Systems Approaches to Knowledge Mobilization

Scan of Initiatives

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Foreword

Preventing chronic disease is complex. Solutions require a multiplicity of players, in and outside of the health system, working together using integrated, multifaceted approaches. The more chronic disease prevention (CDP) efforts can be guided by 'what works', the greater the chance of success. However, because what works for CDP is complex, more traditional approaches used for evidence-based medicine are not a good fit.

A promising new approach for mobilizing evidence and knowledge in order to improve CDP efforts, is to apply concepts and tools from complex systems science to better link evidence and action. This approach includes giving more attention to 'system gaps' (as opposed to evidence gaps), better aligning the needs and interests of researchers and practitioners, focusing on systems that allow for continuous learning and adaptation, and implementing methods that enable real-time feedback about what is working, for whom, under what conditions and at what cost. In short, there is a need to develop approaches for mobilizing knowledge and evidence that better equip us to learn about what works in the dynamic and diverse environments within which CDP efforts are currently being undertaken.

In 2010-11, a group of individuals and organizations within Canada (the "Plan-Act-Learn Systems" (PALS) group) came together to further explore and build momentum for this kind of approach to advance effective chronic disease prevention. Organizations within this partnership include the Public Health Agency of Canada, Propel Centre for Population Health Impact, Canadian Partnership Against Cancer, the Canadian Health Services Research Foundation, the Heart and Stroke Foundation of Canada, and the CAPTURE project.

Since application of this kind of systems approach and related tools and resources is an emerging area of activity, as a first step, the PALS group decided to undertake a Canadian and international (UK, Australia, EU) scan that would identify and descibe initiatives that are incorporating some aspects of systems thinking in knowledge mobilization work that is relevant to supporting public health. The intent of the scan was to gather information from each of the case examples regarding their approaches, experiences and results in order to inform activities of the PALS group and others interested in exploring how a systems approach to knowledge mobilization can support effective health promotion and chronic disease prevention efforts. This report is the result of this scan process. We hope that it helps to increase understanding and application of systems approaches to help bridge knowledge to action.

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Introduction

This report summarizes lessons about a systems approach to knowledge mobilization, and identifies recommendations and strategies to inform how best to develop and support innovative knowledge mobilization approaches relevant to public health and health promotion. The intended uses of this report and its findings are to: 1) inform planning discussions for those involved in the Canadian Plan-Act-Learn System (PALS) for Chronic Disease Prevention partnership[1]; and 2) inform the ongoing development of approaches for mobilizing knowledge and evidence that will better equip us to learn about what works in the dynamic and diverse environments within which chronic disease prevention efforts are currently being undertaken.

This report provides a summary analysis of:
- Features and characteristics found in the cases that reflect a systems approach and 'solutions to complex problems'; and
- Key success factors drawn from the cross-case analysis, including lessons about creating conditions and appropriate business models, activities for knowledge mobilization in complexity, and the essential skills required.

Following the cross-case analysis, the Appendices include a summary table and brief descriptions of the nine cases.

Advisory Group

A small advisory group identified prospective cases, and provided input and analysis throughout the scan. The advisory group members were:
- Alan Best, Managing Director, InSource
- Diane Finegood, President and CEO, Michael Smith Foundation for Health Research
- Barb Riley, Executive Director, PROPEL Centre for Health Impact
- Kerry Robinson, Manager, Intervention Research & Knowledge Exchange Unit, Chronic Disease Interventions Division, Public Health Agency of Canada
- Dawn Sheppard, Senior Policy Analyst, Chronic Disease Interventions Division, Public Health Agency of Canada

The scan was led by Jamie Gamble of Imprint Consulting Inc. with support from Tarra Penney, Research Associate, Applied Research Collaborations for Health.

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[1] PALS is a group of individuals and organizations within Canada that came together in 2010 to advance a systems view of knowledge mobilization within the chronic disease prevention sector. The PALS group includes organizations (Propel Centre for Population Health Impact [Propel], Public Health Agency of Canada [PHAC], Chronic Disease Prevention Alliance of Canada [CDPAC], Canadian Partnership Against Cancer [CPAC], and Canadian Health Services Research Foundation [CHSRF]) and one initiative (Canadian Platform to Increase Usage of Real World Evidence [CAPTURE]) that are leading the process of linking evidence and action in health, with a major focus on preventing chronic disease at a population level.

Scan Process

To initiate the scan, a long list of possible organizations and initiatives in Canada and internationally were identified by the advisory group. The following criteria guided the search for possible organizations and initiatives using systems approaches to knowledge mobilization to include as cases for examination:

- Intermediaries operating on issue areas (such as chronic disease prevention) where the nature of the issue is complex
- Organizations, networks and/or collaboratives that are seeking to intervene at multiple levels in a system
- Organizations, networks and/or collaboratives that have deployed specific strategies to support knowledge mobilization informed by complexity/systems thinking
- Papers and other thought pieces that explore complexity/systems for knowledge mobilization

For the purposes of the scan, systems (or complexity) approaches were defined by the following characteristics: heterogeneous, nonlinear, stochastic, dynamic, interdependent, feedback, adaptive and self-organizing, and emergent. At the outset, it was expected that the scan would find the following features in the case examples:

- Continuous learning systems
- Organizations with a readiness for adaptation
- Approaches to support real time-feedback loops
- Complexity-oriented evaluation (e.g. developmental evaluation, utilization-focused evaluation, realist evaluation)
- Networks and learning communities
- Distributed authority
- Social innovation

Nine cases were identified that best fit the criteria and scope of the scan. The scan is not meant to be exhaustive, but presents a diverse set of examples from which to draw learnings. The advisory group developed a set of questions to guide research and analysis of the cases and these questions were answered to the extent possible for each case based on a review of available documentation (reports/publications, website information) and a telephone interview with a key person in the organization/initiative.

