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**Beyond Citations: Knowledge Mobilization, Research Impact,
and the Changing Nature of Academic Work**

Spotlight Study

September 9, 2016

At a Glance

- Universities need to invest in institutional supports, such as dedicated knowledge brokers, for knowledge mobilization as they already do for technology transfer and industry liaison.
- University-based researchers would benefit from faculty evaluation criteria that incentivizes high impact, interdisciplinary social, economic, environmental, cultural, and health research.
- The pan-Canadian ResearchImpact Network supports and facilitates knowledge mobilization and collaboration among faculty and student researchers as well as community, industry, and government partners.
- A network approach reduces the barriers between disciplines and enhances collaboration supporting research impacts in communities across Canada.

Executive Summary

Researchers at Canada's universities contribute to the economy, industry and business, public policy, culture and society. But measuring the impact of much of the research being conducted at universities remains a challenge. Canada's universities and Tri-Council Agencies are placing more emphasis on knowledge mobilization in order to generate research with a high social utility and get research into the hands of decision-makers, policy-makers, and practitioners.

The default method of quantifying academic research output and impact has long been to utilize citation metrics, which focus on the total number of papers published, citations, and citations per author. Detractors argue, however, that citation metrics are not sophisticated enough to account for the social value of collaborative, cross-disciplinary research.

Established by York University and the University of Victoria in 2006, and now expanded to include 12 Canadian universities, the ResearchImpact Network's efforts complement citation metrics as the principle measure of research impact with person-to-person collaboration, mentoring, and dialogue. The network's people-centred focus also aims to complement research agendas that are focused exclusively on tech transfer and commercialization.

Efforts are underway to expand Canada's knowledge mobilization and research impact culture across all areas of university research. Long-term success depends on changing the nature of academic work and the institutional commitment to knowledge brokering and translation.

This study examines and analyzes the ResearchImpact Network, based on a literature review and key informant interviews. It addresses keys to success and challenges associated with knowledge mobilization in order to inform discussions about how Canadian researchers might employ similar strategies in their own post-secondary institutions and community-based research organizations.

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Background

Canadian professors in science, technology, engineering and mathematics (or STEM fields), social sciences, and humanities are strong researchers based on international metrics of research performance. Universities are major contributors to Canada's R&D, accounting for some 40 per cent of gross domestic spending on research and development (GERD) in 2015.¹ Canada's research intensive universities, spearheaded by the U15 consortium, carry out the bulk of the research contracted by the public and private sectors, conducting \$8.5 billion in research annually.² They also produce more than half of Canada's graduate students.³

The research carried out on university campuses across Canada contribute to the economy, industry and business, public policy, culture and society. But measuring the impact of much of the research being conducted at universities remains a challenge. Citation metrics remain the default method of quantifying academic research output and impact. The metrics have grown steadily over the past four decades and typically focus on the total number of papers published, citations, and citations per author. Detractors argue that the bibliometric regime poses burdensome requirements on a researchers' time; that citation metrics are imperfect tools and can be "gamed" for best results; that they undermine collegiality and inclusivity; and, more generally, that they have failed to produce a clear improvement in the economic and social utility of research produced by university-based researchers.⁴

Citation metrics are part and parcel of the long-standing, large-scale international knowledge mobilization and research impact movement. Through the use of measurement tools, evaluation frameworks, and inter-disciplinary partnership building and knowledge transfer, this movement aims to hold university researchers accountable to the disciplines, institutions, and publics they serve. The commercialization of university-based STEM research is a long-standing priority for Canada's universities and governments and remains at the top of most research impact agendas.

After 30 years of research support for tech transfer and commercialization in Canada, however, researchers in the humanities, social sciences, and health began in the late 1990s to call for people-centred funding frameworks with knowledge co-production and mobilization outcomes. For example, the Community-University Research Alliances (CURA) program, launched by the Social Sciences and Humanities Research Council (SSHRC) in 1999, aimed to build research alliances between community organizations and post-secondary education institutions. The goal then, as now, was not to impede research with commercial potential, but to support and supplement it.

¹ Gross Domestic Expenditures on R&D in Canada (GERD), the Provinces and Territories, Statistics Canada, *Analysis*, 2014.

² The U15 are a group of Canadian research-intensive universities: University of Alberta, University of British Columbia, University of Calgary, Dalhousie University, Université Laval, University of Manitoba, McGill University, McMaster University, Université de Montréal, University of Ottawa, Queen's University, University of Saskatchewan, University of Toronto, University of Waterloo, and Western University.

³ U15, *Our Impact*.

⁴ "The Impact Factor and Its Discontents: Reading list on controversies and shortcomings of the Journal Impact Factor," London School of Economics: *The Impact Blog*, 2016.

