

Is my research amenable to private partnership?

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Summary of the first in a series of talks about working with off campus partners

When thinking of private partnership, don't ask whether your research is amenable to private partnership; instead think about whether your resources and expertise are valuable to potential partners, **Jim Potvin** advises. He is a member of the Department of Kinesiology and the first speaker in the IP³ Lecture Series. With a primary research focus in the area of joint mechanics and stability under a variety of load and fatigue conditions, over the years, Potvin has developed a successful research relationship with several automakers by exploring ways to improve workplace safety and quality through ergonomics. This, in turn, has provided inspiration, and funding, for his basic research program.

To begin, Potvin proposes that researchers should consider what types of research they **CAN** do, not the specific experiments they currently conduct, when they look for research partners and collaborations beyond university campus. Think about the types of analysis, laboratory equipment, statistical analysis and knowledge you can offer, instead of the specific research you do. For instance, at one point in Potvin's career, he was asked to test a new type of hockey boards designed to absorb the impact of hockey players and protect them from injuries. He had little experience with sports research, but he did

know about the physics of measuring impact forces and energy absorption, all of which come into play when a player hits the boards. When he broke down the problem, he realized that, although he wasn't a hockey researcher, he knew what he needed to do to answer the company's question.

Before describing his experiences of supporting his basic research through projects funded by work with outside partners, Potvin talked about models of innovation as highlighted in the book, *Pasteur's Quadrant* by Donald Stokes (1997). That book makes the case that, in some ways, the wall erected between university's pure research and the applied work of industry is false, and a recent construction. The steam engine was invented before the theories of thermodynamics were understood. The marvels of the digital revolution developed from a back and forth interaction among government research, academic research and industry. Innovation has always been an exchange, resulting in a complex, non-linear process.

The event's second featured speaker was Mike Waddington, an ecosystem researcher and member of the School of Geography & Earth Sciences. He started his academic career with an open mind about working with industry. He had been exposed to joint

The Faculty of Science's Industry and Private Partnerships Program – IP³

It can be a challenging time to be a researcher if you are looking for funds to support your research. Granting councils and other traditional sources are tilting more opportunities toward partnerships with organizations outside of universities. Some researchers have found other ways to supplement traditional sources of funding while building successful basic research programs. Others are interested but not sure where to start or if there are suitable private partners out there. To help faculty members explore these questions, the Faculty of Science is hosting a series of lectures by colleagues who have collaborated beyond academia.

**Gianni Parise,
Associate Dean, Research &
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projects with companies during his post-doctoral position in Sweden, where there was less of a stigma among academics about industry partnerships at the time. His research now involves innovative restoration approaches to mitigate the effects of wildfire and mining on boreal wetland ecosystems.

“My lab is a living lab outdoors in the soils, the wetlands, the forests and the riparian zones of Canada’s boreal biome,” he explained. “We examine how land-use and climate-mediated disturbances impact boreal water resources and ecosystem function and from this determine the best way to reclaim, restore and adapt watersheds and ecosystems to repair damaged function.”

The challenge is fieldwork research is expensive, access to remote regions is logistically arduous and permission to manipulate ecosystems can be difficult. Working with industry and others has allowed him to expand his laboratory and field work beyond the local area to research sites all over the world. Waddington and his students have conducted field work in regions from eastern Quebec to central Ontario and northern Alberta and to central Alaska. Working with companies that are already based in these regions means that he can access remote sites and help those companies think differently about their effect on the land. Waddington received the 2004 NSERC Synergy Award Winner for Most Outstanding Achievement in University-Industry Collaboration for his work with peatland restoration and a consortium of horticultural companies including Premier Tech, SunGro and Fafard.

Both researchers spoke about the opportunities that working with private partners had provided

