

Science-Matrix

SUMMATIVE EVALUATION OF THE NETWORKS OF CENTRES OF EXCELLENCE- NEW INITIATIVES FINAL EVALUATION REPORT



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Executive Summary

PURPOSE

The present study is the first evaluation of the Network of Centres of Excellence–New Initiatives (NCE–NI) pilot. In 2009, the NCE Steering Committee mandated the Social Sciences and Humanities Research Council (SSHRC) to lead the summative evaluation of the NCE–NI pilot, which Science-Metrix was then contracted to design and implement.

OBJECTIVE AND SCOPE

The evaluation covers the time period from fiscal year 2005–2006 to 2009–2010, encompassing the entire four-year funding cycle of the first NCE–NI competition. The aims of the evaluation are to assess the extent to which the NCE–NI pilot has met its initial objectives (primarily focusing on outputs and short-term outcomes), to investigate the factors or underlying causes for the success and failure of the funded networks, and to make recommendations for the future orientation of the initiative. The evaluation focuses on three issues (and eight specific questions):

- 1) the **results of the pilot**, in terms of outputs and outcomes, as well as its incremental results (4 questions);
- 2) the **delivery of the pilot**, as delivered by the NCE Secretariat and by the NCE–NI networks themselves (2 questions); and
- 3) The **relevance of the pilot** (2 questions).

EVALUATION METHODOLOGY

Multiple indicators and lines of evidence were used to address the evaluation issues and questions. In total, 33 interviews were conducted with internal and external informants. Key findings on the NCE–NI pilot were drawn from four main methods:

1. **Review of administrative documents, files, data and web-based sources:** A review of documents and files is embedded in all methods (i.e., success case analysis, comparative analysis and counterfactual analysis) to support the collection of primary data through interviews. In particular, a variety of documents and data were reviewed to profile the NCE–NI pilot and the performance of the funded networks (including documents produced by networks to report on their activities, web sites and other available documents).
2. **Success case analysis:** Case studies of the five funded NCE–NIs were conducted, including 21 interviews with network and partner representatives, a review of network documentation and publicly available information. While this analysis informed most of the evaluation questions, it focused more particularly on the factors or underlying causes for its success or failure.
3. **Comparative analysis:** Comparative analysis with the SSHRC Strategic Knowledge Cluster (SKC) program, including a review of program documentation and the review of three funded clusters (interviews with principal investigators and document/file review). The SKC program was identified as the most similar to the NCE–NI pilot. As well, a web scan of six other programs identified by interviewees and key informants was conducted to position the niche of the NCE–NI pilot.
4. **Counterfactual analysis:** Three interviews with unfunded NCE–NI applicants and a review of all unfunded applications and relevant documentation/data, such as adjudication reports.

In addition to the 33 interviews during the fieldwork stage, 6 interviews were conducted with key internal informants during the design phase, including three managers/directors from the NCE Program and from the three granting agencies, as well as other key informants.

NCE–NI PILOT PROFILE

The NCE–NI pilot was established in 2003 by the NCE Secretariat and is administered jointly by NSERC, CIHR, and SSHRC in partnership with Industry Canada. This pilot has been created to:

- facilitate the creation of networks on a national and an international level;
- support networking activities among well-established researchers or research teams to encourage them to develop new partnerships with receptor communities (e.g., industry, government, not-for-profit organizations, etc.); and
- respond to the needs of both researchers and receptor communities for interaction, partnership, and networking.

These goals stem from the results of a 2002 evaluation of the NCE Program that found that some groups of researchers—in particular researchers in the social sciences and humanities (SSH)—face numerous difficulties in creating new networks or successfully applying for funding within the NCE program. In time, the NCE–NI pilot is expected to help researchers develop proposals that better emphasize the impacts of their research, due to enhanced links with receptor communities. Note that the NCE–NI funding is not intended for existing networks (such as networks successfully completing the end of a NCE funding cycle), nor to support research, as it is expected that the teams will already have existing research funds.

NCE–NI funding supports networking activities among researchers in the SSH, health sciences, and natural sciences and engineering (NSE) whose work seeks ultimately to improve the well-being of Canadians, be it social, health-related, and/or economic. Networks that were funded as New Initiatives are required to be nation-wide, multidisciplinary and multi-sectoral and integrate the research and development priorities of all participants. Additionally, each individual New Initiative is required to have a Scientific Director, a Network Manager, and a management committee (e.g., a Board of Directors) with members from various sectors.

While the NCE–NI award should not be seen as an automatic entry to the full NCE program, the view that the NCE–NI pilot was meant to prepare new networks for the full NCE program was shared by both NCE program staff and NCE–NI participants; media reports confirm this widespread perception. However, it should be noted here that the program criteria for full NCE applications were modified for the 2009 competition to ensure that the NCE program fits within the new federal government's Science and Technology (S&T) Strategy. The competition targeted applications along the Science, Technology and Innovation Council (STIC) sub-priorities within the S&T priorities.

The first competition was announced in May 2005. Networks competed for NCE–NI funding cycles of two to four years, with the annual eligible budget ranging from a minimum of \$200,000 to a maximum of \$400,000. The NCE Secretariat received 42 complete applications, and in March 2006, the NCE announced five NCE–NI awards, corresponding to a success rate of 12%. The funding period for the NCE–NI pilot initiative is four years, beginning fiscal year 2005–2006 and ending 2009–2010.

The NCE–NI pilot dedicated \$1.6 million to each network over the entire funding period (\$400,000 per year), with the exception of the two networks that have not been renewed following the mid-term review in 2007. Of

the five NCE–NI awards granted in the 2005 competition, three networks were renewed in 2007 following the mid-term review (and are currently ongoing) and two were not renewed:

- **Canadian Obesity Network (CON)** The mission of the CON is to reduce the burden of obesity on Canadians by linking obesity researchers with health professionals, policy-makers, and other stakeholders to foster knowledge translation, capacity building, and partnerships among stakeholders. Its vision is to be recognized and respected as the leading Canadian network for fostering innovative and effective obesity research, prevention, and treatment solutions in addition to building a comprehensive body of knowledge on the complex biological and environmental factors that contribute to obesity.
- **National Initiative for the Care of the Elderly (NICE)** NICE is an international network of researchers, practitioners, students, and seniors representing a broad spectrum of disciplines and professions who are dedicated to improving the care of older adults. The goals of NICE are to close the gap between evidence-based research and practice; improve the training of existing practitioners, improve geriatric educational curricula, and interest new students in specializing in geriatric care; and effect positive policy changes for making team-training a standard practice for Canadian elder care.
- **Promoting Relationships and Eliminating Violence Network (PREVNet)** Aimed at the prevention of child and youth bullying and at creating a greater awareness of this growing problem in Canada, PREVNet is a national network of Canadian researchers, NGOs, and governments committed to stopping bullying. Beyond intervention, the network aims to develop tools, such as standardized training materials, assessment tools, intervention strategies, and national policies, which will help to create environments where children feel safe through education, assessment, and policy development.
- **Canadian Design Research Network (CDRN)** The mission of the CDRN was to realize the potential of design for building a productive and sustainable future for Canada through excellence in design research, innovation, and the transfer of knowledge. This pan-Canadian network joined together 100 graduate students and faculty from various disciplines, along with government and industry partners, to provide these academics with professional development opportunities related to conducting and publishing world-class design research.
- **Emerging Dynamic Global Economies (EDGE)** The purpose of EDGE was to identify the key economic and social impacts of this change and to help Canada develop effective policies and business strategies that would help Canada to play a leading role in the new economic order of the 21st century and become more productive, competitive, and prosperous. To accomplish this, EDGE linked more than 50 research institutions, think tanks, governments, leading companies, and key business associations from across Canada and the world.

KEY FINDINGS: PILOT RESULTS (ISSUE NO. 1)

This section presents the findings for each of the eight evaluation questions by main issue and concludes with four recommendations.

Q1. Have the objectives of interaction, partnerships, and networking of both researchers and receptors been met?

Yes. Both renewed and non-renewed networks developed a large number of partnerships (more than 300 in the first 2 years) reaching a wide variety of receptor communities in diverse sectors, which recognize the benefits of these interactions. Both cash and in-kind contributions have been effectively leveraged by the networks from external partners; this provides significant evidence of receptor engagement in the networks.

Partners in the academic sector were the most widely reported for all five networks (34-48%), followed by partners from the private sector (14-22%); the vast majority of partners were based in Canada. Although the number of receptor communities involved in the networks could not be determined,

evidence demonstrates the ways in which these communities—including those in education, elder care, medical associations, and the pharmaceutical and food industries, to name a few—were targeted and reached. Approaches used by the networks included conferences, workshops, publications, and a variety of knowledge translation tools. Receptor communities of the ongoing networks reported benefits in three broad categories: 1) access to research and researchers, 2) knowledge transfer and exchange, and 3) value-added for the partner organization or receptor community. Perhaps the most significant evidence of the perceived benefits and value of the networks is the external leveraging of contributions: the ongoing networks received a total of \$2.6 million in cash and \$3 million in in-kind contributions from external sponsors, supporting organizations, and partners over their first two years of operation.

Q2. To what extent are the NCE–NIs broadly based, multi-sectoral, multi-institution, and/or multidisciplinary in terms of collaboration, partnership, and networking?

To a great extent. Both renewed and non-renewed networks created links between institutions and network partners from diverse institutions, sectors and disciplines, successfully facilitating and expanding the level of research collaboration between researchers and partners through opportunities that would not likely have arisen without the networks.

Key partners hailed from a range of sectors, including universities, private sector organizations, associations, federal and provincial departments and agencies, and NGOs. Networking among multiple institutions was also observed, especially for the non-renewed networks. In general, all networks successfully expanded and increased their levels of collaboration; for example, several networks noted that members working together have obtained new collaborative grants. The ongoing networks reported that up to 25 different disciplines are represented within their membership. In particular, thematic working groups brought together a diverse range of institutions and disciplines, in which researchers and partners work together to develop activities and tools around specific themes. Without the networks actively facilitating these collaborations, it is unlikely that many of these partners would have had the opportunity to work together.

Overall, the NCE–NI pilot has been very successful in reaching new receptor communities across Canada and achieving effective knowledge mobilization/transfer with hundreds of individuals and organizations from different institutions, sectors and areas of practice.

Q3. To what extent are the developed partnerships sustainable over time?

To a moderate extent. All ongoing networks plan to remain active after the end of NCE funding, having reached a high level of momentum and demand from receptor communities. However, the sustainability of developed partnerships relies on the capacity of networks to secure funding for their infrastructure and operational funding; this capacity is currently uncertain as ongoing networks only recently began to develop their sustainability plans, when the opportunity to become full NCEs did not materialize.

The three ongoing networks have recognized the importance of establishing a sustainability plan that will maintain the progress they have achieved thus far, and respond to the needs of their stakeholders. However, most ongoing networks have only recently begun to engage in the development and implementation of sustainability plans. These networks have been successful in obtaining financial contributions from partners, receptor communities, and other network stakeholders to support specific networking activities, knowledge transfer initiatives, and research activities. Nevertheless, networks have been less successful in obtaining a sustainable level of operational funding from external contributors. Note that other funding opportunities that are similar to the NCE–NI pilot (i.e., that are

specifically for operational funding) have not yet been found. Therefore, the sustainability of both networks and partnerships relies on the capacity of the networks to secure funding for their operating budgets after the NCE–NI funding ends. Accordingly, NCE–NIs are now faced with the challenge of finding new funding or revenue streams by demonstrating the value of the network model, rather than the value of individual network activities.

Note that, as a result of an inability to obtain funding for their operational infrastructure, the two networks that were not renewed have dismantled their network infrastructure and have since moved from a network-centred to a project-centred approach. Evidence from the counterfactual analysis (based on three unfunded recipients) also suggests that the resulting initiatives—i.e., those that were implemented in the absence of funding dedicated to network infrastructure—are considerably more limited.

The management and Board of Directors of renewed networks are currently developing sustainability plans (drawing on multiple strategies) to secure operational funding after the end of the NCE–NI funding (2009-2010). The completion of these sustainability plans and the implementation of chosen strategies are expected to occur within the next year. However, considering the time required to develop and to successfully implement sustainability plans, the networks will only be in a position to assess the effectiveness of these strategies in approximately two years. Some network representatives indicated that at least one additional year of NCE funding would greatly facilitate the transition period, allowing them more time to finalize and implement their sustainability strategies. Regardless, the period required to achieve the expected funding results and adequate financial stability is indeed at least two years.

The provision of transitional funding would minimize the risks of losing the achievements and momentum reached by the networks, particularly with regard to relationships developed with researchers, receptor communities, and to respond to the increased demand observed for network expertise and services. Transitional funding is essential to realizing the full benefits of the NCE funding previously received by the NCE–NI networks. In fact, the findings from the evaluation indicate that the funded New Initiatives provide value for Canadians and will probably continue to do so even if no NCE–NI network becomes a full NCE.

Providing transitional funding would also acknowledge that these networks are complex initiatives that take time to build and develop, particularly as the NIs were created to address the needs of particular fields and receptors communities for which a need to develop their capacity for networking and collaboration had been identified. Similarly, it would recognize that the impact of such initiatives cannot fully occur in a four-year timeframe, and would allow networks more time to capture and demonstrate the impact of their activities.

Recommendation 1. Provide transitional funding to ongoing networks for at least one year to allow more time for the development and implementation of a sustainable funding model, particularly with regard to their operating costs. The NCE should also consider providing the opportunity to apply for a second year of transitional funding (for a total of six years of NCE–NI funding) to allow networks to adjust their strategy based on the results obtained during the first year.

Q4. What is the value-added or incremental value of the NCE–NI funding?

Added value resulting from NCE–NI funding generally falls into four categories:

1) *Collaborative and interdisciplinary research:* NCE–NI funds available for events and travel ensured a high level of attendance at network meetings and workshops, allowing members to meet and interact with

potential partners, and to build and strengthen relationships that previously did not exist. Researchers have benefited from new partnerships formed as a result of these network activities, leading to collaborative projects reportedly several million dollars worth of research grants. More broadly, they have also benefited from reduced duplication of research efforts, increased access to evidence-based practice data and hard-to-reach receptors communities, and raised awareness about the benefits of cross-discipline or cross-sector networking.

2) *Knowledge mobilization and transfer*: Preliminary evidence suggests that the collaborative structure of the networks, which placed equal emphasis on researchers and receptor communities, has helped to extend the impact of the research into practice settings, where these can be translated into concrete actions, guidelines, policies and standards. More generally, the networks increased awareness and use of knowledge transfer mechanisms among stakeholders and led to the adaptation of core materials according to partners' specific needs.

3) *Overall success and sustainability of the networks*: Dedicated funds from NCE–NI were essential to set up and develop the networks, especially considering the challenge in securing external operational funding. Thus, the success of the networks relied heavily on the NCE–NI funds they received for network infrastructure and management. The “NCE” branding associated with the networks also increased the buy-in of top researchers, organizations, and Board of Directors members in the networks.

4) *Pan-Canadian capacity building, particularly for students*: Hundreds of graduate students were actively engaged in network activities, such as through participation in governance or operational committees; in student-run auxiliary networks (developed for two of the networks); learning and skills development programs; knowledge mobilization projects; poster and oral presentation sessions; and more. Through the networks, students were also provided with travel subsidies to national and international meetings and were invited to write articles. Finally, students also benefited from valuable networking opportunities with established researchers and field practitioners.

Q5. What are the conditions of success or failure of the New Initiatives?

Conditions of success included the following:

- *The quality of the network's leadership, governance, and administration*, such as Scientific Directors that have the ability to champion the group of researchers and engage stakeholder communities (via their profile/reputation, personal contacts, scientific leadership, etc.) and Network Managers with content-related expertise and skills to 1) coordinate the committees and activities, 2) manage day-to-day functioning of the networks, and 3) ensure appropriate reporting.
- *Shared visions and interests*, including maintenance and clear articulation of the network's vision and the related strategic objectives, which increases partners' involvement. This has also fostered a network structure in which activities were focused around themes or pillars and led by multidisciplinary teams or working groups.
- *The commitment and engagement of network partners, members, and students*.

Conditions of failure included the following:

- *Short timeframe for demonstrating results*. All networks noted that insufficient time was allotted for conducting and measuring the results of certain crucial network activities (e.g., the timing of the mid-term review), especially as these relied on the forging and strengthening of mutually beneficial relationships, many of which typically take years to develop.

- *Challenges associated with obtaining sustainable and diverse sources of operating funding.* Partners are generally more willing to support specific projects and activities than to provide network operating funds.
- *Challenges associated with nature of some issues/fields.* Many network stakeholders did not function or were not identified as a community prior to the network, and some issues are easier to market than others, making it more difficult in some cases to establish trust, to achieve partner buy-in and to leverage external funds.

Q6. Is the pilot delivered in a cost-effective manner?

Yes. The New Initiatives have provided a high level of value for money, especially when considering the value of the grants versus the quantity and quality of outputs. In addition, the external contributions leveraged by ongoing NCE–NI networks, calculated as a proportion of their total NCE–NI funding, was nearly twice as much as that of the Networks of Centres of Excellence over the same period.

Because SKC representatives interviewed were not in a position to provide or compile, within the evaluation project period, the data required to perform a comparative cost-effectiveness analysis of the NCE–NI pilot, the evaluation relied on a “value for money” analysis. In this regard, the New Initiatives have provided a high level of value for the funding they received, considering the value associated to the number of partnerships developed; the number of graduate students actively involved; the diversity and number of workshops and conferences organized through the network; and the diversity of tools (including books, policy reports, brochures, guidelines, and databases) created, disseminated and transferred. The ongoing networks also leveraged significant non-NCE resources (including both cash and in-kind external contributions); this amount increased by 75% between their first and second years of operation. The short-term outcomes and benefits of network activities and outputs for researchers and receptor communities (including students) have begun to be seen even within the short timeframe of the initiatives. Networks will be in a position to demonstrate and measure further benefits and longer-term impacts in the near future.

The comparison of external leveraging between NCE–NIs and full NCEs provides additional evidence that the NCE–NI pilot was delivered cost-effectively. In fact, the NCE–NIs were more successful in leveraging external contributions (in-cash and in kind contributions, not including research funds received by individual network members) compared to the full NCE Networks. Over their first two years (2006–07 and 2007–08), the external contributions leveraged by ongoing NCE–NI networks, calculated as a proportion of their total NCE–NI funding, was nearly twice as much as that of the NCEs:

- Ratio NCE leveraging/NCE budget (average of 2006–07 and 2007–08): 71.5%
- Ratio NCE–NI leveraging/NCE–NI budget (average of 2006–07 and 2007–08): 134% (160% for the second year alone)

Using leveraging as a proxy indicator of networking and knowledge transfer, this finding suggests excellent performance by the NCE–NI pilot in this regard. This finding is all the more significant because, unlike the full NCEs, the external contributions leveraged by the NCE–NI do not generally include research funds obtained by partners. Putting networking and knowledge transfer before research has proven to be cost-effective and beneficial both for researchers and receptor communities. For example, several respondents indicated that this led to a research agenda that was better aligned with the needs of receptor communities.

Design and delivery issues

The evaluation findings show that reporting and expectations for the new initiatives should be adjusted to reflect the scope and objectives of the NCE–NI pilot, i.e., in such way that recognizes the difference between NCE–NI pilot and the full NCE program.

More specifically, reporting requirements should be less frequent (at most every year) and collect more meaningful indicators. Furthermore, the necessity of the mid-term review should be revisited, as seen for the full NCEs. Regarding the mid-term review, the consensus appears to be that the review occurred too early in the funding cycle, especially considering the complexity and time required to forge new associations between researchers and receptor communities in areas where such links were previously weak. The mid-term review could be replaced with yearly assessments, which include consultation with the network management to discuss their strengths and weaknesses and their strategies to strengthen the network. In this way, networks can focus their performance measurement on indicators that have the greatest value for their activities and field of action (and for their partners), and they can dedicate a higher proportion of their resources (particularly their operational budget) to building new partnerships, obtaining additional leveraging, and strengthening their strategic plans. As this pilot was created to help address a need for interdisciplinary initiatives—and those with a central SSH component in particular—more interactive support should be offered to these networks to help them develop their capacity for network management and especially for sustainability planning.

The NCE Program should also consider adjusting management practice with regard to: 1) networking and leveraging expectations/requirements, especially in the context of areas where researchers and receptor communities are weakly linked, 2) performance monitoring and reporting requirements, 3) governance/management structure requirements (considering the size of the grants), and 4) communication regarding eligible expenses for the salaries of network personnel.

Recommendation 2. Adjust the management practice for the NCE–NI pilot to better acknowledge that NCE–NIs have a much different scope, size and funding regime than the full NCEs.

Q7. Are the NCE–NI’s mandate, objectives, and activities consistent with the priorities of the current government’s Science and Technology Strategy?

Not entirely. Some inconsistencies exist between the NCE–NI pilot’s rationale and the current government’s S&T Strategy. The pilot’s objective—to foster the establishment of new research networks and support knowledge transfer where they are most needed, notably in an interdisciplinary context or where the SSH plays a central role in knowledge translation and transfer—is consistent with those of the NCE Program and the priorities of the three granting agencies. However, in 2007, changes were made to the federal S&T strategy, and new areas and sub-priorities were implemented, which limited the opportunities accessible to the ongoing NCE–NIs. More specifically, applications to the 2009 NCE competition were required to be consistent with these sub-priorities, which focus primarily on applied research- and technology-driven areas that are more relevant to the natural sciences, engineering, medical sciences, and information technology.

Considering that the initial scope of the NCE–NI pilot was to support networking and knowledge transfer activities that address critical issues in areas of importance for Canadians, the current strategy reduces the ability of the potential upcoming competitions of the NCE–NI pilot to respond to the needs in a number of interdisciplinary and social science areas not aligned with the new sub-priorities. In other words, the current strategy will possibly minimize the NCE–NI’s future ability to fund initiatives or networks that are historically less supported by the NCE (e.g., SSH).

