

How a Networked Approach to Building Capacity in Knowledge Mobilization Supports Research Impact

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Abstract

Research impact is emerging as a common feature in national research systems. Knowledge mobilization (KMb) includes efforts undertaken to aid and accelerate research impact pathways by directing focus to processes that support impact. To date, researchers and universities have struggled to increase their capacity in KMb. This study explores the perceptions held by 16 leaders of Research Impact Canada, representing 14 networked universities, about the usefulness and use of networked learning to build institutional capacity in KMb. The analysis of data, which was collected using a mixed-methods survey design, highlights two overarching themes: 1) the contextual variability in how institutions engage in KMb work, and how practice-based subgroups can support the diverse KMb needs of different institutions; and 2) how capacity is developed through networked learning is distributed among individuals and groups within institutions, and how networked institutions need to be self-referential to the ways knowledge about KMb is sourced, validated, shared, interpreted, and employed.

Keywords Knowledge mobilization; Research impact; Networks; Research institutions; Capacity building

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Introduction

Research impact is emerging as a common feature in national research systems. In plain terms, *research impact* (hereafter, *impact*) refers to the outcomes of research upon broader society, those “intended as well as unintended, immediate as well as protracted” (Federation for the Humanities and Social Sciences, 2017, p. 4). Some countries such as the UK (Research Excellence Framework [REF]), Australia (Engagement and Impact Assessment [Australia Research Council, 2015]), and the Netherlands (Standard Evaluation Protocol [Koninklijke Nederlandse, n.d.]) have adopted system-wide impact assessment schemes. In other countries, researchers are required to describe the impact of their research in research grant applications and reports. In Canada, these developments are exemplified by a knowledge translation strategy for health research grant applications or a knowledge mobilization (KMb) strategy for social sciences and humanities grant applications. These two systems have been referred to as assessment driven (UK, Australia) and mission driven (Canada), with the latter being driven by researcher, institution, or funder goals (Bayley & Phipps, 2019). At present, there is a proliferation of assessment-driven systems and their associated impact metrics, despite their sizeable and varied costs for researchers and institutions (Williams & Grant, 2018). Few studies have looked elsewhere to approaches garnering success in mission-driven systems.

The present study spotlights the case of Research Impact Canada (RIC), a network of 17 universities (16 in Canada plus the University of Brighton in the UK) that was founded in 2006 to support researchers creating impact in a mission-driven system (RIC, 2017, 2018a). RIC is a community of practice designed to share diverse methods for supporting connections between science (in all disciplines) and society to maximize the social, cultural, health, economic, and environmental impacts of research on local and global communities.

The aim of this article is to present findings from an ongoing case study evaluation of RIC's efforts that illustrate the usefulness and use (Penny Cooper & Associates, 2017) of its network activities to build institutional capacity for KMb. It addresses the following question: To what extent does a networked approach to building institutional capacity for KMb result in learning that is useful and that contributes to the use of KMb concepts in practice? While there is much literature on the public policies that drive the impact agenda and the practice of maximizing impacts in research projects, there is comparatively little empirical evidence on the role of the institution (e.g., policies, procedures, staff, funding). Institutions are the members of RIC and the mission of RIC is to build institutional KMb capacity; hence, the evaluative work presented in this study provides evidence about which efforts to build KMb capacity are useful and contribute to the use of KMb practices for RIC members.

Theoretical perspectives

The article begins by briefly reviewing recent developments in the global impact landscape and describing how RIC is situated in that landscape.

Planning for impact and the development of impact networks

Assessing impact, as well as describing and explaining its relationship with research

use, has mushroomed as a field of study in the past 20 years (Boaz & Nutley, 2019). The most prominent development internationally has been the rise of assessment-driven research funding systems (Milat, Bauman, & Redman, 2015); the UK's REF is the most developed and widely known example. Now approaching its second iteration—the first being REF 2014, which itself built upon the UK's Research Assessment Exercises—REF 2021 will allocate about £2 billion in annual research funding based on a ranked scoring of universities. One-quarter of the score will be tied to each university's ability to demonstrate the wider impacts of its research (Stern, 2016). This model has been catching on; Diana Hicks (2012), for example, identified 14 national performance-based research funding systems for universities: Australia, Denmark, Finland, Norway, Belgium, Poland, Slovak Republic, Sweden, UK, Italy, Portugal, Spain, New Zealand, and Hong Kong. The expansion of these systems has resulted in unintended effects that are still emerging and a cost-benefit balance that remains uncertain (Hodder & Hodder, 2017; Martin, 2011; Terämä, Smallman, Lock, Johnson, & Austwick, 2016). For instance, while it is known that REF 2014 cost the UK higher-education community approximately £246 million to operationalize (about one percent of the UK's total research budget; see Farla & Simmonds, 2015), other costs, such as the narrowing of academic priorities and an increase in research income inequality among institutions, are still emerging (MacDonald, 2017; Pinar & Unlu, 2019).

