

Report from a Workshop held July 21-23, 2003:

Networks and their Role in Enhancing Research Impact in Alberta

Prepared for:

**The Alberta Heritage Foundation for Medical
Research**

Prepared by:

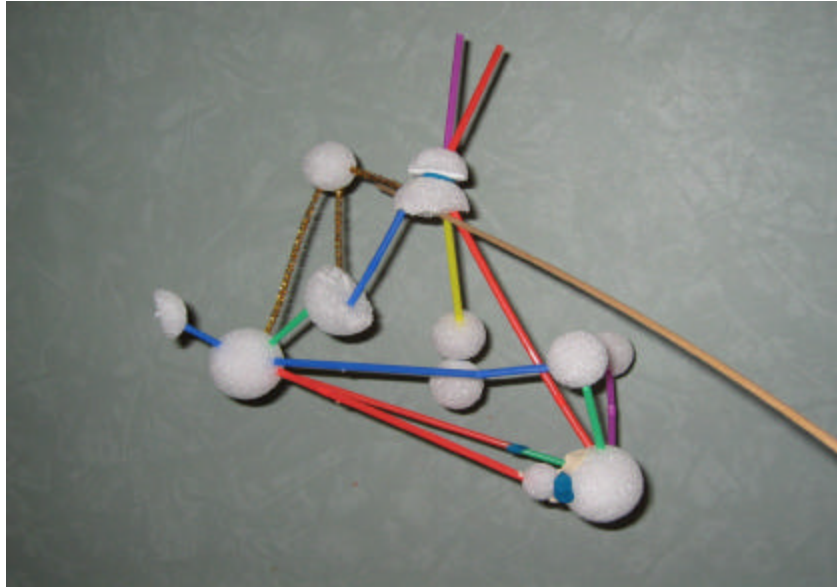
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HIGHLIGHTS

From Workshop on Networks and their Role in Enhancing Research Impact in Alberta Canmore, July 21-23, 2003



- **Networks are valuable tools for accomplishing a wide range of objectives. Network activity is particularly well suited in some contexts.**
- **Networks can be purposefully stimulated and supported but not controlled. Appropriate support is enough to nurture growth and momentum but not enough to remove the need for reaching out and expanding connections.**
- **The form of network can be important. Some forms are better for dissemination of information and others better for stimulating behavior change.**
- **There are two dimensions to measuring impact and activity of networks: the substantive outcomes that the network is designed to address and the activity and maturity of the network.**
- **Networks can be a valuable tool for AHFMR to improve research capacity in both creating and applying evidence, and for innovation.**

Networks and their Role in Enhancing Research Impact in Alberta

Report from a Workshop

Date: July 21 - 23, 2003
Location: Canmore, Alberta
Sponsored by: Alberta Heritage Foundation for Medical Research

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Acknowledgements: This work, and this workshop, were made possible through the important work that has been done by AHFMR in the development and evolution of programs designed to enhance research capacity in the province. This leadership was foundational in the work addressed during this workshop.

NOTE: This document captures the process and discussions at a workshop and subsequent deliberations about the relevance of these discussions for AHFMR. It is meant to be formative in nature, and as such represents one component of work in a process designed to assist AHFMR approach the support and evaluation of networks in ways that make important contributions to achieving its mission. This work is in progress. For updated information, please contact Ms. Sarah Hayward or Mr. Richard Thornley.

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*Participants of a workshop held in Canmore Alberta July 21-23, 2003.

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Executive Summary

Networks are valuable tools that can be used to contribute to the accomplishment of a wide range of objectives, and there are specific contexts where network activity is particularly well suited. That is the conclusion of a process sponsored by the Alberta Heritage Foundation for Medical Research (AHFMR) to examine the potential contribution of networks to the accomplishment of its mission.

The AHFMR has supported a variety of network-related initiatives over the past 10 years and wanted to pause and reflect consciously on this locus of its activity. In essence, the Foundation wanted to increase its understanding of what networks are, what they can do, and how their effectiveness can be evaluated.

To facilitate this discussion, the AHFMR enlisted the assistance of experts who had been deeply involved with networks, either through leading them, conducting research into them, or both. Over the course of two days in July 2003, these experts from Canada, the United States and the United Kingdom grappled with the concept of networks and the application of what they knew to the particular context of interest. The context of interest was the use of network forms by a research foundation interested in enhancing the impact of research in its jurisdiction.

What are networks?

Networks as organization forms are defined by several characteristics. None of these are observed ONLY in networks, and yet, when considered together, they do present a particular profile. Perhaps the feature which is most definitive is that networks are not the primary organizational connection for most members. In addition to that feature, the following are typical network characteristics:

- There are nodes and connectors in every network. The nature of the connections varies between members and over time.
- Involvement in networks is almost always voluntary.
- Networks can operate in the 'white space' or opportunity space which often provides an opportunity for action that is not feasible within one's home organization.
- Networks can exist quite effectively without tangible formal organizational characteristics.
- Networks are particularly well suited to be responsive to changes in the environment.
- Networks are similar to other organization forms in that they have life stages; these stages may be more important to acknowledge in networks, as due to their very nature they are more likely to wax and wane in their activity levels. A general formulation of the stages of a network might include: formative, identity, solidification of purpose and governance

arrangements, fully functioning, mature, and declining or (re-)emerging (into something else).

For what purposes are networks well suited?

Networks are particularly appropriate in some kinds of situations. These include situations where:

- Knowledge is not codified and the fit of information with context is particularly relevant;
- Varying levels of activity are needed at different points in time;
- Resources or expertise are scarce and widely distributed;
- Innovation is needed. Outcomes of a network cannot be completely predicted;
- Diverse entities need to connect or work together;
- The problem to be addressed is particularly complex; and
- There is sufficient time to mature a network to address the problem.

Can networks be purposefully stimulated?

Networks can, and have been, purposefully stimulated. Careful thought should be given to whether (and when) they 'should' be stimulated. Networks can be stimulated either by nurturing nascent or emerging activity that is already present, or by stimulating them de novo.

There are a number of things to consider:

- Networks are at differing stages of development. Like a seedling, a network needs nurturing but also needs freedom to explore and grow.
- Sometimes it may be wise to stimulate a network indirectly – by implementing an activity that has a high degree of likelihood of a network emerging as a byproduct.
- The art of supplying the 'right' amount of support is not straightforward. Support (most often interpreted as money) needs to be applied judiciously; enough to nurture growth and momentum but not enough to remove the need for reaching out and expanding connections.
- Although money is often the identified means of support or stimulation, there are other important resources. For example, network start up and facilitation skills are important.

What can networks accomplish, and under what circumstances?

In theory, networks can contribute to the accomplishment of a very wide range of outcomes and goals. Some types of networks are better for dissemination of information and others are better for stimulating behavior change. It is not so much a question of asking what can networks accomplish, as much as asking 'If

a network is being stimulated for a particular purpose, what types of connections are more likely to fulfill that particular purpose?’.

As noted earlier, networks are particularly well suited to ‘working in the white space’ and therefore for producing innovative outcomes as well as disseminating information about innovation.

How do you measure the activity and impact of networks?

There are two dimensions along which activity and impact might be measured, the substantive outcomes that the network is designed to address and measures of the activity and maturity of the network.

There are no specific outcomes that are unique to networks and the outcomes of interest to be measured are the substantive ones associated with the desired purpose, whether they are tackled through a network form or some other mechanism. The substantive outcomes of interest are as wide ranging as the purposes of the various networks.

The concept of ‘life stages’ of a network provides the second dimension along which to assess the activity of networks. Evaluating networks appropriately requires some knowledge of the path of evolution and the particular life stage of the network being evaluated. Potential indicators that relate to recognizing whether a network is evolving in maturity include:

- Ability of members to discuss money seriously;
- Agreement about key issues (governing structure; criteria for success);
- Resolving a conflict successfully;
- Members voluntarily subjugate their own interests to those of the collective in the short run;
- Acknowledgement that sustainability is about more than funding;
- Referral among members;
- Exhibiting respect for various perspectives;
- Using the network as a problem solving mechanism; and
- Varying levels of activity over time may be an appropriate indicator of a successful network, depending on its purpose.

As a network matures, one could realistically assess the accomplishments of the network with respect to the substantive outcomes originally hoped for. Network growth trajectories are not necessarily constant, or linear; nor are activity levels constant after a network is fully functioning or mature.

Part I: Foundations

The Alberta Heritage Foundation for Medical Research and Its Interest in Networks

This report summarizes initial work done by AHFMR in an effort to examine the use of networks as one strategic mechanism through which to enhance research impact in Alberta.