By the early 2000s, following successful funding and public outreach initiatives, both SSHRC and the Canadian Institutes of Health Research (CIHR) developed knowledge mobilization mandates.⁵ CIHR went as far as legislating knowledge translation in 2000,⁶ while the Natural Sciences and Engineering Research Council of Canada (NSERC) elected to maintain a focus on commercialization as the primary method of extracting value from its investments. [See Box 1: Research Commercialization]

Box 4: Research Commercialization

Canada's universities and research hospitals have long-standing institutional commitments to research commercialization. They have produced important successes:

Research and innovation partnerships at the University of British Columbia, for example, generated \$11 billion in sales in 2015-2016 and have led to the creation of 182 spin-off companies, employing more than 400 people.⁷ PARTEQ Innovations, founded by Queen's University, assists university researchers through the process of commercializing intellectual property. Successful PARTEQ partnerships have improved patients' access to care through web-based wait lists; enhanced the treatment of skin disorders through light-based treatments; and reduced the cost of water loss and infrastructure repairs through the introduction of electromagnetic inspection of pipelines.⁸

While larger, urban universities tend to spend more on research and issue more patents than smaller institutions in less populous areas, Université de Sherbrooke, in Southern Quebec, is an annual leader in royalty revenue from university-generated patents and licenses.⁹ Meanwhile, MaRS Innovation (MI), a large-scale innovation hub in the Greater Toronto Area, aims to translate discoveries from universities, hospitals, and research institutes "into new products and services, globally competitive companies and highly skilled jobs." Launched in 2008 as part of the Networks of Centres of Excellence of Canada, MI has so far generated \$150 million in new investments, 300 new jobs, and 40 new companies in Ontario.¹⁰

Research commercialization is essential to Canada's economy and plays an invaluable role in building an innovative, entrepreneurial, and globally-competitive country. It is also essential to university research mandates and to their long-term financial sustainability. But commercialization alone, argues Dr. David Phipps, who is Executive Director, Research and Innovation Services, York University and Network Director for the ResearchImpact Network, is not sufficient to support the creation of value or impact to Canadians from all research disciplines. For this reason, the ResearchImpact universities are complementing their investments in commercialization with investments in knowledge mobilization aimed at informing public policy, professional practice, and social programs.¹¹

⁵ CURA provided funding opportunities between 1999-2009. See SSHRC, *Community-University Research Alliances*, 2009.

⁶ Canadian Institutes of Health Research Act (S.C. 2000, c. 6).

⁷ University of British Columbia, *University-Industry Liaison Office Stats and Success Stories* and *New UBC Spin-Offs*.

⁸ PARTEQ Innovations, *Success Stories*.

⁹ Université de Sherbrooke, *Research and Innovation*; Research Info Source, *Top 50 Research Universities List*.

¹⁰ Government of Canada, Network of Centres of Excellence, *MaRS Innovation revolutionizes approach to commercialization*.

¹¹ Dr. David Phipps (Executive Director, Research and Innovation Services, York University, and Network Director, ResearchImpact Network) phone interview by Matthew McKean, August 8, 2016.

Canada's federal granting agencies define knowledge mobilization broadly to include research activities leading to knowledge synthesis, dissemination, and transfer or exchange, including the ethical application of research results, the level of engagement by knowledge users, and co-creation by knowledge users and producers.¹² Research knowledge that has been successfully transferred to end users creates opportunities for impact, regardless of citation metrics.

Implicit in the assumptions about knowledge mobilization and research impact is that it will incentivize researchers to produce work with a high social utility. Doing so serves two additional purposes: it compels researchers to demonstrate the impact of their research and it helps granting agencies to demonstrate the social value of publically-funded research.

Applicants for federal grants are now asked to identify potential research users and the various ways in which the researchers intend to connect with them, in addition to the scholarly outputs, outcomes, and impacts of their proposed research project. As a result, researchers themselves have begun to propose innovative ways to improve and expand knowledge mobilization. New methods for measuring and incentivizing research impact include alternative metrics (*altmetrics*), which collect and collate online activity around a researcher's output; research commercialization spaces for business incubation and acceleration; and other proposals for scaling back data-driven measurements in favour of maximizing social, economic, health, and environmental impact.

Efforts are now underway to further develop Canada's knowledge mobilization and research impact culture across all areas of university research. Long-term success, inspired by the academics, administrators, and community members who have banded together through the ResearchImpact Network, will depend on re-defining the nature of academic work and the institutional commitment to knowledge translation (i.e. connecting research to end users).