In addition, the evaluation demonstrates inconsistencies between the perception of network stakeholders and the NCE representatives (e.g. in the NCE pilot documents) on the rationale of the NCE pilot. Network representatives and stakeholders consulted perceived that the ultimate goal of the pilot was to provide opportunity to new knowledge transfer networks to become NCE research-funded networks. In contrast, NCE representatives and documents indicated that the pilot aimed to encourage researchers from the SSH and from other domains to develop collaborations with other researchers and receptor communities to help researchers develop stronger research proposals but not necessarily within the NCE programs.

The evaluation indicates that the rationale of the NCE–NI pilot should be revisited by the NCE Program in the context of: 1) the current S&T strategy, and 2) the NCE program portfolio. This internal review could clarify if the creation of new networking and knowledge transfer organizations is the primary niche of the pilot or if the ultimate goal is the creation of grooming new networks to become research networks organizations. Equally important, the NCE should clarify how the NCE–NI pilot will contribute to the implementation of the current S&T strategy.

Recommendation 3. Clarify the future rationale of the NCE–NI pilot in the context of the NCE program portfolio and the current S&T strategy.

Q8. To what extent are the initiative objectives adapted to the needs of researchers and of receptor communities?

To a great extent. The continued need of the NCE–NI pilot within the Canadian S&T system is high, as no other program in Canada develops and supports a networking and KT infrastructure on an ongoing, large-scale and interdisciplinary basis. Not only were the initial pilot objectives adapted to and answered the needs of both researchers and receptor communities, but funded networks achieved tremendous level of networking and KT outputs in a relatively short period of time.

The comparative analysis suggests that the NCE–NI pilot is likely to be more effective than SSHRC’s SKC program with respect to networking and knowledge transfer with various receptor communities through multidisciplinary, multi-sectoral and nation-wide collaborations. A scan of the SKC program and six other programs with similar characteristics suggests that the NCE–NI pilot is uniquely positioned in Canada to support the development of networking and knowledge transfer infrastructure that involves multidisciplinary, multi-sectoral and nation-wide collaborations. Of the two programs that specifically support the creation of networks without funding research activities, only the NCE–NI pilot is open to researchers from all domains and disciplines.

In terms of funding amount and length, three other network-oriented programs provide higher cumulative amounts than the NCE–NI pilot, and only the SKC program provides an inferior annual amount. In all cases, programs that dedicate funds to large networking and/or partnerships initiatives provide funding over a period of five to seven years; in comparison, the NCE–NI pilot with a four-year timeframe provides the shortest timeframe of the large-scale network-orientated programs examined. Thus, based on the comparison of similar programs, the opinion of network representatives interviewed and the time required to forge mutually beneficial relationships with receptor communities, the four-year funding timeframe the NCE–NI pilot is probably too short to realize the full benefits of the NCE funding previously received, especially if the transition to a full seven-year NCE does not occur.

Based on the evidence for the immediate outcomes and continued need of the NCE–NIs, as well as its niche in Canada, there is every indication that this pilot should be maintained, and the funding length should be increased from four to five years to provide a sufficient timeframe to develop a large-scale

network. Moreover, the NCE–NI pilot should be maintained in order to give more time to the NCE program to clarify the purpose of the pilot initiative in the context of the NCE portfolio and the current S&T strategy (see Recommendation 3) and to assess the longer-term benefits and impact generated by the pilot program. Accordingly, any changes to the pilot should be explicitly documented and clearly communicated to potential applicants.

As stated in Recommendation 1, the opportunity to apply for an additional year of transitional funding should be offered to new NCE–NIs if they choose not to apply for a full NCE—or if they are not successful in this process—during their funding period. Consequently, the maximum period of funding suggested is six (five years plus one year of transitional funding) years, instead of four. In this way, the NCE will ensure and show that it is committed to the long-term success of the networks.

The NCE Secretariat should collect outcome/impact evidence of ongoing and future NCE–NI networks to learn more on the extent to which funded initiatives benefited the receptor communities. In particular, the first cohort of networks (2005 Competition) will soon be in a better position to report on longer-term benefits and impacts. The NCE Secretariat should also consider comparing networking and knowledge transfer performance of the NCE–NIs with the performance of the NCE networks and other similar programs. The selection of these programs should be based on the quality and availability of data (e.g., performance, financial and impact data), and importantly, a comparable funding timeframe (e.g., the time elapsed between the inception of initiatives and the measurement of impacts). Future evaluations of the pilot should also include larger consultations (e.g., web surveys with students, partners and receptor communities) to more adequately capture the impact of the pilot. The data collection should be planned and managed in advance of future evaluations, especially with respect to impact data and contact information for stakeholders (e.g., students, partners, researchers and other stakeholders). Future reviews of longer-term impacts of funded initiatives and the review of NCE–NIs will provide a more comprehensive picture of the value and the niche of this pilot, especially in the context of the current S&T strategy.

Recommendation 4: Maintain the NCE–NI pilot for one additional competition round, during which time the initiative should be reviewed as per Recommendation #3.

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Acronyms

AUTO21	AUTO21 Network of Centres of Excellence
CDRN	Canadian Design Research Network
CFI	Canada Foundation for Innovation
CIHR	Canadian Institutes of Health Research
CLASP	Coalitions Linking Action and Science for Prevention
CON	Canadian Obesity Network
CURA	Community-University Research Alliances Program (SSHRC)
DCM	Data collection matrix
EDGE	Emerging Dynamic Global Economies
HQP	Highly qualified personnel
ICCE	International Collaboration for the Care of the Elderly
IDRC	International Development Research Centre
KT	Knowledge Transfer
LOI	Letters of Intent
MCRI	Major Collaborative Research Initiatives Program (SSHRC)
MITACS	Mathematics of Information Technology and Complex Systems (NCE)
NCE	Network for Centres of Excellence
NCE MF	NCE Management Funds
NCE–NI	Networks for Centres of Excellence–New Initiatives
NGOs	Non-governmental organizations
NI	New Initiatives
NICE	National Initiative for the Care of the Elderly
NSE	Natural sciences and engineering
NSERC	Natural Sciences and Engineering Research Council
PREVNet	Promoting Relationships and Eliminating Violence Network
S&T	Science and technology
SAMSHA	Substance Abuse and Mental Health Services Administration
SCM	Success Case Method
SKC	Strategic Knowledge Cluster Program (SSHRC)
SSH	Social sciences and humanities
SSHRC	Social Science and Humanities Research Council
STIC	Science, Technology and Innovation Council

1 NCE–NI Evaluation Context

1.1 Introduction

The Network for Centres of Excellence–New Initiatives (NCE–NI) pilot was established in 2003 to support and promote new networking activities among academic researchers and between researchers and partners from targeted receptor communities. In 2009, the Networks of Centres of Excellence (NCE) Steering Committee¹ mandated the Social Science and Humanities Research Council (SSHRC) to lead the summative evaluation of the NCE–NI pilot. Consequently, SSHRC contracted Science-Metrix to design and implement this summative evaluation of the pilot. This evaluation aims to assess the extent to which the pilot has met its initial objectives and to make recommendations for future orientations.

As described in the evaluation approach (Section 2), this study is based on multiple types of analyses to address the eight main evaluation questions. These analyses include a success case analysis, a comparative analysis, and a counterfactual analysis, all of which draw on a review of documents and files and a total of 33 interviews with internal and external informants. The key findings of these analyses are presented in Section 3 according to the three evaluation issues: relevance, results, and delivery. Conclusions and recommendations leading from these key findings are presented in Section 4.

1.2 NCE–NI Pilot Profile

The profile of the NCE–NI initiative presented in this section draws on NCE–NI documents, such as the guidelines for the 2005 competition, and on interviews performed during the design phase with key internal informants who have had a significant role in the design and delivery and/or management of the program.

1.2.1 NCE–NI Pilot Background

The NCE–NI pilot is a pilot initiative that was implemented by the NCE Secretariat following the recommendations stemming from the evaluation of the NCE program undertaken in 2002.² The evaluation discussed the difficulties facing certain groups of researchers in creating new networks, often because they were not well positioned to apply for the NCE program or for other larger and longer-term research partnership programs. More particularly, the relatively low success rate of applicants from the social sciences and humanities (SSH) in obtaining funding for the NCE program and the difficulty in creating new SSH networks was noted in the 2002 evaluation. Thus, recommendations were made in the 2002 evaluation for the support of new networks in the SSH by placing an emphasis on receptor communities. This issue was also corroborated by an independent study³ that assessed the likely reasons for the poor performance of social science-led Letters of Intent (LOI) in the NCE 2003 Competition. The study provided a series of recommendations, one of which specifically suggested increasing the support for network and partnership programs “*that can give social science and*

¹ The Tri-Council’s submission to the Treasury Board for the renewal of terms and conditions of the NCE program called for an evaluation of the NCE–NI pilot to be undertaken in 2008.

² Evaluation of the Networks of Centres of Excellence–2002 http://www.nce.gc.ca/pubs/reports/2021/eval/eval_e.htm (Accessed June, 2009)

³ Study of Performance of Social Sciences in the Letter of Intent Stage for the 2003 Competition – Parts I and II. Martin Walmsley Consulting, 2003.

humanities researchers experience working in a network and specifically in network and project management. Eventually these projects might be in a position to apply for long-term funding as a successful applicant in the NCE program.”

While the NCE–NI pilot award should not be seen as an automatic entry to the NCE program, the view that the NCE–NI was meant to prepare new networks for the full NCE program was shared by both program staff and pilot participants; media reports confirm this widespread perception.⁴ However, it should be noted here that the program criteria for full NCE applications were narrowed for the 2009 competition following the implementation of the current Canadian governments Science and Technology (S&T) Strategy.⁵ These changes have had implications as to the eligibility of new initiatives for the full NCE program; this is discussed further in Section 3.3.1.

Based on the recommendations of the independent study and the 2002 NCE evaluation, the NCE–NI pilot was designed with a view to encouraging researchers from the SSH and other disciplines to develop collaborations with other researchers and partners from targeted receptor communities. In time, these New Initiatives are expected to help researchers develop proposals that better emphasize the impacts of their research, due to enhanced links with receptor communities. Internal key informants also noted that even if researchers were to seek financial support for the kinds of networking activities that would help them to better target the impacts of their research; they would be hard pressed to find it within the current system. Thus, the NCE–NI pilot was meant to address the need for the development of a new tool to help improve networking among researchers and receptors, *without* funding research itself.

1.2.2 NCE-NI Pilot Description and Objectives

The NCE program is a federal program administered jointly by the Natural Sciences and Engineering Research Council (NSERC), the Canadian Institutes of Health Research (CIHR), and SSHRC in partnership with Industry Canada.

The goal of the NCE–NI pilot is to facilitate the creation of networks on a national and/or an international level. The pilot was thus created to support networking activities among well-established researchers or research teams to encourage them to develop new partnerships with receptor communities (e.g., industry, government, not-for-profit organizations, etc.). The funding is not intended for existing networks (such as networks successfully completing the end of a NCE funding cycle), nor to support research, as it is expected that the teams will already have existing research funds.

NCE–NI funding supports networking activities among researchers in the SSH, health sciences, and natural sciences and engineering (NSE) whose work seeks ultimately to improve the well-being of Canadians, be it social, health-related, and/or economic. The NCE–NI pilot has been designed to respond to the needs of both the researcher and receptor communities for interaction, partnership, and networking. For some groups, elements of networking are already in place, but they lack the infrastructure and resources to support networking activities.

A list of activities that can be supported under the NCE–NI pilot includes, among other things: conference-type activities and associate travel; training activities; the establishment of websites or email discussion groups;

⁴ “Grooming networks for full NCE status – New Networks of Centres of Excellence pilot has strong social sciences slant.” ReSearch Money, Volume 20, Number 6, April 14, 2006.

⁵ Industry Canada, Mobilizing Science and Technology to Canada's Advantage, Ottawa, May 2007

and several other networking activities that focus on liaising with parties interested in the area of research on a national and/or an international level, knowledge transfer to fellow researchers, students, research-users, decision-makers, and the public at large.

1.2.3 NCE-NI Pilot Delivery and Reporting Requirements

Competition

The first NCE–NI competition was announced in May 2005. The NCE Directorate of Secretariat provided pre-screening services and advice to applicants on eligibility until the end of July 2005. The deadline for the receipt of applications was September 2005. The application process did not include a letter of intent stage, as is required for the full NCEs. Rather, potential applicants were asked to submit a full application for a new network consisting of: 1) a strategic plan addressing the five NCE–NI pilot criteria, including a proposed budget; 2) curriculum vitae information of key participants; and 3) letters of support and a summary of contributions from supporting partner organizations.⁶ The five pilot criteria as follows:

- 1) expected impacts—social, cultural, economic, and/or health-related well-being improvement;
- 2) excellence and contributions of the researchers;
- 3) development of partnerships;
- 4) strategy for knowledge and/or technology transfer to receptor communities; and
- 5) management of the network.

Networks competed for NCE–NI funding cycles of two to four years, and payment of grant instalments were subject to satisfactory annual and mid-term evaluation of the progress of the project against the milestones originally proposed by applicants. The maximum period of support for the NCE–NI was four years. The eligible annual budget ranged from a minimum of \$200,000 to a maximum of \$400,000.

The NCE Secretariat received 42 complete applications. A Selection Committee, composed of international-calibre experts from academia and the public and private sectors, was appointed as a part of the peer-review process. The review of applications was held in September 2005, and the Selection Committee transmitted a priority-ranked list of networks recommended for funding, along with a list of recommended awards, to the NCE Steering Committee for final decision. In March 2006, the NCE announced five NCE–NI awards, corresponding to a success rate of 12%.

Five NCE–NI awards were granted in the 2005 competition from which three networks were renewed following the mid-term review in 2007, whereas two were not renewed (Table 1).⁷

⁶ Networks of Centres of Excellence New Initiative – 2005 Competition. PDF Guide, 15 pages.

⁷ In accordance with the requirements of the NCE-NI pilot, a midterm review took place in June 2007. An Expert Panel, appointed by the NCE Directorate, provided an evaluation (based on the published NCE-NI Program Criteria) of the networks' progress reports and strategic plans. The Expert Panel judged that two of the five networks did not fully meet the objectives of the NCE-NI pilot and, in view of its concerns and/or reservations in all criteria, the Expert Panel recommended not to renew funding for the Canadian Research Design Network and the Emerging Dynamic Global Economies Network.

Table 1 Overview of funded NCE–NI

<p>CON – Canadian Obesity Network</p> <p>Obesity is a major threat to the health and economic well-being of Canadians. It is estimated that about 5.5 million Canadian adults and half a million Canadian children are obese. In 2001, obesity costs represented \$4.3 billion (or 2.2% of Canada's total health care budget). There are also substantial costs to Canada's economy in terms of absenteeism or short or long-term disability. Like other chronic diseases of civilization, obesity results from complex interactions between environmental and biological factors. The determinants of this epidemic are entrenched social trends, including urban sprawl, sedentary lifestyle, unhealthy diets, stress and nutritional illiteracy.</p> <p>The vision of CON is to reduce the humanistic and economic impact of obesity on Canadians through collaborations that will help advance knowledge in obesity prevention and treatment. The Canadian Obesity Network mission is to become the primary Canadian network of health professionals, researchers, policy makers, and other commercial and non-commercial stakeholders interested in preventing and reducing the mental, physical and socioeconomic consequences of excess body weight.</p> <p>Canada's industry has a major role to play in these efforts: new nutritional formulations, innovative methods of encouraging physical activity inside and outside the workplace, and novel pharmaceutical targets and advanced surgical techniques are providing new opportunities to Canada's agri-food, life sciences and medical devices industries.</p> <p>The multidisciplinary nature of obesity is reflected in the broad support of the network by more than 130 leading Canadian obesity health professionals and researchers from the social sciences and humanities, health sciences, natural sciences, engineering, and agriculture. The network also has the support of public advocacy groups, professional associations, and other non-profit and governmental bodies. The network seeks to engage and mobilize Canadian industry as a responsible partner for health and wellness innovation in the market place, workplace, and community.</p> <p>Source: http://www.nce.gc.ca/nces-rces/con_e.htm (Accessed June, 2009)</p>
<p>NICE – National Initiative for the Care of the Elderly</p> <p>Seniors (those adults 65 years of age, or more) are Canada's fastest growing population group. It is expected that the senior population will grow to approximately 6.7 million by 2021, and grow to 9.2 million by 2041 then accounting for nearly one in four Canadians. The fastest growth is occurring among those adults aged 85 and over.</p> <p>Canada faces numerous challenges to deal with this impending demographic shift, including a shortage of doctors who specialize in the care of older persons and of students enrolling in these specialties. Education programs in medicine, nursing and social work sometimes do not offer even basic training in geriatric care and, when they do, their coverage is sometimes limited. As people age, they tend to develop more complicated health and social problems requiring more complex care that is best performed by interdisciplinary teams.</p> <p>NICE is a national network of researchers and practitioners involved in the care of older adults through medicine, nursing and social work. The network aims to influence the care of Canada's seniors by:</p> <ul style="list-style-type: none"> ▪ transferring knowledge about best practices for the care of the elderly; ▪ encouraging students to specialize in the care of older persons; ▪ refining existing practitioners' skills in the care of the elderly; ▪ shifting other practitioners' attention to the importance of caring for older adults; and ▪ influencing policy initiatives affecting Canada's seniors. <p>NICE will establish links between university researchers community practitioners in medicine, nursing and social work to help develop and improve practices for the care of Canada's seniors. The network will also help develop and improve educational initiatives aiming at introducing basic geriatric knowledge into core courses in medicine, nursing, and social work, and to also provide specific training programs in geriatric specializations.</p> <p>Source: http://www.nce.gc.ca/nces-rces/nice_e.htm (Accessed June, 2009)</p>
<p>PREVNet – Promoting Relationships and Eliminating Violence Network</p> <p>Healthy relationships form the foundation for healthy development of children and youth. Bullying is a relationship problem and a critical issue in Canada. In recent years, there have been many severe cases of Canadian children who have died or</p>

were seriously injured due to bullying. These tragedies have elicited recognition of the seriousness of bullying problems both for children who bully and children who are victimized. In a recent World Health Organization Health Behaviours in School-aged Children survey, Canada ranked 26th and 27th out of 35 countries on the measure of bullying and victimization. Across all ages and categories of bullying and victimization, Canada consistently ranked at or below the middle of the international group. These data expose Canada's need for a national strategy on bullying.

PREVNET provides the groundwork for this national strategy. PREVNET brings together 23 researchers from 17 Canadian universities and 34 NGOs and other partners to promote safe and healthy relationships for Canadian children and youth. The goal of the network is to create socio-cultural change in Canada by reducing the negative use of power and aggression in relationships. This goal will be achieved by providing NGOs and governments with the capacity to tailor and disseminate scientifically-based resources to build awareness, change attitudes, assess bullying, implement evidence-based strategies, and develop policies that promote and support these activities within every community in Canada.

The expertise from NGOs, government ministries and the diverse fields of research expertise will be integrated and linked in a multidisciplinary network. Researchers will collaborate with NGOs, governments, and other partners to exchange and translate knowledge for the development of education, assessment, intervention, and policy related to bullying. As network partners, NGOs and government ministries offer channels to disseminate knowledge to their constituents across Canada. Through these partnerships, the outcomes of improved understanding and practice will enhance social capital, and promote mental and physical health, healthy relationships, school engagement, and crime prevention.

Source: http://www.nce.gc.ca/nces-rces/prevnet_e.htm (Accessed June, 2009)

CDRN – Canadian Design Research Network

A key to productivity, innovation and sustainability, design constitutes a critical competitive advantage in the 21st Century. With application in all areas of building and manufacturing, design informed by research is an essential enabler of long-term economic growth and social benefits.

CDRN brings together over 100 researchers from across the country along with partners in the private and public sectors to improve Canadian design through research, outreach, and collaboration. Its goal is to foster and undertake world-class research in themes such as sustainability, advanced design technologies, digital fabrication, design visualization and simulation, and interactive technologies. The multidisciplinary network includes the key disciplines of architecture, landscape architecture, engineering, urban design, planning, industrial design, interaction design, computer science and human-computer interaction. The network will:

- strengthen the Canadian industrial base through the introduction of new tools for visualization and fabrication;
- provide a forum for the exchange of ideas, expertise, best practices, hardware, software, staff and researchers;
- significantly increase the number of graduate students, faculty members, and other highly qualified personnel in the field of design;
- ensure that design expertise stays in Canada by providing a stimulating and rewarding environment and opportunities in design; and
- facilitate participation in global outreach through international design initiatives.

Source: http://www.nce.gc.ca/nces-rces/archives/cdrn_e.htm (Accessed June, 2009)

EDGE – Emerging Dynamic Global Economies

One of the biggest challenges facing Canada in the 21st century is to position itself to be productive and competitive in the face of massive transformation of the global economic landscape. The large emerging economies—China, India, and Brazil—are rapidly transforming the world, as we know it. The rapid growth of these new economic powerhouses poses major challenges and opportunities to Canadian businesses and governments at a variety of levels: economic, social, and legal.

EDGE Network is to ensure that the Canadian economy remains competitive and productive while, at the same time, preserving the social fabric of our communities, protecting our environment, and ensuring energy and resource security for future generations. The Network's mandate is to:

- produce multidisciplinary, relevant analysis leading to practical and effective public policy proposals;
- encourage extensive, informed public discussion and debate; and
- provide targeted training and exchange programs.

The EDGE Network brings together major research institutions from across Canada and internationally, including the Faculty

of Law at the University of Ottawa, the Asia Pacific Foundation of Canada, the York Centre for International and Security Studies, the Canadian Foundation for the Americas (FOCAL), the Shastri Indo-Canadian Institute, the Institute for Asian Research at UBC, the China Institute at the University of Alberta, le *Centre d' Études de l'Asie de l'Est à l'Université de Montréal*, together with federal and provincial government departments, such as International Trade Canada, Export Development Canada and the Government of British Columbia. The Network also involves key business associations, including the Canadian Association of Importers and Exporters, the Canada-Brazil Chamber of Commerce, the Canada Eurasia Russia Business Council, as well as leading Canadian companies.