The Alberta Heritage Foundation for Medical Research was created in 1980 with a mandate to support a community of researchers who generate knowledge whose application improves the health and quality of life of Albertans and people throughout the world.

In a general sense, the Foundation is interested in enhancing research capacity and achievements in the province. It uses a very inclusive definition of research capacity in its deliberations. Research capacity includes activities whose aim is to generate new knowledge for the international community; and also activities that are designed to enable the use of research knowledge to enhance the health of Albertans or the effective operation of the health system; or to assist with the commercial development of products or services with origins in Alberta funded research.

Support for the development of individuals has always been the primary strategy of AHFMR. While this has most often taken the form of salary support for researchers located in universities, in the 1990's the Foundation undertook to sponsor several initiatives that targeted people interested in contributing to the research enterprise who were not located in universities and for whom research was not their primary role. This included approaches to capacity building among family physicians, professionals and managers employed within the health system, and those with a particular interest in research related activities, such as the use of research information in decision-making.

In light of this interest in developing capacity in the practice as well as the academic setting, and enhancing the linkage of the two, AHFMR supported several initiatives that were called networks. By 2003, AHFMR has supported, through various mechanisms, networks involving family physicians interested in integrating research activity into their practice (AFPRN), participants in an AHFMR-led training program to assist health organizations and personnel to create and use research appropriately (SEARCH), people with responsibilities for health research transfer (RTNA), and individuals from universities and health organizations wanting to improve research capacity in the health system (ACHRN). More details about these networks are included in Appendix 1.

In the spring of 2003, the Foundation initiated a process through which it would review the contribution and potential of networks within its portfolio of strategies.

The Foundation wishes to pause, and reflect consciously on this group of initiatives. In essence, the Foundation wishes to increase its understanding about what networks are, what they can do, and how their effectiveness can be evaluated In the short to medium term, AHFMR is particularly interested in applying an improved understanding of networks to the evaluation of the SEARCH Program. It is also interested in learning more generally applicable lessons to inform evaluation and support of networks.

Approach to this Project

This project was designed to increase the understanding and effective use of networks as a strategic mechanism through which to enhance research capacity. An incremental approach was taken, including the following phases:

- I. Literature and Environmental Scan
- II. Expert Workshop and Analysis
- III. Identifying Implications for AHFMR

The literature and environmental scans were done to identify

- a) The range of perspectives and approaches that it is possible to take when examining networks, and
- b) Experts who would bring key perspectives to a workshop focusing on networks.

No attempt was made to do a comprehensive or systematic review of literature. A brief package of articles and reports was pre-circulated to workshop participants in order to provide them with some sense of the 'conceptual space' within which the facilitators saw the workshop beginning.

A workshop involving 20 experts was held for the purposes of describing:

- key characteristics of networks,
- the range of impacts that networks could have and
- how networks can be used as a strategic mechanism to increase research impact.

Those attending were drawn from researchers who have studied networks and from 'practitioners' who are developing or running networks. A detailed description of the workshop process is included in Appendix 2.

This report summarizes the knowledge gained from the workshop, and identifies its implications of this knowledge for AHFMR, and other similar organizations. Reference to key literature is included where it provides useful illumination to the concepts discussed.

Part II: Workshop Dialogue and Deliberations

The Workshop Process

The workshop was structured with the objective of creating an open, 'frank'/free 'space for dialogue' among a group of wise individuals with particular expertise about networks. The AHFMR has been a leader in exploring 'research transfer' oriented activities, and in some modest way, we were hoping to engage in that process for a specific policy related purpose in this workshop.

The workshop's objectives were:

1. To articulate a concept(s) of networks that is appropriate for the AHFMR and to use as it considers nurturing and supporting networks in Alberta.
2. To identify the range of effects and outcomes that networks funded to increase research capacity in the province could reasonably be expected to achieve.
3. To reach a new level of understanding about networks as a strategic tool that research funding agencies may use to affect change.

The workshop involved two different processes, structured dialogue initially and then interactive small working groups. The purpose of the first part was to generate a broad range of input about networks in an open-ended way. This structured dialogue involved one group of informants located in the inner 'talking circle' while the other group was listening and reflecting (i.e. located in the outer circle), with the circles changing their position for each segment of the dialogue. A question oriented either to researching networks or to leading networks was asked, to stimulate the thinking of those in the 'talking circle'. While participants will have been influenced in their thinking by others' comments, the process was not primarily interactive or discursive but rather an opportunity for each participant to provide his or her thoughts and experience of networks in a non-competitive environment.

The intent of the second part of the workshop was to assess and consolidate the earlier input. This occurred through plenary and small group working sessions, with membership in the small groups being self-selected on the basis of interest. The groups also determined insights and lessons that would help inform AHFMR's future work regarding networks. (Refer to Appendix 2).

Expert Reflections on Networks

The choice of questions used to stimulate the thinking of the participants was determined by a desire to generate a wide-ranging array of information on the structure, characteristics, behavior, and outcomes of networks. The stimulating questions are provided, with a description of the type of information that was expected to be generated, and whether the question was oriented to researching or leading networks. Note that the conversation in a circle can take unexpected turns and the authors' summary attempted to capture all aspects of the conversation, not just those that responded directly to the question. The body of information from all questions was then considered as a whole in developing the implications for AHFMR in Part III.

Question 1: Networks as an Appropriate Organizational Form.

Oriented to researching networks: If you had just been granted the opportunity to catalyze some sort of organizational form to stimulate research capacity, and you were not constrained by time or money, what would cause you to think about a network as an organizational form that might help you accomplish this? What would make you cautious?

Several themes emerged:

- It is important to recall that networks **are often 'emergent' and 'self directed'** and in some sense; this is an ideal type of network, as it is more likely that when they emerge without external stimulation that they will come to function effectively. It is instructive (even when learning how to 'stimulate' networks) to understand how networks which occur naturally work well in a particular environment or group (described as working 'in the wild').
- Networks involve **connections of varying strength and importance**. Proximity is important; those who are most closely connected experience a higher level of interaction, trust and reciprocal benefit. Those more distant are perhaps activated within the network when a particular need arises.
- **Constant interaction is not necessarily a pre-requisite** or even a desirable attribute of a network. Networks perhaps work most effectively when they can be activated efficiently for a specific purpose.
- **Trust and reciprocity** among members seem to be universal attributes necessary for highly functioning networks.
- The **use of technology for network support is a mixed blessing**. It enables collaboration around the world, but does not necessarily help to identify 'what network members know'. Interpersonal interaction (e.g. conversation and observation) is key to developing an understanding of what someone knows. (This assumes that knowledge transfer is a key component of network effectiveness).

- To be effective, **network structure and processes must be adapted to the purpose for which it is created.** There is a wide range of formal structures and processes that can be legitimately incorporated into a network, ranging from hierarchies to no formal structure at all. Networks designed to support knowledge generation are different than those designed for knowledge transfer.
- **Networks are not limited to human nodes.** In a knowledge transfer network, it is appropriate to include non-human nodes. These non-human nodes nevertheless may convey important aspects about humans in the network, over and above serving as a knowledge repository. For example, in the case of a knowledge repository node, the fact that a human member contributes information to the repository not only provides the substantive content knowledge but also signals that the individual is willing to share information.
- **Networks are cyclical in nature.** This is both in the internal or growth and development cycle of a network; as well as to outside forces that lead to the cyclical activity of a network. Networks operating within a public policy environment are often dormant at times of uncertainty in a political cycle; and conversely need to be able to be activated quickly and on short notice as the need arises.
- Given the evolving nature of networks, it is **important to know what interim indicators or milestones** one could observe to be confident that the network is developing as planned. This is especially important in the case of networks which are externally stimulated, such as by a funding organization.
- The purposes for which networks are created often include, implicitly if not explicitly, a desire to **influence change in one or more of the organizations** to which network members are primarily affiliated. An understanding of routines and practices in those member organizations is needed in order to influence the 'parent' organizations.

Question 2: Membership and Evolution of Networks.

Oriented to researching networks: Is it possible for an individual to be a member of a network? Is it possible for an organization to be a member of a network? And.... Do networks change over time?

Emerging themes were:

- Networks exist for **different purposes**: innovation versus control; practice versus learning.
- There may be value in thinking more carefully about the characteristics of individuals. Perhaps **there is an 'ideal type' of individual** who is a

boundary spanner¹. It may be worthwhile putting extra effort into identifying and nurturing these folks.