In contrast with assessment-driven systems and their concomitant focus on measuring impact, mission-driven systems direct focus to the theoretical frameworks that underpin and inform impact pathways. Mission-driven systems do not incur the costs of assessment and maintain greater academic freedom by putting the choice to pursue broader impacts on the researcher, not making it a requirement. Several recent reviews of impact frameworks (see Greenhalgh, Raftery, Hanney, & Glover, 2016; Rivera, Kyte, Aiyegbusi, Keeley, & Calvert, 2017) demonstrate that many find their origins in the Payback Model. Dating back to 1996, the Payback Model has two key features: 1) a seven-stage logic model from topic or issue identification to final research outcomes, and 2) five bins for identifying impact (e.g., knowledge, benefits to policy). More recently, the Co-Produced Pathway to Impact (CPPI; Phipps, Cummings, Pepler, Craig, & Cardinal, 2016) is a framework first published in 2016 (and thus absent from some recent reviews). Unlike frameworks that conceptually model impact pathways and are not intended for use in practice (e.g., Field, Booth, Ilot, & Gerrish, 2014), the CPPI has been adopted, adapted, and implemented by several Canadian research networks, including PREVNet, which co-produced the CPPI for its projects that are achieving impact on bullying prevention. The CPPI sets up a relationship between researchers and other research stakeholders (in its phrasing, co-production partners) throughout impact pathways that is predicated on stakeholder engagement before, during, and after the research has been completed. These relationships between researchers and stakeholders are particularly important within mission-driven systems that focus more on planning for impact (*ex ante*, starting at the beginning and proceeding throughout the research process) than on impact assessment (usually *ex post*, at the end of the research process).

PREVNet is an example of a research network designed to create impacts from research on bullying. Networks designed to create socioeconomic impacts in a specific discipline are ubiquitous. In fact, Canada has a funding program called the Networks of Centres of Excellence (2017) that “offers a suite of programs that mobilize Canada’s best research, development and entrepreneurial expertise and focus it on specific issues and strategic areas” (para. 1). In comparison, RIC is a fundamentally different network in that it does not focus on a specific discipline or subject. RIC is a collective of institutions examining their policies, practices, staffing, and services that support researchers and research stakeholders that are working to maximize the impact of research across disciplines. The Advancing Research Impact in Society (ARIS) network is a similar network based in the U.S. but with a focus on the researcher rather than the institution. Moreover, while there are many networks focused on commercialization as an impact practice (AUTM based in the United States, PraxisAuril in the UK, Knowledge Commercialization Australia), RIC and ARIS are the only two networks in the world focused on non-commercial transactions that maximize the impacts of research across all disciplines.

KMb and the case of Research Impact Canada

KMb is concerned with the processes and activities that enable research to inform decisions about public policy, professional practice, and social services. Identified by some as an umbrella term for the sharing of knowledge (e.g., Beckett, Farr, Kothari, Wye, & le May, 2018), KMb has relevance for research from the social sciences and humanities, health, and natural sciences and engineering. At the institutional level, KMb involves a suite of services that work together to support the multidirectional connection of researchers with decision-makers (Phipps, 2011). The foundation of any institutional KMb capacity is thus the connections among researchers and research stakeholders who can take up the results of research and turn them into public policies, professional practices, and social services (Phipps et al., 2016; Beckett et al., 2018).

Founded in 2006 by York University and the University of Victoria, RIC is Canada’s KMb network. The 17 institutions currently constituting RIC have joined at various points since its foundation.

2010–2011: Memorial University of Newfoundland and Labrador, Université du Québec à Montréal, University of Guelph, and University of Saskatchewan

2012: Université du Montréal, Carleton University, Wilfrid Laurier University*, and Kwantlen Polytechnic University

2014–2015: McMaster University and University of New Brunswick

2017: University of British Columbia, Western University, and the University of Brighton (U.K., first international affiliate member)

2018: University of Alberta, University of Winnipeg, Dalhousie University, and University of Ottawa

*Note: Wilfrid Laurier and Western University have subsequently stepped away from RIC.

These institutions are a mix of large universities with medical schools, comprehensive universities, and primarily undergraduate universities. Some are located in large urban centres, while others are in small cities and in suburban settings.

In addition to their operational and geographic diversity, member institutions are responsive to local and regional opportunities and constraints:

Network members all have a different knowledge mobilization approach, portfolio, and capacity. For example, some members have a dedicated unit for knowledge mobilization across campus with multiple staff, while others focus their work on a faculty or college of larger institution, or function as a semi-autonomous centre embedded in the local community. Similarly, RIC member institutions all have individual plans to track their knowledge mobilization work. (Bergen, 2019, para. 8)

Thus, while RIC's member institutions have also been termed KMb units or nodes (McKean & Robbins, 2016), what that means in terms of the different actors and their interactions varies across institutions. For example, institutional KMb services have included research partnerships, support for grant applications, research communications, public and community engagement, engaged scholarship, service learning, student internships, and government relations. It is this heterogeneity among member institutions and their connections with one another that contributes to RIC as a compelling mechanism for building institutional capacity for KMb. Together, they build value for one another by sharing knowledge and resources, reducing uncertainty in the Canadian mission-driven impact environment, enhancing the legitimacy of their practice, attaining collective goals, and expanding interconnections within their local, organizational, and external contexts (Muijs, West, & Ainscow, 2010; RIC, 2018a).

As a network, RIC builds institutional capacity to help Canada's researchers and students span boundaries, collaborate, and connect their work to new services, products, processes, systems, public policies, and innovations with social, economic, cultural, environmental, commercial, and scientific value. The vision of RIC is to become a globally leading network that enables researchers and their partners to demonstrate a contribution to research excellence and outline its impact. The mission of RIC is to build Canada's capacity to be a leader in creating value from knowledge by developing and sharing best practices, services, and tools, and by demonstrating the positive impacts of mobilizing knowledge to relevant stakeholders and the public.

As a community of practice, RIC builds the capacity of its members to support diverse KMb practices. RIC's Professional Development Committee oversees four capacity-building initiatives.