Source: http://www.nce.gc.ca/nces-rces/archives/edge_e.htm (Accessed June, 2009)

Network governance and administration

The NCE Directorate does not impose any fixed management structure on the networks, but requires each to set up a basic governance structure, including a Network Manager and a Scientific Director, with the appropriate background and expertise to direct the business and management of the network, as well as a “Management Committee”; the names and affiliations of the members of this committee are considered public information. The Network Manager provides the leadership and direction for all of the network operations and ensures control and accountability on a day-to-day basis. Furthermore, the “Management Committee” of all five networks has taken the form of an administration board (i.e., the Board of Directors), which is attended by a senior member of the NCE whose role includes internal monitoring and advice (i.e., observer/non-voting member of the Board). The management structure has the overall responsibility for the management, direction and financial accountability of the network, including the approval of financial accountability. This management structure is accountable to the NCE Steering Committee.

The Network Manager, Scientific Director, and Board of Directors have been identified as key elements in successful networks by internal key informants. The Board is responsible for developing the network objectives and ensuring that the network follows these objectives through regular communication and support of network participants, both researchers and receptors, and constant monitoring of the network’s results and impacts. This provides the Board of Directors, researchers, and receptors with the opportunity to sit down together and discuss the most important problems in their area and ways to bring their resources together in a non-competitive, non-confrontational environment. Meanwhile, the Network Manager plays a key role in the day-to-day operation of the project and thus has a crucial influence on the project’s success; as such, the time that networks have spent in finding and hiring Network Managers and the turnover encountered for this position are elements worth examining in more detail.

Performance measurement and reporting

Once the NCE–NI awards were granted, annual monitoring of the NCE–NI networks was achieved through the required reporting of performance statistics in electronic format. This reporting centred on four indicators:

- 1) organizations participating in the NCE–NI;
- 2) direct contributions from non-NCE sources;
- 3) number of graduate students involved in the NCE–NI; and
- 4) knowledge and technology transfer activities.

The mid-term review of NCE–NI grants, took place in the second year of the four-year funding cycle, was conducted in 2007. This review was intended to evaluate the progress achieved by the network team and the schedule of activities set for the completion of the grant in order to determine the continuation of funding for the final two years. It comprised two main components: 1) the preparation and submission of a mid-term report by the Network Director and the team and 2) a meeting with an Expert Panel consisting of six to nine

members appointed by the NCE Directorate in June 2007. Funding for two networks (CDRN and EDGE) was not renewed following the recommendations of this Expert Panel.⁸

The three renewed NCE–NI networks (also called ongoing networks in this report) were also required to submit a Report on Network Activities for the 2007–2008 period at the end of the third year of the funding period to fulfil pilot reporting requirements. Finally, non-renewed networks submitted a Final Report to the NCE, covering their activities, achievements, and impacts until the end of their funding period.

1.2.4 NCE–NI Pilot Governance, Administration and Budget

The NCE Steering Committee, which oversees the NCE–NI pilot, is comprised of the presidents of the three federal granting agencies and the Deputy Minister of Industry Canada. The management of the NCE is coordinated by the NCE Management Committee, composed of a representative at the Director General level from each of the three granting councils and Industry Canada, as well as the Associate Vice-President of the NCE Division. It is chaired by the NSERC Director General of the Research Partnerships Program. The NCE Management Committee oversees the operation and coordination of the pilot administration, communication, and evaluation functions. This Committee reports and refers policy matters, as well as administrative issues in which there is no consensus, to the NCE Steering Committee.

The day-to-day administration of the pilot is provided by the NCE Secretariat of the NCE Division housed at NSERC, which is led by the NCE Director (Associate Vice President). NCE staff members are to follow the progress of their assigned network and act as independent observers on the network administration board.

Budget

The funding period for the NCE–NI is four years, beginning fiscal year 2005–2006 and ending 2009–2010. The NCE–NI pilot provides globally \$1.6 million to each network over the entire funding period, with the exception of the two networks that have been not renewed following the mid-term review in 2007 (Table 2).

Table 2 NCE–NI Budget by Fiscal Year (2005–06 to 2009–10)

Cohort	Renewed Yes/No	NCE–NI	2005–06	2006–07	2007–08	2008–09	2009–10	Total NCE–NI Award 2005–10
2005	Y	CON	\$200,000	\$400,000	\$400,000	\$400,000	\$200,000	\$1,600,000
2005	Y	NICE	\$200,000	\$487,512	\$472,488	\$400,000	\$200,000	\$1,760,000
2005	Y	PREVNet	\$200,000	\$400,000	\$400,000	\$400,000	\$200,000	\$1,600,000
2005	N	CDRN	\$200,000	\$400,000	\$200,000	\$0	\$0	\$800,000
2005	N	EDGE	\$200,000	\$400,000	\$200,000	\$0	\$0	\$800,000
		Total	\$1,000,000	\$2,087,512	\$1,672,488	\$1,200,000	\$600,000	\$6,560,000

Source: NCE Secretariat

⁸ NCE–NI Expert Panel Report – CDRN and NCE–NI Expert Panel Report – EDGE, completed following the mid-term review in Ottawa, June 2007.

2 Evaluation Scope and Approach

2.1 Evaluation Objectives and Scope

The summative evaluation of the NCE–NI pilot covers the time period from fiscal year 2005–2006 to 2009–2010. This period encompasses the whole four-year funding cycle of the first NCE–NI competition, held in 2005. Based on the pilot nature of the NCE–NI and the fact that the present evaluation constitutes the first formal assessment of the initiative, the main objectives of the evaluation are to articulate the extent to which the pilot has met its intended objectives and to make recommendations for the future orientation and potential maintenance of the program.

All NCE–NI networks funded through the 2005 competition will be examined as part of this evaluation: the three ongoing NCE–NI networks, as well as the two networks that were not renewed following the 2007 mid-term review. As the funding cycle for ongoing networks ends in 2009–2010, this summative evaluation primarily focuses on the relevance of the pilot, and on the outputs and short-term outcomes. The evaluation also specifically investigates the factors or underlying causes of the success and failure of the networks.

A comparative and cost-effectiveness analysis of the networking and knowledge transfer outcomes of NCE–NI networks versus traditional NCE networks is not included in this evaluation because the necessary data was not available from the comparable programs. However, the evaluation is sensitive to the fact that the NCE–NI is an integral part of the NCE and that the pilot initiative is considered by NCE management as a unique part of its programming. In sum, the findings and conclusions of this evaluation have been contextualized within the NCE program portfolio.

2.2 Evaluation Issues and Questions

The Interagency Evaluation Steering Committee identified three issues and eight specific questions for the evaluation (Table 3). These issues are the **relevance of the pilot**; the **results of the pilot**, in terms of outputs and outcomes, as well as its incremental results; and the pilot **delivery**, as delivered by the NCE Secretariat and by the NCE–NI networks themselves.

Table 3 Evaluation Issues and Questions

<p>Results</p> <ol style="list-style-type: none"> 1. Have the objectives of interaction, partnerships, and networking of both researchers and receptors been met? 2. To what extent are the NCE–NIs broadly based, multi-sectoral, multi-institution, and/or multidisciplinary in terms of collaboration, partnership, and networking? 3. To what extent are the developed partnerships sustainable over time? 4. What is the value-added or incremental value of the NCE–NI funding? <p>Delivery</p> <ol style="list-style-type: none"> 5. What are the conditions of success or failure of the New Initiatives? 6. Is the initiative delivered in a cost-effective manner (including design and delivery issues)? <p>Relevance</p> <ol style="list-style-type: none"> 7. Are the program's mandate, objectives, and activities consistent with the priorities of the current government's Science and Technology Strategy? 8. To what extent are the initiative objectives adapted to the needs of researchers/receptor communities?

Multiple indicators and lines of evidence were used to address these evaluation issues and questions. Key findings on the NCE–NI pilot were drawn from four main methods:

1. **Review of documents, files, and data** internal to the NCE–NI pilot (including documents produced by networks to report on their performance and activities);
2. **Success case analysis** with case analyses of the five funded NCE–NI (21 interviews with network and partner representatives, and a review of network documentation);
3. **Comparative analysis** with the SSHRC Strategic Knowledge Cluster (3 interviews with representatives of funded clusters, and a review of program and cluster documentation); and
4. **Counterfactual analysis** with unfunded NCE–NI applicants (3 interviews, and a review of unfunded applications/associated documentation).

In addition, 6 interviews were conducted with key internal informants during the design phase, including three managers/directors from the NCE Program and the three granting agencies, as well as other key informants. These interviews were semi-structured so as to inform the development of the methodological instruments, but provided valuable insight on the pilot that has also informed the evaluation findings.

Combining these approaches allowed for a weighted analysis, in which conclusions were drawn from the zones of convergence of the data. The methods are described in more detail in the following sections, as are some of the limitations and challenges encountered in the course of the evaluation.

2.3 Success Case Analysis

Science-Metrix developed and implemented an evaluation instrument derived from the traditional case study approach and the Success Case Method (SCM).⁹ The SCM is based on the idea that key findings can be effectively identified through the collection of evidence from the most and least successful initiatives. This approach was used in a modified way to collect data to address, most particularly, evaluation questions with regard to the relevance, the results and the delivery of the NCE–NI pilot. Given that a small number of grants have been awarded in the NCE–NI pilot, all five funded networks were examined in the success case analysis. The five funded networks were conceptually classified as “successful” and “unsuccessful” based on the results of the NCE–NI mid-term review (i.e., networks that were renewed were “successful” and non-renewed networks were “unsuccessful”).

- **Successful cases:** Three funded NCE–NIs with renewed funding (CON, NICE, and PREVNet)
- **Unsuccessful cases:** Two funded but non-renewed NCE–NIs (CDRN and EDGE)

A total of 21 telephone interviews with a total of 22 respondents were conducted for the success case analysis (length: 50-120 minutes). For each of the five NCE–NI networks, a total of 4 interviews were performed, one with each of the following groups:

1. the Network Scientific Director;
2. the Network Manager;
3. Network Partner 1: a member of the network’s Board of Directors; and

⁹ Robert O. Brinkerhoff. 2002. *The Success Case Method—Find Out Quickly What’s Working and What’s Not*, Berrett-Koheler Publishers, Inc., 220 pages.

4. Network Partner 2: a member of a partner organization that represents the receptor community but is (or was) not on the network's Board of Directors.

Care was taken to select network partners who had been directly involved with the network (e.g., members of the networks' Boards of Directors) and whose organizations would most likely have benefited from the network. The list of potential informants was generated using a three-pronged approach: 1) through the review of pilot information (both documents produced by the networks and a web scan), 2) by the Network Managers/Scientific Directors of renewed and non-renewed networks; and 3) by program managers at the NCE Secretariat. The final selection was based on areas of overlap between these three approaches, thus providing the highest degree of validation to the final selection that was possible within the timeframe of the evaluation.

These case studies were also informed by the review of documents and files produced by the networks to report their progress and performance, such as the performance statistics and activity reports. In addition, the networks' websites were scanned for additional information and documents (e.g., newsletters), and data sources identified by network and partner representatives during the interviews were also obtained and reviewed.

Evidence collected and analysed as part of the case studies that helped inform the discussion presented in the Results section, including network descriptions, key statistics and impact data (i.e., immediate outcomes and organizational impacts) are provided in Appendix A (case study impact summaries). In cases where information was considered to be sensitive, data have been aggregated and presented in the appropriate sections of this report.

2.4 Comparative Analysis

Science-Metrix undertook a comparative analysis of the NCE–NI pilot and SSHRC Strategic Knowledge Clusters program (SKC). This analysis drew from a review of program documents and files and a total of three interviews with the principal investigators of funded SKC. The main goal of this analysis was to position and compare, on a best effort basis, the NCE–NI and SSHRC Strategic Knowledge Clusters programs according to the development of networks, the engagement of communities of receptors, and knowledge translation and transfer. It also provided an opportunity to investigate similarities and differences in the factors that positively or negatively affected the progress of such initiatives (i.e., the degree to which they have progressed towards their stated objectives), both generally and in the specific SSH context.

The Strategic Knowledge Clusters program was selected as the comparable program, as several commonalities with the NCE–NI pilot can be found in the program's rationale, design, and objectives. In addition, almost all key informants interviewed identified the SKC program as the most comparable initiative to the NCE–NI pilot.

2.4.1 Description of Strategic Knowledge Clusters Program

A comparative analysis will be conducted between the NCE–NI pilot and the Strategic Knowledge Clusters program (SKC) launched in 2004 by SSHRC (see Section 2.4 for more details on the methodology of this analysis). A description of the SKC program is provided here for reference purposes.

The first phase of the SKC was a pilot designed to identify key research areas, issues and topics that would benefit from improved networking and communications and to propose viable models for such networks. During the winter of 2005, a second pilot was launched to provide the opportunity for cluster participants to demonstrate, on a small scale, the utility and value of the strategic research cluster model. The projects supported by these two pilots that have demonstrated 1) the capacity of Canadian researchers and research

users to develop and sustain full-scale, ongoing clusters and 2) the contribution to unprecedented sharing of, access to, and application of research knowledge, were funded as Strategic Knowledge Clusters for seven years, starting in 2006.

The ultimate goal of the Strategic Knowledge Clusters program is to broaden and intensify the impact of SSH research in Canada. According to SSHRC’s web site:

“The overall objective of the Strategic Knowledge Clusters program is to build upon and add value to research supported through SSHRC’s other programs by supporting Canadian researchers in their efforts to develop and sustain creative, innovative knowledge mobilization networks that lead to increasing the impact of research on policy and program development. Through such support, the program seeks to foster and enhance:

- synthesis and application of humanities and social sciences research knowledge in areas in which Canadian researchers demonstrate strength and that have importance for Canadian society within a global context;
- collaborative knowledge partnerships able to leverage external funding that will support new research in the humanities and social sciences; and
- enhancement of the international impact of Canadian social sciences and humanities research.

A strategic knowledge cluster is a national or international network of researchers in the social sciences and/or humanities that fosters collaboration or otherwise contributes to a particular issue, theme or content area. Many research issues demand a range of expertise beyond that of any individual researcher, discipline, institution and, in many cases, country. These are best served by multidisciplinary teams located across a variety of institutions both within Canada and abroad. Strategic knowledge clusters benefit researchers and Canadian society by providing opportunities for scholars, in partnership with diverse stakeholders outside academia, to bring research knowledge to bear on issues of intellectual, social, economic, political and cultural importance with a focus and force that would not otherwise be possible. These sustainable knowledge partnerships may vary in size and scope, but all build on existing research strengths to make the whole greater than the sum of its parts. Clusters add value to research activities by developing and using infrastructure that enables researchers to connect and interact, on an ongoing basis, with each other, with users of research and other stakeholders, and with the general public.”

The most important commonality between the NCE–NI and Strategic Knowledge Clusters programs resides in the absence of direct support for research projects, i.e., the exclusive funding of activities that focus on networking, mobilizing/translating knowledge, and facilitating the impact of research knowledge in areas in line with government science and technology strategy. The major differences between the two programs are:

- 1) **Targeted disciplines:** The Strategic Knowledge Clusters programs target SSH-led networks, while NCE–NI is open to networks from all disciplinary horizons;
- 2) **The level and period of funding:** Each Strategic Knowledge Cluster receives up to \$300,000 annually for up to seven years, for a maximum of \$2.1 million over seven years; NCE–NI networks receive up to \$400,000 annually over a four-year period, for a maximum of \$1.6 million over four years;
- 3) **Governance structure of networks:** The NCE–NI networks are required to have a Management Committee (called the Board of Directors by the networks) and a Network Manager, whereas the

Strategic Knowledge Clusters have fewer requirements as to the type of governance structure would be appropriate to conduct its activities and fulfill its objectives.

Three funded Strategic Knowledge Clusters were suggested by the Project Authority for the comparative analysis. The following criteria were used by the Project Authority to select the three clusters:

1. Availability of necessary information: As funds for the implementation of Strategic Knowledge Clusters were first granted in 2006, the selected clusters were chosen from those funded that year to allow for the collection of the most data possible to use in the evaluation. Clusters funded in 2006 are more mature than those funded in 2007 or 2008, for example.
2. Only seven clusters were funded in 2006, of which four were selected (the three suggested in the design, and one back-up).
3. The input of SKC program managers.

One representative was interviewed for each of the three selected Strategic Knowledge Clusters (i.e., the principal investigator for each Cluster, lasting approximately 45 minutes). In addition, the applications, Milestone Reports, Statement of Accounts, and a number of other relevant documents were reviewed to support the interview data. However, the necessary data to conduct comparative analysis of NCE–NI pilot outputs and cost-effectiveness could not be obtained from the clusters during the evaluation project period.

2.5 Counterfactual Analysis

Science-Metrix undertook a counterfactual analysis of unfunded network proposals that were submitted for the 2005 NCE–NI competition.¹⁰ The primary purpose of the counterfactual analysis was to examine the *relevance* of the NCE–NI pilot by examining what happened to proposed networks in the absence of NCE–NI funding. This counterfactual analysis comprised interviews with three unfunded NCE–NI applicants (approximately 45 minutes) and a scan of applications and adjudication documents for all unfunded applications.

Interview with unfunded applicants

Selection of the three unfunded NCE–NI applicants out of the 37 unfunded applications for interviews was performed using a stratified semi-random approach: proposals were selected at random from each of the three main disciplines: SSH, NSE, and Health. This approach was selected because the representation of unfunded applicants is distributed almost equally across the three primary disciplines (15 in Health, 12 in NSE, and 10 in SSH), and this was the only opportunity to collect perceptions on the NCE–NI pilot from individuals in the NSE.

Document and file review

The counterfactual analysis also included an analysis of 37 unsuccessful applications to the NCE–NI pilot (including adjudication committee reports). This review was conducted by SSHRC Project Authority's team (in collaboration with the NCE) to extract data on key characteristics proposed by the evaluation team. More specifically, these applications were examined to determine: 1) the field of focus of the proposed network (i.e., Social Science and Humanities [SSH], Natural Sciences and Engineering [NSE], and Health); 2) the area of

¹⁰ A counterfactual approach is one in which conclusions about causation are drawn from cases where the potential cause did not occur. In other words, the counterfactual analysis supports a comparative assessment of the incremental effects of the program through a comparison between funded and unfunded applicants.

impact of the proposed network; 3) the main reasons for refusal by the adjudication committee;¹¹ and 4) the number of members in the proposed network, broken down according to sectors. When applicable, the 5 successful applications were compared with the 37 unsuccessful applicants; as such, data was compiled for the 42 applications.

2.6 Data Collection Matrix

The data collection matrix (DCM) provides a summary of the evaluation strategy, as the evaluation questions for each of evaluation issues are cross-linked with indicators and relevant methodological instruments. The DCM is provided in Appendix B.

2.7 Strengths and limitations of the evaluation approach

Strengths

One of the strengths of this evaluation approach is the collection and use of multiple sources of information and perspectives on the pilot—especially given the short evaluation timeframe—in order to provide a balanced portrait of the pilot’s design, delivery, and successes. The consultation of network representatives and partners of both renewed and non-renewed networks, as well as unfunded applicants, has ensured that the views of the main stakeholders were adequately represented in the evaluation process. The use of the success case study approach provided a comprehensive perspective on the adequacy of the pilot implementation and process. Importantly, this approach provided valuable insight into the factors related to the successes and failures of all funded New Initiatives through a detailed documentation of the history, structure, achievements, and impact story of the networks to date.

Limitations/Challenges

Timeframe for the evaluation: The main challenge for the evaluation team and the project authority was the short timeframe available to design and implement the evaluation strategy—particularly to report evaluation findings. The fieldwork ended mid-May, allowing only three weeks for the treatment of multiple data sources and meta-analysis before the delivery of the draft evaluation report.

Timeframe for performance statistics: Statistical tables including the level of partnership, number of students, and leverage of external resources (in-kind and cash contributions) were available for the first two years (2006–07 and 2007–08) of the four-year funding period; note that comparable data was not available for one of the non-renewed networks for 2007–08. The review of these indicators for the year 2008–09 (to be submitted by ongoing networks in June 2009) would have provided this evaluation with a more complete and up-to-date set of quantitative evidence on the performance of ongoing networks.

In addition, because of the short project timeframe, the network representatives did not have enough time to collect and provide the supplementary information and updated data requested by the evaluation team to support the review of the networks’ performance and achievements. In particular, the timing of these

¹¹ The NCE–NI program criteria used during the evaluation process of the 2005 competition were used to classify the reasons for refusal as provided in the adjudication reports: 1) expected impacts—social, cultural, economic, and/or health-related well-being improvement; 2) excellence and contributions of the researchers; 3) development of partnerships; 4) strategy for knowledge and/or technology transfer to receptor communities; 5) management of the network; 6) other reasons. (http://www.nce.gc.ca/comp/NCE-NI/nce-ni-guide_e.htm#criteria, Accessed June, 2009)

information requests was not appropriate because the networks were already required by the NCE to provide these figures just after the end of the evaluation period. Moreover, all ongoing networks were fully engaged in the organization of their annual conferences during the evaluation period.

Timeframe for impact data: The summative aspects of this evaluation, which aim to determine the added value and impacts of the NCE–NI networks, constitute a limitation to this study. The three ongoing initiatives are in their fourth year of activity, and the period of funding ends in 2009–10. Thus, the measure of success for such complex networking initiatives was based on data collected on immediate and intermediate outcomes. Should the pilot be pursued, the additional time will allow impacts to sieve through the New Initiatives and the communities of receptors; therefore, subsequent evaluations will more adequately identify and assess intermediate and longer-term outcomes.

Stakeholder consultation: This evaluation would have benefited from a more inclusive and extensive consultation of the researchers and receptor communities, including students. The administration of online surveys of different stakeholders involved in the New Initiatives would have provided the evaluation with more comprehensive data on the value-added of the pilot for researchers, students, partner organizations, and other members of networks (individual and organizational). The findings presented in this evaluation are based on a limited number of partner representatives and did not include the consultation of students and researchers involved in the networks' management and activities.

Scan of comparable funding programs and SKC data: The terms of reference of this evaluation project did not include a comprehensive scan of all networking and knowledge transfer funding programs available in Canada to position the niche of the NCE–NI pilot in the Canadian S&T system. However, the evaluation examined characteristics of programs with similar scope using publicly available program descriptions. The set of programs examined were primarily identified during the interviews of network representatives, network stakeholders and representatives from the three granting agencies. Evidence on the niche and the uniqueness of the NCE–NI pilot are mainly based on this analysis, as well as the comparative analysis with SSHRC's SKC program and the views and experience of the stakeholders interviewed (including representatives from the three granting agencies), and the counterfactual analysis.