- Very few people make their livings from networks; they **work in hierarchies but live in networks**. Networks interpenetrate organizations.
- **Effective networks have a distinctive culture** that is similar among successful networks. This is a difficult concept to capture and measure, but has been observed. It goes beyond trust and reciprocity. There is a sense that effective networks have common characteristics that are not observed in formal organizations. There is rather a consciousness among network members that goes beyond the organizational self interest. **Networks are ubiquitous**. They are everywhere and display huge variation in purpose, size, characteristics (e.g. permeability of boundaries).
- There is a natural evolution of a network. Over time, some of the purpose of the network may be achieved by changing behaviour or components, e.g. adding knowledge repositories or developing shared language. Once the purpose is achieved to a higher degree, fewer interactions are needed and individuals involved can go on to join other networks. There is no room for sedimentation around networks.
- There are **simple techniques through which to build network momentum**, such as encouraging discussion about crosscutting issues and topics, rather than those of primary interest to any one member.
- Networking sometimes **creates 'space to operate'** which would be difficult in other organization forms.

Question 3: Behavior of Networks and Leader Competencies.

Oriented to leading networks: When you are managing or directing or creating a network, what is it that ultimately terrifies you? Brings you joy?

- Things which give joy or satisfaction include:
 - Realizing the **power of shared vision**;
 - Realizing the wisdom of **empowering** network members;
 - **Creating something concrete**;
 - Seeing individuals **grow** through their involvement;
 - Realizing that networks don't really die, but rather component parts are **unleashed creatively** and can apply know-how in other ways;
 - Establishing **outcomes** for a network;
 - Watching networks (probably under resourced) demonstrate their ability to network and **create partnerships** (including equity partnerships) ;
 - Operating in an **ambiguous / uncertain environment**;
 - The **resilience** of networks and of members supported by networks.

¹ Suggested reference is Gladwell, M (2000) The Tipping Point where author describes how trends spread.

- Things which terrify / cause angst include:
 - Knowing that in the end, **individual free will determines success** of a network;
 - **Letting go** of control (the flip side of empowering others);
 - **Managing ambiguity**;
 - **Outcomes!** (Knowing you're being evaluated on them; figuring out what they are);
 - **Operationalizing the role of boundary spanner** in different cultures; enabling people to 'swim upstream' (i.e. try to connect with decision makers if you're a researcher; try to value and promote research if you're a decision maker);
 - Understanding and **managing the tension** between self-sustaining networks and leadership of same;
 - The **time crunch**. Developing networks takes a long time; and often expectations of external funders or even members of the network are unrealistic;
 - Knowing when and how to **evaluate so that it is helpful**, not detrimental, to the network.

Question 4: Outcomes and Indicators of Network Performance.

Oriented to leading networks: Tell a story using real people and situations that describes outcomes that you have discovered from networks. Looking back.... If you knew then what you know now, how might you have predicted them.

Outcomes referred to during the stories included:

- Establishment of **relationships which endure over time** (The point was made that in any one community, there are probably 50 'go to' kind of people. You need to learn who they are, and then interestingly, over time and differing topics, you tend to run into these people in different places);
- Increased **efficiency** (e.g. increased knowledge about where expert knowledge resides in a community; a nurse in an acute care hospital who knows the diabetes educator can make connections efficiently; work is expedited informally)'
- **Career enhancement** for network members (e.g. early exposure to established leaders; enhanced job opportunities);
- Enhanced **access to decision makers** (Can lead to changes in system; example given of a caregiver being present at a meeting involving senior executives where the caregiver gave example of there being no appropriate facilities for changing older children in diapers; very shortly these changing facilities were in place);
- Establishment of functional network is an early indicator of probable success;

- **Collegial support** and ability of a team to tolerate differences of opinion and perspective;
- **Shared planning**;
- **Creation of organizations** to serve mutual interests in a particular geographic area;
- **Enhanced value** of individuals to the organization because of employee's (network member's) rapid access to knowledge from network;
- **Risk taking** (Sometimes a 'risky' activity can be sanctioned by network where employers of network members would be hesitant. Examples cited included a physician researcher doing a project on story telling as a way of transferring information to patients; this project would not have been funded through traditional means; research network supported this work which is now often quoted).

Question 5: Positive Mileposts on the way to Outcomes and Indicators of Mileposts

Oriented to researching networks: Thinking back, what were the things you saw that would suggest that the network was heading in the right direction?

There were several indicators suggested (implicitly or explicitly) that may signal movement in the right direction with respect to network maturity.

- Ability of members to discuss money seriously;
- Agreement about key issues (e.g. governing structure, criteria for success);
- Resolving a conflict or adversarial situation successfully;
- Members voluntarily subjugate own interests to those of collective;
- Acknowledging that sustainability is about more than funding;
- Referral among network members;
- Exhibiting trust and respect for viewpoints/perspectives that others bring to the table;
- Network is used as a problem solving mechanism.

An element of trust was a key enabler to several of the indicators listed above.

Question 6: Research Capacity Outcomes and Mileposts

Oriented to leading networks: How would we know enhanced research capacity if we saw it? How would you know that networks were contributing to enhanced research capacity?

The responses were very broad ranging to this question. A key point made was that outcomes need to be specific to the substantive purpose of the network, whatever that is. However, there were several non-specific dimensions noted that could contribute to the achievement of the purpose specific outcomes:

- With respect to outcomes specific to research capacity, the point was made that there are really **two main types of outcomes**: those related to

knowledge creation and those related to knowledge use. On the use side, this could include concepts of diffusion, differentiation and also absorptive capacity. Diffusion refers to the situation where the intent is to have everyone have access to certain knowledge; in the case of differentiation, each person or network node has its own specialty and members know who the expert is. Absorptive capacity refers more to the situation internal to organizations that are linked to the network. External connections are not enough to ensure knowledge use internally.

- It is often helpful to think about the **different levels at which outcomes are considered** as well: the level of the individual, the organization, or the community (or health system). There is no simple description of outcomes of a network, even one with a clearly specified purpose.
- There are multiple stakeholders with an interest in the achievements of the network; so **the question about whose purpose is being served must be asked.** The substantive purpose of the network (e.g. research capacity in the present discussion) is only one dimension that defines outcomes. Other potential purposes may relate to such things as inclusion, political responses or addressing inequities (although this was described as being often an unintended outcome).
- Another theme arising in this discussion was that related to **the network as a growing, evolving, changing entity.** By its very nature, a network is more permeable and changeable than other organizational forms. This of course, makes the evaluation of outcomes more complex. Networks may change in focus, and be influenced by new entrants. While the change in focus may not be desired from an external assessors point of view (such as a funder), it may be very desirable from the point of view of members and may also be an early signal that the context has changed in ways that are not yet apparent to the funder.
- The notion of ‘intersecting’ networks also was discussed. **Rarely is an individual who is part of one network a member of that one network only.** Sometimes memberships in various networks work at cross-purposes.

Networks in Three Dimensions: Building Models

Participants were asked to build three-dimensional models that reflected their view of what a network was. There was a fascinating array of hard connections, flexible connections, and different types of elements. Appendix 4 includes photographs and key points relating to each of the models, but a summary of key attributes reflected in the models follows:

- All network models included some array of nodes and connections
- The nature of the connections within networks varied
 - Some were inflexible and routine;
 - Some were loosely connected;
 - Some connections atrophy during the evolution of the network;
 - Some connections result in knowledge transfer;
 - Some connections connect people geographically dispersed;
 - Some connections are important because they are 'potential'.
- Network members had varying attributes:
 - Some come in with new ideas;
 - Some reach out to find additional links for the network;
 - "Hubs" have the most knowledge and the most connections;
 - Some are gatekeepers;
 - Some use network in ways that are against the values and purpose of the network;
 - Major hubs are important, increase them and you increase the connections, weaken them and the network (or parts of the network) will die;
 - Some people are good at attracting people to networks; others are attracted because of who is in the network. Some people are good at making the connections; other attract connections so are valuable;
 - Different disciplines come together to "exploit" (in the best sense of the word) each other's skills / all become stronger because of it;
 - 'Network members' need not be human. For example, a node / network member can be a database.
- Different models emphasized different aspects of the network
 - Strengths of connections;
 - Connection of members to organization of origin;
 - Nature of formation and action ("sometimes it all comes together like fireworks").
- There may be some particular competencies for network members and leaders:
 - Some people are better networkers than others.

- If you need “glue” the connection may not work. There must be something inherently attracting about the network to participants. Third party actions (glue) which are coercive are not helpful; glue which is facilitative may be.
- There may be different metaphors to describe networks:
 - A network is like a fish net -- strong but flexible. If you stimulate (or lift, metaphorically) one part of the net, other connected parts follow.