KMb Tools: RIC is capturing the diverse KMb practices of its member institutions, writing them up as tools and posting them on the RIC website. Each tool is developed with the following elements: a) purpose; b) key items required; c) intended audiences; d) resources required; e) planning/workplan; f) evaluation; g) references; and h) contact information. One example is the KMb tool for an engaged scholarship event titled KM in the AM (RIC, 2018b) developed by the Knowledge Mobilization Unit at York University in Toronto, Canada. In addition to the sharing of experiences

that follows from different institutions utilizing these tools, efforts are underway to record members' experiences with RIC's KMb Tools to build collective understanding of why certain strategies work in particular contexts.

Webinars: All of RIC's KMb Tools are publicly accessible, but live webinars are presented for RIC members only. The recordings are later posted and made publicly available. These webinars are on diverse topics related to KMb and impact, and they provide a link to additional resources and tools. One example is the webinar "Supporting Research Impact in Grant Applications" (RIC, 2019) where KMb York presented the theory underpinning the tools developed at York University to support impact strategies in grant applications.

KMbuddy: The Knowledge Mobilization Buddy (KMbuddy) is a new initiative designed to fund a capacity-building program between two or more RIC members. Often this will involve a trip to establish a mentor–mentee relationship built around a specific need of the mentee and specific capacity or competence of the mentor. This program was rolled out in spring 2019, with KMbuddy activities occurring over the summer and fall of 2019.

Dr. RIC: Dr. RIC is a monthly membership engagement video call where members set the agenda each month. The agenda is distributed to the RIC network, and members interested in the agenda can dial in for one hour of membership exchange. It is the exchanges between members that build capacity. Often members struggle with similar issues but struggle in isolation on their own campuses. RIC and Dr. RIC provide a forum for "finding your tribe." For example, one RIC member asked to discuss internal grants and awards for KMb. The response from other members resulted in the creation of a document with six such examples, with links to guidelines and contact details for more information. Another discussion on open access resulted in a group of four librarians connecting on the role of libraries in KMb and a librarian from York University providing input into the work of librarians at the University of British Columbia.

Each initiative offers a different way of engaging with the RIC network, including more traditional transfers of information (webinars) as well as exchange-based interactions (KMb Tools, KMbuddy, Dr. RIC). While there are many anecdotes of individual RIC members benefitting from the expertise of another, anecdotes are not evidence. RIC's evaluation captures not only quantitative data on the reach and use of its initiatives but also narratives of how participation in RIC has created value for its members.

Methods

A case study evaluation (Russell, Greenhalgh, & Kushner, 2015) provided the overarching methodological approach of this study. The major advantage of a case study evaluation is accessing the "potential for communicating in ways that match how people learn, to promote the likelihood that they will engage with the findings" (Simons, 2015, p. xii). With RIC as the global-level unit of analysis, this methodology recognized that while the formal generalization of findings was not possible, lessons emerging from the ongoing evaluative efforts are likely to have informative value for the collective process of knowledge accumulation in the impact field.

Evaluation framework

A developmental approach (Patton, 2011) was adopted for this case study evaluation in order to support RIC's efforts to build institutional capacity for KMb in order to aid and accelerate impact. Developmental evaluation recognizes the collaborative, complex, and evolving nature of change processes (Preskill & Beer, 2012) and the important role participants can play in goal setting (Patton, 1994). The overall goal of the RIC evaluation is to inform and support continuous improvement, adaptation, and intentional change in the complex, dynamic environments of RIC as it pursues its vision. The goal of this study was to explore how RIC's activities to build capacity for KMb have contributed to the professional development of its internal membership.

A co-produced evaluation framework (see Appendix A; Bergen, 2019) was central to this work. The first element of the evaluation framework was a logic model linking the evaluation questions to RIC's audiences, enabling conditions, common activities, short- and long-term outcomes, and vision. It was important for the logic model to represent the diversity of RIC's member institutions, which are organized to respond to local and regional issues (McKean & Robbins, 2016). The second element of the framework was a measurement overview linking elements of the logic model to data collection and analysis methods that were a) flexible enough to have utility between member institutions and b) feasible given the resource constraints of RIC and its member institutions.

Data collection and analysis

Methods for data collection and analysis followed a convergent design (Creswell & Plano Clark, 2018), wherein quantitative and qualitative data were collected concurrently, analyzed separately, and then merged for comparison and integration (Li, Marquart, & Zercher, 2000). This approach supported the pragmatic orientation (Feilzer, 2009) of the evaluation that sought "to draw from the strengths and minimize the weaknesses" (Johnson & Onwuegbuzie, 2004, pp. 14–15) of quantitative and qualitative data when forming inferences about RIC's approach to building institutional capacity for KMb.

A survey was administered to all member institutions with internal RIC leaders able to respond ($N = 14$), which included members who held a position in the oversight of RIC's activities and the strategic planning of the network. Sixteen responses were received (two institutions had two respondents each). Respondents held a variety of institutional positions (e.g., manager of KMb, coordinator of strategic research initiatives), with approximately half situated in a research services office and the remainder positioned to support community-based research, large-scale research programs, and research centres or libraries. Two instruments were adapted for use in the survey: a) Hilary Edelstein's (2016) instrument¹ for studying collaborative research partnerships for KMb and b) Penny Cooper & Associates' (2017) instrument, developed for the evaluation of the Michael Smith Foundation for Health Research. Whereas the first instrument provided measures to explore factors affecting the development and success of collaborations structured around research use and impact, the second provided measures to explore the extent to which network activities were contributing to institutional KMb capacity. The organizing concepts of *usefulness* and

use described by Penny Cooper & Associates (2017) were focal points in this study. Usefulness referred to how RIC's activities were perceived in terms of their appropriateness, applicability, and practicality. Use referred to how RIC's activities have contributed to institutional KMb practices, including contributions to awareness, knowledge, skills, and positive attitudes about KMb. Prior to its distribution, the survey was piloted with several researchers with expertise in program evaluation and KMb.