Nevertheless, the comparative analysis of the pilot with the SKC program was complicated by the lack of comparable financial and performance data. The SKC representatives interviewed were not in a position to provide or compile the required data during the evaluation project, mainly because of the short evaluation timeframe. The comparative analysis of the cost-effectiveness of the NCE–NI pilot and the selected comparable, SSHRC's SKC program, was therefore not possible. The absence of necessary data to perform a full cost-effectiveness analysis of the NCE–NI pilot led the evaluation team to rely on a "value for money" analysis. However, a comparison of the NCE–NI and the NCE programs, including leveraging funds and program budget, was used to inform the evaluation on the cost-effectiveness of the NCE–NI pilot.

3 Key Findings by Evaluation Issue

3.1 Results

3.1.1 Have the objectives of interaction, partnerships and networking of both researchers and receptors been met? [Question 1.]

Yes. Both renewed and non-renewed networks developed a large number of partnerships (more than 300 in the first 2 years), reaching a wide variety of receptor communities in diverse sectors, which recognize the benefits of these interactions. Both cash and in-kind contributions have been effectively leveraged by the networks from external partners; this provides significant evidence of receptor engagement in the networks.

Partnerships developed through the New Initiatives

To engage receptor communities and to fulfill their mandate of knowledge mobilization, the NCE–NIs were expected to create new partnerships across diverse sectors of activity. Based on the NCE definition as specified in the NCE–NI statistical tables, partners are defined in this report as “organization involved with the network, as signatories or non-signatories of the network agreement, including those represented on any of the network’s committees (Board, Research Management Committee, etc.) and those contributing in cash and/or in-kind to the network.” Note that networks will also refer to their “members”, which may include all partners, but is more broadly defined as individuals or organizations that do not contribute directly to the network but rather benefit from the network through their participation in network activities and/or membership registration with the network. For example, CON currently has over 3,500 members registered through their website, but only considers about 75 to be partners in the network.

Based on this definition, all networks, both renewed and non-renewed, successfully developed a large number of partnerships: the five New Initiatives reported a total of more than 300 partnerships in each of their first two years of existence. The total number of partners is only slightly less for the two non-renewed networks’ than for the three ongoing networks (144 versus 174 in 2006–2007) (Figure 1). Moreover, the increase between the first two years of activity was slightly smaller for non-renewed networks (6% for non-renewed versus 10% for renewed networks), but this is not surprising considering that they were told in June 2007 that their funding would not be renewed.

As shown in Figure 1, the NCE–NI networks are rooted in the academic world, as universities are the most represented sector among network partners. However, all networks have also effectively created partnerships with diverse sectors. In fact, the number of industry (i.e., private sector) and government partners among ongoing networks increased slightly over the first two years, suggesting the beginnings of a trend. It should be noted that, depending on their areas of interest and pre-existing links, sector representation varies greatly from one network to another. For example, CON had the most industrial partners from the start (many of which were in the pharmaceutical industry), while PREVNet initially attracted the support of a large number of non-governmental organizations (NGOs) and associations.

Trends between renewed and non-renewed networks in terms of the diversity of their partnerships show that, in general, the non-renewed networks relied more heavily on university partners, which represented around 50% of their partners in 2007–2008, compared to 35% among ongoing networks (Figure 1). However, thus far, only CDRN has reported partnerships with municipalities. See Appendix A for a detailed breakdown of partners (by sector) for each of the five networks.

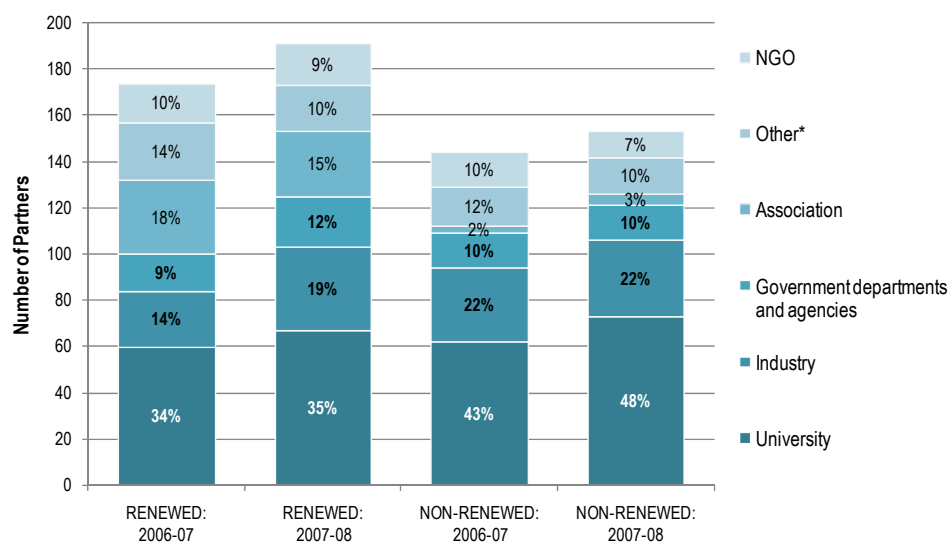


Figure 1 Number of partners** of renewed and non-renewed networks***, by sector, 2006–07 and 2007–08

Note: * The “Other” category includes hospitals, research centres, associations, foundations, and municipalities

** Partners are defined as all organizations involved with the network, signatories or non-signatories of the network agreement, including those represented on any of the network's committees (Board, Research Management Committee, etc.) and those contributing in cash and/or in-kind to the network.

***See Appendix A for details on partners’ statistics for each funded New Initiatives.

Source: Compiled by Science-Metrix from NCE–NI Statistical Tables (2006–2008 and 2007–2008) and EDGE and CDRN Final Reports to NCE. Note that for CDRN, statistics for 2007–2008 may be incomplete.

Although all networks created links with international partners, most partners (just over 80%) of the ongoing NCE–NIs and of CDRN are based in Canada and distributed across Canadian regions. This is partly due to the networks’ scope; for example, PREVNet’s partners are required to be Canadian nationwide organizations. Conversely, given its field of interest, it is not surprising that about 40% of EDGE’s partners were located outside of Canada.

The three SSHRC Strategic Knowledge Clusters (SKC) selected for comparison to the NCE–NI funded networks initially had partnerships with an average of 21 different institutions/organizations (ranging from 13 to 26); in contrast, the five New Initiatives had an average of 64 partners in their first year. Like the NCE–NIs, the SKCs partners are widely distributed across Canada, and some SKCs also have international partners.

The lists of individual partners provided for 2006–07 and 2007–08 also provided evidence of new partnerships developed after the first year (i.e., 2006–07) of networking. In this context, a “new partner” was identified as such when it was reported in 2007–08 but not in 2006–07 in the list of partners (Table 1) contained in the annual statistical tables produced by the networks. The objective of this approach was to single out the networks’ success at developing new links from one year to another. All three ongoing NCE–NI networks successfully expanded their partnership base between their first two years of operations: overall, 50 new partnerships were observed for ongoing networks, resulting in a diversification of sector representation among new partners (note that this differs from the total number of partners, as some may have left the network for various reasons). Of these 50 new partnerships, most are attributed to CON (29), while PREVNet created 13 new partnerships and NICE, 8. Overall, the ongoing networks have created new partnerships in all main sectors, with industry (30%; i.e., private sector) and university partnerships (28%) leading the way, although the distribution of new partners varies from one network to another. For example, CON has more new partners in

the university and industry sectors, whereas most of NICE’s new partners are from the government sector; PREVNet’s new partners hail from all main sectors (i.e., university, industry, government, NGOs and other associations). As for government departments/agencies, they accounted for 18% of new partnerships and remaining 24% were classified in others sectors (i.e. NGOs, associations, etc.)

As for non-renewed networks, an analysis of similar data on new partners shows that one brought in new university partners almost exclusively: according to the network’s Final Report, 18 new university partnerships were created, but only one new partner came from another sector. It appears that the network’s priority was placed on building partnerships with universities because getting researchers together was seen as instrumental to developing a common understanding of this particular research area. In contrast, the second non-renewed network reported a more evenly distributed partnership expansion: in its Final Report, it described 28 new partnerships that had developed since the beginning of its funding cycle, which included academic institutions, NGOs, private sector organizations (i.e., industry), professional organizations, municipalities, and provincial agencies.¹²

According to the data obtained on comparable SKCs, only two clusters increased their partnership bases between their grant applications in 2006 and their first Milestone Reports in 2008; moreover, this expansion represented only a small number of linkages with new institutions (2 and 5); the third cluster did not recruit new organizations into its community. Note that the number of individuals involved increased for all three clusters (by 2, 4, and 27 individuals) but these generally involved recruiting members within the institutions that were already part of the network.

These SKCs also differ from the NCE–NIs in that none of the three clusters have ties with the private sector (i.e., industry) and they are, in fact, even more strongly rooted in the academic sector. After their first 17 months of activity, none of the three comparable SKCs reported having partners from industry, whereas approximately 60% of their partner bases were affiliated with the university sector. However, the level of representation of governments (12%), associations (10%), and non-profit organizations (9%) among partners is similar to that observed in NCE–NI networks. While the larger proportion of university partners points to a more active research component within the SKCs, the absence of industry partners may also reflect a lesser degree of private industry involvement in the humanities sector and in community-oriented activities.

Note that while statistics on the number of participating organizations and receptor communities in the NCE–NI characterize the extent of the networks and describe the relative importance of partners by sector, they do not inform on the nature of involvement and/level of interaction in the network activities, nor do they provide an indication of which participating organizations actually benefit from network activities. As reported by one Network Manager, the outcomes and successes of the New Initiatives cannot be entirely accounted for with statistics, as they do not indicate the quality of the connections created through the networks. Evidence of benefits of networking will thus be discussed at greater length in further sections.

Receptor communities reached through the New Initiatives

As shown above, the statistical tables provided by the NCE–NI networks indicate that the networks have attracted partners from several sectors and a broad range of receptor communities, including specific

¹² Note that because of missing data, this number can not be compared with ongoing networks’ partnership expansion, as it is based on the total number of new partnerships, rather than those formed between 2006–07 and 2007–08.

professions (e.g., health practitioners, software engineers, police officers, teachers, equipment manufacturers, etc.) and communities of various ages and backgrounds (e.g., students, children, adults, etc.), as well as policy-makers, caregivers, and advocacy groups. Given the various definitions of “communities” that could be adopted and the large range of projects implemented by the networks, determining the exact number of communities involved in the New Initiatives was not possible. Nonetheless, the review of documentation and the interviews were a rich source of evidence, and many examples were provided of the communities that were reached by the New Initiatives.

For example, many of the projects realized by PREVNet have targeted the educational community in order to raise awareness of and help prevent bullying. Workshops, information sessions, and enrichment courses were offered to children, teenagers, teachers, parents, and school boards, many of them presented by graduate students affiliated with the network. PREVNet also has partners in various industries (e.g., the telecommunications industry, with partners like Family Channel, Rogers, and video game producers) and has worked with several NGOs in the area of safety and violence prevention (e.g., Canada Safety Council), youth services (e.g., Girl Guides of Canada and Kids Help Phone), teachers associations, and more.

Similarly, through numerous presentations given at conferences and workshops, NICE was able to make contact and ensure the network membership of all Canadian associations in the area of elder care, such as the Alzheimer's Society and the Canadian Association on Gerontology. The network also reached elder care professionals, caregivers, and older citizens themselves by developing several knowledge translation tools, such as quick reference guides (“pocket tools”) and a 12-page booklet entitled “When someone close to you is dying”. This booklet was used, assessed, and actively distributed across Canada by the Victorian Order of Nurses. NICE also developed an innovative partnership with police officers across Canada to raise awareness about elder abuse.

CON's projects involve a diversity of medical associations and health professionals (e.g., nurses, clinicians, bariatric physicians and surgeons, dietitians, pharmacists, and exercise professionals). A series of three workshops called “Listening for directions” was instrumental in reaching and creating a context for exchange among various communities in the private sectors, including those producing equipment for rehabilitation and mobility and medical devices for persons with obesity, private healthcare stakeholders, and individuals in the private, public and non-for-profit sectors who are involved in community planning and design of the built environment. CON also developed mutually beneficial relationships with members of the pharmaceutical and food industries, such as Abbott Laboratories, Alberta Agriculture, Dairy Farmers of Canada, and Sanofi Aventis.

As indicated in their Final Reports, non-renewed networks also reached a number of different communities. EDGE developed partnerships with small- to medium-size businesses in Brazil, Canadian exporters and importers, Export Development Canada, and Scotia Bank. The main communities targeted by CDRN were Canadian design and architecture firms and highly qualified professionals. However, according to interviewees, when these networks were not renewed, the diversification of their partnerships was halted.

Perception of receptor communities on the benefits of networking

Partners interviewed reported that their organization became involved with the networks in order to establish collaborations and engage in a forum in which ideas and knowledge could be exchanged. As such, all believed that their involvement with the network led to benefits for their organization. The main benefits identified by the partners that were interviewed as part of the case studies are described below, and can be grouped into three broad categories: access to research; knowledge transfer/exchange; and value-added for the partner

organization. In addition, signs of longer-term shifts, such as changes in culture, behaviour, and attitude, were reported by some partners. Note that many of these benefits are discussed at greater length in subsequent sections of this report.

Access to research/researchers: Networking facilitates linkages with the top researchers in their field. According to network partners, these linkages permit receptor communities to discern research trends and allow for the cross-pollination of ideas. An important benefit of interacting with researchers through the network is that receptor communities gain access to research results prior to publication, as well as obtaining input into their projects before they are realised (e.g., review of tools or materials for scientific accuracy). Such relationships create a synergy and sharing of expertise between researchers and practitioners:

“We have come to know key players across the country involved in [this issue], people involved in research, and the academic side of things. We are a practice-based organization, so this filled the circle for us, filled in gaps in our own knowledge and expertise. We’ve been able to tap into expertise around research methodology, evidence-based strategies, and also academics who have been able to point us in the direction of research or training tools that are available.”

Knowledge transfer/exchange: The networks created a forum for the open exchange of ideas and knowledge and provided opportunities for participants to learn about the initiatives in which various organizations are involved. Several members of receptor communities interviewed as part of the case studies reported that this openness has led to a reduction in the overlap of work carried out by network partners, who previously tended to work in silos with little interaction. The culture of knowledge flow amongst network members allows not only for the transfer of knowledge and tools but also for evaluation and feedback.

Value-added for receptor community/organization: Associations with other network participants increases the visibility and credibility of member organizations. Alliances with key stakeholders exert an influence on organizational thinking and strategy. The network itself facilitates access to specialized researchers who can validate strategic directions. Networking is also beneficial in that it can expand an organization’s research and knowledge transfer capacity simply by linking researchers and receptors and establishing clear communication strategies.

Changes in behaviour, culture or attitude: Broader changes in behaviour, culture, or attitude resulting from network participation and networking were reported by the receptor communities of all successful networks. These changes ranged from greater awareness of the issues addressed by the network within the receptor communities and their importance to deeper shifts in the way receptor communities view and benefit from research.

“Marrying practice and research has become much more part of our culture as a result of [the network].”

For example, NICE’s receptor communities reported an increased emphasis on basing disseminated information or tools on evidence-based research. As the development of tools, such as a guide for assessing dementia for general practitioners or a kitchen calendar for caregivers, is based on the best available evidence, greater value is attributed by community partners to research/evaluation-based approaches.

Another key example of this type of change was mentioned by one of PREVNet’s partners. Prior researchers performed their research in the aboriginal community and promptly left, never to be heard from again. PREVNet engaged local people in the research process and provided them with the skills they needed to undertake and evaluate research programs. This example of knowledge transfer has led to a profound change in the attitude of the aboriginal community towards research and participation in research projects.

Receptor communities of networks that were not renewed commented on the merits of networking for building relationships across the country and having access to learned individuals. However, the fact that these networks were short-lived most likely contributed to the lack of reported changes in behaviour, culture, or attitude in these communities. In particular, CDRN's partners perceived that the network's existence had begun to enhance their community's expectations for design thinking and innovation in Canada, such as research or projects that transcend sectoral or institutional boundaries.

These changes have also been observed by Network Managers and Scientific Directors and are not limited to receptor communities. Indeed, as explained in more detail under question 4, the added value of NCE–NI funding includes changes in the attitudes, behaviour, and culture of researchers. Ultimately, all ongoing networks are ambitious in their aims to effect change at a larger societal level by bringing about greater awareness of and better tools to respond to the issues of obesity, violence prevention, and elder care. As stated by network's representative: "We firmly believe that this network is the mechanism to bring about social and cultural change."

Evidence of external leveraging

The contributions of external sponsors, supporting organizations, and partners to the networks speak not only to the perceived benefits and value of the networks by those offering external funds, but also of the capacity and effectiveness of the networks themselves in leveraging funds for their activities. These contributions were collected in two forms: cash and in-kind. Both types of support are pivotal to the success of the networks, providing the means to increase their scope and reach. For example, partners may sponsor a conference, sell software licences at a discount price, permit access to specific facilities or infrastructure (i.e., equipment or office space), pay the salaries of employees, or promote or distribute network materials or put on a workshop free of charge.

Figure 2 illustrates the amount of cash and in-kind contributions received from external sources by renewed and non-renewed networks over their first two years of operation. Ongoing networks leveraged a total of \$2.6 million dollars in cash and nearly \$3 million dollars in in-kind contributions over the first two years of NCE–NI funding (2006–2007 and 2007–2008).¹³ Comparable data for the 2007–2008 fiscal year were not available for CDRN; a figure in the CDRN Final Report suggests that considerable amounts of in-kind contributions were received in both 2007 and 2008, but details are not known. Therefore, the following discussion only considers the contributions reported for 2006–2007 for CDRN and 2007–2008 figures only comprise contributions received by EDGE.

Note that termination of the networks following the mid-term review in June 2007 hindered the efforts of these networks to leverage funds at the network level after this date, although individual researchers or groups of network members did subsequently obtain research grants and other funds for specific projects. For example, three large-scale projects initiated within the CDRN network are now reported to represent an income of over \$5 million in terms of cash and in-kind contributions, but these funds are not reported as cash contributions because they are research funds leveraged by individuals, not by the network.

¹³ Note that the decrease in cash contributions observed in 2007–08 is mainly attributable to changes in the contributions received by CON, which impacted on the figures at the aggregated level: CON's cash contributions dropped from \$1,170,443 to \$301,683, but inversely, the in-kind contribution it received *increased* from \$211,000 to \$2,151,236 in the second year.

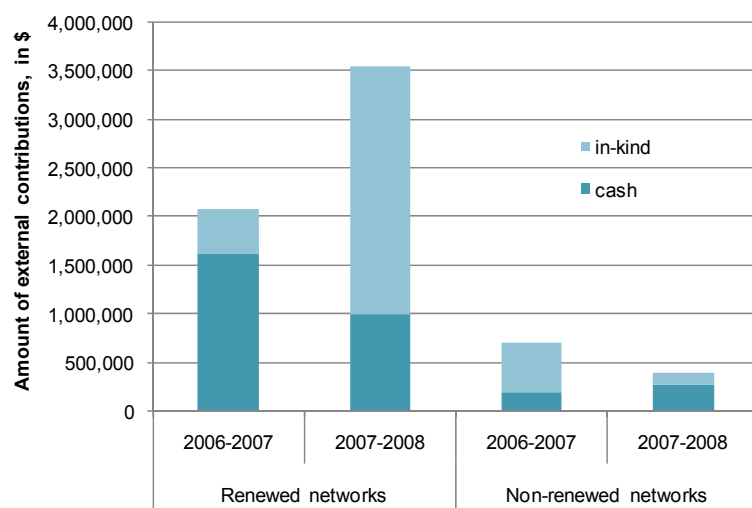


Figure 2 Cash and in-kind contributions from non-NCE sources to renewed and non-renewed networks, 2006–2008

Note: For CDRN, no data were available for 2007–2008. As a result, the contributions received by non-renewed networks in 2007–2008 were computed based only on statistics from EDGE.

Source: Compiled by Science-Metrix from NCE–NI Statistical Tables (2006–2007 and 2007–2008) and the EDGE Final Report

Renewed networks, on the other hand, increased the total amount of external funds they received between their first and second years of operation, as shown in Figure 2. For these networks, the substantial growth of external resources can be attributed mainly to in-kind contributions. Note that these figures do not include research funds that were awarded to members of the network (e.g., individual researchers or research teams) and that were *not* directed through the networks' cash centres, but reported to be substantial for some networks.

The leveraging capabilities of the SKCs were analysed for comparison, but as no data was provided on the exact external contributions received by each of the clusters examined, this analysis relied on the commitments of partners presented in the original grant application (note that no timeframe for these contributions could be determined). Overall, the three SKCs received commitments from their partners for a total of about \$550,000 per year for both cash and in-kind support. However, the pledges to individual clusters ranged widely, from \$53,000 to more than \$300,000 per year. The split between cash and in-kind contributions to each network was also highly variable. While the commitment for one cluster consisted entirely of in-kind contributions, that of another cluster was 75% cash. Compared to the NCE–NI networks, this represents amounts more similar to the non-renewed networks than that obtained by ongoing networks.

Table 4 presents the proportion of partners who contributed in-kind and cash contributions to renewed and non-renewed networks over the 2006–2008 period. Ongoing networks effectively leveraged contributions from an increasing proportion of partners, receiving cash, in-kind, or both from 40% to 52% of their partners in the first and second years, respectively. Note that because of the limited data available, the figures presented for the non-renewed networks should be interpreted with caution. Nonetheless, these data confirm that non-renewed networks were less successful than renewed networks at obtaining external resources from their partners.

Table 4 Proportion of partners* that contributed cash and/or in-kind to NCE–NI networks, 2006–08

	Renewed networks				Non-renewed networks			
	2006-2007		2007-2008		2006-2007		2007-2008***	
Number of partners*	174	(100%)	191	(100%)	144	(100%)	153	(100%)
Cash contributors	15	(9%)	29	(15%)	7	(5%)	8	(5%)
In-kind contributors	59	(34%)	84	(44%)	7	(5%)	11	(7%)
Total # cash and/or in-kind contributors**	69	(40%)	99	(52%)	10	(7%)	14	(9%)

Note: * Partners are defined as all organizations involved with the network, signatories or non-signatories of the network agreement, including those represented on any of the network's committees (Board, Research Management Committee, etc.) and those contributing in cash and/or in-kind to the network.