- The origins of the organization (or network/collaborative),
- The underlying purpose/vision/framing guiding the work,
- The goals and objectives,
- Their key assumptions and principles (i.e., how systems thinking is understood),
- The key players and ways they have collaborated across jurisdictions/sectors,
- Their activities and strategies for knowledge mobilization,
- How they operationalize complexity/systems thinking into organizational structure, communications, governance,
- Ways they embed continuous learning & adaptation into their activities,
- The results/impact of their efforts and identified key success factors, and
- Their reflections on lessons learned.

The Cases

The following nine examples of systems approaches to knowledge mobilization were reviewed as part of the scan:

- Tamarack Institute (Ontario)– Example of an intermediary that put learning, knowledge production and dissemination at the centre of a significant national poverty reduction initiative.
- Framework (Ontario)– Example of a small, creative organization that conducted a pilot with several organizations to explore how readily available technological tools could assist the organizations to gather and share evidence, practice and knowledge.
- Plexus Institute (U.S.)– Example of a capacity building, action-research organization that is built explicitly around complexity and systems thinking.
- Centre of Excellence in Intervention and Prevention Science (CEIPS) (Victoria, Australia) – Example of a public health research centre.
- INSPIRE (Pennsylvania State University, U.S.) – Example of a web based evidence gathering and dissemination tool.
- ResearchImpact-RéseauImpactRecherche (RIR) (Canada)– Example of a knowledge mobilization unit at a Canadian University that is also part of a multi-university collaboration aimed at supporting research use for policy and practice.
- Social Innovation Generation (SiG) Causeway (Ontario)– Example of diverse organizations collaborating around a common theme.
- United Way Toronto (UWT)– Example of an intermediary organization that has invested in a community of practice approach to mobilize knowledge in youth education.
- National Treatment Strategy (Canada)– A recommended national strategy for using a systems approach to address substance abuse treatment service gaps and client needs across government jurisdictions and various types of organizations.

Among the examined cases, there is no *perfect* example of systems-informed knowledge mobilization being conducted. Appendix A outlines in a table several key characteristics of the initiatives that were reviewed and for a short description of each case please see Appendix B. There is a great diversity of scope, focus, and approach across the cases. In some cases knowledge mobilization is a core purpose (for example, ResearchImpact and Plexus), in others it is an ancillary activity in support of other objectives (for example, the National Treatment Strategy and Causeway). Some examples explicitly used a systems/ complexity framing (for example, Tamarack, Plexus and CEIPS), where others have features and characteristics consistent with a systems approach, but are not using that language or framing directly (for example, INSPIRE, ResearchImpact). Regardless of the explicit purpose, background or objectives of an organization, all of these organizations' knowledge mobilization activities are inherently drawing upon some principles of complex systems. Application of these principles and characteristics of systems approaches will be examined in the following sections.

Examining the Cases for Solution Strategies for Complex Problems

A useful analytical lens is the notion of solution strategies for complex problems (see Figure 1). This lens was helpful in examining features of system approaches and for considering solution strategies for knowledge mobilization across this highly diverse set of case examples to access insight and learning.

The set of solution strategies for complex problems is an adaptation of the work of Bar-Yam, Wheatley, Solomon & Flores by Diane Finegood. This list was further revised based on input from Allan Best's current work on critical success factors in public health.

Figure 1 – Solution Strategies for Complex Problems		
A reductionist paradigm is not that helpful	Set functional goals	Establish networks and teams
Support individuals / individuals matter	Assess effectiveness (Monitoring and Feedback Loops)	Build authentic trust (Transparency)
Match capacity of the organization to complexity of the environment	Distribute decision, action, & authority (Governance framework aligned with dynamic and collaborative action)	Act locally, connect regionally and learn globally
Transformative leadership	Linkage and exchange processes (Connecting and support structures for change agent collaboration and learning)	Disruptive innovation

For each of the solution strategies to complex problems one or more examples from the cases were identified. These are meant to be illustrative of each solution strategy and are not exhaustive of all the examples embedded in the cases.

A reductionist paradigm is not that helpful

1. Using complexity framing - Tamarack (Vibrant Communities) "avoided a very large amount of unproductive and 'stupid' work by shifting from a complicated to a complex framing." In the beginning they had an intuitive sense that poverty was a nuanced issue, but in retrospect they were thinking about it as complicated not complex. As a result the infrastructure and program they built had that assumption built in – they assumed people would come up with elaborate poverty reduction plans and ultimately they would come up with 'THE PLAN' to reduce poverty. Had they have stayed in the complicated they would have used all of their social capital, and would have "spun and spun". As a result of this 'paradigm shift' they moved from community plans – to "frameworks for poverty

reduction" which were approaches in communities that were organically adapted over time. They were no longer interested in "what works" rather they sought to find out – "what worked for whom in what context and why."

2. Allowing multiple definitions to co-exist - In the United Way example, their initial framing was to have a singular, commonly accepted definition of youth educational attainment largely focused on high school completion. Given the complexity of the issue, and the range of organizations involved, having multiple definitions kept the engagement diverse and open.

Support individuals / individuals matter

3. Matching individuals with one another - ResearchImpact focuses their knowledge brokering on brokering relationships. This human interaction is critical to support a clear understanding of the needs and opportunities for the development and use of research.

4. Locate the 'unusual suspects' - CEIPS is looking to surface people who are doing good work in public health who are not on the radar or the 'usual suspects' for partnership and knowledge mobilization.

5. A person-centred approach – The National Treatment Strategy is calling for services and supports to be planned and provided across Canada in a more seamless system with an appreciation and understanding of the needs, strength and choices of people seeking help.

6. Human behavior trumps technology - "The more complex and sophisticated the technology, the more important are the human behavioral issues of attitude, cooperation and motivation, as well as the training, education and learning of all members of the organization." This was noted as a key lesson in the Framework initiative. "It is only through collaboration, through knowledge sharing and knowledge co-creation that an organization can tap into all of its knowledge held collectively by all its members, its customers, its suppliers and its business partners."

