existing ones in more innovative ways. This is where the key to success lies as we move into an even more competitive global environment. How we work together will become strategically important to secure some big wins and the modus operandi will be flexibility. Flexibility in the way we communicate, understand and adapt to each others' needs and are willing to be a part of the bigger picture.

It is with excitement that we will turn to the next phase of promoting collaborations and look at implementing some of the recommendations made at our first three sessions. We embrace this challenge knowing that our leaders and economic stewards are also looking to the future and have a long-term vision for the province and our economy. We look forward to hosting more workshops of this nature in other communities across Ontario, and to bringing some of the ideas to the table at the upcoming Ontario Economic Summit.