Overview and Objectives

The shift by Canada's federal research granting councils towards knowledge mobilization created an opportunity for the founding members of the ResearchImpact Network to apply for funding to develop ways to support impact beyond commercialization.

Established by York University and the University of Victoria in 2006, and now including 12 Canadian universities, the ResearchImpact Network supports and facilitates knowledge mobilization and collaboration among faculty and student researchers as well as community, industry, and government partners.¹³ Nine of the 12 members are not part of the U15 group of research intensive universities.

¹² This report assumes “knowledge mobilization,” as defined by SSHRC, is inclusive of “knowledge translation,” as defined by CIHR. See SSHRC, *Guidelines for Effective Knowledge Mobilization*; CIHR's *Guide to Knowledge Translation Planning at CIHR*; and Tri-Council Networks of Centres of Excellence of Canada, *The Knowledge Mobilization Initiative*.

¹³ ResearchImpact Network members in 2016 are: York University, University of Victoria, Carleton University, Kwantlen Polytechnic University, McMaster University, Memorial University of Newfoundland, University of Guelph, Université de Montréal, Université de Québec à Montréal, University of Saskatchewan, Wilfred Laurier University, and the newest member, University of New Brunswick.

Knowledge is mobilized through research mobilization centres, which serve as the network's primary nodes at the member universities. The nodes benefit from set budgets, formal internal procedures, and, where possible, full-time staff dedicated to maintaining collaboration spaces on campus. The spaces facilitate working relationships between individual researchers, research labs, and non-academic research partners.

"Finding innovative solutions to real-world problems [cannot] be done anymore by the lone researcher working away in their lab; it requires that you bring together all the available talent that you have and apply it to the problems that exist," explains Dr. Craig Bennell, Professor of Psychology and former academic director for 1125@Carleton, an innovation hub at Carleton University that promotes virtual and in-person collaboration between Carleton's researchers and the wider community.¹⁴

Another leading example of a research mobilization centre is the Harris Centre at Memorial University (MUN) in Newfoundland. Founded in 2004 to serve as the operational and communications arm of MUN's Office of Public Engagement, the Harris Centre promotes faculty research by facilitating the use of innovative mediums, including blogs, podcasts, videos, public policy forums, and regional cross-disciplinary workshops that help to build university-community connections and identify potential research, teaching, and outreach opportunities for the university.

While the officially sanctioned knowledge mobilization/research impact spaces on university campuses act as local hubs, the ResearchImpact Network itself is a community of practice for research mobilization and includes knowledge brokers, researchers, and other practitioners looking to exchange information on best practices, past successes, and future directions.

The network's mandate extends beyond supporting research mobilization among members and member institutions to individuals and organizations outside of the established membership. Depending on the immediate needs and circumstances, these spaces are used to facilitate cross-disciplinary collaboration, bridge conceptual gaps between academic and applied knowledge, and inform the research process with real-world needs and social knowledge from the community at large. [See Box 2: Research in Action at York University]

Box 2: Research in Action at York University

York University researchers are involved in several successful knowledge mobilization initiatives.

One such initiative is a project, begun in 2008, based on a partnership between researchers at York University's Faculty of Education and the York Region District School Board, increased communication and information exchange between linguistic and cultural minority families and the Markham, Ontario public school their children attended. The initiative's goal was to help the school improve site-based planning, partnership building, and learning outcomes for underachieving and marginalized students by training parents and caregivers how to identify

¹⁴ 1125@carleton, YouTube video, October 19, 2015.

needs, priorities, and how to go about implementing change. The impact of this research was an increase in standardized test scores in the previously underperforming school.¹⁵

In a second initiative, York's knowledge mobilization unit helped a Youth Emergency Shelter in Peterborough, Ontario overcome structural budget deficits and high staff turnover. Research collaboration through a PhD internship led to programmatic changes in how students and staff were trained, how residents were mentored and how long they stayed, and also identified new revenue streams, all of which enabled the youth shelter to develop into a sustainable social enterprise.¹⁶

Similarly, partnerships between York researchers, a Mitacs-funded graduate student, and Nottawasaga Futures staff led to the development of the Green Economy Centre, which helps the people of Simcoe County, Ontario participate in the green economy through skills training and co-op placements, funding opportunities, and the provision of various business services.¹⁷

Processes and Resources

Prospective member institutions apply to join the ResearchImpact Network through a selection process developed by the existing members. The process is used to qualitatively determine whether an institution is committed to the process of research mobilization and will be a valuable member of the group. “Knowledge mobilization happens on campuses in many forms. Research impact focuses at the systems level of the institution. To join the network, the commitment goes beyond pockets of committed researchers who have a focus on research impact,” notes Cathy Malcolm Edwards, Managing Director at 1125@Carleton, “the important thing for the network is making sure that the institution itself is willing to sign on and get behind research mobilization as part of its culture.”¹⁸

Indicators of commitment include the availability of dedicated staff for research mobilization, the availability of research grants, and steady funding for knowledge brokering. At a minimum, each ResearchImpact Network member must have the equivalent of one full-time staff dedicated to knowledge mobilization, pay an annual \$5,000 consortium membership fee (which goes to website upkeep, meeting costs, etc), and dedicate \$5,000 in time and travel costs for staff to attend the Network's annual meeting.