Match capacity of the organization to complexity of the environment

7. Assess and look for ideal conditions - ResearchImpact is always searching for a set of ideal conditions, and if they don't exist (most often) they go ahead, knowing the challenges and/or they reduce risk by working to prepare the researcher, community organization, and/or students involved.

8. Framework's learning tells us that technology alone is not enough to respond to information sharing when the issues are complex: "Much of our research, testing and analysis of existing granting systems and social collaboration tools focused on the idea that multiple organizations could use one platform to share information in an open manner. We now recognize that external information sharing cannot be sustained long term if there is not an organizational shift to the way information is simultaneously captured internally."

Set functional goals

9. Purposeful variation helps with functional goals - Tamarack worked with 5 principles allowing these to play out in different ways in various communities. This diversity was the basis for understanding these principles better. When they talked about substantive strategies and exploring them – for example, workforce development – they began using systems language - asking people to think about their systems boundaries, and identify the leverage points for change in a community.

10. Knowledge transfer is a customization of various supports – ResearchImpact develops a knowledge mobilization strategy for any particular research collaboration that may employ one or more of their knowledge mobilization services. It is the job of the knowledge broker to choose the right service(s) according to the available research, the researcher(s), the decision- maker(s), and the context of the potential collaboration (available resources, regulatory environment, political context, time pressure, etc.).

Assess effectiveness (Monitoring and feedback loops)

11. Developmental Evaluation - United Way Toronto used a developmental evaluation approach to evaluation throughout the initiative. The team meets quarterly (approximately) to review new data, ask reflective questions about the initiative, and revise strategies for the upcoming quarter. This is a hybrid of internal (UWT) evaluation support and an external evaluation 'coach' for developmental evaluation.

12. INSPIRE creates a virtual environment where diverse stakeholders can access the specific data and information they need to take productive action and assume collective responsibility for change. Consequently, INSPIRE would allow for standardized data to be gathered from many institutions creating a rich data source for studying implementation and outcomes.

13. Evaluation aids effectiveness - The National Treatment Strategy outlines that evaluation, monitoring and quality assurance are integral to ensuring that services and supports are effective. Leadership, active participation, commitment and shared responsibility are integral to promoting the collaborations, resources and initiatives required to improve services and supports for Canadians at risk of or experiencing harms related to substance use.

Distribute decision, action, & authority (Governance framework aligned with dynamic systems and collaborative action model)

14. Network informed decisions - In the United Way Toronto Community of Practice, the core members are engaged in several reflections about results, strategy, preferences for the future. How United Way communicates and makes decisions is based on an inclusive approach. Their planning has been about trying to create grassroots engagement, hearing what is needed and responding, and then engaging them to be their own response.

15. Keep it Simple – SiG Causeway did not create a cumbersome governance structure – it had a fiscal agent, leadership from a host organization, and a core network of highly engaged leaders providing an overarching strategic framework.

Establish networks and teams

16. Select for diversity - One of the core principles of Vibrant Communities was establishing multi-sectoral collaborations in communities and providing supports to mobilize and sustain this network. The range of perspectives from voluntary organizations, business leaders, government officials and people with lived experience in poverty generated alternative options and built commitment to the strategies that were developed.

17. Build on existing structures - CEIPS is integrating its staff and researchers into newly formed committees in the existing health authority. They have also identified the need for a relationship builder role in the organization – someone who can build connections and networks with other existing groups.

Linkage and exchange processes (Enabling connecting and support structures for change agent collaboration and learning)

18. Push and Pull strategies - Plexus uses both push and pull strategies and is very intentional about combinations of activity (e.g. the link between face to face and the use of distance learning networks).

Build authentic trust (Transparency)

19. Trust building is gradual - INSPIRE has gradually built the familiarity and capacity for using data with the organizations they support. Initially, practitioners did not see a use in the data themselves. INSPIRE allowed them to pull up a report and run the data for their own time set – they begun to use data and share that with local stakeholders. They are finding utility in their data. This has improved accuracy of direct data entry into INSPIRE. The more practitioners see utility – the more they want.

Act locally, connect regionally and learn globally

20. Shared experiences for learning and relationship building - Causeway used global learning as a catalyst for people to learn and build relationships with one another. The 2009 UK Study Tour for Social Innovation and Social Finance took approximately thirty Canadian government, voluntary and private sector leaders on a tour of UK initiatives – it was a watershed moment, igniting key cross sector leadership in the potential impact of social finance in a Canadian context. They also convened Canadians at showcase events such as Social Capital Markets in San Francisco in 2009, 2010, and 2011 in British Columbia, brought a diversity of government, foundations, not-for-profit and business leaders together to explore other models and meet fellow travelers on the social finance journey.

Transformative leadership

21. Create a high profile task force - SiG Causeway convened and staffed a task force on social finance. This Task Force gave the effort a high-profile focal point and structure and acted as 'unusual suspects' for social finance. Their personal credibility and recognition, combined with the fact that they didn't have a direct stake in the advancement of social finance, extended legitimacy to the idea and supported its close consideration within

government, community sector and mainstream business. These outside thinkers challenged assumptions and assisted in providing language that was clear from jargon and relevant to the targeted sector audiences.

Disruptive innovation

22. Pushback is an indicator of disruptive innovation. Innovation is often disruptive in the way it challenges existing patterns or structures. For example, SiG Causeway has needed to communicate that social finance is meant to expand the overall pool of resources available to social change efforts, rather than redirect or reduce existing granting.

23. Collaborative structures to support innovation. One of the key principles in Vibrant Communities is to set the collaborative conditions first by establishing multi-sectoral collaborations in the community, and then push forward with local innovations. Comprehensive, community initiatives such as Vibrant Communities seek new solutions that emerge from the multiple perspectives from different sectors.

Key Success Factors

There are many ideas and lessons imbedded in the case examples. Through review of the interview data and reports, a list of themes relating to success factors and supportive conditions were generated by the project lead. This analysis was then triangulated by and supplemented with reflections and analysis by the research associate. The combined themes were then categorized into three overarching categories that capture higher-level lessons across multiple cases. The resulting key success factors are presented below relating to overarching categories of creating conditions and an appropriate business model, knowledge mobilization activities, and related support skills.