** Total number of organizations that contributed, cash and/or in-kind. The total number of contributing partners does not correspond to the sum of cash and in-kind contributors because some partners contributed both cash and in-kind.

*** Data on external funding is unavailable for CDRN in 2007–08, so it was assumed that this network received contributions from a similar number of partners in 2006–07 and in 2007–08.

Source: Compiled by Science-Metrix from NCE–NI Statistical Tables (2006–07 and 2007–08) and the EDGE Final Report

As most New Initiatives, whether renewed or not renewed, attracted a roughly similar number of partners, it follows that the partners' levels of contribution varied greatly from one network to another. Partners were categorized by sector, revealing that contributions from university partners have been moderately to very substantial in all networks, but most especially in non-renewed networks. Indeed, non-renewed networks received 47% of their cash contributions and 100% of their in-kind contributions from the university sector in 2006–07, whereas these percentages are 12% and 65%, respectively, for renewed networks. Thus, renewed networks have been more successful than the non-renewed networks at leveraging support from sources in other sectors, most notably industrial partners (Table 5).

This trend can be attributed for the most part to CON which has attracted a greater number of industry (i.e., private sector) partners than any other network. In contrast, non-renewed networks did not report receiving any cash or in-kind contributions from industry partners and received limited contributions from their partners from other sectors (data not shown). Factors that may have posed a challenge to networks' leveraging activities and the implications for the sustainability of networks are discussed under Section 3.2.1 (under "Sustainability and Diversity of Sources of Operating Funding").

Table 5 Percentage of cash and in-kind contributions received by sector, renewed networks only, 2006–08

Sector	Cash		In-kind	
	2006-07	2007-08	2006-07	2007-08
University	12%	35%	65%	24%
Government	0%	14%	1%	13%
Other	13%	18%	17%	7%
NGO	2%	0%	4%	4%
Industry	73%	31%	5%	48%
Association	0%	2%	7%	5%
Total Contributions (\$)	1,608,263	989,482	465,500	2,480,296

Source: Compiled by Science-Metrix from NCE–NI Statistical Tables (2006–07 and 2007–08)

Similarly, the commitments received by SKCs for external resources, as indicated in their grant applications, reflect partner participation. The clusters received, on average, 72% of their commitments from university partners, 22% from organizations such as associations and non-profits, and a little over 6% from governments; however, the level of commitment from each of these sectors varies widely between the clusters. In general, the commitments from university partners are almost evenly split between cash and in-kind contributions. The other sectors provide support largely through in-kind contributions. Finally, as might have been expected due to the absence of private sector partners within the clusters, no commitments of external supports came from this sector. However, as one cluster director observed, the private sector can contribute indirectly, through their support of foundations and non-profit organizations that partner with the cluster.

3.1.2 To what extent are the NCE–NIs broadly based, multi-sectoral, multi-institution, and/or multidisciplinary in terms of collaboration, partnership, and networking? [Question 2.]

To a great extent. Both renewed and non-renewed networks created links between institutions and network partners from diverse institutions, sectors and disciplines, successfully facilitating and expanding the level of research collaboration between researchers and partners through opportunities that would not likely have arisen without the networks.

Evidence of multi-sectoral networking

As discussed under question 1, all networks have developed partnerships within multiple sectors of activity; key partners included universities, private sector organizations, associations, federal and provincial departments and agencies, and NGOs. However, the networks (particularly ongoing networks) also effectively gathered these different sectors around the same table, such as on the Board of Directors, as part of thematic working groups, or for the organization of specific activities. Networks also facilitated several face-to-face networking opportunities among network members from various sectors, such as conferences, workshops, think tank sessions, and more.

Evidence of multi-sectoral networking can thus be seen in the governance and management of the network (e.g., in the composition of the networks' Boards of Directors, and sub-committees). In particular, ongoing networks recruited Board members from multiple sectors who, through this process, moved from individuals

working within their particular area of interest to being part of a community working together for the sake of the network. A similar process has already begun to occur among scientific committees and thematic working groups, which generally bring non-academic partners in direct contact with researchers, and may also include other types of receptor communities. But most importantly, multi-sectoral networking is both a characteristic and a consequence of the knowledge mobilization and professional development events organized by the New Initiatives (NIs), such as workshops, conferences, or summits. A list of examples is provided below, which represents only a small sample of available examples of the multi-sectoral networking opportunities facilitated by the networks (see the case study impact summaries in Appendix A).

- The first National Obesity Summit organized by CON in May 2009 brought together a wide range of educational institutions, governmental and non-governmental agencies, and representatives from various communities in the private sector.
- Professional workshops on computational design organized by CDRN brought together groups of practitioners and graduate students to learn side-by-side.
- Multi-stakeholder meetings were sometimes organized for a specific issue or a common interest, such as the Alberta Bariatric Rehabilitation Think Tank, organized by CON. This meeting was attended by 47 participants, including researchers, rehabilitation practitioners, equipment specialists, policy makers, and industry stakeholders; this event was also co-hosted by a multi-sectoral team, including CON, Glenrose Rehabilitation Hospital, the University of Alberta, and Hill-Rom (a company specializing in medical devices).
- The co-creation of a cyberbullying campaign by the Ontario Ministry of Education and Bell Canada, led by two PREVNet researchers of the Cyber Risk Working Group.
- EDGE, as part of its project on the Canadian automotive industry and emerging economies that was realized in partnership with AUTO21, gathered together automotive companies, labour unions, researchers, and economists.

In comparison, the three SKCs examined brought together a more limited range of educational institutions, governmental and non-governmental agencies, and private sector organizations. Not only are the number of partners from the different sectors lower within each cluster, but the number of sectors represented in the different SKCs is also lower. For example, one cluster includes only one partner from outside of a research setting. Other than having a stronger research focus, possible reasons for reduced interaction between sectors are the shorter length of time since the beginning of the SKC grants, a reluctance of community members to allow government partners in one cluster, a geographically based operational structure with limited sectoral diversity in some regional centres, and access to governance that is restricted to academia in two out of the three clusters.

Evidence of multi-institutional networking

Considering the degree of multi-sectoral networking and the number of different partners within each of these sectors (e.g., Figure 1), it is not surprising that multi-institutional networking was also observed as a consequence of the way in which the NCE–NI network organize their activities. Some of the clearest evidence of networking occurring across a diverse number of institutions is found in the composition of ongoing networks' groups, even that include researchers who work together to develop activities and tools around specific topics (e.g., thematic working groups, “theme teams”, etc.). For example, CON's five thematic working groups involve 24 individuals from 14 different Canadian institutions, whereas the eight co-chairs of NICE's four “Theme Teams” hail from seven different institutions, including one outside Canada. In adopting the

thematic working group model within their structure, the networks have effectively promoted multi-institutional networking.

Even among non-renewed networks, evidence suggests that the events held by CDRN were especially successful in bringing different institutions together. For example, the Parametric Modeling and Wood Fabrication event was a unique occasion for three universities (University of British Columbia, Simon Fraser, and the University of Toronto) to share ideas on design issues. In fact, the Scientific Director of CDRN identified multi-institution networking as one of its network's greatest accomplishments:

“...the NCE funding was important in building the necessary levels of trust between the receptors and researchers and more importantly between the researchers across institutions. It's extraordinarily difficult to work across institutions. This was potentially the most substantial impact in the network.”

Like the NCE–NI networks, academic institutions have the greatest representation among each of the SKCs. In all three clusters examined, multi-institutional networking is fostered through the governance structure and the organization committees of cluster activities, which generally includes a representative from each university partner. The clusters being in an early phase of development, multi-institutional networking is still an ongoing process: *“The partnerships between all the supporting universities have been promising, but [exist] mostly on paper so far.”*

Evidence of expansion of networking and increased collaboration

Data on new partnerships in the ongoing networks clearly indicate that networking opportunities have the potential to reach a growing number of partners, members, students, and receptor communities. The New Initiatives have facilitated opportunities for partners to work together, notably in areas where there was usually no collaboration. Evidence of expansion of networking and increased collaboration was thus seen between 2006–07 and 2007–08 in all ongoing networks, which all identified “relationship building” as one of their key activities. In fact, evidence of the benefits of this expansion is already observed, even in non-renewed networks, such as new collaborative grants obtained by members who were connected via one of the networks. Some of these benefits are explored under question 4.

“In the time that we've had the NCE–NI funding, we've leveraged \$7 million of new [funds for collaborative projects] through our network. This \$7 million represents new teams of people who have come together because of [the network]. They did not work together prior to [the network].”

Note that, for all networks, significant challenges had to be overcome with regard to the nature of their field (e.g., work occurring in silos), past collaborative practices (e.g., lack of pre-existing links), and resistance or tensions between individuals, groups, disciplines, or organizations. These challenges were seen to be especially present in non-renewed networks. For example, the stakeholders of one non-renewed network mentioned that partnerships were difficult to establish, as their community does not have a culture of sharing or building collaborative linkages. As for the other non-renewed network, its research field was seen as being still relatively young and unaccustomed to crossing institutional and sectoral boundaries. Nevertheless, one of the non-renewed network's partners reported that *“all relationships [my] organization engaged in through the network were with new partners,”* whereas the Scientific Director of this network said it was successful in making different levels of government agencies work together. Thus, even the non-renewed networks were successful in creating contexts *“to catalyze new collaborations across both disciplines and Canada.”* For example, one partner, whose involvement in the CDRN network grew over time, stated:

“All the relationships were new. The linkages with mainly with other academic disciplines and the network had a good mix of design and engineering, which is currently a huge gaping hole in Canada: engineers are not learning enough design and they don’t understand the value of design.”

In contrast, two of the three SKCs examined were mostly developed on significant pre-existing links, with some associations already in progress between participants. As discussed previously, limited expansion in the number of partnerships was observed compared to the NCE–NI networks. Nonetheless, informants pointed out that their cluster was already acting as a catalyst for the development of new links and was instrumental in progressing from relationships to partnerships. To increase the level of collaboration, some clusters put in place committees or programs to form collaborative initiatives, exemplified by the joint development of events and research projects (for example, one application to a CURA grant has come out of each cluster). Finally, on a few rare occasions, the new links that have been created through the clusters are with or between non-academic organizations.

“One characteristic of this cluster is that we are developing collaborations with provincial/territorial governments, something we have not done before.”

Nature of developed linkages

The types of linkages that the partners (as defined in Section 3.1.1) develop with the networks generally fall into one or more of the following categories, which are listed here in order of involvement in network governance: a) involvement of partners in network governance and strategic guidance (i.e. Board of Directors and thematic committees); b) involvement of partners in thematic working groups or teams; and c) involvement of partners in one or more network activities, generally including cash or in-kind support. These linkages may also be developed in the context of participation of partners in network activities that are also offered to the wider network membership, and through network membership itself, which generally provides members with access to additional information and/or resources (e.g., newsletters, access to restricted sections of the network website, etc.).

Evidence has also been found of consultancy services offered by the networks, resulting in a relationship similar to that between a client and a service provider. For example, PREVNet was contracted by the US Substance Abuse and Mental Health Services Administration (SAMSHA) to perform a literature review and prepare fact sheets; four students worked on this contract and were mentored by a senior researcher.

The nature of the linkages in the SKCs is slightly different from those observed in NCE–NIs. Firstly, the involvement of partners in cluster governance is limited.¹⁴ Furthermore, few cluster participants can be regarded as “passive” members: in the three clusters that were examined as part of the comparative analysis, all participants can be generally characterized either as a co-applicant (i.e., to the SKC grant), a research collaborator, or a student. As such, they are all actively involved to some extent in cluster activities. Note that

¹⁴ The governance of SKCs differs from that of NCE–NIs: all three SKCs examined have created a Coordinator position and put in place a governance structure, even though these were not explicit requirements of the program. The extent of this structure is variable; in some cases, it is still being developed. However, all three networks have put together executive/management committees that meet at least a few times a year. Only one cluster has a committee that comprises more than five members and that includes partners from outside of academia. In the other two clusters, the involvement of partners in strategic decisions is more limited. The partners from outside of the research field had a say mostly during the pilot phase (design and development grants), when the bases of the clusters were being conceptualised. For one of these two clusters, an advisory committee, including non-academics, emerged from this process.

other clusters may operate differently with regard to partnerships and memberships. Finally, most non-academic partner organizations and institutions affiliated with the three clusters provide cash or in-kind contributions rather than the other types of involvement as seen for NCE–NIs (e.g., governance, participation in working groups, memberships).

Evidence of multidisciplinary collaboration

As will be discussed under question 4, much evidence suggests that activities supported by NCE–NI funding led to added value for multidisciplinary research. Part of the reason for this is that the networks created multidisciplinary teams to develop network activities and projects, which brought together individuals from different institutions and from an estimated 22 disciplines (based on network documents; data not shown) who share an interest in specific issues. These teams organized and managed activities, such as workshops, and also developed new research strategies and new knowledge transfer tools. Thus, the multidisciplinary nature of these teams is reflected in the activities and projects they undertook.

The variety and prevalence of disciplines represented among members of the various research teams in ongoing NCE–NI networks reflects the key issues each network has chosen to address. The ongoing networks themselves report that approximately 9, 16, or 25 different disciplines are represented within their networks, but this could not be independently verified in this study. Of these disciplines, health sciences and social science are most often represented on the networks’ research thematic working groups (based on network documents; data not shown).

Not surprisingly, considering the nature of the pilot, the distribution of academic disciplines within the SKCs differs from that observed among NCE–NI networks: other than three individuals from the health sciences, all co-applicants and collaborators of clusters are primarily associated with various disciplines of the humanities and social sciences (Table 6). However, among the SSH, multidisciplinary collaboration is generally strongly supported by clusters: *“We did not fund any projects that did not work towards multidisciplinary networking.”* Nonetheless, one cluster director mentioned that *“multidisciplinarity is not entirely satisfactory yet. We have to address this problem.”*

Table 6 Disciplines currently represented among co-applicants and collaborators of SKCs

Discipline	Number of times represented	Discipline (cont'd)	Number of times represented
Sociology, Social Work	22	Education, Psychoeducation	3
Anthropology	13	Geography	2
Criminology, Law, Justice, Ethics	8	Communication /Journalism	2
History	6	Science Studies	2
Philosophy	4	Religious Studies	1
Political Science	4	Tourism	1
Psychology	3	Women Studies	1
Medicine, Nursing	3	French Studies	1

Note: Certain disciplines have been grouped to reduce the size of the table.

Source: Compiled by Science-Matrix from SKC grant applications and milestone reports

Facilitating interdisciplinary research is also part of the NCE–NI networks’ strategic objectives. For example, NICE states that its first overarching goal is to “disseminate interdisciplinary evidence-based research/best practices across the university-community (researcher-practitioner) continuum” and CON aims “to increase

interdisciplinary capacity among future obesity researchers and health professionals in Canada.” Thus far, the networks have reported several successes in this regard.

“Throughout involvement with [the network], our members network and work with members from different disciplines [on this issue], thus introducing our members to and training them in both interdisciplinary and team approaches.”

NICE has also contributed to developing interdisciplinary research on elder care at the international level, through the events of the International Collaboration for the Care of the Elderly (ICCE). For example, two national workshops on dementia care were held at the University of Kwazulu-Natal in South Africa, which was the first time geriatricians in Durban had met as a group with other interdisciplinary team members. Similar impacts of ICCE events could be observed in China and India. Meanwhile, because of PREVNet, *“social workers are working with psychologists, academic paediatricians are working with psychologists, and sociologists are working with people in law.”* Interestingly, these interactions represent an example of collaborations across funding agencies (e.g., social work and law being SSHRC disciplines, paediatrics being a CIHR discipline).

3.1.3 To what extent are the developed partnerships sustainable over time? [Question 3.]

To a moderate extent. All ongoing networks plan to remain active after the end of NCE funding, having achieved a high level of momentum and of demand from receptor communities. However, the sustainability of developed partnerships relies on the capacity of networks to secure funding for their infrastructure and operational funding; this capacity is currently uncertain as ongoing networks only recently began to develop their sustainability plans, when the opportunity to become full NCEs did not materialize.

The NCE–NI’s four-year funding cycle will end in March 2010, after which the ongoing networks have obtained a six-month extension to use their funds. Therefore, it was not possible to collect precise data on the number of collaborations that will persist after the end of the grant period, nor provide meaningful information on the average duration of collaborations within the network (since collaborations developed as part of the network had only existed for three years or less at the time of data collection). Consequently, this section is mainly based on the opinion of network representatives and partners on the likelihood that developed partnerships and the networks themselves will be sustainable over time.

All three ongoing networks are planning to sustain their networking, knowledge transfer activities, and related research activities when NCE–NI funding ends. Moreover, based on the level of the networks’ successes and the involvement of partners and receptor communities, most ongoing networks are planning to expand. Network representatives clearly expressed the belief that their networks have reached a momentum that must be sustained and capitalized upon:

“We’re going to keep up these links and these partnerships and especially the projects we’ve received the funding for and keep looking for project funding for as long we can ... we think we are doing something very important here and very unique and we wouldn’t want to see that end. ... I think we’re right now getting to a state where the momentum is building and is very high. Now we have all this momentum and now our funding ends.”

“Generally, the plan is to become much bigger, become the voice for [our network’s issue] in Canada, and become the source of information on [our issue].”

“What we have now is the momentum, the partners on board, and a research agenda that would carry us for another decade, easily, and would establish international leadership for Canada.”

However, the sustainability of the partnerships that have been developed relies strongly on the capacity of the networks to secure funding for their operating budgets after the NCE–NI funding ends. Most of the non-NCE

funding currently supports networking, knowledge transfer initiatives, and research activities. In fact, the partners, receptor communities, and other network stakeholders usually support specific networking and knowledge transfer projects. In addition, ongoing networks were successful at obtaining external research grants to support knowledge transfer initiatives (e.g. research on tools developed and implemented). According to network representatives, finding ways to maintain the level of NCE–NI funding to keep the network office operational and the staff working on initiatives is a significant challenge.

“It is problematic. The stakeholders are there to support initiatives, but they don’t want to pay for management to keep the office going. Finding sustainable funding to keep the office running so that you can maintain a staff to work on initiatives, write grants, write proposals and coordinate activities, etc., is difficult.”

“That’s the tough part. We’re doing our best to come up with a sustainability program, but again, the most difficult dollar to get is the operating dollar, and that’s where we’re most challenged in terms of resources.”

Overall, partners agree with network representatives that the New Initiatives require longer-term financing in order to build on the work that they have done and the momentum they have developed to date. Moreover, partners, particularly those who have been involved with governance and strategic planning of ongoing networks, are aware of the problems the networks have in accessing sustainable funding. According to partners, it is very important for the government to provide sustainable funding for networks such as these, especially as partners have fewer resources to offer the network in the current economic climate. The current economic climate was also cited as one reason why some partner organizations are reluctant to contribute extra funds to support the network structure.

The two non-renewed networks were forced to put an end to their network-led activities because of their inability to sustain their operational infrastructure funding. These networks thus moved from a network-centred to a project-centred approach; in other words, a limited number of knowledge mobilization and research projects initiated during the life of the networks are continuing under the leadership of the former Scientific Directors. Aside from these projects, network representatives are not aware of what happened to other initiatives or to partnerships and collaborations forged during the networks’ lifespan.

Thus, strong evidence suggests that the sustainability of developed partnerships and the level of activity of networks is highly dependant on the capacity of the networks to maintain their infrastructure.

“We have people who have developed good working partnerships through the NCE–NI program, but if we were able to just maintain the level of the NCE–NI grant, we would be able to continue with some great activity. Our fear is that, in the absence of the operating funding, the momentum won’t be able to be sustained without having a central hub for it.”

Most ongoing networks have only recently begun to engage in the development and implementation of funding sustainability plans for the post-NCE–NI funding period. Initially, most of the networks integrated the opportunity to apply to a full-fledged NCE into their sustainability planning. However, the challenge of sourcing sustainable funding has been amplified since the opportunity to obtain a full NCE has not materialized: one network submitted an unsuccessful application, whereas two of the three ongoing networks were not eligible to apply to the 2009 NCE competition because of the new governmental sub-priorities for future NCEs (see also question 7).

“We hadn’t actually planned to even get corporate sponsorship or hadn’t seen the need for it until we’d had fully passed thought the transition of structure in the NCE–NI program; we really believed that we would go from an NI to a full NCE.”

“If we were to become an NCE, it would be perfect. Otherwise, a year more would be great. It wasn’t until last September that it became apparent that it would be very unlikely at the end of our funding that we wouldn’t be able to

move forward to becoming a full NCE. We knew for sure at the beginning of the competition. That didn't allow us enough time to come up with a full-fledged sustainability plan. If we'd been told at the outset that we should come up with one, we would have done things differently."

"In September, at a meeting of the Scientific Directors, the NCE [Secretariat] presented to us and hinted that we would not be eligible [...] the breadcrumbs were unofficially dropped only last September.

Consequently, ongoing networks have been revisiting their sustainability strategy, as they have not found other funding opportunities similar to the NCE–NI pilot (specifically for operational funding):

- CON recently underwent an external consultation process regarding the sustainability and strategic orientation of the network after the end of NCE–NI funding. This process looked at three issues: 1) the current need for CON, 2) the future needs and strategic objectives of CON activities, and 3) the funding model for sustainability. The result of this consultation was unanimous regarding the importance of the role for an organization such as CON in Canada. The envisaged operational funding model would be based on three main sources: 1) funding from federal and provincial agencies, 2) annual fees from individual and corporate membership, and 3) revenues from selling of products or services generated by the network (i.e., advertising revenues in CONDUIT Magazines). CON has also moved from collecting money to support CON programs to offering specific services based on a fee structure. Finally, CON is also seeking specific knowledge transfer funding in collaboration with other research networks and private, public and not-for-profit sector partners, such as grants offered by government-funded independent organizations and federal research funding agencies, for example.
- NICE recently registered as a Canadian not-for-profit charity. In addition to seeking additional research funds to support network activities, NICE thus plans to raise funds from individuals and corporations in the form of tax-deductible donations. Note that some of the research grants that NICE has received and is applying for are actually knowledge transfer or collaboration grants, such as a grant from the International Development Research Centre (IDRC) that supports many of the network's international collaboration activities. However, many of these grants provide no or limited resources for infrastructure.
- PREVNet also recently registered as a Canadian not-for-profit charity. The members of the Board of Directors are currently working on a business plan, and a strategic retreat will soon be held to clearly articulate what approach will take the network beyond the window of NCE–NI funding. The two main envisaged avenues are: 1) fee-for-services and 2) membership fees. From the beginning, the network was envisioned as a research-directed initiative, and a primary focus was placed on leveraging research funds in order to conduct the research activities that would support knowledge mobilization and transfer activities.