Focusing on Networks and AHFMR

Following the structured dialogue and network modeling to bring a common information base to the group, participants moved into small groups to focus the discussion onto the specific utility of networks to AHFMR. Specifically, the question for this element of the workshop was:

Is the concept of network one that has value to AHFMR? Why or why not, and in what circumstances?

There were a variety of questions and points that relate to this discussion.

- There is a critical distinction between networks that support researchers and other networks, for example. There are a variety of network models to consider, and a variety of purposes i.e. create knowledge versus exploit knowledge (and perhaps also broker knowledge);
- It is the emergent qualities of networks that makes them unique and gives them value in solving problems;
- There are different strategic approaches AHFMR could take: catalyze networks, leveraging projects to create networks, creating a network of networks (a 'meta network');
- Trust is a key point of network success, implicit versus explicit;
- It is helpful to have a mental model of how a network is expected to accomplish the anticipated goals;
- It would be helpful to know the role of IT to support networks; is it useful or not?
- What is the life expectancy of a network?

A critical element of assessing whether networks are an appropriate strategy for AHFMR is to have an extremely clear and precise understanding of the specific outcome / result that is required. Thus, a particular element of the AHFMR goals was chosen for consideration by the groups. Of the continuum of 'research capacity' (from creating, choosing, transferring to utilizing research evidence), the aspect 'utilization' or 'uptake of research appropriately into practice' was chosen for the groups to focus on. The focal networks in this case, then, could perhaps be referred to as practice networks, i.e. networks for the purpose of applying new knowledge in practice (as distinct from research networks, with the purpose of generating new knowledge).

The framework for small group discussion is illustrated in Figure 1, on the next page. AHFMR has a variety of strategies through which it aims to achieve its mission of increasing the application of knowledge in operational settings, whether those be clinical, service delivery, policy settings or community groups. Strategies include personnel awards, grants, Health Technology Assessment,

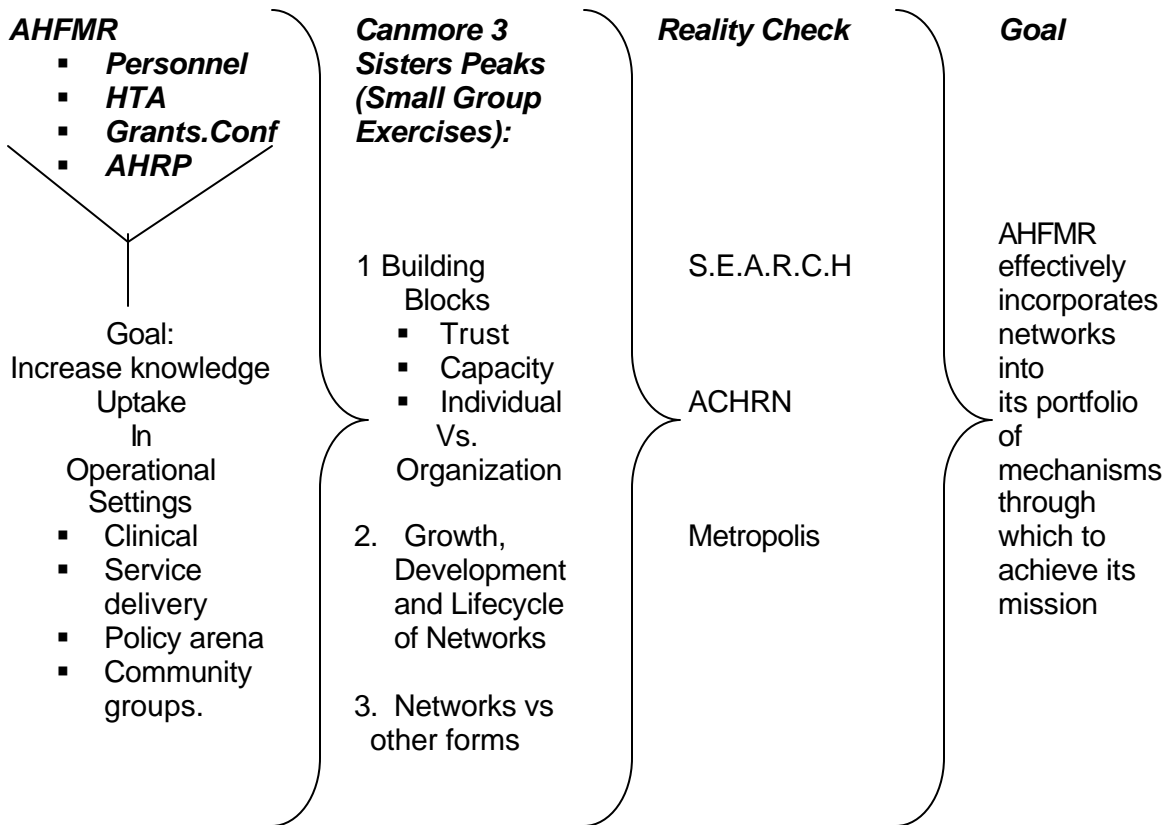
conference and travel grants, capacity-development programs in Applied Health Research.

Three different problems surrounding the issue of networks for research application were chosen as focal points for discussion. The three areas of discussion (cast as ‘the Three Sisters Peaks²), were:

1. What are the building blocks for networks in terms of trust and capacities, and is there a difference if the network member is an individual or an organization?
2. What is the growth and development lifecycle of networks and how should AHFMR best support and evaluate each stage?
3. When are networks more appropriate than another strategy and why?

The small groups tested their thinking against three of the networks represented at the workshop (SEARCH, ACHRN and the Metropolis network) to come to a conclusion about the extent to which and how AHFMR could effectively incorporate networks into the portfolio of mechanisms through which to achieve its mission.

Figure 1: Framework for Small Group Work



² The ‘Three Sisters’ is a well known landmark in the Rocky Mountains near the town of Canmore, where the workshop was held.

Peak One: Building Strong Foundations³

The topic that this group was asked to consider was: What are the building blocks for networks in terms of trust and capacities; and is there a difference if the network member is an individual or an organization?

Considering the issues of trust and capacity, the group identified a series of heuristics (sometimes called rules of thumb) of interaction for a funder to consider when wanting to fund or support a network in such a way as to make the power differentials work to the benefit of the network rather than its detriment:

- The level of trust that can be developed is affected by power imbalances. These occur most vividly in the case of an individual's relationship with his/her work organization in balance with his/her relationship to the network.
- The power balance between the organization and an individual staff member is such that the individual is the more vulnerable. AHFMR's potential role is therefore also one of 'Protector Organization'. This role helps negotiate the legitimacy of the vulnerable individual network member in the organizational context. The individual will always need to negotiate his/her involvement in a network within the local organization unit, but can use as part of the rationale the 'legitimacy' from the organization's overall agreement with the Protector.
- There is a creative tension between an individual and an organization. This tension will always be there and must be accepted as the 'nature of the beast'. The key is to work with it in a way that recognizes it is a factor, and that it is considered creative rather than limiting.
- Not all 'support' for networks comes from funding. AHFMR also may play a valuable role in legitimating the activities of the network in the eyes of organizations in which network participants work.
- It is essential to consider 'whose interests are being served' in the examination of any networks (e.g. network members, organizations, funder, system).
- Norms are powerful shapers of networks. One way in which a funder could be informed by this characteristic is to make it a requirement that a network's norms be made explicit and revisited regularly.
- Some functions of a network are assisted by having different organizational levels represented, because this provides diversity and ensures that front line, mid-level and executive management perspectives are all included.