Analysis of the quantitative data involved descriptive statistics and correlation analysis. Given the small sample size, statistical generalizations to a defined population were not made. Instead, the focus was on how concepts in the KMb and impact literatures helped in understanding and explaining observed findings (i.e., analytic generalizations; Onwuegbuzie & Collins, 2007). Analysis of the qualitative data followed a general inductive approach (Thomas, 2006) comprising four iterative steps: a) the thematic coding of text segments, b) synthesizing codes to form categories of consolidated meaning, c) recoding and recategorizing as more attuned perspectives on patterns in the data were developed, and d) synthesizing categories to identify underlying concepts within the data through a process of integration and refinement. Once each data set had been fully represented in meaningful ways, findings were merged to enable the identification of key features being converged upon. Respecting the developmental approach of the RIC evaluation, input and involvement of the RIC membership was critical at this stage in order to ascertain how emerging findings could be interpreted in the light of different institutional contexts, affirm current practices or inform new activities, and guide strategic questions regarding RIC's successes and challenges (Preskill & Beer, 2012). Moreover, interpreting findings in collaboration with RIC as the unit of analysis aimed to support the organization in "becoming more adaptable to the uncertain and unpredictable dynamics of complexity" (Patton, 2015, p. 6). Several feedback loops (summarized below) between the evaluation team and different RIC committees framed this process.

April 2019: Emerging findings are shared with the RIC Governance Committee, resulting in refinements to how findings could speak to the RIC network at large.

May 2019: Findings are shared with the RIC Evaluation Committee, with a major focus on the factors that might explain survey participants' qualitative and quantitative responses.

July 2019: A second meeting is held with the RIC Evaluation Committee involving the final review, analysis, and clarification of findings; a discussion of the implications for the RIC network; and planning for how findings would inform later phases of the developmental evaluation.

September 2019: Findings, implications, and future evaluation plans are shared with the full RIC membership at their annual in-person meeting, providing an opportunity to discuss the implications and to share feedback on next steps.

Findings

Findings are presented in relation to the research questions, with emphasis given to the results converged upon by the quantitative and qualitative analyses, and refined through the feedback loop process. Note that findings crystallized throughout the feedback loops are identified using a bracketed “FL.” The findings begin with a look at the institutional and network contexts of RIC in order to characterize subsequent findings. Note that “members” is used throughout as a label for participants in order to convey their membership in the RIC network.

Institutional and network contexts for KMb

Institutional factors

Within member institutions, a variety of labels were used when members were asked to describe their institutional role. The most common roles were *KMb support for grant applications* ($n = 10$), *knowledge broker* ($n = 9$), *research communication* ($n = 8$), and *community/public engagement* ($n = 7$). Other roles, such as *librarian and knowledge stewardship* ($n = 1$), were relatively uncommon and independently endorsed. On average, members identified with three roles. Phi product moment correlations indicated two statistically significant, strong associations between a) knowledge broker and community/public engagement ($r = .778, p = .002$) and b) KMb support for grant applications and research communication ($r = .516, p = .039$). In other words, it appeared that members viewed their institutional roles as multifaceted and thus not fully represented by one-dimensional labels.

Members were also asked to indicate the extent to which they possessed sufficient resources for their work with RIC. Reflecting the prevalence of KMb training among the sample—with all but three having completed formal training—most members agreed² they possessed the necessary skill set for KMb ($n = 12$) as well as the institutional support needed for engaging with the network membership ($n = 10$). In contrast, half ($n = 8$) of the membership felt ill-equipped when it came to tools for KMb, and only two members felt they had sufficient time for engaging with others in the network. Yet, that network activities on occasion conflicted with other scheduled commitments was not the sole time-related challenge; time was also a challenge in staffing constraints and turnover (e.g., changes in institutional leadership), as reflected in one member’s desired future influence of RIC: “It has added an extra 1/3 FTE [full-time equivalent] load, at a time when my unit has lost 1 FTE ... [so] I would hope for a dedicated FTE as KMb broker and RIC Liaison.” Due to the incidence of staff mobility within member institutions, and thus the time required to rebuild institutional capacity for KMb, preserving institutional learning for KMb was an ongoing challenge.

Expanding on the importance of institutional learning, several associations between reported resources and the attributes of member institutions were examined. Spearman’s rank-order correlation revealed that the duration of membership with RIC exhibited a statistically significant, strong positive correlation with both KMb skills ($r_s = .637, p = .008$) and KMb tools ($r_s = .650, p = .006$). That is, members’ perceptions that they possessed sufficient KMb capacity were positively related to the length of time their institution had been involved with RIC. Conversely, membership

duration was not statistically significantly correlated with the institutional support or the time available for KMb work, suggesting these resources have been less amenable to change. A point to emphasize here is that KMb skills and KMb tools are resources within each member’s control (i.e., not necessarily restricted by an institution), whereas institutional support and time are institutionally bound resources (FL).