Lessons about Conditions and Business Model

1) Find champions: Common across a majority of the cases is finding a high-level champion who will not only provide resources but will also help to clear policy barriers and institutional inertia. They can create external (and internal) legitimacy and provide valuable perspective.

2) Support with coaching: Several examples illustrated that applying knowledge to a new context is a process of adaptation. Coaches can work with the local situation, assist in making the change that is needed, and then sustaining this over time.

3) Get the framing right: As demonstrated in a couple of the cases, not grounding approaches and strategies appropriately within the framing of simple, complicated and complex in a high stakes situation results in mismatched effort.

4) Be prepared for substantial investments: In several of the examples, the scale of investment is high, and perhaps more significant, the funding is a long-term commitment. Sustained investments supported by high-caliber expertise are important. This seems to be crucial as it allows for flexibility and innovation. These kinds of processes are long term. If

Vibrant Communities had been a three to four year initiative it would have likely died out after that time period. Much of the momentum only emerged in year five, and the renewal for five more years resulted in much more significant progress and the ability to extract and mobilize a high volume of learning.

Plexus is a unique model in that they have self-generating revenue from subscriptions, memberships and consulting projects. This holds a lot of potential because of its sustainability.

5) Manage expectations: Accountability pressures are constructed (usually) from a reductionist paradigm. Some of the cases needed to bridge the complexity of their initiative with the operational expectations of their organization. Working in complexity generates results differently, and expectations for approaches/outcomes need to be configured and communicated appropriately. Often highly innovative initiatives need to be incubated or insulated from traditional pressures, especially in their early stages.

6) The systems created should be reflective of the change that is desired: The operating constructs of an initiative can influence how change is pursued, or if not careful, it can reinforce the very system that you are trying to change. Many of these initiatives act as intermediaries – as a hub in a network (CEIPS), as the provider of supports and catalyst for dissemination (Tamarack), or the steward of a network (UWT). SiG Causeway was very explicit about not thinking and acting like an NGO. This happened to some of the communities that were part of Vibrant Communities. They became focused on securing grants for program delivery, and their aspirations and scale of change were incremental. The more transformative examples positioned the effort as an extra-organizational collaboration, and purposefully did not try to model a traditional institutional form. The care and feeding of this collaboration required a focus and considerable resources.

7) Clear over-arching goals: Despite the comfort (and need) for ambiguity in complex problems, many of these examples were very clear about their over-arching goals. This seems to be an essential touchstone for keeping stakeholders aligned. Vibrant Communities was clear about poverty reduction and experimenting with comprehensive, community initiatives as a means to address this. With this at the centre, there was then lots of room for adaptation and innovation in how to do this.

Lessons about Knowledge Mobilization Activities

1) Establish and nurture networks: Building networks and relationships is a central theme across these cases. The quality of these connections is relevant. For example, in knowledge mobilization strategies that incorporate the support of network building through personal contact and the sharing of not only information but ideas, passions and future ambitions for the field presumably would be more effective and more sustainable than more superficial connections made through webinar lectures or creating and sharing written reports. Having advisors and staff with experience in government, the private sector, and the voluntary sector brings access to different networks and skills in navigating these relationships, and the ability to understand the nuances of language and interpretation.

2) Co-produce knowledge: Common across all cases was the understanding that knowledge mobilization in complex systems requires shared interpretation, analysis and sense-making. Expert paradigms of knowledge creation and distribution are not helpful in the realm of the complex. If people who have ideas on how to improve are consistently disregarded, or they have ideas they haven't tried and there is no time and space to implement, the potential for change is limited. There are various approaches for this that draw upon systems thinking, for example, *positive deviance* is an approach that has recently 'caught fire'. At the core it is about bringing the front line into the conversation and having them participate in the transition.

3) Create feedback loops: We need to ensure that we have the proper evidence to use for knowledge mobilization efforts for 'wicked problems'. That is, much of our current evidence is context neutral and what we need is context specific results. These are results that don't only tell us 'what works', but 'what works' in 'what context'. This would mean that any knowledge mobilization strategy would incorporate a feedback loop between what research knowledge is used to facilitate action through knowledge mobilization and what is lacking on the ground. Some of the cases already include this, and many of them identified it as something of importance that they would like to develop further. Potentially, this feedback loop could allow for the generation of more appropriate research evidence that could more readily be used in knowledge mobilization strategies for chronic disease prevention. When dealing with knowledge in any complex phenomenon, learning the ropes and enabling feedback loops are a necessary part of the intervention. Capacity is not just about the content, it is about learning how to learn in the context of the issue you are addressing.

4) Systems interventions are not projects: Some cases faced pressure to do tangible, short-term outputs. Focusing on systems level processes and encouraging other organizations to fill identified gaps means efforts are directed on finding new actors, igniting interest in a high level agenda, and encouraging other organizations with longer-term mandates and with particular expertise to take leadership on specific actions.

5) Different kinds of supports are needed at different times in different contexts. Design should support a diverse range of options, offered over time. For example, ResearchImpact customizes each knowledge mobilization from a suite of activities that they have developed over time. Similarly, the United Way Community of Practice has a range of events and processes which people can self-select into depending on their interests.

Lessons on Skills

The following skills were present in many of the reviewed cases:

1) Skills in relationship brokering. Relationships breathe life into knowledge mobilization efforts. Brokering of relationships across many cases involved an openness and competency in interdisciplinary, cross-sectorial collaboration and experience bringing together multiple partners, stakeholders and organizations with different mandates to work together toward a common goal. Relationships require time, effort and nurturing. Engaging people and designing human interaction opportunities (from the kinds of activities or discussion questions to the layout of a room in a workshop situation) requires considerable attention.

There is a stewardship of a collaborative space that requires a capacity to navigate the politics and interpersonal dynamics that keep a diverse set of individuals and organizations engaged in the process.