³ Participants in Peak One Group were M.Spence, C.Katterhagen, A.Mark and K.Wright

- Other network functions require equivalent influence of members representing organizations. For example when organizations are in a network and decisions / commitments need to be made, the representatives need to be able to commit their organization's resources. In those situations AHFMR can require the organization representatives be of comparable influence in being able to commit their organization.
- A characteristic of networks is that the social capital developed in the network enables *reciprocity* in behaviour and in exchanging resources. In other words, if funding is necessary to enable an exchange, it is one signal that a network is weakening, or that it has become an organization. (organizations require rewards and authority directions to require exchanges) For example, in a network, participants respond to requests for information in a free and open manner. If someone expects payment or some other form of consideration for the information, it is a signal that there is not a network in place.
- The funder needs to identify whether the capacity required for networks functioning at different stages is in fact present, in order to ensure the funding will get the desired impact. For example, in the early stages of network development, is there anyone equivalent to a 'start up CEO' in the private sector – someone with experience at developing the network to a stable functioning system. On the other hand, a network at a stable functioning stage (or which needs to move to that stage) someone or some group that is comfortable and competent at maintaining stable operations. (Note that these functions might be provided by a core group in a network rather than a single individual.)
- At some stage the network may be struggling, or may clearly be working in ways that require 'fixing'. The funder needs to be prepared to walk away. Thus it is critical for a funder to be conscious of whether the network is developing as needed. The situation is much like a start up in the private sector – some fail and the venture capitalist 'cuts their losses'.
- The funder needs to have some limits on how long the start up phase lasts, and how long it maintains the 'Protector' role. If organizations do not evolve to a place where they provide sufficient internal commitment to the activities and health of the network (i.e. the outcomes of the network are sufficiently important to the organization), then the funder needs to question whether they will continue to force the issue. On the other hand, the organizational culture change to recognize the importance of the network's outcome might take a very long time and the funder be wanting to stay in the Protector role long enough to ensure that happens. The key is that the funder recognize how long it can reasonably be expected to take for organizations to provide sufficient support for network activities.

Peak Two: Network Growth, Development and Lifecycle⁴

Topics that this group was asked to consider included:

- *What are the stages of a network's lifecycle?*
- *What supports are needed at each stage (including IT)*
- *What is the appropriate role for AHFMR at each stage?*
- *What are appropriate evaluation techniques at each stage?*

The group initially focused on the question, "What is growth?" A number of terms were floated that might describe the changes in networks over time: growth, maturation, emergence, and evolution. It was agreed that "growth" might be somewhat value-laden and a decision was made to describe instead how a network might change over time. The group also tried to articulate those aspects of developing networks that a funder could examine when deciding whether or not to invest in a network.

The model that emerged from this discussion focuses mainly on purposeful network development, and in particular may reflect the narrow perspective of networks formed to conduct research. While this model did not reflect the understanding and experience of all group members, time did not permit exploration of other contrasting models.

This group described a network as having a lifecycle consisting of 5 stages naturally⁵:

1. Formation
2. Identity
3. Proposal Development
4. Implementation
 - a. Early (process) achievement
 - b. Late (outcome) achievement
5. Wrap Up / sustainability / transfer / rollover / disengagement. Hand off

⁴ Participants in Peak Two Group were N.Contractor, B. Milward, G.Kerr, J.Popp, A.Best, J.Biles, R. Thornley

⁵ As noted previously, this group focused primarily on a model that is more appropriate for a 'research generating' network, as compared to one which is designed to enhance the utilization of research knowledge in practice. A description of stages that is more widely applicable that is adapted from this one is presented in Part III of this report. Also, a key characteristic that emerged in other places in the workshop is not captured. This characteristic is that of the 'ebb and flow' or varying levels of activity in a functioning network at different points in time. The ability to 'gear up' or become inactive when specific situations warrant is one important characteristics of a network. This feature is lost in this rather linear depiction.

AHFMR might be approached for support by a network in any of these stages, or AHFMR might be seeking to reinforce or build on an existing network that is at a particular stage of development. The manner in which AHFMR acts depends on how many of the stages have been completed by a group that is approaching AHFMR for support.

The group worked with this characterization for the rest of the session, although there were some who did not feel that this particular model adequately described the specific type of network of interest i.e. one focused on applying research in practice settings.

There are a variety of 'neat mechanisms' that might be used by the evolving network and/or by AHFMR to facilitate the achievement of the necessary components in each stage. These are identified later in this section.

The following sections describe in more detail sub stages or components associated with each stage.

1. Formation

(AHFMR could provide funding and facilitation in this stage).

A network will go through a variety of sub-stages in its journey through the formation stage, implicitly or explicitly. The contribution from AHFMR can make more of the process explicit. This initial stage may be quite exploratory, and involve creating opportunities for people to come together and explore ideas and options in a non- or semi-structured way. The form in which the following sub-stages or components are explored or expressed may vary, but these are key:

- a. Statement of Purpose / idea (initially this may be quite fuzzy and include a number of competing and complementary purposes).
Over time the clarity of the actual purpose of the network emerges.
- b. Identification of thought leaders
- c. Formation / Recruitment / Coalescing
- d. Feasibility analysis / formal go/no go decision
- e. Refinement of purpose / mission / vision /values leading to a purpose statement.

2. Identity Formation

(AHFMR could provide funding, technical resources, road map in this stage. It is critical that realistic timelines are provided and the funder is patient in this stage as it can be quite lengthy.)

In this stage, the work begun in the Formation stage is continued and refined. The group explores and decides on more detailed processes by which it will

operate, and these decisions create the culture and operating norms of the network that underpin its identity. The variety of areas in which the network explores this socialization / norming / identity stage are:

- a. How will we work? How much structure is optimal?
- b. How will we communicate?
- c. How will we make decisions
- d. How will we share resources? Power?
- e. How can we develop trust? How resolve disputes?
- f. What are our core values / norms / rules of behaviour?
- g. What are our membership rights and responsibilities?

The output of this stage may take a number of forms. Since going forward usually involves accessing some type of funding, these may be a preliminary action plan and/or a Letter of Intent. A 'logic model' or 'theory of action' may be prepared if the group wishes to explicate its assumptions of how the outcome will be achieved, although in an emergent situation it may not be possible to express a linear cause-effect relationship and a narrative theory of action is used.

In the end, the group does a self-assessment of whether it is feasible to proceed, and makes a go/no go decision. The stage involves gradually increasing levels of consensus / clarity and cohesion.

3. Proposal Development

(AHFMR can provide limited funding for proposal development, travel and facilitation, as well as the evaluation / accountability framework that the group can use to structure its thinking)

It is assumed for the context of this workshop that a network stage of development includes one of developing a full proposal for funding to support full implementation. This might be left to some members of the proposed network who have the most expertise in proposal development.

4. Implementation

(AHFMR can provide Network secretariat support).

The resources to support ongoing implementation of the network come from a variety of sources – organizations contribute the time of their staff members, and might contribute some additional resources (data banks etc). However, a secretariat function is critical to the productivity of a network and takes more than might be expected. One or more organizations might provide this function as well, sometimes in rotation, but it is more likely a greater investment than any one organization is prepared to provide.

5. Wrap Up / Sustain / Turn over

An Evaluation Framework for Networks

The group developed the basic structure of an evaluation framework. There are five dimensions of interest in the framework, and they all apply to some degree to each stage of evolution. **The five dimensions are: efficiency, effectiveness, accountability, responsiveness and equity.** The weighting of each of these might be different at different stages. For example, efficiency and equity are deemed to be relatively more important in the early stages, whereas effectiveness is important in later stages.

When evaluating effectiveness, or achievement of outcomes, it is important to be open to unintended outcomes. In fact, it is plausible that the actual purpose of the network may change as it develops and changes over time, and as the needs of the context change.

Each stage will evolve according to the unique characteristics of the situation and context. There are a number of process tools or '**neat mechanisms**' that can be used at various stages:

- IKnow (a software program that maps and allows analysis of networks);
- Environmental scan;
- Launch team;
- Concept / teambuilding work;
- Feasibility assessment;
- Repeated measure network mapping;
- Identity formation tool kit / web based resource centre;
- Expert consultation to support key deliverables such as the logic model / theory of action.

Peak Three: Networks vs other enabling strategies⁶

This group was asked to consider whether, given a complex situation, and desiring innovation and equalization of research use / impact across the province:

- *Are networks better than 'x' (your choice) at facilitating progress? Why?*
- *At what level should network focus be – individual, network or meta level?*
- *What is the mental picture (logic model, theory of action)?*

Again, the group was asked to consider these issues from the particular objective of this workshop, i.e. the group was asked to consider these topics from the perspective of AHFMR funding a formal network, with the desired outcome of increasing the uptake and application of evidence in applied settings.

Potential Strategies Available

There are basically two mechanisms available through which networks develop: they develop as a byproduct of another process; or they are explicitly supported. These two are discussed briefly below.