Network factors

Factors characterizing RIC’s work between member institutions were also examined (see Table 1), uncovering a division in network functions with higher and lower levels of endorsement. Specifically, it appeared the four functions with the highest level of endorsement corresponded to efforts to share leadership and generate engagement among the membership. Conversely, it appeared the remaining functions corresponded to efforts likely to differ according to each member institution. Providing some perspective on this finding, participants discussed how an expanding network of member institutions had precipitated an unexpected challenge: “A growing membership has reduced the one-on-one calls and interactions among members.” This change in interactions was echoed by others, who identified that “growing the network [and] increased membership, particularly from U15s [15 of Canada’s most research-intensive universities]” had been both a boon and a challenge for networked learning. Members further referenced how the increasing variance in member institutions’ KMb needs had the effect that “it is not always easy to adapt the practices of other members.” As such, as a network of diverse institutions, it had become increasingly important that the sharing of “what works” was accompanied by an exposition of *why* it worked in a particular context (FL).

Table 1: The degree to which RIC effectively performs various network functions

Network function	M(SD)
Engage all members in network activities	3.60(0.51)
Include members in decision-making processes to move the network forward	3.60(0.63)
Recognize the value of each member	3.46(0.52)
Minimize the barriers to being involved in the network	3.38(0.51)
Align its activities with the memberships’ needs	3.15(0.69)
Work together to address the needs of its target audiences (e.g., researchers)	2.86(0.86)
Work to match the goals of the different institutions	2.54(0.93)

Note: Factors were scored on a 4-point scale, with 4 being the highest value. *M* and *SD* represent mean and standard deviation, respectively.

Additionally, when members described how the sharing of information about KMb was occurring, both instrumental (i.e., related to work tasks) and expressive (i.e., not related to work tasks) relations were described. Instrumental relations included advice seeking, collaboration, the exchange of best practices, the exchange of tools and resources, and the exchange of new ideas. Expressive relations included

social support and energy exchange (i.e., interactions that leave an individual feeling more positive, inspired, and motivated; Daly, Liou, & Brown, 2016). Given the importance members assigned to these different ways of interacting, capacity building for KMb appeared to be multi-relational activity.

Usefulness of a networked approach to building institutional capacity for KMb

As a proxy for the perceived value of specific KMb activities, members were asked to report on the usefulness of RIC’s networked approach to building capacity for KMb as well as how its activities have contributed to their conceptual development around KMb (see Table 2). Usefulness was examined using four indicators, which together suggested that network activities were well received. Yet, while members were highly consistent (Cronbach’s $\alpha = .909$) in their responses, the relevancy of networked learning was a point of some disagreement. One member, for example, discussed an instance in which their specific, immediate KMb needs misaligned with the topical schedule of network activities, though stressed that “this difficulty should not reflect negatively on [RIC]. RIC seems to be serving those whose positions plant them firmly in the knowledge brokerage space quite well.” Others, however, found those same activities to be highly relevant for their KMb work. These differences appeared to speak to the ebb and flow of relevancy in networked learning opportunities in light of member institutions with different KMb goals, audiences, and needs.

Indicators for members’ conceptual development around KMb were observed to be predominately positive, suggesting growth in knowledge about KMb tools and resources as well as in understanding, attitudes, and confidence. For example, reflecting on the influence of network membership on day-to-day work, one member expressed how involvement “makes me more confident in my discussions about KMb with faculty and admin. I also have a better plan of action to improve KMb practice on campus.” Notwithstanding similar evidence of growth, a divide between developments in KMb theory and practice was noted (FL), echoing other recent studies of KMb in research organizations (e.g., Powell, Davies, & Nutley, 2017, 2018). Specifically, while members extolled their “greater understanding of KMb in the university setting,” they were less certain about improvements in their understanding of KMb theory.

Table 2: Descriptive statistics for members’ perceptions about the usefulness of network activities

Measure and associated indicators	M(SD)
Perceived usefulness – The KMb topics I have been engaged in with Research Impact Canada:	
Met my expectations	4.31(0.48)
Were of high quality	4.23(0.60)
Resulted in learning that I was able to apply	4.00(0.76)
Were relevant to my current work	3.93(1.10)
Internal consistency	.909

Table 2 (continued)

Measure and associated indicators	M(SD) Conceptual
development – My participation in Research Impact Canada has led to specific improvements in:	
My awareness of available tools and resources related to KMb	4.36(0.50)
My understanding of KMb practices	4.36(0.63)
My attitude toward KMb	4.13(0.83)
My confidence in enacting KMb practices	4.00(0.95)
My understanding of KMb theory	3.67(0.82)
<i>Internal consistency</i>	.820

Note: All measures were scored on a 5-point scale, with 5 being the highest value. *M* and *SD* represent mean and standard deviation, respectively.

When asked to think ahead to future participation, members expressed several suggestions for how network activities could be made more useful, including exploring KMb topics in greater depth; creating opportunities for members to collaborate on specific KMb products and on network development (e.g., developing a collective statement on tenure and promotion that accounts for the importance of KMb); and developing processes that support members in importing and adapting KMb practices, ideas, tools, and resources found to be effective in other institutions (FL). The sentiment was that a focus on these suggestions would serve to further catalyze the use of KMb concepts in practice.

Use of KMb concepts in practice

The final dimension of the survey explored how RIC's members have used concepts from networked learning about KMb in practice. Given the challenges associated with studying how evidence is used (e.g., in the case of research evidence, see Gitomer & Crouse, 2019), findings presented in this section should be taken as indications of use rather than conclusive evidence.