2) Skills in curating knowledge: The metaphor of curating is useful when thinking about knowledge mobilization in complexity. Curating is about making things interesting by linking together different elements that are similar and different. Its more than asking people what they want to know about – it's going beyond that, anticipating what might be interesting or useful, but not something that is currently on the radar of the audience.

3) Pattern recognition: Reflective practitioners have a repertoire of experiences and have thought about them. This experience base helps to assemble patterns, access tacit knowledge, and make links between mechanisms and different contexts.

4) The ability to define the contextual factors: Because context matters in complexity, important for knowledge mobilization work in complex systems is using the appropriate content experts and teams with a diverse range of backgrounds and skills in order to understand the interplay of contextual factors and activities and understand and respond to their influence.

Final Thoughts

The cases reviewed in this process provide numerous insights on complexity, systems and knowledge mobilization. While none of the cases directly focused on chronic disease prevention, overall they provide a foundation for demonstrating how systems approaches can be adopted and operationalized for a range of health and social issues.

The cases are highly diverse representing a variety of issue areas, different organizational forms, and in the end, expose us to a wide range of options for thinking about knowledge mobilization through a lens of systems and complexity. Overall, they present a wide range of alternatives and a collection of lessons from a variety of situations.

There are some basic core elements that thread across, not surprisingly, the importance of relationships, the balance between stewardship and agency, and the adaptation of principles to context. Several of these cases have a track record and have demonstrated success in one or more areas, and others that are earlier in their tenure show promise. Overall, these have shown us that the design and implementation of these efforts is emergent. The overarching purpose is clear and well-articulated, and the strategies to move towards that purpose evolve and adapt through on-going learning and understanding.

Appendix A: Summary Table

Example	Tamarack	Framework	Plexus	CEIPS	INSPIRE	ResearchImpact-RéseauImpact Recherche (RIR)	Causeway – Social Innovation Generation (SiG)	United Way Toronto	National Treatment Strategy
Kind of Organization	Intermediary	Intermediary	Intermediary/ Network	Independent Research Centre	University Unit	University Unit	Intermediary/ Network	Funder	Working Group
Operating context (of the initiative)	City-wide poverty reduction using comprehensive, collaborative approaches	Pilot on using technology for information sharing	International network on learning about and applying complexity	Linked to a larger change initiative in the state health system	Research centre focused on technical assistance to help schools, communities, and healthcare industry implement evidence-based prevention programs	Bridge between university researchers and community organizations	Support to an emerging idea that was happening in small scale/ unconnected pockets.	Toronto fundraising/ grant-making organization experimenting with a different kind of initiative	A national working group of more than 30 diverse members from across Canada. Formed early in 2007 to explore these themes and develop the Strategy.
Source of Financing	Long-term funding commitment from a foundation; additional funding from project sources.	Funded pilot project	25% donations 25% grants 50% revenue generating - consulting, subscriptions, organizational membership	4 year commitment from state government	Grant supported; funding and support comes from the Pennsylvania Commission on Crime and Delinquency (PCCD) and the Pennsylvania Department of Public Welfare	University supported + external grants	Causeway was funded by several private foundations	Special project within traditional grant-making organization	Various stakeholders expected to allocate resources toward a suite of investments. Health Canada provides core funding for CCSA, the host organization for the NTS.

Example	Tamarack	Framework	Plexus	CEIPS	INSPIRE	ResearchImpact-RéseauImpact Recherche (RIR)	Causeway – Social Innovation Generation (SiG)	United Way Toronto	National Treatment Strategy
					(DPW)				
Scale of Budget	$4.5M over 10 years to provide national supports; $5M over 10 years invested in participating communities; $14M in matched investments raised in communities	$175k initial grant from McConnell; $200k ear-marked by McConnell for other charities to invest in IT infrastructure; additional support (80k) from another foundation	~$750k/year	$0.5M annual operations budget; also linked to $80M of federal funding plus considerable state health department funding to build a chronic disease prevention system	$800k annually	Initially funded through external grants (for 4.5 years); unit manager is now an ongoing appointment; KMb officers are blend of institutional funds and external grants; travel and activity budget is $40k per year	Causeway funding supported 2 FTE staff people over the three year project span.	~150k/year; single donor	Scope not yet determined; strategy calls for methodology to articulate the investments that will be needed to implement this Strategy
Nature of Relationships - Network or Hierarchy	Network: There are some hierarchical relationships on small set of core deliverables; primarily network relationship on shared learning and collective strategies	Network: Collaborative relationship with participating organizations	Network: Multiple over-lapping networks	Probably a hybrid-collaborative relationships with researchers and other institutions; 90 new prevention workers embedded in local councils and grouped into five or six categories each has its own professional network that CEIPS is part of. The issues	Probably a hybrid – providing technical support to state funded initiatives	Hybrid: 6 universities collaborating are part of a learning/ practice sharing network; acts as connector between researchers and community agencies	Network	Network: Initiative is a network supported by small secretariat comprised of UWT staff	Hybrid: Multi-organization collaboration (government & NGO) SystemAction Network is a knowledge exchange network of networks across Canada.