- A. Network as byproduct.** In some cases an activity or initiative has created a network as a byproduct of the primary activity. Some activities that can create networks as a byproduct are:
1. Social marketing;
 2. Promoting individual training or education;
 3. Creating internal champions;
 4. Creating external consultants;
 5. Linkage and exchange project requirements. (For example in SEARCH⁷ there is a requirement that one of the projects be on a topic that is of interest to multiple regions and organizations, and the project team is comprised of cross-organization membership);
 6. Targeted incentives;
 7. Curriculum change (For example in SEARCH, the curriculum is delivered by having participants work in groups wherever possible, and there is a talking circle at the beginning and end of each residential module. This curriculum design is chosen for adult learning

⁶ Participants in Peak Three Group were S.Hayward, D.Behrens, K.Pain, N. Edwards, D.Royce, T.Reay

⁷ SEARCH (Swift Efficient Application of Research in Community Health) is a capacity building program of AHFMR designed to enhance capacity of those working in the health delivery system to contribute to research and use research findings in their decision processes. For further information, see www.ahfmr.ab.ca and search for SEARCH.

requirements and also to increase the relationship building between individual participants that can support a network being created).

B. Network as primary strategy or mechanism. There are three strategic directions that a funder can take if it decides that a network is the best approach for achieving a particular outcome:

1. Promoting the creation of new networks
2. Support existing networks
3. Linking existing networks

A funder would decide that a network was the best approach because they facilitate behavior change and diffusion of knowledge (and they are efficient once they exist)

There are a variety of situations under which a funder would consider that a network might be a useful investment:

1. Scarcity of resources and/or expertise;
2. Distribution of resources or expertise;
3. Complex problem;
4. No existing natural networks – i.e. there is a network gap, e.g. horizontal;
5. There is sufficient time to mature a network to address problems.

Structures

Early work by Coleman⁸ and subsequently by his student Ron Burt⁹ addressed the issue of varying types of network structures and varying suitability for different purposes. There can be different kinds of structures of networks for different purposes.

For example, cohesion networks are characterized by direct ties among members and are good for transferring information among members (as, for example in the case of a particular graduating class from university). Equivalence networks on the other hand are comprised of members with similar characteristics, social norms, etc. who have equivalent connections to similar others but not necessarily to each other (i.e. all members of the alumni of the same faculty would be members of equivalence networks; they would all have connections to the university, the faculty and what it stands for; they would not

⁸ Coleman, Katz and Metzel (1957) The diffusion of an innovation among physicians. *Sociometry* 20, 253-270.

⁹ Burt, Ronald (1978) Cohesion vs structural equivalence as a basis for network subgroups. *Sociological Methods and Research*, 7, 189-212. and Burt, Ronald (1987) Social contagion and innovation: Cohesion versus structural equivalence. *American Journal of Sociology*, 92, 1287-1335.

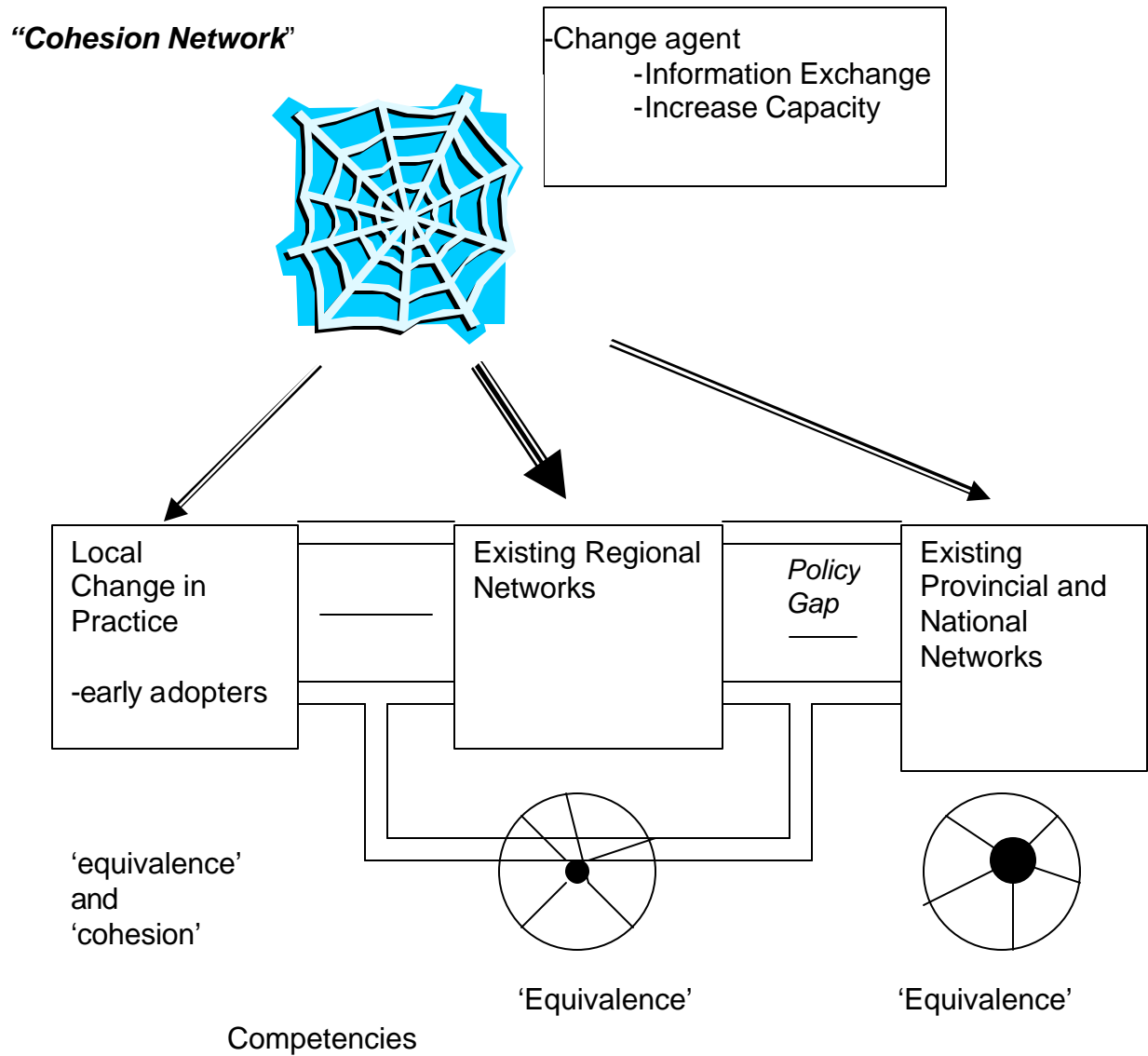
necessarily all know one another). This type of network is better for supporting behavior change because they tend not to develop the rigid social control of behavior that inhibits behavior change and that can happen more easily in a cohesion network.

Figure 2: Cohesion versus Equivalence Networks

Cohesion -direct ties among members	Equivalence -linkages to similar others
good for diffusion of information	good for behaviour change

One way to describe the various elements of networks for the current purpose is to use the analogy of Spokes, Spiderwebs and Stormsewers (see Figure 3 on next page).

Figure 3: Spokes, Spiderwebs and Stormsewers



In thinking of these two types of networks, there may be appropriate places within the system to incorporate or recognize the value of both types. Cohesion networks may work effectively for transferring information, but when one focuses more closely on the operational levels of organizations, equivalence networks are perhaps a more appropriate lens, as behavior change relies to a great extent on factors (e.g. professional norms) other than pure information.

Part III Implications for AHFMR

This work was undertaken because a research foundation (AHFMR) had an explicit interest in assuring good return on its investments in networks of varying types. This section considers the input that was given by experts in leading and researching networks and applies it to the AHFMR situation. Where it is helpful, key literature is referenced¹⁰. There are five questions for which we attempt to provide, if not answers, then at least some insight. These questions are:

1. What are networks, what defines them; what distinguishes them from other organizational forms?
2. For what purposes are networks particularly well suited?
3. Can networks be purposefully stimulated?
4. What can networks accomplish (outcomes, impacts, etc) and under what circumstances?
5. How do you measure activity and impact of networks?

This section also describes the process that AHFMR might use in responding to two different scenarios for potential funding of networks.

1. Networks: What are they?

What are networks? What defines them? What distinguishes them from other organizational forms?

There is no straightforward answer to this question. At root, a network can be considered to be the form created when two or more elements (people, groups, organizations, databases) are connected. There are two components – nodes and connections. One pays attention to the characteristics of the nodes, and the characteristics of the connections.

In other words, most organizations can be thought of as a networks where the nodes (individual people) are connected in relationships imposed by the organization's governance and management through decisions on organization form and function and maintained through a complex range of rewards and punishments (actual or potential). Other networks (the kind of interest in this report) are created by nodes (people or organizations) who connect in relationships for a variety of reasons, based on mutual interest of some kind, and in which trust and mutual respect grow over time.

¹⁰ See Appendix 5 for list of potentially helpful references and a list of perspectives from the literature that can potentially add to the understanding of networks.