Evidence derived from the case studies of non-renewed networks suggests that some activities and partnerships developed as part of the non-renewed networks have been sustained, but these operate very much on a project level rather than on a network level. CDRN explored the use of membership fees to compensate for the loss of NCE–NI funding, but this strategy did not materialize. Neither the CDRN network, nor the smaller organization that was meant to replace it, are currently active; some research projects are continuing, but not under the CDRN banner. An interdisciplinary team composed of former network researchers is now preparing the submission of an application for a large federal grant focused on sustainable design research, a central component of the former CDRN.

EDGE's website is still online, but the information has not been updated since 2007. However, two research projects being completed in collaboration with international partners are still ongoing under the EDGE banner.

These projects, funded by the IDRC, involve meeting with researchers from developing countries, as well as with other partners from Asia and Europe, who have also funded part of these meetings. About 15 researchers from around the world are involved in these projects and workshops, and related books are will be published in the near future. Two additional projects are continuing, but with no reference to the EDGE network.

In contrast, some of the unfunded applications examined as part of the counterfactual analysis eventually led to large-scale network-like projects, even though the proposed networks had not lined up sufficient amounts of alternative funds to support their initiatives in the event that their application failed. Indeed, two of the three unfunded proposals examined have led to initiatives in which some of the planned activities and projects were successfully implemented without the support of the NCE–NI pilot. More specifically, these initiatives have built on the communication channels and cooperative relationships established during the development of their NCE–NI proposals to establish national-scale networks. One is a virtual network (i.e., operates mainly through its online presence) and the other is a “spin-off” network launched in 2008 by a number of community partners on the original proposal, but is not led by the Scientific Director for this proposal. These networks mainly rely on in-kind contributions from participants and funds from provincial or federal government departments, such as Health Canada.

Although the scope of these two initiatives is considerably more limited than what was initially proposed in their NCE–NI applications (i.e., no evidence of conferences, workshops, or student involvement), one network has maintained the same objectives, namely information sharing and the creation of new partnerships, whereas the other aims to enhance multidisciplinary and multi-institutional partnerships among academia and community organizations, and its Scientific Director also expects to eventually facilitate knowledge mobilization among these groups. In both cases, it is still too early to assess the long-term sustainability of the initiatives derived from the unfunded NCE–NI proposals.

In the case of the third unfunded application, the respondent interviewed mentioned that elements of the proposal have been implemented under operating grants, but that there is no network currently in place. Instead, the proposed Scientific Director has joined one of the funded NCE–NI networks in order to disseminate elements of her work outside of her local community.

Although the SKCs are in their early stages, all cluster directors have already put some thought into how to address the sustainability of their cluster. All believe that certain activities and partnerships could be maintained in the absence of SKC funding. As such, during the last year, one cluster developed a long-term plan to leverage support from corporate donors. Another cluster is hoping to leverage funds from federal or provincial governments to ensure sustainability on a longer-term basis. Overall, however, all SKC directors put some or all of their hopes on funding agencies: *“Hopefully there will be a renewal proposal from SSHRC”*; *“We could move towards those network centers of excellence grants.”* In fact, one director stated that only funding agencies are in a position to support their activities, as this cluster’s partnership base comprises community organizations that do not have the means to support a cluster. Furthermore, the inclusion of government partners is unlikely, as community organizations fear the loss of their influence on the cluster’s agenda. This cluster is considering different options to ensure that, at the very least, some of their online tools are maintained in the absence of SKC funding.

3.1.4 What is the value-added or incremental value of the NCE–NI funding? [Question 4.]

Evidence of added value was observed in the case studies for: collaborative and interdisciplinary research, knowledge mobilization and transfer, overall success and sustainability of networks, and pan-Canadian capacity building (particularly for students).

Evidence provided in the previous sections—particularly that regarding networking, the creation of new partnerships and collaborations (especially those that cross various boundaries), knowledge transfer, and leveraging—strongly supports the conclusion that NCE–NI funding has created added value on several levels. More specifically, evidence of incremental value of this funding is discussed below for 1) collaborative and interdisciplinary research, 2) knowledge mobilization and transfer, 3) overall success and sustainability of the networks, and 4) pan-Canadian capacity building, particularly for students.

Added value of NCE–NI funding for collaborative and interdisciplinary research

Clear evidence of added value of the NCE–NI funding in terms of collaborative and interdisciplinary research was seen in both the network documents and in the interviews; in fact, researchers were considered to be the key beneficiaries of the pilot in all five funded networks. Some concrete examples of the added value for research that resulted from network activities are presented in the case study impact summaries (Appendix A), whereas the discussion here focuses on describing the types of benefits that were observed.

In brief, the sources consulted in the case studies indicated that the NCE–NI funding contributed to:

- Funds available for events and travel increased attendance at network meetings and workshops, allowing members to meet and interact with potential partners from different disciplines, institutions and sectors, and to build and strengthen relationships that previously did not exist.
- Facilitating collaborative proposals from network members enable them to access other research funds.
- Overall, raising the awareness of researchers on value of collaborative and interdisciplinary research.

Some network representatives noted that because NCE–NI funding could not be used to support research activities, it was more challenging to attract researchers, especially at the initial states of network development. However, evidence from the case studies demonstrates that researchers participated in networks because they found other ways to derive research-related benefits from their participation. Overall, the pilot raised the awareness of researchers and community partners (including students) on how networking across disciplines and sectors, as well as broader knowledge transfer, can benefit research activities. In the longer term, the incremental value of the NCE–NI funding is expected to be that research methodologies and outputs will be qualitatively different and potentially more beneficial to the networks' stakeholders than if the networks' researchers had been funded individually.

Over the 2006–08 period, NCE–NI funding supported numerous networking events around the network's key issues (i.e., obesity, aging, etc.) or their chosen themes or pillars, such as workshops (a total of 33) or conferences (a total of 25) (see also Section 3.2.2 and examples given in the case studies summaries in Appendix A). These events were generally organized by multidisciplinary/multi-sectoral committees, which effectively brought together stakeholders from diverse disciplines, institutions, organizations, and sectors, as well as, increasingly, other countries. Note that NCE–NI funding also provided travel subsidies to increase attendance levels at these events and to ensure the presence of network members from across the country. The events created multiple, high-quality opportunities for members to meet and interact with potential partners and to build and strengthen relationships that did not previously exist (some of these new relationships are

discussed under question 2). *“What is unique about [the network] is how it facilitated the interaction of all the diverse groups with an interest in this field.”*

Respondents also indicated that the incremental value of these networking events included the lessening of tensions between certain individuals, groups, or organizations, particularly those that felt they were in competition with one another (e.g., for research funds or donations). Moreover, as the networks are becoming more firmly established, they are increasingly seen as a gateway or the “go-to” organization to find potential collaborators or partners (i.e., via researcher or member profiles on the website).

All networks (both renewed and non-renewed) reported that these networking opportunities have led to a number of subsequent collaborative projects, such as interdisciplinary and/or multi-sectoral research grant proposals. The benefits of new collaborative projects borne from the network are clear: several million dollars of research grants have been obtained thus far by members of various networks for these projects. For some networks, networking has led to the reduction of duplications in research efforts, greater access to evidence-based practice data, greater access to hard-to-reach populations, better understanding of the needs of receptor communities and setting or adapting research methodologies, and agendas and strategies to better address these needs. This growing awareness of the value of multidisciplinary research was seen as especially important for networks that have a significant number of core members in the SSH.

“[There are about 19] disciplines are represented in our network. This has really fertilized that cross-disciplinary approach within the social sciences, which I think is novel.”

Networks also added value to new research projects and grants by offering support in writing proposals, providing letters of support, lending their “brand” to projects, ensuring that research results are widely disseminated throughout the network (i.e., greater exposure and opportunities for uptake), and working with researchers to develop the right knowledge translation mechanisms for disseminating or exchanging the knowledge to key receptors.

Thus, more generally, the New Initiatives multiplied the benefits (including knowledge transfer) of interdisciplinary research for all members, including researchers and receptor communities. For instance, when receptor communities benefited from collaborating with researchers to better assess the efficacy of their programs, or when researchers saw an increase in the quality of their research and their success when applying for research funding, both groups were more likely to collaborate on further projects. Thus, the network was seen as an effective way to enhance the interest and involvement of members in these collaborative and interdisciplinary projects and to maximize their benefits; as one Scientific Director stated, *“the more [researchers] gave, the more they got.”*

Finally, several respondents mentioned that researchers benefited from the network-funded activities through a greater ability to meet with and identify high-end students, who ultimately became future members of their research team as students, interns, staff and, potentially, future collaborators. Thus, the value of NCE–NI funding in supporting network activities that aim to build future capacity for collaborative and interdisciplinary research should not be overlooked. As explained in greater detail below (*Added value for students*), most networks designed and implemented programs that targeted students and new professionals with the aim of building connections and integrating them within the pan-Canadian community of the network, providing them with useful skills (including knowledge transfer), and increasing their understanding of the benefits of interdisciplinary research. Partners also mentioned the value of this capacity building, stating that their organization would benefit from having students gain awareness and opportunities for interdisciplinary research.

As for the SKC program, SSHRC funding has facilitated a number of activities that have gone on to play an important role in creating tangible added value. As existing relationships have evolved into partnerships and new linkages and collaborations between participants were stimulated, benefits in terms of multidisciplinary research have increased. For instance, according to one of the cluster directors interviewed, a CURA grant was recently awarded to a new partnership that had been created through the cluster. Similarly, an international opportunities fund was awarded to another cluster director to support the development of activities by international partners. Although it is still early in the lifespan of the SKCs, cluster directors believe they are already making progress toward their strategic outcomes “*simply because we are raising the question [around the cluster’s main issue]*”, or because the cluster “*has facilitated a real public dialog between different subjects.*”

“The cluster accelerates the speed at which the people connect with each other; it is hard to explain how, but it does! It becomes easier to engage elsewhere, since you have good reference names.”

Added value of NCE–NI funding for knowledge mobilization and transfer

Increased awareness and use of knowledge transfer mechanisms is also seen as an incremental value of the NCE–NI funding. Benefits were often seen for researchers, who “know how to do research” but are less familiar with the ways to translate their research into practice. While the evidence of these benefits is preliminary, they are expected to increase in the longer term, as networks provide not only an environment in which to promote the benefits of systematic and focused knowledge mobilization, translation, and transfer, but also act as an effective vehicle through knowledge can be transferred.

There are many examples of ways in which NCE–NI funding helped increase the quantity and/or quality of knowledge transfer within the networks; many of these are listed in the case study impact summaries (Appendix A). Generally, knowledge mobilization and transfer is effected by the networks when:

- Researchers and receptor communities work together on the same thematic working group (or “Theme Team”) or collaborate on developing a network event, tool or publication.
- Researchers and receptor communities are brought together at network conferences and workshops, where information is shared across disciplines, institutions and sectors that have a stake in the network’s key issues.
- Tools, databases, materials, publications, websites and other outputs are produced by the networks for the use of network partners and the wider stakeholder community. Equally important, the networks also provide a means for which to ensure access to these outputs (e.g., via their website, self-publishing of conference proceedings, etc.) and can act as gateways to high-quality information (e.g., via downloads or a literature alerting service). Many examples of these types of outputs, from television programs to pocket guides, are listed in the case study impact summaries.

As mentioned above, by organizing their activities according to high-priority themes or pillars, the networks helped to bring together the members most interested or involved in key topics, which facilitated the transfer of relevant and up-to-date information (through conferences and meetings, for example) among researchers and receptors who could derive the most benefit from this knowledge. This thematic structure was key in shaping the research activities, knowledge mobilization tools, and other outputs generated by the networks.

“[The most important organization in Canada that works on our issue] doesn’t have as many members as we do now. They have maybe 400 members left. We have 850. We have struck a nerve and they didn’t. They’re devoted to research (...) I think what’s so incredibly different about us is this partnership we forced. We had to force in the beginning. (...)

The teams are made up of researchers and practitioners and policy-makers and they all sit there together and they all plan together and they all develop these tools together. And that's exactly what we wanted.”

Sharing of information or topical materials among members of networks (especially through the website, conferences and publications), as well as a greater facility to adapt core materials for the specific needs of different partners, were also seen as added benefits for knowledge mobilization under the NCE–NI model. Consequently, discussions and collaborations between network members is facilitated because they are all situated at the same starting point, both in terms of having up-to-date knowledge and using appropriate language/terminology.

Importantly, knowledge mobilization in the networks does not travel in one direction; knowledge also flows up to researchers in their interactions with network partners (especially via working groups and collaborative projects), enabling the former to gain a greater understanding of what is happening in the field and thus to better identify key knowledge gaps. Non-academic partners have also helped researchers to understand how to package and present their findings so that receptor communities and laypersons better understand the information. Similarly, several instances were noted in which network partners benefited from collaboration with network researchers to revise and validate the information they are distributing. The network “brand” may also be used to add credibility to this information.

According to the directors/managers from the NCE and the three granting agencies interviewed during the design phase, this two-way collaborative structure is highly unique in Canada, as it allows for the impact of the research to be experienced and assessed beyond the researcher, through the process of transfer into practice settings and, eventually, into policies and standards. The equal emphasis that is placed on both sides of the transfer process and across the spectrum of activities also allows the research to be viewed from a big-picture perspective. However, these informants also indicated that not enough time had elapsed since the creation of the networks to observe significant impacts and benefits.

Added value of NCE–NI funding for overall success and network sustainability

The NCE–NI funding was essential for the overall success of funded initiatives. Dedicated funds for network infrastructure and management were critical in setting up and developing the networks, especially considering the challenges faced by networks to secure operational funding from external sources. All network representatives interviewed recognized the added value of the funding for their achievements.

“The funding is critical because without the funding, none of this would happen. It provides the Scientific Director with the staff and the organization under which stakeholders are engaged and networking opportunities are created. A Scientific Director could not run an operation at this level through his own resources.”

The branding of NCE–NI funding under the banner of the “Networks of Centres of Excellence” decidedly increased researchers’ willingness to participate in the new initiative and facilitated the development of new partnerships with receptor communities. Moreover, assurances with regard to the opportunity to become a full NCE network were also deemed essential for generating interest among researchers across disciplines and institutions. This was particularly true for areas where few linkages were in place before the creation of the networks. It also facilitated the involvement of representatives from receptor communities in the Board of Directors and the leveraging of in-kind contributions (e.g., office space, salary of support staff, equipment, etc.) from host academic organizations. The opinions of network representatives in this regard clearly reflect both the importance of the NCE brand to the success of the networks and how the possibility of a full NCE award likely accelerated the rate at which the networks were developed. While network representatives were aware

that their entry to the full NCE program was not guaranteed, the following comments reflect just how important the opportunity of becoming a full NCE was in the development of networks (and, the consequences when this opportunity did not materialize).

“We were also told at a meeting that after the first two years there was an opportunity to apply to become a big NCE. We were given that assurance. ... That was extremely important for our planning because there was no network and no linking between researchers and agencies in Canada. We were building completely from scratch. The only way that we could convince people was the promise that, although we were not able to provide funding, we were trying to build a network with a view of having to have some real funding at the end”

“One of the problems with the Boards of Directors is that our Board was under the understanding that the idea of the network was to move us towards becoming an NCE.”

“Originally, we were to develop these networks as a precursor to getting full NCE funding. So, I get [hundreds of] people on board ... I think they [changed the original goal midway] to knowledge transfer, end of story. If they did, [the program is] incredible, outstanding, very successful. But if the ultimate success was what if we went forward and got funded by the NCE ... it didn't happen [to us and to others].”

Similarly to the status offered by NCE funding, the funding awarded by SSHRC through the SKC program enhanced the reputations of the clusters and their members by acknowledging and recognizing Canadian expertise through the creation of clusters that are largely unique on the world stage.

“[It] put Canada on the map and opened the doors to the world. We are recognized in the world for what we are doing. It might look like an abstraction when I talk about what we are doing, but we are recognized and approached by different organizations all around the world. There is no doubt in my mind that without the cluster, I would not be where I am, engaging in dialogue between different countries. They are looking at us as experts.”

Finally, the NCE–NI award also provided incremental value to the networks in ways that were either unexpected or not formally recognized as an objective of the pilot. For example, several networks mentioned that a broader impact of the networks was the creation of national communities across disciplines, sectors, and regions, and that these communities are beginning to recognize and identify themselves as such, with increasingly shared organizational values, objectives, and cultures. This represents a starting point for creating mutually beneficial relationships between stakeholders, as well as fostering a sense that what is in the best interest of the network (e.g., its sustainability and survival) is in the best interest of the stakeholder community as a whole. Network partners thus speak not only of “working together” but also “growing together.”

“What this organization does that's critical is that it doesn't go in opposition to any other organization. It only tries to bring everyone together and make sure that we're all speaking the same language. Although there are always going to be other organizations out there, I would say that this one represents the hub of the information that we need.”

Thus preliminary evidence of the added value for networks is that they are increasingly being recognized by stakeholders as the leading organization in their field; as the “go-to” organization for media, researchers, and partners; and as a force to effect socio-cultural change across Canada.

Added value for pan-Canadian capacity building (students)

Students and new professionals (e.g., post-doctoral fellows) have been important participants in most networks funded by the NCE–NI pilot. They were not only the key receptor communities of the networks' knowledge transfer activities, but also a vital resource at all levels (e.g., staff or active participants in delivering network activities). While the following discussion focuses mainly on graduate students, it is important to note that

significant numbers of undergraduate students and post-doctoral fellows were involved in many of the networks and received many of the same benefits as graduate students. However, data on these groups were not systematically collected or reported by the networks, and so what data are available are not comparable.

The statistics presented by the ongoing networks for their first two fiscal years provide evidence of the high and growing level of involvement of graduate students within the three networks. Over the two-year period, 347 graduate students were actively engaged in the networks. The average number of master’s and doctoral students per network increased from 15 and 19, respectively, in 2006–2007, to an average of 41 students for both groups in 2007–08 (Table 7). Only a small fraction of these students (about 4%) were foreign nationals. It should be noted that the data do not allow for tracking the proportion of students that are carried over from one year to the next. Moreover, even though a number of undergraduate students and post-graduate students were also actively involved in the different networks, statistics on these two groups were not formally requested or collected by all networks.

Table 7 Number of graduate students in ongoing NCE–NIs, 2006–07 and 2007–08

Students	2006-07		2007-08	
	Number	Average/network	Number	Average/network
Master's students	46	15	122	41
Doctoral students	57	19	122	41
TOTAL	103	34	244	81

Source: Adapted from NCE–NI annual reports

A similar analysis is not possible for the non-renewed networks, as statistics were only available for the 2006–2007 fiscal year. Furthermore, CDRN provided data that reflects the total number of graduate students that participated to the network’s activities (e.g., workshops and contests) rather the number of students actively involved in the network. While the participation of students in these activities was likely very beneficial to students, these figures are not comparable with those from other networks. Data provided by EDGE shows that this network involved fewer numbers of students than the other networks: ongoing networks engaged an average of 34 graduate students in 2006–2007, but only 20 students were actively involved in EDGE (18 master’s and 2 doctoral students).

However, these statistics do not indicate the nature of student involvement in the network or of the benefits to graduate students, such as added-value training (multidisciplinary, multi-sectoral, etc.). As such, additional evidence from the literature review (e.g., network Final Reports and Reports on Activities) and case studies was examined to provide a qualitative measure of these benefits. This evidence showed that most networks made significant efforts to engage students in the network and to support both short-term and long-term capacity building in the fields of interest.

For example, all of the ongoing networks have involved graduate students in their governance or operational committees (e.g., Board of Directors, executive committees, working groups, etc.), thus offering them the opportunity to make their issues known and provide input on orientation, planning, and programming. Two of these networks have also supported the creation and development of auxiliary networks for and run by students.

Several programs and activities were also developed and implemented by the networks to stimulate capacity building through the participation of students in network activities, and, in the long term, attract more highly

qualified people into the networks' fields. It should be stressed that participation in network programs and activities also provided students and new professionals with high-quality networking opportunities with established researchers and practitioners in the field, which is a key element to their long-term success. Among the approaches most often used by the networks to help students become more actively engaged, skilled, and successful were:

- learning and skills development programs in the form of hands-on workshops on a wide variety of relevant topics, mentorship programs, and intensive “boot camp” programs;
- participation of students in knowledge mobilization projects, usually in close collaboration with senior network members (e.g., literature reviews, preparing conference presentations, writing policy briefs, website, podcasts, etc.);
- travel subsidies to national and international meetings;
- poster and oral presentation sessions for students at events such as the network's annual conference or lunch & learn seminars;
- invitations for students to write articles in the network newsletter or magazine, or featuring students on the website.

These programs and activities are expected to have both immediate and long-term benefits for students; in fact, there is already some evidence that these benefits have started to occur. The ability of the network to connect students, researchers, and partners around the country or the world is one way in which the NCE–NI pilot provides value to students. In addition to contributing to exposing students to the work being done in other disciplines, institutions, and sectors, it also allows them to identify and contact a potential thesis supervisor or find an internship or a job with stakeholders or partners. All ongoing networks have reported evidence of students being offered internships or jobs or being taken on as a graduate student by a researcher or partner they met through the network-funded activities, both locally and across regions (e.g., students from the Maritimes going to work with someone in British Columbia that they met through the network).