Example	Tamarack	Framework	Plexus	CEIPS	INSPIRE	ResearchImpact-RéseauImpact Recherche (RIR)	Causeway – Social Innovation Generation (SiG)	United Way Toronto	National Treatment Strategy
				involved in growing these networks is currently being explored.					
Buy-in for systems/ complexity	All national sponsors bought into complexity framing; complexity and systems explicitly used	Use of complexity unknown – does not appear in key documents	Complexity inherent in what they do; it is their DNA; rationale for existing is complexity science and its application	Mandate to apply systems thinking to state health authority	Use of systems thinking in understanding larger gaps that limit use of evidence-based programs	Implicit systems thinking	Very high. All directly involved were intentional about using systems thinking/ complexity to inform strategies	High within the core team; other pockets within the larger organization	Would likely vary among the participating organizations.
How are systems/ complexity principles articulated?	Language of complexity used to describe poverty, shape evaluation approach, and inform poverty reduction strategies	Not present explicitly.	Language imbedded throughout; multiple frameworks applied to describe	Systems language is used selectively according to the receptiveness of the audience	Key assumptions built on Abe Wandersmen's interactive systems framework	Not present explicitly.	Uses language of 'social innovation approach' which is rooted in complex systems	Not used directly within the Community of Practice; is part of the background thinking of the team stewarding the project	Systems thinking and complexity are used in reference to understanding substance use (other health factors, social factors) and the sectors involved.
Audience	Multiple audiences - NGOs, business, local government, individuals engaged with poverty reduction - provincial and federal policy makers	Canadian funders and NGOs	Scientists, business executives, nurses, artists, teachers, journalists, researchers, physicians, college	Researchers, policymakers, practitioners, local councils, NGOs within the Victoria health region	State funded grant recipients	York's Knowledge Mobilization Unit works with researchers, policymakers and community organizations; the audience	- Government decision makers - Investment community - Cdn. voluntary sector leadership	- Toronto based youth serving organizations (large institutions to grassroots) - Post-secondary	Health Canada, the FPT Liaison Committee on Problematic Substance Use, federal departments with service

Example	Tamarack	Framework	Plexus	CEIPS	INSPIRE	ResearchImpact-RéseauImpact Recherche (RIR)	Causeway – Social Innovation Generation (SiG)	United Way Toronto	National Treatment Strategy
	- other intermediaries		students, community leaders, and thinkers			for the university to university network is the knowledge brokers from each university as well as other knowledge brokers and universities regionally, nationally and internationally.	(focus has been on sr. leadership, key intermediary orgs such as	institutions - School board - Policy makers	delivery responsibility, Aboriginal organizations, the Canadian Executive Council on Addictions, the Canadian Centre on Substance Abuse, decision-makers and change leaders working with substance use across Canada.
Nature of goals	Program level goals – improved livelihoods for families living in poverty Organizational level goals – improved community collaboration and comprehensive approaches to an issue System level goals – reframing of poverty, policy changes,	Organizational level – understanding improved use of technology, transparency, info-sharing in support of governance; System level – improved access to information across multiple organizations	Multiple levels – individual and organizational development; supporting inter-organizational connections	Systems level - Enable research that advances the science of systems thinking and its application to population health - To support new working relationships between research, policy and practice.	To support the dissemination, quality implementation sustainability, and impact assessment of a menu of proven-effective prevention and intervention programs	System level - to ensure that leading-edge academic research is employed by policy-makers and community groups to develop more effective, efficient, and responsive public policies and social programs	Systems level- the creation of a social finance marketplace filled with investors, capital, investment ready initiatives, and the tools and regulations to facilitate these exchanges.	Organizational level goals – strengthened interventions; Network level goals – strengthened sharing of practice, joint problem solving	Systems level – connect together existing supports in a tiered model and facilitate the filling of gaps in service

Example	Tamarack	Framework	Plexus	CEIPS	INSPIRE	ResearchImpact-RéseauImpact Recherche (RIR)	Causeway – Social Innovation Generation (SiG)	United Way Toronto	National Treatment Strategy
Use of Technology	Website and podcasts as a dissemination platform	Initiative was about how to use commonly available software/web resources and integrate into organizational knowledge building / knowledge sharing	Website and podcasts as a dissemination platform	Website (in development)	Web-based platform that integrates data from existing systems, allows for original custom digital data collection, and makes data immediately available.	Seen as a leader in the use of social media to promote knowledge mobilization	Created web portal as an info sharing hub	Intended to be a main element for the community of practice; did not materialize as hoped	A Systems Approach to Substance Use Services and Supports in Canada website, webinars, web-based platform to support dialogue and information sharing etc.

Appendix B: Case Examples

Tamarack – Vibrant Communities
http://tamarackcommunity.ca/g2.php

Background
Vibrant Communities (VC) is a pan-Canadian initiative launched in 2002, through which 13 communities have experimented with innovative approaches to reducing poverty. The impetus behind VC was the recognition that efforts to reduce poverty in Canada had stalled, despite the undeniable prosperity enjoyed by so many in this country. New ways of tackling this problem were required.

Five core principles guided the initiative:
1. *Poverty Reduction* – a focus on reducing poverty as opposed to alleviating the hardships of living in poverty.
2. *Comprehensive Thinking and Action* – addressing the interrelated root causes of poverty rather than its various symptoms.
3. *Multi-sectoral Collaboration* – engaging individuals and organizations from at least four key sectors – business, government, non-profit organizations, and low-income residents – in a joint effort to counter poverty.
4. *Community Asset Building* – building on community strengths rather than focusing on deficits.
5. *Community Learning and Change* – embracing a long-term process of learning and change rather than simply undertaking a series of specific interventions.

Key Components/Activities
VC employed the following types of activities:
Trail Builders – a series of urban collaborations undertaking poverty reduction initiatives in their local settings. Trail Builders received targeted coaching support and advice with the purpose of helping local efforts to navigate the complex challenges of reducing poverty. The local initiatives also received direct evaluation support and funding grants.

National Sponsors – three national sponsors (McConnell Foundation, Caledon Institute and Tamarack Institute) provided guidance and support for the overall initiative.

Pan-Canadian Learning Community– a network through which local and national partners could mine and distill lessons from the Trail Builder experience. The idea was to create opportunities to actively learn together about the challenges and opportunities of the various approaches being explored, building their knowledge of what works, for whom, in what context, and why. The activities of the learning community included monthly tele-conference calls, periodic face-to-face meetings and short term topic groups. Dissemination occurred horizontally to other communities in Canada, and vertically to funders and policy makers.

The work of VC over the past nine years has been about prototyping: testing, adapting and learning from certain approaches knowing that they will manifest themselves in different ways in different circumstances.