The first measure of use included three brokering-specific indicators (see Table 3). Consistent with the finding that not all members identified with the role of knowledge broker, few (between $n = 1$ and $n = 5$) agreed with the indicators of this measure. Even so, members' responses about brokering-specific use were highly consistent (Cronbach's $\alpha = .959$) and found to be a strong positive correlation with formal membership duration ($r = .793, p = .002$) as well as a moderate positive correlation with perceptions of usefulness ($r = .642, p = .025$) and perceptions of conceptual development ($r = .688, p = .013$). The association with membership duration was expanded in the open-ended responses of four members who reported that it was "too soon to tell" whether networked learning about KMb will have influence on their brokering of connections between researchers and research stakeholders. As one member observed, though, participation in a respected and recognized KMb network

had “supported discussion with institutional leaders around the value of the KMb brokering role(s) within the university.” What can be said about the brokering-specific use of KMb concepts is that it appears benefits from networked learning have accrued most notably in the long term and when activities have been perceived as useful (FL).

Table 3: Descriptive statistics for how network activities have contributed to members’ KMb practice

Measure and associated indicators	<i>M(SD)</i>
Use – Brokering-specific – <i>My participation in Research Impact Canada has led to specific improvements in:</i>	
The quality of interactions I have brokered between researchers and research users	3.42(0.79)
The types of interactions I have brokered between researchers and research users (e.g., research development interactions, dissemination interactions)	3.08(0.79)
The frequency of interactions I have brokered between researchers and research users	2.75(0.62)
<i>Internal consistency</i>	.959
Use – General – <i>Within the past 12 months, how well has Research Impact Canada:</i>	
Generated increased learning opportunities related to KMb	3.25(0.62)
Provided professional development opportunities	3.18(0.60)
Used information and materials provided by the membership for decision-making purposes	3.17(0.72)
Enhanced the importance of KMb practices	3.15(0.55)
Increased the body of knowledge you have for making informed decisions about KMb practices	3.15(0.69)
Enhanced the potential for greater impact from your work with target audiences (e.g., researchers and research users)	2.70(0.67)
Helped your institution bridge the gap between research, policy, and practice	2.38(0.92)
<i>Internal consistency</i>	.880

Note: General use measures were scored on a 4-point scale, with 4 being the highest value; brokering-specific use measures were scored on a 5-point scale, with 5 being the highest value. *M* and *SD* represent mean and standard deviation, respectively.

The second measure of use included seven general indicators (see Table 3). In contrast with brokering-specific use, members agreed with the content of five of these indicators, suggesting that networked learning has spurred some use of KMb concepts in practice. Responses to these indicators were highly consistent (Cronbach’s $\alpha = .880$) and found to be moderately positively correlated with perceptions of conceptual development ($r = .596, p = .024$) and strongly positively correlated with perceptions of usefulness ($r = .788, p < .001$). Again, it appeared that

attention to the perceived usefulness of network activities was an important precondition for the extent to which KMb concepts were used in practice. Members' open-ended responses shed light on what some of these general uses have looked like:

an improved ability to implement KMb into day-to-day work (e.g., "I am able to develop more theoretically sound KMb plans and integrate them into projects more thoroughly");

the "sensitization of the [institutional leaders] and the direction of some departments to the importance of knowledge mobilization";

the dissolution of feelings of isolation, replaced by enthusiasm for "being part of a national movement";

an expansion of institutional perspectives on KMb through enabling "a look at the broader knowledge mobilization picture,"

improved access to and awareness of useful KMb concepts (e.g., "I have been able to access insight, tools, and resources that have had a direct and positive impact on my work," and "[participation] has simply made me better at my work"); and

bolstered authority as an ambassador for KMb, owing to the international image of RIC as an active and reputable KMb network.

On the other hand, many members once again emphasized that it was "too soon to tell" how networked learning will lead to specific uses of KMb concepts in practice. This finding was most evident for the items that asked whether participation has *enhanced the potential for greater impact from your work with target audiences* and whether participation has *helped your institution bridge the gap between research, policy, and practice*. Yet, considering the long-term nature of impact and of bridging specific divides between different research stakeholders (Boaz, Davies, Fraser, & Nutley, 2019; Nutley, Walter, & Davies, 2007), the protracted and non-linear nature of these types of use is to be expected.

As a final point of reflection, members were asked to think ahead to outcomes they were hoping to see from network participation in the years to come. Three main outcomes were described (FL): increased buy-in from institutional leadership in terms of dedicated resources (predominately time); improved and sustainable sharing of knowledge and resources among member institutions; and a strengthened profile of KMb among researchers and stakeholders, particularly researchers (e.g., "We would like to use our membership to create a campus network of KMb").

Discussion

Findings from this study provide initial empirical evidence of the benefits and challenges associated with a networked approach to building institutional capacity for KMb in a mission-driven impact system. Participants were clear in their views that participation in the RIC network of universities had contributed to their KMb practice. At the same time, considerable variability was observed regarding the extent to which networked learning was useful and what use looked like. Two overarching themes from this study can be understood in light of pertinent ideas from the KMb and impact literatures.

First, the contextual variability in how institutions engage in KMb work was accentuated through a networked approach to capacity building. For some time, the contextual dependence and variability of those working in KMb roles has been recognized (e.g., Cooper, 2014, Greenhalgh, Robert, Macfarlane, Bate, & Kyriakidou, 2004; Urquhart, Porter, & Grunfeld, 2011). The specific KMb goals and needs of institutions are necessarily dynamic to their local issues and constraints. Considering the identified roles of participants in this study as well as the correlations among those identifications, there was evidence that KMb needs aligned with two broad categories of methods for creating impacts (Bayley & Phipps, 2019a): a) dissemination or transfer methods (i.e., roles aligned with communication and grant-support aspects of KMb), and b) co-production or engaged methods (i.e., roles aligned with brokering and engagement aspects of KMb). The effect of this need diversity was that initiatives targeted at the whole network were at times askew with the specific KMb needs of individual institutions, as reflected in the relevancy of network learning, which exhibited the lowest mean and greatest variance of the indicators for usefulness. Moreover, although some members seemed aware of the diversity of KMb practices in other institutions (particularly those with more experience in the network), it was a challenge to understand how to collaborate effectively with other institutions or import practices in ways that attended to differences in context. This point speaks to the finding that increasing network diversity was both a boon and a challenge; greater diversity can mean greater access to ideas and resources as well as increased potential for innovation (Shearer, Lavis, Abelson, Walt, & Dion, 2018), yet harnessing that diversity requires a substantive time commitment and support across multiple levels (local, organizational, network).