Through their involvement (either formal or informal) in knowledge mobilization projects and mentorship programs, students gain both insight and hands-on experience in best practices in these types of activities, be it for research or practice aspects. Participation in various skills development opportunities offered by the networks (e.g., presentation and communication workshops, boot camps, etc.), as well as access to networking activities, benefit students through access to a unique inter-sectoral, collaborative, and interdisciplinary training environment that is expected to help ensure the recruitment and quality of the next generation of professionals in the network's field of interest. As such, increased recruitment of highly qualified people in the network's fields should be assessed quantitatively in the coming years.

It should be noted that several networks (including one non-renewed network) have also set up initiatives to improve or modify the curriculum of relevant programs with regard to the network's core issues, which benefits even those students who are not directly involved in the networks. For example, CDRN researchers implemented a project called Greening the Curriculum, through which design educators from across the country have been working together to ensure that sustainable design is an essential part of a contemporary design education. Similarly, NICE has set up a committee that aims to get the basic competencies of providing care for older adults into the curriculum of students in medicine, nursing, and social work.

Overall, the participating students are considered a factor of success by executives of all three ongoing networks whether it is for their vision, or leadership. Some network representatives indicated that students are active ambassadors of their network and as such have played a key role in the network’s success.

“Without them we would be nowhere. (...) the students that we have involved are so enthusiastic, they want to be involved in everything and are just so excited about being so involved. I think without that backbone, we wouldn't be having this sort of success that we have.”

Students are also key to the SKCs, though they appear to be far less numerous than in the NCE–NI networks. After the first 17 months of activity, two of the three clusters examined stated in their first milestone report that 10 and 22 graduate students were highly involved in their networks. This is about half of the number reported by the NCE–NI networks after their first year of activity. Both clusters also reported having undergraduate and post-doctoral fellows among their active participants. The third cluster did not provide data on student involvement. Note that, unlike the NCE–NI networks, SKCs have a stronger research component associated with some of their student programs: two out of the three clusters offer full grants to graduate and post-doctoral fellows, which mainly support their research activities. The third cluster has implemented some distinctive ways to involve and reach students. For example, it offers a financial assistance program that supports students in the implementation of a collective knowledge mobilization event or the production of a knowledge synthesis tool with a community or partner. As well, the cluster has put together a traveling knowledge mobilization platform (nomadic university sessions), which draws on students, faculty, and partners to deliver the curriculum and earns attendees university credits.

Overall, all three clusters have implemented programs and organized activities that are similar to those used by the NCE–NI networks to engage students and foster networking and skills in knowledge mobilization (e.g., travel and internships awards, oral and poster presentations within network activities, and participation in knowledge synthesis activities). However, only one cluster has provided students with a governance role by having one student representative on its steering committee. In another cluster, students have created their own network. Thus, many of the benefits sought and delivered to students from their involvement in the clusters are in line with those of NCE–NI networks.

3.2 Delivery

3.2.1 What are the conditions of success or failure of the New Initiatives? [Question 5.]

Conditions of success: Quality of network leadership (i.e., Scientific Director and Network Manager); Shared vision and interests (and activities structured around themes); Commitment and involvement of researcher and partners (especially students)

Challenges/limitations of success: NCE–NI funding timeframe (too short and mid-term review too early); Challenges in obtaining sustainable and diverse sources of operating funding; Challenges associated with nature of some issues/fields

Quality of leadership and governance

The quality of the network’s leadership, governance and administration, whether offered by the Scientific Director, the Network Manager or the Board of Directors, was the most often cited facilitator of success for the network by network stakeholders (both network representatives and partners), as well as by internal key informants. In this regard, the contributions of the Scientific Directors appeared to be a key condition of success – even, according to several informants, “the number one success factor” for the new initiatives.

Indeed, all new initiatives were led by top academics in their respective fields, which helped ensure the quality of the intellectual leadership and, subsequently, the credibility of networks. However, several respondents indicated that the Scientific Director's profile (i.e., reputation), personal contacts and dedication were equally important to attracting strategic partners, developing new projects, and finding resources for network activities, and thus, to ensure advancement of their respective networks.

“In a sense, [Scientific Directors] become marriage brokers. A huge part of our job is to bring people together on different projects, e.g., finding the right team of researchers to work with the [partners] on a specific project.”

Partners who praised their respective networks' ability to be open, responsive and flexible to their needs and concerns, were also those most satisfied with the networks themselves. Thus, good management implied not only that groups of researchers were supported in their endeavours to achieve common objectives, increase their impact, and perform high-quality research, but also that the Scientific Directors were able to champion the group of researchers and engage the community on an equal basis.

Note that the Scientific Director's role appears to evolve over time, particularly in terms of setting network priorities, bringing in partners and leveraging external resources, as the network gains maturity. This may occur as the Board of Directors begins to “gel” and take on a stronger leadership role, as well as when network staff, including the Network Manager, develop more experience and autonomy.

Thus, strong leadership is also exercised by choosing the right team of people to govern and administer the network, and by distributing responsibilities among them. Especially at the early stages of the network, choosing a Network Manager is key; these individuals must have the content-related expertise (i.e., on obesity, design, etc.) and professional skills to coordinate the various committees and day-to-day functioning of the networks – fund-raising abilities is also a plus. Managers of the renewed networks were able to clearly demonstrate to the mid-term committee the participation of receptor communities and how the research impacted the actual or potential end users. Note that the vital role of the Network Manager was especially apparent when management difficulties arose in some cases. Other staff members who have contributed to the networks' success are communication coordinators, partnership or stakeholder coordinators, financial administrators and other administrative staff.

Meanwhile, the networks' Boards of Directors, which included researchers, practitioners and other non-academic partners, generally took the Scientific Director's lead in shaping the orientations of the network, but nevertheless also played a central role in ensuring the network kept its direction and stayed true to the network vision. In all cases, the Board of Directors was created once the NCE funding had been received,

The value of the contributions of the Board of Directors, as well as sub-committees which report to the Board, appear to increase over time (i.e., as the networks expand and a sense of community is created), and were thus seen mainly in the ongoing networks. However, as will be discussed under question 6, many respondents felt that having a formal and high-powered Board of Directors was perhaps excessive considering the size and scope of the networks.

Finally, the idea that governance is important to network success can be extended, on a broader level, to the direction and management offered at the program-level (i.e., by the NCE – or by SSHRC, in the case of the SKC program). All networks, but non-renewed networks in particular, provided strong evidence that specific aspects in the design of the NCE–NI pilot (e.g., administrative and reporting requirements, assessment, mid-term review process, possible limit on NCE that can be used for human resources/staff salaries) and support

offered by NCE staff were not always adequate to address the needs of the networks. These aspects will be discussed at greater length in under question 6.

Shared vision and interests

One important quality of the Scientific Director(s), as well as the Board of Directors, was to maintain and articulate a clear vision and the related strategic direction/objectives as to what the network would bring to its field of interest. In many cases, the network vision had been defined in collaboration or consultation with the partners during the proposal phase, which helped create a common understanding of what the network would “look like”, i.e., a clear understanding of the activities around which the network would engage and what its strategic orientations would be. As one network representatives reported: “the partners were interested to join in as long as they would be aware of the network directions.” All ongoing networks consulted a number of stakeholders during the proposal phase, including in the private sector and NGOs, to assess the need for such a network. This consultation process often led to the recruitment of key stakeholders on the network Board of Directors or other types of working groups (i.e., committees or thematic teams).

Just as networks with a clear vision of themselves had better chances of success, problems in terms of the network vision and objectives led to negative consequences in terms of the engagement of researchers and partners in the network. Nonetheless, all networks found this challenging to a certain extent, especially in the case of researchers: this group is often most interested in obtaining research funds, and may need to be coaxed or be made to see the advantages of this type of network because the network that does not provide any funds for research.

Despite these challenges, most networks were successful in effectively getting several partners involved around a shared vision. Generally, this shared vision was closely related to the network’s main issue (i.e., the need to address bullying, standards of care of the elderly, the desire to have a better design ethic, etc.) around which members with different interests (e.g., research, treatment, prevention, education, showing the value of a certain type of commodity, etc.) or coming from different areas (i.e., disciplines, communities, regions) could be assembled. Thus, essentially, this shared vision centered on a common belief that the network’s main issue was of great importance (which spoke to the members’ passion) and that the network’s approach to addressing this issue had value (which increased the members’ engagement and involvement). In fields that did not previously have a shared vision, either because various group worked in silos, because the field was relatively young, or because it did not have a culture of collaboration, it often took longer to build trust, to achieve partner buy-in and to assemble multiple receptor communities within the network and form a wider community around this shared vision. However, once they had been recruited, partners often reported that having different backgrounds or interests was not an obstacle to participating in the network when they shared the network’s vision; in fact, bringing together communities with different interests often led to added value via multi-sectoral and/or interdisciplinary networking, collaboration and partnerships. Further, the fact that the new initiatives operate on a national scale was cited by several respondents as being important to increasing the visibility and reach of the networks, both of which also increased partner buy-in and involvement.

Another key element which helped all five networks engage members was that they were structured around themes or pillars, each of which was led by teams or working groups composed of researchers and in some cases, receptors with a specific expertise. As reported by one network partner: “as the subject is really broad, the thematic areas and teams responsible for these were really helpful in helping the network stakeholders get involved into the network”. The success of this thematic structure is exemplified not only by the high level of engagement of key organizations from various communities (see also discussion under questions 1 and 2) but

also by the added value created by this approach in terms of multidisciplinary collaboration and knowledge transfer.

The importance of a clearly articulated vision was also noted by the directors of the three SKCs examined in the comparative analysis. Indeed, the willingness of participants to be engaged and to work together on the clusters' respective topics was cited as the main factor of success for the clusters. The support received from non-academic stakeholders and having well-connected executives that have a very clear vision for the cluster were also crucial. The two SKC pilot grants gave the clusters two years to conceptualize and plan their cluster and this was seen as essential to the development of a collective vision and an organizational model.

“[The pilot grants] were necessary. Without the concept paper, I do not think that we would be where we are now. The second grant really forced us to view ourselves in a different perspective. You usually receive grants to conduct some research, not to talk about dissemination. So that grant really helped us to understand how we would be engaged with everybody and how we would share our ideas.”

“The added value [of the pilot grants] was enormous; it created a crescendo. We got a name for ourselves and it helped to set the basis for our cluster. I think that if we've had had a third one, we would probably be doing better.”

Commitment of network partners, members and students

As mentioned above, the importance of assembling researchers and receptor communities who are committed to the same shared vision is a key condition of success of the new initiatives. It is not surprising, therefore, that network representatives praised very highly the passion and commitment of network partners and – most frequently – of student members of the networks. The enthusiastic involvement of students in various aspects of the network was identified of being highly beneficial to the networks. This involvement includes: participation on committees, working groups and within the student organizations set up within two of the ongoing networks; contributions to the administration of the network (including communication functions); and large-scale participation in networking, skills development, mentorship and knowledge transfer activities organized by the network. In this view, one non-renewed network was likely limited by its lower level of student engagement.

Network partners and non-academic members also are crucial to the success of the knowledge translation activities, as they ensure that the resource and tools developed by the networks are disseminated and taken up; these partners often also play a key role in informing networks of the need for and the design of these tools. Participation of network partners and members in the numerous networking opportunities organized by the networks often exceeded network expectations, indicating the need for these types of opportunities. The high level of commitment and participation enhanced face-to-face relationship building, increasing the added value of these activities with regard to collaboration, knowledge transfer, and, ultimately, progress toward network objectives.

Thus, the concept of “multipliers” was also raised as a network success factor by internal key informants. Certain non-academic partners of networks have taken on the function of multipliers in terms of 1) promoting the translation of research results into practice settings in which the network receptors are active; 2) using their credibility as practitioners/stakeholders to give a greater weight to the network team for the adoption of research results by decision-makers (i.e., through regulation, legislation and programs) in relevant areas, such as health, education, environment, finance, etc.; and 3) continuing to ensure the effective transfer, adoption, adaptation of research results in relevant practice settings and targeted communities long after the researchers' have completed their work.

Pre-existent links and timeframe

While pre-existing links between key researchers and selected partners in the network were identified as important starting points on which larger and more cohesive teams could be built, these prior linkages did not guarantee the success of the network. In fact, very few respondents identified pre-existent links when asked which factors played a significant role in the success of their network (except perhaps for the personal contacts of the Scientific Director). Some networks also experienced difficulty in establishing partnerships that built on prior relationships, including the two non-renewed networks. Note that a clearly defined partnership strategy was also essential to adequately define the types of receptor communities that the network wished to target; the absence of such a strategy limited the success of some networks.

It is possible that the reason why pre-existing links do not appear to be a key facilitator of success is the short period of time since the beginning of the networks in which to observe the impacts of these pre-existing links. Many respondents indicated that establishing trust and strengthening relationships take time, and that translating these relationships into engagement of researchers and partners into common activities takes even longer. This is particularly true when partners are asked not only to engage in activities but also to “buy into” a totally new organization. Thus, now that networks are becoming more firmly established, greater impacts of pre-existing and new relationships are expected to emerge.

Another possible reason is that pre-existing links may have only been among researchers or within certain silos, rather than across sectoral, institutional or disciplinary boundaries. This may explain why both EDGE and CDRN representatives cited pre-existing links between key network members as strength of their networks; this links were actually often within isolated communities and were not sufficiently broad to support the development of a network with the scale and mandate envisioned for the NCE–NI.

Considering the amount of time it takes to establish mutually beneficial relationships, the timeframe in which to effect and measure impacts, both for the mid-term review and for this length of the NCE–NI grant, was also cited one of the main challenges faced by all networks. Many network representative indicated that the process through which partnerships develop for large-scale projects often took several years in order to develop the level of trust and buy-in required. This is relevant not only in the case of pre-existing links, but also in the case of new partnerships. Internal key informants also recognized the difficulties of developing and adapting new networks with such a steep learning curve, in such a short period of time. Finally, the short time frame changed the way in which network management planned and delivered their activities.

“The short timeline of funding means that you have to be very opportunistic and less strategic in the initiatives that you do because you only have a limited amount of time to demonstrate that you are doing something.”

The timeframe was also raised by the respondents interviewed as part of the comparative analysis. Indeed, SKC directors indicated that, in their first two years of activity, it took some time to create collaborative relationships and find areas of convergence, particularly across disciplines and sectors. In this regard, pre-existing links were not necessarily a condition of success: although many participants from two of the clusters had already been part of a type of association prior to the cluster, directors of both these clusters claimed the SKC funding created value by adding synergy.

“We were a network but were unable to work together ... the cluster is breaking a lot of barriers. You almost feel that all the people working in our field are working in the same city; we are very close, even if we don't see each other often. We really have a sense of belonging.”

“It takes a lot of time to do what we are doing... Working with governments really is time consuming; there is a lot of negotiation, meetings...”

Sustainability and diversity of sources of operating funding

The challenges faced by the new initiatives to create significant partnerships necessarily extend to their leveraging capacity. In particular, increased representation of certain sectors among partners (i.e., particularly the private sector and some government partners) is likely to have a direct impact on the level of contributions leveraged by the networks. As mentioned above, building strong relationships with partners and successfully obtaining external funding from them can take an extensive period of time; leveraging large amounts of funds from the private sector was considered to be especially difficult. In addition, the SSH often struggle to attract private-sector partners, and likely find it all the more challenging to obtain funding from them. As noted previously (Section 3.1.1), while they effectively leveraged funds from a variety of contributors (e.g., university partners, associations, NGOs, governments, etc.), none of the three SKCs examined had private sector partners in their clusters.

Evidence also showed that some networks were generally more successful in getting in-kind contributions than they were at getting cash contributions. Many reasons were uncovered which could explain this situation. First, the propensity to make donations, to sponsor events, etc., varies from one industry to another; for instance, indicators show that organizations in the pharmaceutical industry are far more likely to provide cash contributions than ones from the design industry. Thus, networks that already have strong ties with certain industries, or who increase their access to these industries (most often through a corporate member who joins the Board of Directors), are more successful at obtaining contributions from the private sector. Second, community organizations or emerging economies were likely to have fewer spare cash resources to provide to networks, and thus favoured in-kind contributions. Third, academic institutions are more likely to provide in-kind contributions in the form of office space, salaries for administrative space, web hosting, and other types of infrastructure.

“Because of network activities, we were able to get in-kind contributions, such as the loan of significant facilities ...and very large software licenses donated to universities across Canada. These things are very difficult to do on a university-by-university basis, but very easy to do if you approach a company and say, ‘I work with a group across 20 universities. By talking to me, you can make one donation deal that provides access to 20 different places.’”

However, in the case of private sector partners, evidence also clearly showed that, in most cases, these partners were more willing to support specific projects and activities than to provide networks with operating funds; this situation is exacerbated by the current economic situation.

“The most difficult cash to raise is operating capital. I have a pretty significant background in university fundraising, and we are always challenged to get operating funding. Generally, cash is something that is targeted. People want to put their name beside an initiative...the marketplace in terms of fund-raising is a really tough sell, not just for us, but the entire higher education sector.”

Challenges associated with the nature of issues/fields

All networks reported that the nature of their field, or the main issue of concern for their network, made it more challenging to ensure network success. In many cases, these challenges were related to the fact that there was only a weak culture of collaboration within their field and/or that various groups tended to be fragmented according to regions, disciplines or sectors; for instance, the siloed nature of their respective field in Canada was said to be a challenge for all five networks. The reasons for this fragmentation were varied; in some cases,

the relative youth of a field and small number of practitioners appeared to be the main cause, whereas in others, it was the very large number and types of stakeholders that needed to be engaged. Similar to the underlying rationale behind the creation of the NCE–NI pilot, it was reported that building a network around a social sciences topic was difficult, as it is a new trend in SSH disciplines to have academics engaging in common research projects and partnering with receptor communities on such a wide scale. As such, the stakeholders of certain networks did not identify as a community prior to the network, which hindered the ability of networks to more rapidly engage their stakeholders.

In other cases, it was the nature of the main issue that, while viewed as important by many stakeholders, proved to be less attractive to potential sponsors and donors of the networks. For example, network stakeholders indicated that leveraging funds for “old people” or obesity was difficult as these issues did not have the same appeal then those relating to children and to less stigmatized diseases. As mentioned previously, the most generous partners can be hard to convince in the value of the network’s main issue (“There’s no drug company that wants to put its name beside the promotion of relationships and preventing violence for children and youth.”) Lack of awareness about certain issues, such as the value of “green” design in mitigating climate change, or the prevalence of certain “myths,” such as in the case of bullying, also need to be overcome in order to increase the success of leveraging efforts. This may also be related to difficulties observed in the SSH in demonstrating or articulating the potential impacts of their work; as a case in point, the counterfactual analysis revealed that most unfunded applications (12/15; 80%) with SSH as their main field of focus were refused in part because of the inadequate demonstration of the networks’ potential impact. As such, it was not surprising that leveraging challenges were often seen as being greater in the case of SSH-focused networks; another reason for this may be that there is not a strong tradition of providing contributions for certain disciplines (e.g., design). The challenges faced by SSH in terms of leveraging are also evidenced by the fact that the SKCs all rely on contributions from universities and funding agencies to support their operations.

3.2.2 Is the initiative delivered in a cost-effective manner (and other issues with initiative delivery)? [Question 6.]

Yes. The New Initiatives have provided a high level of value for money, especially when considering the value of the grants versus the quantity and quality of outputs. In addition, the external contributions leveraged by ongoing NCE-NI networks, calculated as a proportion of their total NCE-NI funding, was nearly twice as much as that of the Networks of Centres of Excellence over the same period. The evaluation findings also show that reporting and expectations for the new initiatives should be adjusted to reflect the scope and objectives of the NCE–NI pilot, i.e., in such way that recognizes the difference between NCE–NI pilot and the full NCE program.

Network resources and resource allocation

As the NCE–NI networks started their activities in 2006 and had not yet completed their reporting for 2008–09 (due in June 2009), their overall resources and the way these were allocated were evaluated for the two fiscal years for which data was available: 2006–07 and 2007–08. Note that one of the non-renewed networks did not provide information on its partners’ contributions (cash and in-kind) for the 2007–08 fiscal year. Nevertheless, the final report and the interviews conducted suggest that the CDRN leveraged relatively high amounts of external contributions in its final year. Another shortcoming of the information made available to the evaluation team is the lack of details on how the networks used their partners’ cash contributions.

Financial resources (including both cash and in-kind external contributions) varied greatly from one network to another (see question 1 for additional details), and so were grouped among ongoing networks and among non-renewed networks for the following analysis (Table 8). Overall, the resources of the ongoing networks increased between the two years analysed, with the input from external resources (i.e., non-NCE funds) increasing by 75%. No data were available for the non-renewed networks in 2007–2008.

The ratio between the external financing (cash and in-kind) and amount received from the NCE clearly shows that the networks have rapidly been able to leverage significant: indeed, ongoing networks leveraged \$1.11 per dollar received from the NCE in 2006–07, and this ration increased to \$1.64 per NCE dollar in 2007–08 (Table 8). Even non-renewed networks received \$0.58 per NCE dollar in their first year. The importance of partners' cash and in-kind contribution to the networks is an indication of their cost-effectiveness.

Table 8 Resources obtained by renewed and non-renewed networks, 2006–2008

Source of funds	Renewed networks		Non-renewed networks	
	2006-2007	2007-2008	2006-2007	2007-2008
NCE funds	\$1,872,261	\$2,151,561	\$1,186,375	\$1,139,426
Leveraged funds	\$2,073,764	\$3,529,178	\$690,470	-
Ratio Leveraged /NCE	1.11	1.64	0.58	n.a.

Note: Leveraged funds include both cash and in-kind contributions.

Source: Compiled by Science-Metrix from NCE Statistical Tables (2006–07 and 2007–08); NCE Statements of accounts (2006–07 and 2007–08)

Table 9 shows that ongoing networks have allocated the largest portion of their resources to their activities (approximately 60% on average), of which NCE funds represent less than 20%. Nonetheless, data also show that ongoing networks have needed to allocate an increasing proportion of their resources to operations between their first and second year (from 33% to 41%). This increase has been made possible through use of an increasing amount of network partners' in-kind contributions; these contributions were generally received from academic institutions.

In 2006–07, the non-renewed NCE–NI networks had fewer external resources than the ongoing networks, i.e. most of their resources came from the NCE grant, and they mostly devoted their resources to operations rather than to support their activities. This situation continued in 2007–08. Moreover, in the first year, the non-renewed networks used a higher proportion of external resources for network operations, on average, than did ongoing networks (e.g., for salaries of managers and administrative staff). Unfortunately, because of incomplete data, external cash and in-kind contributions could not be computed for 2007–08, although both EDGE and CDRN representatives indicated that external resources were obtained at that time.