Framework/The Platformation Project
http://www.frameworkorg.org/platformation-project.html

Background
The Platformation Project was an initiative managed by Framework and funded by the McConnell Foundation between December 2009 and July 2010. The Project represented the first phase of a long-term action plan to improve the way information flows within the social sector and support better decision-making. The Project involved an analysis of non-profit uses of technology and funder reporting as a proof of concept for better information sharing within the sector. It was intended to address the fact that Canada's non-profit and charitable sector is characteristically hobbled by antiquated operating models, chronic funding shortages and inefficient deployment of human and financial resources. Furthermore, impact measurement is a continuing problem, with both funders and grantees alike often mutually frustrated by the work required to administer and report to one another. The result is a sector 'drowning in paperwork, distracted from purpose'. Thus, it was believed that the information highway between funders and grantees needed to be rebuilt.

Key Components/Activities
Platformation.ca was initially conceived as a new, low cost operating platform to improve Canadian charities' ability to plan, administer and report on their activities. Activities included conducting a literature review, evaluating existing web-based granting systems in North America, as well as low-cost, scalable social web software collaboration tools, and assembling a working group of charities. A number of key findings surfaced. While the goal of the project was to better understand like-minded organizations' willingness to share information within a common platform and/or adopt low-cost collaboration technology, it became clear that it wasn't simply about deploying new technology but rather a change management exercise. Much of their research, testing and analysis focused on the idea that multiple organizations could use one platform to share information in an open manner. It became evident, however, that external information sharing cannot be sustained long term if there is not an organizational shift to the way information is simultaneously captured internally.

Plexus
http://www.plexusinstitute.org/

Background
The Plexus Institute was formed in 2001 by a diverse group of health care professionals and researchers who came together to share learning about complexity science and its application to their work. The mission of Plexus is to foster the health of individuals, families, communities, organizations and our natural environment by helping people use concepts emerging from the science of complexity; it is about helping people solve intractable problems in their organizations and communities. Fundamental to the work of Plexus, is the belief that the key to finding new solutions is to engage everyone in new conversations – at

all levels, in all roles, and in some cases, from both inside and outside involved organizations. Furthermore, what happens between people and between systems – in other words, relationships – often plays the principal role in change.

Plexus Institute is an intertwined community of diverse people – scientists, business executives, nurses, artists, teachers, journalists, researchers, physicians, college students, community leaders and thinkers. Overall, the Institute has tried to maintain a very flat governance structure with distributed authority and regionalized clustering.

Key Components/Activities
The Institute organizes a number of activities including:
- *Conference:* an annual event that brings together current and new members of their social network intrigued with how insights from the new science of complexity might apply to a wide range of challenges.
- *Consulting services:* Plexus Institute provides consulting services, for example, in social network analysis.
- *Research:* Plexus Institute designs, leads and participates in research projects to explore new approaches.
- *Education and Training:* creates and implements learning programs and curriculum; also sends out a weekly post on complexity – an interesting, well-written short email to members on an everyday topic using a complexity connection.
- *Learning Groups* – focused communities of practice on various topics and themes.

Centre of Excellence in Intervention and Prevention Science (CEIPS)
http://ceips.org.au/

Background
The Centre of Excellence in Intervention and Prevention Science (CEIPS) is a new public health research institute established to strengthen preventive health efforts in Victoria, Australia. It is an initiative funded initially by the Victoria Health Department but operates as a private, not-for-profit organization.

The goal of the Centre is to advance the science of systems thinking and its application to population health. It aims to act as a catalyst to support new working relationships between research, policy and practice and uses insights from systems science as an explicit part of how the Centre is being positioned. Public health funding enables strategic resources to be funneled through the centre to act as a lever to engage universities. Local government and non-governmental organizations will also be a big part of the Centre's strategy. The idea is that CEIPS will act as a hub of a system engaged in generating strategic research, making use of knowledge that is out there, and helping researchers to think about policy.

Key Components/Activities
CEIPS is still in its early days. They are in the process of developing a strategic plan built on the following principles:
- Research will always involve a decision-maker

- Knowledge mobilization will be integrated from the beginning
- Enable the researcher to understand the policy – and the policy to understand the research.
- This is not just about research to practice, neither is it research in practice. It is about co-creation of knowledge.

INSPIRE
http://www.myinspire.psu.edu/portal/index.html
http://www.episcenter.psu.edu/

Background
INSPIRE is a software platform that captures data from three evidence-based prevention programs in schools, communities, as well as in healthcare. INSPIRE is an initiative of a University-based EPISCenter, which is part of the Prevention Research Center at Pennsylvania State University. The EPISCenter supports the dissemination, quality implementation, sustainability, and impact assessment of a menu of proven-effective prevention and intervention programs. It also conducts original translational research to advance the science and practice of evidence-based prevention. As one of the EPIS Center's programs, INSPIRE reflects their vision of addressing the important concept of data feedback to support continuous quality improvement in the delivery of empirically-supported interventions. While multiple stakeholders interact with INSPIRE, technical assistance providers and university-based research and practice centers are the primary users.

Key Components/Activities
INSPIRE has identified that there is a gap in moving from 'proven effective' into real-world uptake. Their assessment is that there is a need for an intermediary to support this. They work by identifying the key players who can help facilitate closing the gaps and work to connect researchers with actual prevention providers. They believe that data is a key component in making those connections. INSPIRE is testing the following premise: 'if we provide data and feedback in a format useful to the intended user – will they implement data informed decisions for program and policy"? They are working to understand who are the stakeholders in the system, what kind of data is useful to them, and how different forms of data presentation can enable use. INSPIRE integrates data from existing systems (e.g. school records, census etc.), allows for original custom digital data collection and makes data immediately available to other users. It creates a virtual environment where diverse stakeholders can access specific data and information they need to take productive action and assume collective responsibility for change.