Applicants are assessed by the ResearchImpact Network's executive leads. In addition to knowledge and experience with knowledge mobilization and the financial commitments, prospective members must demonstrate an enthusiasm for knowledge mobilization in their principles and operations. Application materials, which must include three letters of support from

¹⁵ For a video synopsis of the initiative see ResearchImpact, *Gathering Under One Tree Segment*, 24 June 2016. See also the list of publications by the project's principal investigator, John Ippolito, Faculty of Education, York University. <http://www.glendon.yorku.ca/crlcc/research/crlcc-research-areas/internal-members/john-ippolito/> (accessed July 9, 2016).

¹⁶ ResearchImpact, *KMb Success Stories: Peterborough Youth Emergency Shelter*.

¹⁷ ResearchImpact, *Green Economy Centre; Green Economy Centre*, Simcoe County: <http://www.nottawasaga.com/get/index.html>. (accessed July 9, 2016).

¹⁸ Cathy Malcolm Edwards (Managing Director, 1125@Carleton, Carleton University) phone interview by Mark Robbins, May 4, 2016.

non-academic partners who have worked with the applicants, must attest to an institution's enthusiasm for knowledge transfer, exchange, and impact.¹⁹

Each knowledge mobilization unit or node has its own techniques and best-practices for mobilizing research, although there are some common themes. They include providing neutral spaces for cross-disciplinary collaboration and community engagement efforts; and training professors on using jargon-free language to ensure that the purpose and results of research are intelligible to everyone. In short, the hubs help researchers to develop their communication skills and make their research more accessible to the community.²⁰

For research mobilization to be successful, researchers need to build relationships with members of non-academic communities through regular dialogue. Knowledge mobilization units can help facilitate dialogue and build lasting relationships between the university and the community. Interviewees suggested that building a brand in the community that is associated with the institution itself rather than with individual researchers is important in helping to ensure that connections do not elapse when a particular research project ends.

Establishing new and effective relationships with non-academic communities, in addition to the partnerships the university already has, is a key to the mission of the knowledge mobilization nodes. This requires a strong operational definition of "community." At Memorial University, for instance, community is bounded by the provincial borders. As the only university in Newfoundland, Memorial's research impact initiatives are tied closely to its provincial constituencies.

This contrasts with York University in Toronto, where the sheer size of the Greater Toronto Area means that a research impact hub cannot be everything to everyone. Instead, the knowledge mobilization unit has established a special connection with the Regional Municipality of York, United Way Toronto and York Region, and with provincial ministries, all of which are sources of many non-academic research partners. In other cases, an effective definition of boundaries and specialization may not be straightforward, but is nonetheless pivotal to effective research mobilization.

When asked what key resources underpin the ResearchImpact Network, interviewees universally highlighted the role of York University, which has acted as a prime mover for this initiative. Interviewees also pointed to the 2000s reform of Tri-Council funding criteria requiring grant applicants to account for knowledge mobilization and the non-academic impacts of their research. This requirement triggered a wave of enthusiasm for research mobilization that has helped to support the ResearchImpact Network and drive more researchers into the fold of knowledge brokers.

Challenges and Innovations

"Knowledge broker" is a generic term, which varies by campus needs. Some brokers focus more on grant writing support, managing agendas, or dissemination, others on partnership building,

¹⁹ Phipps, interview, August 8, 2016.

²⁰ Ibid.

matchmaking, or mediation. Ideally, each campus or research unit has at least one full-time staff member dedicated to knowledge mobilization. In a number of cases, though, the role means different things to different people. Two recent studies of knowledge brokering found that ambiguity in the definition and execution of the role could be undermining its potential.²¹

A longitudinal study in 2013 by Sarah Chew, Natalie Armstrong, and Graham Martin of seven full-time knowledge brokers involved in UK health research found that "structural issues around professional boundaries, organisational norms and career pathways may make such roles difficult to sustain in the long term." The self-defining, "context-dependent nature of intermediary work" can make it both isolating and confusing.²² Participants in Claire Lightowler and Christine Knight's study of knowledge brokers in the social sciences and humanities described a similar sense of disconnection from the university community,²³ though both studies go on to suggest practical steps that can be taken to improve the role.