The 5 to 10: Take away messages and ideas to consider

- 1)** Before pursuing outside partnerships, think about what expertise, infrastructure, skills and resources you have to offer potential partners. Business is often about problem solving. It helps to have an approach that asks: What are the problems that need to be solved and how can my skills help?
- 2)** To make connections and search out partners, start with the people you know. Make contacts with former students working in industry, past classmates working in the area, academic colleagues who are doing applied research, people you’ve met at conferences and meetings, and previous colleagues who have moved into industry. All may be sources of partnership or the source of a referral to a partnership.
- 3)** Consider working with consortiums and industry groups. These associations can help you make wider contacts and your work might have a broader impact than work conducted with one partner.
- 4)** Calculate the value of your contract based, not on what it costs you to do the work, but what your service and knowledge are worth to your potential partners. Private sector partners are used to working with consultants who charge this way. And yes, private sector partners are used to paying indirect or overhead costs. The benefit to you is you can use the difference between your “cost” and the value of the contract to support other projects.
- 5)** Always remember, with your potential and collaborating partners, it’s about their needs and their think-they-needs, not yours. Treat them like a customer and focus on what they want as a deliverable.
- 6)** Where there’s a good fit, working with outside partners offers numerous benefits. It can increase your funding options (and amounts), increase graduate student funding and options for students after graduation, increase laboratory resources, enhance research productivity, expand the audience for your research results, and increase personal income through consulting opportunities. You may even see an immediate impact associated your results, instead waiting for the longer time scale connected to the traditional scientific process of disseminating results.
- 7)** Know that this process will take time and may be frustrating. There may be issues around confidentiality and intellectual property; time scales are different in industry and you must be flexible.
- 8)** Have a clear understanding with University representatives about issues before you go into a meeting with your partner to avoid surprises, inconsistencies and conflicts.

Suggested Reading

Pasteur’s Quadrant by Donald Stokes (1997)

The Innovators by Walter Issacs (2014)

Steve Jobs by Walter Issacs (2013)

to help them build and fund their basic research programs. These partnerships have also allowed their work to have a much broader and more immediate impact than offered by more traditional routes of scientific dissemination.

Potvin described a project where he and his students evaluated the demands on the worker when using new power tools to attach screws on an assembly line. Part of the project involved testing two different types of screw heads that were being used on the line to see whether one could be used with less effort (and less risk of injury) and produce higher quality results. Potvin and his group found that this was indeed the case. He met with the client to present his results and analysis at 7:30 am one morning and by 9 am, the manufacturer had cancelled a multi-million dollar contract with the supplier of the inferior fastener. It's not often that a researcher can have so immediate an impact.

To have that influence, a strong relationship is critical and it's like forming a good working relationship with anyone else. You need to focus on the needs of your partner and you need open communication between both parties. Potvin reminded the audience that when working with people in the private sector you need to consider what motivates them, which is most likely a good

performance evaluation and success in the eyes of their superior. If you can help them out, you can strengthen the relationship to both parties benefit. Taking a more customer service approach is always helpful. You will also need to educate people about the benefits and constraints of academia. Be prepared to explain the research process and issues of publishing and the need to respect confidentiality while allowing graduate student to publish their work, says Potvin, so partners better appreciate the academic world in which you operate.

The education process may not stop there. Once you have a strong relationship, there may be other opportunities to go beyond what business thinks they need, and introduce ideas that they need to know. Now that Waddington has some established relations, he is working to educate his partner companies about why they need to better understand and protect the environment and the types of research needed to achieve this.

To make any of this happen, finding potential partners is the first step. They can be as close as a former student or colleague working in industry or casual acquaintances working in the sector. To start up that partnership, Potvin recommends taking advantage of government matching opportunities, such as NSERC ENGAGE and others, to

build a partnership with a small project, often using the help of grad students.

“It gives you a foot in the door,” Potvin said, “however, not all students are best suited to work with industry.” He recommends sending the ones who are good problem solvers and good with people. You want to create a good impression of your research team. Remember this is about forming a long term relationship. Once that foot is in the door, show them what your team offers; that way the relationship is underway, not underwater.

Both speakers agree that working with industry and other outside partners may seem like a lot of extra work. However, the benefits often outweigh that extra work. Students are usually the prime beneficiaries. They become “massively employable”, according to Waddington. That's good news for students because most won't find jobs in academia. They gain valuable and marketable skills for whatever the sector they end up working. Helping former students move into industry also translates into increased opportunities for future collaborations, and a potential to influence the way an industrial sector may operate, a consideration for people with a commitment to making a difference, whether it be worker safety or environmental protection.

For more information on grant programs and working with private partners, contact Amber Metham at the McMaster Industry Liaison Office (MILO), metham@mcmaster.ca.

Grant programs to help you start:

- [NSERC Interaction](#)
- [NSERC Engage](#)
- [Ontario Centres of Excellence Programs](#)
- [Mitacs Accelerate](#)

**An initiative of the Office of the Associate Dean, Research & External Relations
McMaster's Faculty of Science**

For more information on the Industry and Private Partnerships Program (IP³), contact Seanna-Lin Brodie-Keys, Office of the Associate Dean, Research & External Relations, brodies@mcmaster.ca