Some authors identify networks as those forms that exist between the ‘firm’ (a formal organization with fixed boundaries and identity), and the ‘market’ (where there are no connections other than for exchange of goods and services)¹¹.

In part, networks are visible when one chooses to look at the world in terms of relationships rather than fixed items. For example, in Newtonian physics, one sees the world in terms of those things we can discern with our senses and thus as a collection of objects. This has led to a view of atoms as billiard balls for example. However in quantum physics one is interested in flow and energy patterns¹².

So, for the purposes of this report, we are considering network forms in which membership is voluntary and the nature of connections and the selection of the nodes in a network happens through some sort of process internal to the network rather than by fiat.

Networks include Nodes and Connections

Nodes can be individuals, groups, organizations. They need not be human – a database or other shared resource can be a node in a network. Some authors call these ‘agents’¹³.

Connections among nodes have different characteristics. They can be described as loose or tight, weak or strong. There are no good or bad connections, but different types of connections are able to facilitate different types of interactions and influences. Granovetter’s¹⁴ classic work showed, for example, that weaker ties are actually more effective for certain purposes (e.g. employment seeking), where it is important to connect with those outside of your immediate circle.

Another dimension that has been used to characterize the nature of connections is that which attends to the nature of the relationships between members of a network. Early work by Coleman¹⁵ and later work by Burt¹⁶ examines

¹¹ Ireland, Thomas R (1990) The formation of organizations, networks and markets. *Journal of Behavioural Economics*. Vol 19(1):103-125.

¹² In *Blackfoot Physics* (2002), Phanes Press Inc., pages 6 – 8 David Peat describes this concept “In modern physics, the essential stuff of the universe cannot be reduced to billiard-ball atoms, but exists as relationships and fluctuations at the boundary of what we call matter and energy...[and that]...nature is not a collection of objects in interaction but is a flux of processes. This worldview is also expressed by ecologists who stress that we must attend to the basic interconnectedness of nature and to the sensitivity and complexity of natural systems.

¹³ Monge, P.R., and Contractor, N.S., *Theories of Communication Networks*, (2003) New York: Oxford University Press.

¹⁴ Granovetter, Mark (1973) The strength of weak ties. *American Journal of Sociology* 78(6):1360-1380.

¹⁵ Coleman, James; Katz, Elihu; Menzel, Herbert (1957) The diffusion of an innovation among physicians. *Sociometry*, Vol. 20, No. 4, 253-270.

¹⁶ Burt, Ronald (1987) Social contagion and innovation: Cohesion versus structural equivalence. *American Journal of Sociology*, 92, 1287-1335.

characteristics which Burt calls cohesion or structural equivalence. Cohesion relationships are characterized by physical proximity between socially similar individuals whereas structurally equivalent relationships describe people who occupy the same position in the social structure (e.g. physicians) and so are proximate in so far as they have similar patterns of relationships with occupants of other positions. So the structural equivalence concept has particular relevance when considering situations that involve representatives of specific professional groups that have identifiable social identities, for example.

Some networks have hubs, which are areas characterized by a higher density of interactions. In some cases, these hubs represent some sort of leadership or coordinating centre, and sometimes hubs include paid staff.

Characteristics of Networks

There are some key characteristics that define networks, but not many that are unique – i.e. occur only in networks. Sometimes it is a matter of degree – the degree of formality and of mandated behavior becomes stronger and stronger and then an organization form looks more like a formal organization.

Some characteristics which may be ‘necessary, but not sufficient’ to determine that a network exists include:

- There are nodes and connectors in every network. The nodes may be human or non-human (e.g. databases; knowledge repositories)
- Involvement in networks usually involves a high degree of self-directedness. Membership is almost always voluntary. People ‘vote with their feet’.
- Networks can operate in the ‘white space’ or opportunity space which often provides an opportunity for action that is not feasible within one’s home organization. There are no formalized procedures or reporting relationship which mandate or structure the interactions.
- Networks can exist quite effectively without tangible formal organizational characteristics. This is not to say that they all do. There is a quality of emergence that more often describes network evolution than other organizational forms.
- Networks are particularly well suited to be responsive to the environment i.e. they can be quickly activated at certain times but can also lie relatively dormant for long periods of time without ill effect.
- Networks are similar to other organization forms in that they have life stages; these stages may be more important to acknowledge in networks, as due to their very nature they are more likely to wax and wane in their activity levels.

Note that none of these are absolute – it is possible for a network to be a ‘monoculture’ and have little diversity, or to require tangible organization characteristics for some aspects of its operations.

There is arguably one characteristic of networks that actually differentiates them from other organizational forms. The fact that networks are not the primary organizational connection for members is unique (with the exception of staff who may be hired by the network to support it).

Implications for AHFMR

The primary implication for AHFMR is that supporting networks can be considered a potentially valuable strategy for achieving the organization's mandate. Networks support research in practice, both in 'generating new knowledge' and in 'using knowledge in practice'. Networks are a mechanism for innovation and flexibility, and creating 'space' for professionals to take action that may benefit their organizations, and may also provide opportunity for accomplishment and recognition outside the constraints of their home organization. Because of the multiple connections, it enables more opportunities for information flow into an organization; and provides another avenue for concerted endeavors beyond the usual organizational context.

Involvement in networks provides another way for personal accomplishment among members. It provides a vehicle for achievement. Relationships are built on trust and are voluntary, therefore there is no sense that one is engaging out of obligation or organizational pressure. This in essence means that networks can be an effective vehicle for 'unleashing' energy and expertise on a particular focus, such as enhancing the uptake of research knowledge in organizations.

The ability to exert control over how you spend your work day is known to be a powerful motivator. Although that may be an attribute of many positions, it is almost a given in network membership; by its nature the involvement is voluntary. Therefore, by supporting and enabling network membership and activity, AHFMR may be making a modest contribution to morale of health system workers in the province.

Because networks are particularly well suited to be more or less active depending on the context at a point in time, they are an efficient mechanism through which to support action.

There must be a 'dance' of stimulating networks – just enough to attract it to address a purpose, but not so much that the stimulation creates a required behavior – this turns the emergent network into an organization that exists for the purposes of those stimulating its existence and form – it becomes a means to produce a product by some pre-determined means. Thus, the nature of the connections stops being based on trust and reciprocity and starts becoming based in reward / punishment. It is important for AHFMR to recognize the valuable experience that they are gaining in nurturing and guiding networks, and

to capture that expertise in such a way as to contribute to continued capacity in the province.

A particular life stage requires specific skills in the individual or group that is providing the leadership. There fore, it is important for AHFMR to attend to the leadership or level of inherent energy in a community for any particular network, and to consider that in its strategy for supporting any particular network.

2. Situations for which networks are suited.

Networks are particularly appropriate in some kinds of situations. These include:

- Context where varying levels of activity are needed. The most obvious one is a situation where varying levels of activity are required at different points in time. In contrast, networks are probably not the best way to organize individuals for a production or manufacturing process¹⁷. However, networks are particularly well suited to be responsive to the environment. Networks can ‘sleep’ and ‘wake up’. If the environment is not supportive, they can lie relatively dormant for long periods of time; they can also mobilize quickly.
- When innovation is needed. Outcomes of a network cannot be completely predicted.
- Knowledge is not codified and is needed in a timely (just in time) fashion.
- Data or information is not sufficient – knowledge or wisdom are required. That is, the fit with context is particularly relevant for the desired purpose.
- There is a scarcity of resources and/or expertise and they are widely distributed.
- Situation where diverse entities need to connect or work together. Networks are a better form for integrating diverse entities, because they do not force the individual or organization to conform to a fixed identity. This makes it easier to have high creativity or innovation, because the trust relationships of the network plus diversity are the ingredients of innovation.
- The problem to be addressed is particularly complex.
- There is sufficient time to mature a network to address the problem.

Implications for AHFMR

Given the above, it should be possible for AHFMR to make an assessment of the context for new networks that are asking for support; and also to assess the appropriateness of other initiatives that it is currently supporting under a network umbrella.

¹⁷ Note this does not preclude the use of networks in production or manufacturing. There are examples in the private sector of vertical integration of a production venture using a network of organizations, each of which is a specialist in a particular part of the production

3. Can networks be purposefully stimulated?

Networks can, and have been, purposefully stimulated. Careful thought should be given to whether (and when) they 'should' be stimulated. Networks can be stimulated either by nurturing nascent or emerging activity that is already present, or by stimulating them de novo. The question about when it is appropriate to stimulate one when there is no nascent activity (i.e. de novo) is not an easy one to answer. It seems common sense that providing fuel to a fire that is already started has a higher chance of success than one where there is no flame. The other part of the question is, once stimulated, can a network be maintained so it continues to have the valuable characteristics of emergent networks yet continue to achieve the purposes desired.