For starters, universities need to hire personnel to full-time positions who have the right mix of qualities (namely strong communicators, who are creative, self-motivated, and adept at multi-tasking) and situate them near the groups they work with as well as connected to the university's other research support services. Publicizing the purpose and function of the role to external clients is an important early, top-down intervention. Offering support for professional development and career pathways opportunities improves retention, while minimizing the number of managers who oversee and evaluate a knowledge broker's work diminishes conflict.²⁴

Although the ResearchImpact Network strives to avoid precarity among knowledge brokers, it has struggled over time to secure a full-time staffer at each member institution. Not all universities have a dedicated person or the resources available to hire one. The one-staff member requirement now, in some instances, refers liberally to a collective entity. In other words, it takes the form of a full-time equivalent, based on the combined efforts of several people working on knowledge mobilization on campus. Challenges can emerge, however, in the absence of a simple point-of-contact and when it comes to coordinating knowledge dissemination.²⁵

Where there are dedicated knowledge brokers on campus, the overarching challenge, as the 2013 study of health researchers points out, is assessing the effectiveness of their work.²⁶ In a sense, the problem is emblematic of the knowledge mobilization/research impact movement itself -- namely how to quantify the often ambiguous and complex processes of transferring research into action? An overview of knowledge brokering, led by Dr. Vicky Ward at Leeds Institute of Health Sciences, suggests that the development of a broader, more process-oriented framework for knowledge brokering -- one that combines knowledge management, linkage, exchange, and

²¹ The two studies are: Sarah Chew, Natalie Armstrong, and Graham Martin, "Institutionalising knowledge brokering as a sustainable knowledge translation solution in healthcare: how can it work in practice?," *Evidence & Policy* 9, Issue 3 (August 2013): 335-351 and Claire Lightowler and Christine Knight, "Sustaining knowledge exchange and research impact in the social sciences and humanities: investing in knowledge broker roles in UK universities," *Evidence & Policy* 9, Issue 3 (August 2013): 317-334.

²² Chew, Armstrong, and Graham, 346-349.

²³ Lightowler and Knight, 327.

²⁴ Chew, Armstrong, and Martin, 335-351.

²⁵ Phipps, phone interview, August 8, 2016.

²⁶ Chew, Armstrong, and Martin, 348.

capacity building models -- would unify brokering initiatives; guide and inform future projects; bring consistency to the process; and serve as a foundation to evaluate the role.²⁷

The absence of a consensus on data metrics challenges our ability to meaningfully quantify the impact of research mobilization initiatives, beyond brokering. But many argue that quantifying knowledge brokering, translation, and research impact is beside the point. "We are relying too much on key performance indicators like number of publications, grant money, rankings (impact factor) rather than actual impacts," explains Dr. Marc Spooner, Associate Professor at University of Regina. "Overreliance on these metrics pushes us away from meaningful work. We need performance measures that care more about the ability of research to make changes in practice and to public policy."²⁸ In other words, we still need performance metrics, but new ones that do not rely as heavily on quantitative data.

For this reason, the ResearchImpact Network eschews quantitative metrics as the principle measure of research impact in favour of case studies that describe person-to-person collaboration, mentoring, dialogue, and impact (i.e. knowledge transfer to end users). This approach not only provides more representative measures of research utility, namely real-world applicability and research uptake, but it ensures that the research process itself engenders meaningful dialogue with relevant experts and community stakeholders. In this sense, a network-centric approach -- one that privileges expressions of enthusiasm in the adjudication of applications-- helps to erode the barriers between disciplines and stages in the research process in a way that improves research utility and impact. [See Box 3: Cross-Disciplinary Research Impact]

Box 3: Cross-Disciplinary Research Impact

The Federation for the Humanities and Social Sciences in Ottawa supports researchers across a wide range of disciplinary and organizational boundaries. It represents 160 universities, colleges and scholarly associations and more than 90,000 researchers across Canada, with a mandate to promote research and teaching in the humanities and social sciences. In 2013-2014, the Federation launched a project to collate and critique various ways in which research in those disciplines impact teaching and mentoring, the economy, society and culture, and public policy, in addition to traditional and non-traditional bibliometrics.

The project culminated in a 2014 research impact working paper, which concluded, among other things, that the challenges associated with measuring the impact of humanities and social sciences (HSS) research "constitutes one of the most compelling reasons for evaluating its impact. A less than robust rubric for evaluating HSS research impact leads to the risk of overlooking or undervaluing the important contribution that HSS research makes to knowledge production, to society, culture, and the economy."²⁹ The longer-term goal of identifying research impact resources, through the SSHRC-

²⁷ Dr. Vicky Ward, Prof. Allan House, and Dr Susan Hamer, "Knowledge Brokering: The missing link in the evidence to action chain?," *Evidence & Policy*, 5 Number 3 (2009): 267-279.