ResearchImpact-RéseauImpactRecherche (RIR)
http://www.researchimpact.ca/localRI/YorkU/

Background
ResearchImpact (RI) is a network of six Canadian universities that connects university researchers with policy-makers and community organizations seeking research to inform decision-making. The effort started at York University in 2004. A funded industry

engagement office existed at York for commercialization of science and technological research. The vision was to replicate something similar for social science: to ensure that leading-edge academic research is employed by policy-makers and community groups to develop more effective, efficient, and responsive public policies and social programs. Currently, the inter-university collaboration functions as a community of practice for knowledge brokers – sharing learning about KM approaches and strategies. They have conceptualized knowledge mobilization activities as a suite of services, actions and activities that work together to support research outreach and engagement. Knowledge mobilization is defined as a "collaborative entanglement" - developing and supporting approaches and processes that combine the sources of knowledge and the beneficiaries of that knowledge.

Key Components/Activities
ResearchImpact uses a broker model. Each institution has knowledge brokers who match the portfolio of research results and research expertise to research needs in a bi-directional flow, which recognizes the needs of both government and community organizations as well as their substantial knowledge and expertise that can support knowledge creation. Components of the work include the following: creating clear language research summaries, hosting seminar series and research forums and providing support for a full suite of social media tools including blogging, delicious bookmarks, Twitter, and social collaboration tools. ResearchImpact also organizes innovative events like the Aboriginal Policy Research Forum, the first forum of its kind to use broadband technology to connect researchers, policymakers, and citizens from across Canada in a discussion of Aboriginal issues.

Causeway - Social Innovation Generation (SiG)
http://socialfinance.ca/about/partners/causeway

Background
Causeway was an informal initiative that began in 2007 to provide strategic support to those involved in social finance. Soon after its inception, it became a project of the Social Innovation Generation (SiG) National Office. Social finance is an approach to managing money that delivers social and/or environmental benefits, and in most cases, a financial return; it is often referred to as a blended value return. Advancing social finance in Canada requires creating a policy environment that is supportive, attracting potential investors and creating mechanisms to facilitate their investment, and building a pipeline of strong organizations and businesses who can take advantage of new forms of capital. To contribute to this vision, the goals of Causeway were to build awareness of the concept of social finance and the rationale for why it is needed; and to connect people who were already doing this work and those who were becoming interested in it.

Key Components/Activities
Strategies to advance these goals emerged over time, responding to new learning and feedback from the system and new opportunities that arose. Funders recognized that the approach to social innovation is not formulaic and were willing to support a more developmental, strategic approach to change. Activities that were undertaken through Causeway included:
- Convening targeted audiences to build the case for social finance

- Cultivating cross sector advisors to fine tune the approach and seed the adoption of social finance
- Creating a high profile task force
- Producing tools and knowledge products: a number of "White papers" were created as well as other tools such as a draft business plan for a Canadian social venture fund, *Your Guide to Social Finance*, which includes practical tools to help people understand and apply the social finance concept.
- Mobilizing knowledge through the use of technology through webinars and monthly conference sessions that linked actors across Canada to one another and to leaders and initiatives globally; socialfinance.ca was developed as an online space where emerging and established leadership continue to be active in blogging and sparking dialogue.
- Convening learning and showcase events to bring a diversity of partners together to explore models and develop networks.

United way Toronto – Community of Practice on Youth Educational Attainment
http://www.unitedwaytoronto.com/CommunityOfPractice/main.php

Background
The purpose of the Youth Educational Attainment Community of Practice (CoP) is to facilitate learning by developing a network of community-based partners with common interests in supporting youth to be successful in school. The initiative was started because of United Way Toronto's recognition that tremendous learning could be shared and applied among a range of community agencies involved in youth educational attainment through a new social learning network. Their assessment was that front line program workers were isolated and they needed access to information and opportunities to build relationships across institutions and with individuals at all levels.

Key Components/Activities
The high response to the CoP forced the organizers to change their strategy – from the original vision of a small CoP – to the idea of a large, city-wide, fluid network. A diverse set of organizations are involved. Each has different definitions and objectives related to the overall theme (e.g., high school completion, readiness for school participation, etc.). This Toronto-based CoP includes a number of key components:

Newsletter: information sharing, distribution of relevant research and good practices.
Learning Journey: initial planning sessions hosted by organizations across the city to build relationships and interest with participants and shape the overall direction of the CoP.
Learning Circles: these are a core offering of the CoP. They are facilitated (half to full day) learning workshops on priority issues and themes.
Community Forum: a convening of CoP members to reflect on the CoP. This has helped to inform and plan its future direction.
Symposia & follow-up networking sessions: intensive learning and networking conference followed by a facilitated analysis on themes that emerged.

Website: on-line portal to share information, connect people and generate discussion.

The CoP has used a developmental evaluation approach and significant reflection takes place in terms of the extent to which participation in the CoP enables organizations and whole systems to function differently. Many lessons have been learned through the process.

National Treatment Strategy on Substance Abuse/System Action Network
http://www.nts-snt.ca/Eng/Pages/Default.aspx

Background
The National Treatment Strategy on Substance Abuse is a comprehensive, collaborative report (2008) that provides direction and recommendations for improving the quality, accessibility and range of services and supports to address risks and harms associated with substance abuse. As a result, the SystemAction Network was launched in December 2011 as a way to overcome fragmentation in the substance use treatment system and to support a more coordinated approach to systems development, as recommended in the initial report.

Key Components/Activities
Currently, the Network's activities are focused on information sharing and webinars supported by a web-based software platform. Preliminary membership is comprised of a working group of Knowledge Exchange (KE) experts that guided SystemAction's development, as well as individuals leading KE initiatives at the provincial and territorial levels.

The National Treatment Strategy and the SystemAction Network recognize the need for a tiered continuum of services and supports to address the broad spectrum of risks and harms of substance use. Such an integrated and holistic system-level model has been articulated in the academic literature and has been implemented in other countries. The adoption of such a tiered model in Canadian jurisdictions can improve care, co-ordinate services and make better use of existing investments and supports for people with substance use problems. The report outlines multiple recommendations including: building capacity across a continuum of services and supports; supporting the continuum of supports through, for example, knowledge exchange, research, and system performance measurement and monitoring; and moving the strategy forward through leadership and coordination.