There are a number of things to consider:

- Networks are at differing stages of development. Like a seedling, a network needs nurturing but also needs freedom to explore and grow.
- Sometimes it may be wise to stimulate a network indirectly – by implementing an activity that has a high degree of likelihood of a network emerging as a byproduct.
- The art of supplying the 'right' amount of support is not straightforward. Support (most often interpreted as money) needs to be applied judiciously; enough to nurture growth and momentum but not enough to remove the need for reaching out and expanding connections.
- Although money is often the identified means of support or stimulation, there are other important resources. For example, network start-up skills are as important as the skills of a startup CEO in a new company. The skills for the facilitation processes involved in the early stages of a network's development are also a critical resource in stimulation. Further, AHFMR can play a valuable role as 'legitimizing' or 'protector'. By gaining acceptance for the importance of the network at the executive level of organizations, AHFMR provides a means for individuals in that organization to justify the time they spend on network affairs.

Implications for AHFMR:

It is important to ask the question – For what purpose does AHFMR wish to stimulate networks, and are the conditions such that a network could be expected to be an appropriate mechanism? Then it is possible to consider whether the right kind of network can be stimulated to grow and flourish, realizing the valuable characteristics of networks and also achieving the purposes hoped for.

It is not realistic to expect every network that is supported will flourish. It may be appropriate for AHFMR to use a population approach when assessing success in

their efforts to stimulate networks. If one accepts that there are some clear advantages that networks can provide in a health research use system, then success at a system level means considering all of the networks stimulated as a group, rather than considering them one at a time.

4. What can networks accomplish? Under what circumstances?

In theory, networks can contribute to the accomplishment of a very wide range of outcomes and goals. There is no list of outcomes for which one must use a network. There are examples in the private sector of vertical integration of a production venture using a network of organizations, each of which is a specialist in a particular part of the production. Certainly networks to catalyze research are known. Practice networks that include a commitment to best practices and research-in-practice are also known, but they are not the same as research networks.

Some types of networks are better for dissemination of information and others are better for stimulating behavior change. It is not so much a question of asking what can networks accomplish, as much as asking 'If I am stimulating a network for a particular purpose, what types of connections are more likely to lead to my particular kind of outcome?'

As with other organization forms, there are impacts of networks that are almost byproducts – the network is not created to accomplish certain outcomes, but yet the network contributes to their generation. These include:

- **Equity.** A network may contribute to equity by, for example, exerting pressure to ensure that all members have equal access to core resources (e.g. fax machines, computers, access to internet). Because there is no formal authority structure in a network, the contributions of an individual node are valued for how well they contribute to the network's primary purpose.
- **Efficient knowledge translation.** Networks connect individuals in varying local situations with remote knowledge sources. A network gives direct or mediated connection to deep pools of wisdom and applied knowledge.
- **Experimentation** – a network allows testing of new ideas in a fairly low risk environment because the organization does not need to sanction the activity.

Networks can link together people from widely diverse fields of knowledge and worldviews, so they are likely to be particularly effective at addressing enormously complex policy problems. These require the combined and concerted effort of people from a large number of research and policy areas. For example, a major health renewal project encompasses governance / organization design elements together with health services / clinical elements and population health promotion elements. The range of research fields to inform the enormous range of decisions for such a project would definitely take a network to have the

various players act in concert. It requires programs of research and practice that bring together researchers, practitioners and communities in ways that they do not usually interact.

As noted in section 1, networks are particularly well suited to 'working in the white space' and therefore for producing innovative outcomes as well as disseminating information about innovation. Some of the emerging information on improving an organization's skill at innovation¹⁸ identifies the logic of transferring approaches and technologies from one industry to one application to another. Because a network has a greater capacity for accommodating a wide range of diversity across its nodes, together with the trusting relationships, it has the necessary key ingredients for innovation.

Implications for AHFMR:

Networks are a means to an end, not an end in themselves. There are particular contexts where networks present a good alternative for trying to enhance knowledge utilization or research uptake. It is better to first understand the specific purpose for which a network is desired, and then ask what types of forms are necessary, so that the appropriate type of network is stimulated. At that point, the outcomes of interest are those which are intended to be addressed through the network mechanism.

5. How do you measure activity and impact of networks?

There are no specific outcomes that are unique to networks and the outcomes of interest to be measured are the substantive ones associated with the desired purpose, whether it is tackled through a network form or some other mechanism. In the case of AHFMR, if a network was supported for the purposes of supporting research, the outcomes of interest would be the usual research achievement outcomes. If the network was designed to enable research utilization in service delivery settings, then that is the ultimate outcome of interest.

What is perhaps notable about measuring outcomes or impact of a network form is that there must be a recognition of the fluidity and informality of many networks, particularly in their early days of evolution. It is only appropriate to examine indicators of 'network maturity' when the network is expected to be in a mature life stage. Although the concept of life stage of an entity is clearly not limited to networks, it is critical to recognize when measuring networks. Networks evolve along some particular dimensions. Evaluating networks appropriately requires some knowledge of the path of evolution and the particular life stage of the network being evaluated.

¹⁸ Hargadon, A., *How Breakthroughs Happen: The surprising truth about how companies innovate* (2003) Harvard Business School Press.

Having said that, evaluating the life stage of the network and / or the nature and extent of connectivity of a network may be considered as a leading indicator of its ability to deliver the desired outcome in future in a more polished, competent way. Although social mapping received relatively little air time at the Canmore workshop, the nature and extent of connectivity within networks is often measured using a variety of social mapping or sociometric techniques, and approaches to mapping are highly developed. There was limited discussion about the association between network activity and impact.

This means that knowledge of the intended outcomes will be important so the leading indicators of the desired outcome can be tested for, early in the network's life, so the decision about whether to continue funding can be made. Funding could be provided on a staged basis, with each decision being contingent on satisfactory progress through the previous stage.

During the workshop, one model of the lifecycle of a network was proposed, which included the following stages:

- Formation;
- Identity;
- Proposal Development;
- Implementation;
- Wrap up.

While this formulation seems more appropriate to some contexts than others, it gives the sense of movement and maturation. Not all the steps would apply in every network. For example, a network could develop and thrive without ever developing a formal proposal, per se. A more general formulation of the stages of network maturing might be:

- Formative;
- Identity;
- Solidification of purpose and governance arrangements;
- Fully functioning (but not necessarily fully active at all times);
- Mature;
- Declining or disintegrating or emerging (into something else).

At the mature stage of the network one could realistically assess the accomplishments of the network with respect to the substantive outcomes originally hoped for (or at least hoped for at a point in time, as it is recognized that purpose may evolve as networks evolve). As implied, however, network growth trajectories are not necessarily constant, or linear; nor are activity levels constant after a network is fully functioning or mature. One of the appealing characteristics of a network is the ability to ramp up quickly in activity levels or to essentially lie dormant at a point in time if there is no 'purpose relevant' need for it to be active.

Following are potential indicators that relate to recognizing whether a network is evolving in maturity:

- Ability of members to discuss money seriously;
- Agreement about key issues salient to network future (governing structure; criteria for success);
- Resolving a conflict successfully;
- Members voluntarily subjugate their own interests to those of the collective in the short run, because they have developed trust that their own interests will be met in the long term;
- Acknowledgement that sustainability is about more than funding;
- Referral among members;
- Exhibiting respect for various perspectives;
- Using the network as a problem solving mechanism;
- Varying levels of activity over time may be an appropriate indicator of a successful network, depending on its purpose.

There are different levels to consider when measuring activity and impact: individual, home organization, network and community.

Implications for AHFMR

It will be important to develop a matrix of appropriate indicators of progress for various lifecycle stages. Outcomes indicators are only appropriate once a network has achieved a certain degree of maturity.

Scenarios for Application

As a means of demonstrating how the information from the workshop might be translated into practical application by AHFMR, two scenarios have been developed. One describes how AHFMR might respond to a request to fund a network, and the other how AHFMR might choose to strategically stimulate a network.

These are not meant to be the penultimate approach, nor even a recommendation at this point, but rather are provided for discussion purposes. They are described fully in Appendix 6.

Appendices

1. *Network Descriptions*

2. *Workshop Process*

3. *Workshop Participants*

4. *Three Dimensional Models*

5. *Literature Resources*

6. *Decision Process Re: Requests for Network Support*