²⁸ Dr. Marc Spooner (Associate Professor, University of Regina) phone interview by Mark Robbins, October 7, 2015.

²⁹ Federation for the Humanities and Social Sciences, *The Impacts of Humanities and Social Science Research: Working Paper*, p. 10-11.

supported Federation, is to help universities and researchers across disciplines customize their knowledge mobilization and research impact efforts.

Traditional research models tend to be self-contained, whereas opening up research processes to enable researchers to engage non-academic partners and circulate ideas meaningfully from beginning to end improves both hypothesis generation and results dissemination, supporting greater impacts of research. Established research processes and structures tend to reinforce the standard linear model of research mobilization, which can make it difficult to find funding and institutional support for non-linear research.

Similar obstacles arise for research that crosses disciplinary boundaries, a regular occurrence in research geared towards community impact. David Phipps, who was involved in the knowledge mobilization pilot project in 2005-2006 and was recognized in 2012 as Canada's leading knowledge broker, points out that these "linear models also reinforce academic and non-academic silos, further stifling the research and mobilization processes by impeding interdisciplinary collaboration."³⁰

Keys to Success

A critical success factor for the ResearchImpact Network has been the focus on the end user rather than on the researcher's discipline or subject-matter. Inverting traditional processes and employing a user-centric approach has improved the shared understanding between otherwise disparate researchers.³¹ This helps to break down the silos that exist between research disciplines and between academic and non-academic sectors, improving collaboration, innovation, and the search for meaningful solutions.

Researchers may not be accustomed to collaborating with colleagues in other academic disciplines, or with the community at large. The development of mutual trust—above and beyond the kind of trust ordinarily afforded to institutional prestige, individual credentials, and recognized expertise—and understanding between participants is therefore essential. Trust in the research mobilization arena results from long-term collaboration between researchers and community stakeholders, but can also be fostered in the short-term by effective knowledge brokers or a research mobilization office.

Democratic community-university partnerships, explains David Phipps and Michael Johnny from York University and Jane Wedlock from the Toronto and York region United Way, depend on the diffusion of power.³² Keys to success include giving community members and experts alike equal footing in research-related conversations. "We try to remove barriers as much as possible," explains Bojan Fürst, Manager of Knowledge Mobilization at Memorial University. "You have

³⁰ Phipps, phone interview by Matthew McKean and Mark Robbins, April 21, 2016.

³¹ Sarah Morton, "Creating research impact: the roles of research users in interactive research mobilisation," *Evidence and Policy* 11, Issue 1 (2015): 35-55.

³² David Phipps, Michael Johnny, and Jane Wedlock, "An Institutional Process for Brokering Community-Campus Research Collaborations," *Engaged Scholar Journal* 1, Number 1 (2015): 69-86.

to give up power and acknowledge that you are not there to change the lives of community members, you are there to listen and offer help.”³³

The ability to build connections and trust as well as facilitate communication and meaningful collaboration requires researchers, knowledge brokers, and research mobilization coordinators with strong communication and interpersonal skills. As one knowledge broker put it: “Often you are bringing together different groups who are all committed to a concept or project yet they are coming at it from different perspectives. It is like being in a room of people who are speaking their own individualized language. We act as translators in an effort to bridge understanding.” concludes Carleton’s Cathy Malcolm Edwards.³⁴ [See Box 4: Public Engagement at MUN].

Box 4: Public Engagement at MUN

The Office of Public Engagement at Memorial University (MUN) in Newfoundland developed a "Public Engagement Framework, 2012-2020," endorsed by MUN’s senate in 2012, which outlined the university’s commitment to community-engaged research.³⁵ As part of that initiative, MUN’s Harris Centre created an online system, called Yaffle, to help build partnerships with the public and private sectors and facilitate research impact. The platform provides a forum for community members to ask questions and receive responses from MUN’s research community.