An opportunity to address this challenge could be to explore how practice-based subgroups can support the diverse needs of different institutions concurrently with the broader vision of the network. Recent study of network concepts applied to KMb suggests that linked subgroups have the potential “to establish an environment more conducive to change” (Glegg, Jenkins, & Kothari, 2019, p. 22). By drawing on a framework for the diversity of KMb approaches—such as Huw Davies, Alison Powell, and Sandra Nutley’s (2015) eight KMb archetypes (e.g., producing research-based knowledge products, brokering, and intermediation)—networked institutions are positioned to explore a) how subgroups focused on specific KMb approaches can accelerate capacity building and improve the relevancy of network activities, and b) how subgroup learning can expand the pooled KMb capacity of the whole network. Relatedly, it would be important to explore the network systems and structures required to facilitate flows of KMb-related information and resources within *and between* practice-based subgroups.

Second, benefits that accrue from networked learning at the institutional level need to be attuned to how that capacity is distributed among individuals and groups within institutions. Summarizing the work of a number of organizational and network learning scholars, Omar Belkhdja, Nabil Amara, Réjean Landry, and Mathieu Ouimet (2007) observe that

the transition from individuals to the organization seems ... to stem from two main elements: first, the incorporation of knowledge into

organizational memory, structures, and routines; and second, the usefulness of the knowledge as perceived by the individuals who make up the different organizational units. (p. 389)

Similarly, emerging work that blends KMb, complexity, and network concepts (e.g., Beckett et al., 2018; Kitson, Brook, Harvey, Jordan, Marshall, O'Shea, & Wilson, 2018) calls to question how capacity building across multiple levels of research systems can be mutually reinforcing. In the case presented here, a challenge was to ensure that networked learning was preserved and iterated upon in order to contribute to institutions' long-term KMb goals. For example, time constraints critically impacted participants' ability to understand, import, and adapt KMb tools from other institutions. Building institutional capacity for KMb through a networked approach required being self-referential to the ways knowledge is sourced, validated, shared, interpreted, and employed. In this way, RIC is mobilizing knowledge about KMb. It stands to reason that a topic deserving further exploration is how building institutional capacity is reinforced by paying attention to the capacity of individuals and groups within institutions. In relation to the skills (i.e., impact competencies; Bayley, Phipps, Batac, & Stevens, 2018; Bayley & Phipps, 2019b; Mallidou, Atherton, Chan, Frisch, Glegg, & Scarrow, 2018) and knowledge (i.e., impact literacy; Bayley & Phipps, 2019a, 2019b) needed to support impact, future studies could explore how individual and institutional impact competencies and literacies can work synergistically to support impact pathways.

Limitations

A perennial threat to valid interpretations in self-report data is social desirability (Gitomer & Crouse, 2019). It is possible that participants in this study responded in a way they thought would be viewed positively by others. Thus, similar to other self-report studies of KMb within research institutions (e.g., Zuiker, Piepgrass, Tefera, Anderson, Winn, & Fischman, 2019), these findings cannot be viewed as complete or accurate portrayals of changes to institutional capacity for KMb. However, despite its limitations, self-report data about KMb practices does offer a functional starting point for the more in-depth analysis of specific actions (Cooper & Levin, 2010).

Another limitation is that, in the case of simple quantitative measures, a clear line between the organizing concepts of usefulness and use is blurred. For this reason, the measures and indicators of either concept do not necessarily constitute an objective instrument; rather, in combination with the qualitative data, quantitative findings are taken as indicative of patterns in the data to be examined in greater depth in subsequent study.

Finally, it is important to reiterate that findings from this study are not generalizable, given the case study evaluation design. At the same time, however, insights from this study are informative when viewed against the wider KMb and impact literatures and provide a useful basis for future research. For instance, the opportunity for practice-based subgroups has already entered a pilot phase and generated progress within the RIC network.

Conclusion

This study provides some of the first empirical evidence about a sustained networked

approach to building institutional capacity for KMB. While examples abound of networks that seek to build capacity to support impact in a specific discipline, the case examined here provides a first look at the potential benefits and challenges of networked learning across universities in a mission-driven research system. Future research will build on this study by examining in greater detail how network efficiency can be enhanced and how institutional learning can be preserved.

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Notes

1. Edelstein's survey iterates on two well-established instruments from the health-promotion field: a) the self-assessment survey of the Center for the Advancement of Collaborative Strategies in Health (2002), and b) the Community Impacts of Research Oriented Partnerships measure (King et al., 2003).
2. "Agreed" throughout corresponds to the Likert-item responses agreed and strongly agreed?