Questions can be wide ranging, explains Bojan Fürst. The City of St. John’s, for example, wanted to know how other jurisdictions in the country were dealing with affordable housing. Bed and breakfast owners were looking for a student to map out a route of retail sellers so they could create a driving tour. Fürst’s favourite example is the Labrador Straits fisherman who wrote in to ask whether he could be electrocuted if a planned undersea power cable were to break. The answer was no, but the question led to multiple environmental assessments, which concluded that the cable should not be laid on the sea floor but insulated and buried.³⁶

The university has successfully partnered with the public on projects related to everything from oceans education, climate change, Inuit culture and community health, to youth wellness, library use, and rural radio access.³⁷ The Digital Oceans Project, for example, is “currently prototyping a web portal for schools that will use real-time data and video content from underwater equipment, offshore vessels and onshore sites...to allow students to participate in real-life university research.” The project involves MUN, the Marine Institute, the Hebron Project, six government departments, and an educational boat tour operator.³⁸

Yaffle is part of MUN’s Public Engagement’s toolkit and projects that are brought in through the online tool are then brokered by the university. The online system for facilitating research

³³ Bojan Fürst (Manager, Knowledge Mobilization, The Harris Centre, Memorial University) phone interview by Mark Robbins, May 12, 2016.

³⁴ Edwards, interview.

³⁵ Memorial University, The Office of Public Engagement, *Memorial University’s Public Engagement Framework, 2012 – 2020*.

³⁶ Fürst, phone interview by Matthew McKean, September 1, 2016.

³⁷ Memorial University, The Office of Public Engagement, *Success Stories*.

³⁸ Memorial University, The Office of Public Engagement, *Opening up oceans to province’s schoolchildren*.

mobilization also comes with the potential to track or measure the impact of research connections and collaborations from the get go. A new version of Yaffle is currently under construction and the system is under consideration for use super-provincially, by the Atlantic Canadian provinces.

Benefits, Outcomes, and Future Directions

Effective translation between academics and non-academic partners often involves a narrative-based approach to research evaluation. With a narrative approach, project impacts and outcomes are described chronologically and qualitatively, providing evaluators with a broad-based understanding of how research mobilization has made a contribution. This works particularly well at the small scale, grass-roots level, but lessons learned from this approach may help to inform efforts to develop more universal and quantifiable measures for success.

Initially, the ResearchImpact Network saw its greatest uptake among faculty in the health field, whose members had an immediate and intuitive interest in improving the connection between their research and the community.³⁹ Over time, researchers in other disciplines have seen its value and come on board. More technical programs, such as engineering, water research, waste management, and energy development, are realizing that their impact on the community goes beyond the potential for commercial development.⁴⁰

In 2012, for example, York teamed up with NeuroDevNet, part of the federally-funded Canada-wide Network of Centres of Excellence (NCE), to expand the impact of research on brain development and neuro-developmental disorders in children.⁴¹ Academic researchers have teamed up with parents, community agencies, service providers and other stakeholders to improve early detection and treatment of Fetal Alcohol Spectrum Disorder, Cerebral Palsy, and Autism Spectrum Disorder. Related research explores the ethical challenges arising from pediatric neurology and data sharing.⁴²

Knowledge mobilization works best when it is incorporated early in the research process. Involving graduate students in knowledge mobilization, through funding, co-op, and internship opportunities, is one of the keys to expanding research capacity and knowledge mobilization services. Involving graduate students has the added benefit of training the next generation of professors in knowledge mobilization and research impact principles and goals.⁴³

³⁹ Sarah J. Bowen and Ian D. Graham, "From Knowledge Translation to Engaged Scholarship: Promoting Research Relevance and Utilization," *Archives of Physical Medicine and Rehabilitation* 94, Issue 1 (January 2013): S3–S8.

⁴⁰ Fürst, interview.

⁴¹ NeuroDevNet, *Research and Knowledge Translation*.

⁴² NeuroDevNet, *Engaging Minds: NeuroDevNet Annual Report*.

⁴³ Launched in 2012 by the Institute for Knowledge Mobilization, a non-profit organization outside a university, the Canadian Knowledge Mobilization Forum is the biggest meeting place in Canada for discussing knowledge mobilization. <http://www.knowledgemobilization.net/> (accessed August 25, 2016).

Efforts are underway to connect Canada's knowledge mobilization researchers with like-minded colleagues internationally, such as in the U.K., where there is a well-established and robust community that has developed standardized tools to collect the evidence of research impacts.⁴⁴

Conclusions

Numbers alone, via citation metrics, evaluation framework scores, or even funds raised, only paint half a picture of research impact. By the same token, success stories based on qualitative measures alone are often viewed as anomalies. The knowledge mobilization movement still has a long way to go to become entrenched in university practices and policies across Canada.

Barometers for long-term success include changing faculty evaluation criteria documents, work loading arrangements, incentive regimes, and the perspectives of "old guard" professors and administrators who see knowledge mobilization and the need to demonstrate impact as a burden. Success will also come from hiring more professors with skill sets, networks, professional motivations, and research interests that expand beyond traditional academic training and disciplinary boundaries. Above all, it will require universities to invest in institutional supports for knowledge mobilization as they already do for technology transfer and industry liaison.