Websites

Advancing Research in Society, <https://www.researchinsociety.org/>
 AUTM, <https://autm.net/>
 Knowledge Commercialization Australia, <https://techtransfer.org.au/>
 Michael Smith Foundation for Health Research, <https://www.msfr.org/>
 PraxisAuril, <https://www.praxisauril.org.uk/>
 PREVNet, www.prevnet.ca
 Research Excellence Framework, www.ref.ac.uk

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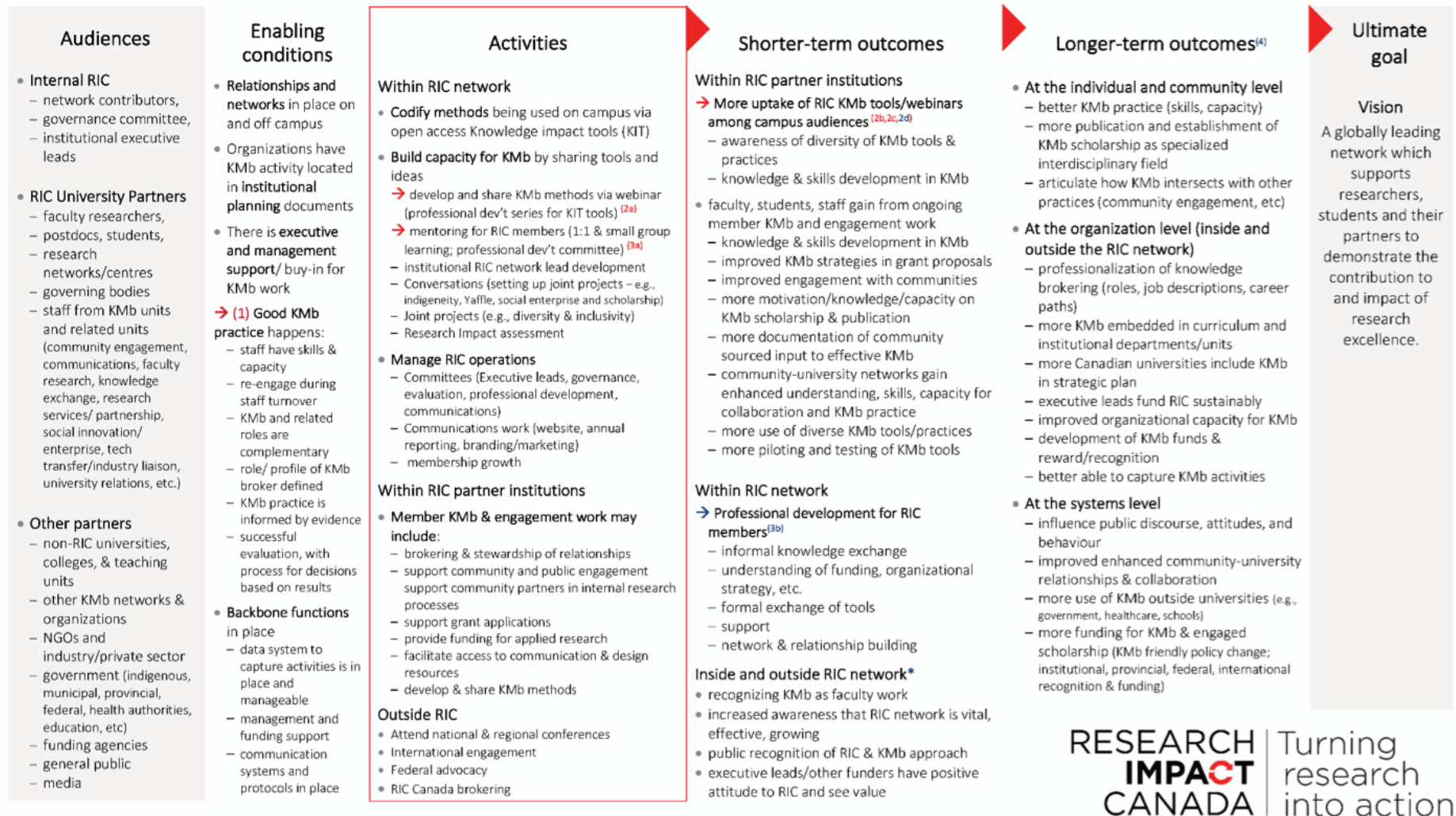
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Appendix A

Co-Produced Evaluation Framework of Research Impact Canada

Research Impact Canada logic model 2018



Appendix A (cont.)

Research Impact Canada logic model 2018

Measurement overview

Process quality measures

- (1a) self-assessment of quality/peer review within network (for webinar tools)
- (1b) self-assessment of mentoring and small group collaboration

Output measures

- (2a) # of tools and webinars created; # of training participants; website metrics
- (3a) # of mentoring sessions & small group collaboration meetings

Output measures (potential extras)

- Common quality survey items (see Appendix A)

Outcome measures and metrics

- (2b) common outcome/quality survey tool for webinar and in person event
- (2c) social media metrics (RIC accounts) around KMb tools and webinars

Outcome measures (potential extras)

- (2d) follow up to collect quote about how using KMb tools (how helped, etc) (e.g., undergrad project)
- (3b) qualitative data on how RIC works together & meaning of network for members (e.g., grad student project)

Outcome monitoring (informal)

*Be aware of these broader reputation outcomes through informal monitoring and reflection

Outcome measures (potential extras)

- (4) Report via internal reflection, annual report, ad hoc success stories on internal/external audience successes around KMb (for individuals, organizations, or systems)

- Projects on campus
- Staff/research support impacts
- Curriculum changes

- harvest/share these multiplier effects/impact journeys at annual meeting
- or, where possible, document as they occur

Outcome monitoring (informal)

*[internal reflection] on value seen by executive leads

RÉSEAU **IMPACT** | De la
RECHERCHE | recherche
CANADA | à l'action