The ResearchImpact Network's efforts highlight the fact that significant knowledge is being generated and mobilized outside of Canada's research intensive universities and that knowledge transfer includes but does not begin and end with research commercialization. Its experience also reveals that universities cannot take knowledge mobilization for granted or assume that it will happen organically on and off campus.

In a more fully developed knowledge mobilization and research impact ecosystem, some professors may allocate more of their time to building and delivering research services to community and business partners than others. "Service to the community" may take on an entirely different meaning. The professor of the future may be a community builder, civic engineer, social entrepreneur, business partner, or policy reformer first and a teacher second. The extent to which more professors are able to become or work closely with knowledge mobilizers, bring their research into the classroom, be recognized for their work alongside more traditional academics, and expand what it means to do academic work in the process, will remain the short, medium, and long-term goals of the movement.

To the credit of the ResearchImpact Network and the cadre of researchers within Canada's universities whose aim is to produce community-based and business-engaged research, there are indications of a generational shift, particularly among younger professors who are attuned to the value and necessity of community as well as public and private sector outreach as part of the research process.

The shift among younger faculty in thinking about the impacts of their research is partly the result of the shift in focus by research funders: federal grants now call for a knowledge mobilization strategy. Young scholars are beginning their research careers in an environment in which impact is a regular

⁴⁴ Jonathan Grant and Saba Hinrichs, "The nature, scale and beneficiaries of research impact: An initial analysis of the Research Excellence Framework (REF) 2014 impact case studies," *Higher Education Funding Council for England*. See also *The Impact Blog* at the London School of Economics. *The Impact Blog* recently announced the appointment of an LSE Impact Blog Advisory Board composed of influential leaders from across the U.K.

component. But while knowledge translation might not be new to them, young researchers, like their more senior colleagues, might not necessarily have the skills or resources to see it through, in which case it is the obligation of the institution to provide them with supports.

Identifying the challenges associated with knowledge brokering, developing a clearer definition and framework for the role, and hiring not only the right people but dedicated knowledge brokers on campus will stabilize and enhance the effectiveness of knowledge brokering and the ResearchImpact Network. So, too, will moving beyond a project-based approach to knowledge brokering.⁴⁵

The goal of knowledge mobilization is to get research into the hands of decision-makers, policy-makers, business operators, and practitioners. And while the disparate and sometimes amorphous nature of research means that identifying who those end users are, beyond a per project basis, can be a challenge, involving them in the process of defining knowledge mobilization and research impact will democratize research processes and provide member universities and potential partners with a clearer sense of purpose.

Efforts are already underway. For example, “the co-produced pathway to impact,” as outlined recently by David Phipps and colleagues, maps knowledge mobilization processes from research to impact and involves academic researchers and their non-academic partners at each stage of the research process in order to enhance motivation, engagement, mutual understanding, research relevance, dissemination, and implementation. The co-produced pathway aims to foster greater research impact by supporting long-term relationships between academic and non-academic partners.⁴⁶

Institutions, of course, need to tailor knowledge translation initiatives to their researchers, organizations, partners, and communities, but too many definitions of and approaches to knowledge mobilization, like inaccessible research formats, can dilute efforts to describe and understand it. Prioritizing a concise set of key operational principles and developing a consensus about their significance will help ResearchImpact Network members overcome a reliance on traditional assumptions, metrics, and counting. It will help knowledge brokers build the narratives they need to improve dissemination and uptake as well as track the changes that result from community-campus partnerships.⁴⁷

The most significant barrier may simply be a lack of knowledge about knowledge mobilization among potential end users. In an era of multi-disciplinary research agendas, partnership building, and experiential or work-integrated learning, dedicated on-campus knowledge brokering or mobilization initiatives will play a leading role in communicating and disseminating the social value of university-based research to non-academic communities.

In the meantime, universities need more options for determining and demonstrating how the work professors are doing is useful and can be made more useful yet. For many researchers and

⁴⁵ Chew, Armstrong, and Graham, 335-351 and Lightowler and Knight, 317-334 as cited in Phipps, Johnny, and Wedlock, 72.

⁴⁶ David Phipps, Joanne Cummings, Debra Pepler, Wendy Craig, and Shelley Cardinal, "The Co-produced Pathway to Impact Describes Knowledge Mobilization Processes," *Journal of Community Engagement and Scholarship* 9, Number 1 (2016): 31-40.

⁴⁷ Naomi Nichols, Stephen Gaetz, and David Phipps, "Generating Social Change Through Community–Campus Collaboration," *Journal of Higher Education Outreach and Engagement* 19, Number 3, (2015): 7-32.

increasingly for research institutions, simply counting publications, citations, or awards is not enough.

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