The leveraged contributions reported by the new initiative do not take into account the research funds obtained by some of the networks. For example, PREVNet representatives stated that “various workgroups have come together to write research grants”, while NICE representatives reported having “raised 1.3 million dollars in research funding in the last year” (2008). But leveraging takes time, and networks need to have “something to show for what they've done” before being successful. The networks were not yet at their full capacity in terms of being able to leverage research dollars and to become “real entities in terms of research”.

Table 9 Resources for renewed and non-renewed NCE–NI networks, by source and allocation, reported as yearly averages, 2006–08

		Renewed networks		Non-renewed networks	
		2006–07	2007–08	2006–07	2007–08
Network Resources by Source					
From NCE*	Balance of NCE grant from previous year	\$584,749	\$879,073	\$386,375	\$739,426
	NCE current year grant	\$1,287,512	\$1,272,488	\$800,000	\$400,000
	Total NCE funds	\$1,872,261	\$2,151,561	\$1,186,375	\$1,139,426
	Total NCE funds (%)	47%	38%	63%	100%
From Partners**	In-kind contributions***	\$465,500	\$2,539,696	\$503,511	-
	Cash contributions	\$1,608,264	\$989,482	\$186,959	-
	Total non-NCE funds	\$2,073,764	\$3,529,178	\$690,470	-
	Total non-NCE funds (%)	53%	62%	37%	-
	TOTAL Resources	\$3,946,025	\$5,621,339	\$1,876,846	\$1,139,426
Network Resource Allocation					
Operations	NCE Funds*	\$664,080	\$665,761	\$302,226	\$489,134
	Non NCE Funds (In-Kind)**	\$358,700	\$1,236,315	\$495,390	n.a
	Total Operations	\$1,022,780	\$1,902,076	\$797,617	\$489,134
	Total Operations/Total Allocated (%)	33%	48%	70%	48%
	Operations (% from NCE)	65%	35%	38%	100%
Activities	NCE Funds*	\$329,143	\$499,836	\$144,723	\$524,000
	In-kind contributions**	\$106,800	\$1,303,381	\$8,121	n.a
	Cash contributions**	\$1,608,264	\$989,482	\$186,959	n.a
	Total Network Activities	\$2,044,207	\$2,792,699	\$339,803	\$524,000
	Total Activities/Total Allocated (%)	67%	59%	30%	52%
	Activities (% from NCE)	16%	18%	43%	100%
	TOTAL Resources Allocated	\$3,066,987	\$4,694,775	\$1,137,420	\$1,013,134

Note: Expenses from partners' cash contributions were not detailed in the networks' statistical tables so the terms "Resource Allocation" or "Total Allocated" are used to indicate how network resources (both NCE and non-NCE) were meant to be allocated; external cash contributions were considered to be allocated to "Activities", as was an in-kind contribution of 750,000\$ from Abbott to CON in 2007-08.

Sources: * NCE–I Statements of Accounts (2006–07 and 2007–08)

** NCE Statistical Tables 2006–07 /2007–08 for ongoing networks; NCE Statistical Tables 2006–07 for non-renewed networks; EDGE Final Report.

Network costs relative to quantified outputs (value for money)

The above data provides the context in which to understand how networks allocated their resources, i.e., how network costs were distributed. In this section, these costs are compared to network outputs, to provide an indication of the cost-effectiveness of the networks.

First, it should be noted that the networks' cost-effectiveness was acknowledged by every stakeholder interviewed: all of them believed that the new initiatives provided value for money. For example, one network

partner stated that the network itself represented “very good value for money”, although reducing the administrative burden would improve the networks’ overall cost-effectiveness.

“[The network’s] value has completely outstripped our expectations, and many times over.”

“I believe it provides more value for money than most of the other initiatives that I can think of...The new initiatives have been tremendously successful with an amount of money provided to them, which is frankly less than an operating grant from CIHR.”

Second, the network costs presented in Table 10 relative to quantified “outputs” show that the number of partnerships that have been fostered by the networks and the students involved in network activities is considerable. Moreover, the number of workshops and conferences organized by the networks, as well as an (incomplete) selection of tools created through the network is impressive when compared to the total amount allocated to these activities. Indeed, on average, the new initiatives developed partnerships with more than 70 organizations across a variety of sectors; they have involved hundreds of graduate students and held a significant number of workshops and conferences on a regular basis. Most networks were also able to concretely transfer knowledge by developing practical tools, including books, policy reports, brochures, guidelines, databases, etc.

Note that quantifying the outputs of the new initiatives proved to be challenging; thus Table 10 only presents a limited selection of these, and certainly underestimates the events and knowledge transfer materials that derived from the new initiatives. Among the limitations, a number of workshops may have been held during network-organized summits and therefore were not counted as individual workshops. In addition, certain workshops held at various conferences across Canada which provided insight for the development of their respective tools and resources were not listed by the networks and thus could not be counted.

Table 10 NCE–NI networks resources and outputs, 2006–2008

Resources and outputs	Renewed networks	Non-renewed networks*
Total NCE funds (up to March 2008)	\$4,023,822	\$2,325,801
External resources (leveraging)	\$5,602,942	\$690,470
Total amount allocated to network activities	\$4,836,906	\$863,803
Total number of partnerships	219	151
Total number of students**	348	535
<i>Master’s students</i>	170	424
<i>Doctoral students</i>	180	111
Selection of outputs***	70	34
<i>Workshops</i>	15	18
<i>Conferences</i>	19	6
<i>Tools****</i>	38	10

Notes: * Reliable data for EDGE and CDRN was available for 2006–07 only.

** CDRN data on student involvement may not be comparable to that of other networks.

*** Based on data available to the evaluation team

**** Number of tools is an estimate only; includes books, policy reports, brochures, guidelines, databases, etc.

Source: Compiled by Science-Metrix from NCE Statistical Tables (2006–07 and 2007–08); Statements of accounts (2006–07 and 2007–08); NCE–NI Reports on Activities, 2008 (ongoing networks)

Considering the views of network stakeholders (both network representatives and partners), as well as the list of selected outputs provided in Table 10, not to mention the short-term and potential long-term outcomes, impacts, and benefits, discussed in previous sections (e.g., under question 2 and 3), this evaluation concludes that the new initiatives have provided a high level of value for money.

Note that, in view of the significant contribution made by students (including undergraduate, graduate and post-doctoral fellows) to the overall success of the networks, some executives suggested that the NCE–NI pilot should have offered more flexibility in the payment of students for administrative support work or project work. Broader involvement of students in all aspects of the networks could positively influence the cost-effectiveness of networks.

“Another way that we’ve tried to keep the organization moving forward with a research focus and support the people who are working for it is to redirect some of the funds that we might get ourselves for doing presentations or consultations and instead engage graduate students in projects. We can’t fund graduate students, so we’re very restricted in what we can do.”

“Looking at the students and how they get things done, it’s an example of how little money you need to grow a network of students. I don’t know if it’s possible to do with established researchers, but we’ve given the students minimal amounts of money. They’ve just had to be very creative. They have this ability to think beyond the money that they have available to them.”

The comparative analysis was hindered by the fact that only limited data was available relative to the actual revenues and expenses of SKCs during their first two years of activity. Accordingly, the forecasted value of leveraged funds and the proposed budget allocations found in the original proposals of the three representative clusters were used to assess the sources of financial support and types of expenditures by SKCs. Note, however, that this likely underestimates the total amounts leveraged by the three SKCs examined from external sources; indeed, the cluster director interviewed mentioned the funds that had been received by various partners, which, in one case, exceeded the amount needed for a specific activity.

Based on the grant proposals, the largest share of SKC funding came from the SSHRC grant. On average, clusters expected to raise a total of approximately \$480,000 in cash and in-kind contributions from SSHRC and their partners during their first year. Keeping in mind that SSHRC awarded \$300,000 per year to SKCs, the share of cluster funding provided by partners was 37%. This value is comparable to what non-renewed NCE–NI networks obtained during their first complete year of activity but far below of what ongoing networks have achieved, in their first year. No information is available to verify whether these forecasts were accurate or whether SKCs were able to subsequently reduce their reliance on non-SSHRC funding.

Based on the budget justifications found in the original proposals, the projected yearly expenditures were allocated to either one of the two types of spending: to support operations or to support activities. Overall, all three clusters expected to spend between 46% and 50% of the SSHRC grant on operations, and planned to allocate a similar proportion of their leveraged funds to operations (i.e., 45%). Again, this distribution of funds in a greater proportion to operations resembles the resource allocations reported by non-renewed NCE–NI networks.

While it is too early to comment on the cost-effectiveness of SKCs, there are initial indications that clusters will soon be able to demonstrate that they are providing value for money. For example, two out of the three clusters examined had yearly external commitments for cash or in-kind contributions superior to \$150,000 or more than half the value of their grant. Moreover, in their first 17 months of activity, each cluster has turned out an average of 20 outputs, including conferences, workshops, and tools.

Network costs relative to leveraged funds (external contributions): NCE–NI vs. NCE (cost-effectiveness)

In addition to the impact story examined as part of the case studies and the quantitative analysis of outputs, the comparison of external fund leveraging between NCE–NIs and NCEs provides strong evidence that the NCE–NI pilot was delivered cost-effectively, both from the perspective of the funded initiatives and of the pilot. In fact, the NCE–NIs were more successful in leveraging external contributions¹⁵ (in-cash and in kind contributions) compared to the NCEs. More specifically, over their first two years (2006–07 and 2007–08), the external contributions leveraged by ongoing NCE–NI networks, calculated as a proportion of their total NCE–NI funding, was nearly twice as much as that of the NCEs:

- Ratio NCE leveraging/NCE budget (average of 2006–07 and 2007–08): 71.5%
- Ratio NCE–NI leveraging/NCE–NI budget (average of 2006–07 and 2007–08): 134% (160% for the second year alone)

Table 11 Budget and external contributions of the NCE–NI networks and of all NCE programs, 2006–07 and 2007–08 (in million \$)

	2006–07	2007–08
Total budget of all NCE programs (with ongoing NCE–NI)* (A)	79.5	79.5
Funding of NCE–NI program* (B)	2.6	2.1
Ratio NCE–NI Budget /Total NCE Budget ((B /A)*100)	3.3%	2.6%
Total external contributions of all NCE programs (C)	59.136	57.449
External cash contributions of all NCE programs* (E)	33.464	32.991
External in-kind contributions of all NCE programs* (F)	25.672	24.458
Total external contributions of NCE–NIs** (D)	2.8	3.5
External cash contributions of NCE–NIs** (G)	1.8	1.0
External in-kind contributions of NCE–NIs** (H)	1.0	2.5
Ratio External Contributions of NCE–NIs /External Contributions of NCEs ((D /C) * 100)	4.7%	6.1%
% Leveraged cash from all NCE programs, by NCE–NIs ((G/E)*100)	5.4%	3.0%
% Leveraged in-kind from all NCE programs, by NCE–NIs ((H/F)*100)	3.8%	10.4%
NCEs External Contributions /NCEs Budget*** ((C-D) / (A-B)) * 100)	73.3%	69.7%
NCE–NIs External Contributions /NCE–NIs Budget (D /B) * 100	106.8%	168.1%

Notes/Sources: *NCE Annual Reports (2006–07; 2007–08). All numbers presented are in million \$CAN. In addition to their first year funding, the NCE–NIs received another half-year of funding to cover the 2005–06 period, totalling \$1,000,000. This amount was divided in two and added to the 2006–07 and the 2007–08 totals.

** From NCE Statistical Tables (2006–07 and 2007–08) produced by NCE–NI networks

*** All NCE programs minus the NCE–NIs

In 2007–08, the NCE–NIs leveraged 6.1% of the total funds leveraged by all NCE Secretariat programs as a whole (i.e., including both the full NCEs and the NCE–NIs), whereas they represent only 2.6% of the entire

¹⁵ NCE–NI external leveraging not include research funds obtained by members (researchers)

NCE budget. This performance is mainly attributable to the involvement of NCE–NI partners, which provided in-kind contributions:

- Share of total NCE programs cash leveraging obtained by NCE–NIs (2007–08): 3.0%
- Share of total NCE programs in-kind leveraging obtained by NCE–NIs (2007–08): 10.4%

Using leveraging as a proxy indicator of networking and knowledge transfer, this finding suggests very good performance by the NCE–NI pilot in this regard. This finding is all the more significant because, unlike the full NCEs, the external contributions leveraged the NCE–NI do not generally include research funds obtained by members. Putting networking and knowledge transfer before research has proven to be cost-effective and beneficial both for researchers and receptor communities (i.e., several respondents indicated that this led to research agenda that was better aligned with the needs of receptor communities).

Satisfaction of the stakeholders on the delivery of the NCE-NI pilot

Overall, most of the representatives of ongoing network interviewed (70%) stated that they were satisfied or very satisfied with the NCE–NI pilot. Understandably, because of the tremendous efforts that were invested in building each of the NIs and the outcomes achieved thus far, all informants lamented the abrupt ending of the pilot.

“It’s been an amazing mechanism and something that has pushed our own development and that of the researchers. It has also expanded the capacity of our partners and started to change Canada”

“To have run this network has been the absolute best thing that I’ve done in my career...the irony is that I’m now going to say I’m very satisfied. I think it’s a good program; it’s just too bad that it’s a drop-dead program.”

Adjustments/improvement suggested for the NCE-NI pilot

As mentioned under question 5, concerns by network stakeholders were raised about key elements of the NCE–NI pilot design and delivery which may have posed a challenge to the success of the new initiatives. Thus, this section summarizes the suggestions for the adjustment of the pilot will provide, such as pilot delivery, governance and management requirements, and reporting requirements, which is based primarily on the interviews realized with the network representatives. Furthermore, the views of the network representatives on the adequacy of a number of pilot delivery aspects are also reported here, more specifically on the follow elements: pilot objectives, application process, funding amount and length and support provided by the NCE secretariat. Note that, of these four aspects, only the funding length was reported as an element needing adjustment; more precisely, the amount of funding available through the NCE–NI pilot is adequate but four years is too short to demonstrate any real impact and especially to become a sustainable organization.

NCE-NI Pilot objectives and expectations

The pilot objective and expectations were judged as adequate by 7 out of 10 interviewees, who generally felt that it “makes a lot of sense” to have an initiative that focuses on networking. However, some informants (including some internal key informants) felt that some implicit expectations that should have been more clearly articulated by the NCE pilot, such as the emphasis on the partnerships and knowledge transfer between researchers and non-academic partners *more than between researchers*. As a result, some researchers reportedly had misconceptions about the aims of the pilot and how it would impact their research.

Application process (i.e., clarity of instructions and amount of information requested)

Most interviewees (75%) found that the clarity of instructions was adequate but a smaller proportion (57%) thought that the amount of information requested was adequate. Those who were not satisfied indicated that

too much information had been requested (one even stated that “I have never had so much paperwork for a grant in my entire life”). For funding of the magnitude of that offered by the NCE–NI pilot, a smaller application would probably be more adequate rather than something that resembles an application for a major NCE.

Funding (amount and length)

In general, the interviewees found that they were able to achieve a lot with the amount of funding available; in fact, 80% deemed it adequate. However, most (70%) felt that the funding length was too short. Even one or two additional years of funding would help demonstrate the impacts of the networks, whereas a total of six to eight years was said to be ideal.

“The short timeline of funding means that you have to be very opportunistic and less strategic in the initiatives that you do because you only have a limited amount of time to demonstrate that you are doing something.”

The main risk associated with the end of the funding of the new initiatives after only four years is that all that was accomplished will likely be lost:

“There is a risk now with the sudden ending of NCE–NI networks that they will just disappear and that all of the work that has been done in the last four years and all of the funding that went into that work will just dissipate.”

Furthermore, as will be explained below, the perceived limit of \$150,000 per year that can be expended from NCE funds on network personnel was considered a significant hindrance by several network representatives, as it only paid for the network manager and another person in charge of the administration. As reported in the interviews, there could have been more flexibility in how to spend the NCE grant money, as in some cases several of the networks’ key positions could only be financed through non-NCE funds.

Governance and management requirements

Two aspects of the networks’ governance were required by the NCE–NI pilot: the Board of Directors and an NCE representative as an observing (i.e., non-voting) member of the board. Networks also had to comply with one management requirement: to employ a full-time Network Manager. The interviews conducted with network stakeholders provided evidence that the Board and the Network Manager provided positive inputs to the networks in general, and were probably adequate requirements. Nevertheless, stakeholders were not unanimously satisfied, questioning the format/size of the board, and requesting more clarity regarding the role of the NCE representative.

Board of Directors: The interviewees were divided about the adequacy of being required to constitute a Board of Directors (60% adequate, 40% inadequate). In general, respondents understood the value of having a Board of Directors to advise on network activities and strategic goals, and thought that individual Board members often played valuable roles for the networks (e.g., “multipliers”). However, some network representatives considered that it was time-consuming to constitute the Board and to have meetings on a regular basis. Several interviewees also questioned the requirement to have the members of the Board settled as soon as the proposal phase. More frequent was the comment that the governance structure of the NCE–NI networks should be proportional to the size and budget of the organization. In this regard, some network representatives suggest that the Board should be replaced by an Advisory Committee. If the new initiatives were to eventually become full NCEs then having a Board of Directors in place might be very important, but if there is no opportunity to advance towards a full NCE then a formal Board becomes another bureaucratic burden that draws network resources away from designing and implementing network activities.

Network Manager: Overall, the role of the Network Manager is key to the networks' success and was considered an appropriate requirement by most interviewees (60%). Networks such as these need to have a competent Network Manager to run the day-to-day operations of the network, including financial planning, record-keeping, reporting, liaison with members, etc. One network representative even considered the Network Manager to be the “inner wheel of the organization”. However, finding an ideal candidate—i.e., one who has the necessary content expertise and who can perform the many tasks required—is a challenge and so one scientific director suggested distributing the Network Manager's tasks between a small number of people. In many cases, networks created additional administrative positions to manage and support the network in important tasks, such as partnership management and development, communications and stakeholder relations.

NCE representative: Half of the interviews rated the requirement to have an NCE representative on the Board of Directors as adequate; 40% judged this requirement to be inadequate, and one person was indifferent. For many, it is not clear what the role of the NCE representative on the Board was supposed to be, other than to answer questions from the Board about the pilot. The nature of the relationship developed by the NCE representative with the network varied from “unclear and not terribly helpful” to “a dream; we loved [the NCE representative]”. At least one interviewee suggested that the representative could be more proactive and another stated that there was no real contribution of this individual to the Board.

Reporting requirements

The NCE Secretariat required funded networks to provide yearly data on a series of indicators, to present their achievements regarding the five pilot objectives during a mid-term review (mid-term report due in May 2007, review conducted in June 2007), and to submit a report on their activities to the NCE (autumn 2008). In general, reporting requirements were perceived as necessary but several respondents considered them to be disconnected from the networks' reality. In particular, the timing of the mid-term review was heavily criticized, and the reporting requirements in general were found to be far too demanding in terms of the available time and resources, if the networks wanted to respond to them adequately.

Reports (content and amount of information requested, timing): The annual reports and other reporting requirements were understood to be necessary but their frequency and the amount of information required were thought to be excessive given the level of funding that is allocated by the pilot. The opinion of interviewees was equally divided between the content and amount of information requested in the reports, i.e., 50% saw these as adequate and 50% judged them being inadequate. Those who considered that these requirements were burdensome usually pointed to the fact that compiling all the information is time-intensive and, as such, a poor use of limited staff and financial resources which had to be diverted from network activities. The interviewees also provided negative comments on the timing of the report on activities (60% felt it was inadequate). Specific comments were collected on the fact that multiple reports were requested within the same year (i.e., for the mid-term review and annual reports), that there was duplication of reporting requirements. Overall, given grant size and length, the reporting requirements were too important, especially when this money spent has no specific return for the network:

“Much of our effort was spent on reporting instead of facilitating, and the cost to the network of that reporting was a significant fraction of the grant.”

Requested indicators: Key informants from networks were generally ambivalent towards the four requested indicators. While some felt the group of indicators was adequate to track progress, others have expressed scepticism and criticism toward specific indicators. Some of these criticisms were operational in nature, such as the instructions on which type of information to include/count not being clear or specific enough, and the

required level of detail being unnecessarily high and difficult to collect. However, others (including one internal key informant) disapproved of the indicators because they felt they were “simplistic” and not well adapted to initiatives that are solely devoted to networking and knowledge mobilization. In other words, these indicators did not fully or meaningfully capture the types of outputs and outcomes that will be generated by the new initiatives.

“To me, it seemed that they had taken a lot of the reporting formats for the full networks and tried to shoehorn the new initiatives into them without recognizing the difference.”

Several informants thus suggested that the indicators focused too much on the quantitative aspects, when they should have placed more emphasis on the reach, knowledge uptake and value/benefits of the knowledge mobilization activities.

“Counting numbers made little sense here. It isn't in the numbers. One can do a cynical game of padding numbers very easily. It's the quality of the connections.”

“We can show that we started with a few students and we now have over 900, but that doesn't tell you the impact we've had on these people”.

“For knowledge transfer, there was no clarification regarding the value of different knowledge transfer activities. They just wanted a list of them.”

Most new initiatives did not formally collect data on indicators other than the ones required by NCE–NI management. However, some networks have developed and tracked alternative indicators to better reflect the value of their initiatives and track whether the anticipated changes from bringing science into practice occurred.

Mid-term review (timing, requirements and feedback): The mid-term review was heavily criticised by almost all interviewees, and 90% of network representatives found its timing to be inadequate. The review was not performed “mid-term” but several months earlier, approximately two months after the first year-end review. The written requirements for the review were moderately clear and deemed adequate by only half (50%) of those interviewed. However, in view of the fact that most of the information had been supplied in the year-end review, it was felt that this contributed to the reviewing process being too resource-intensive. Based on evidence cited by several interviewees and on the assessment of documents and files regarding the mid-term review, the timing and format of this mid-term review was inadequate, especially when considering the consequences it had on the two new initiatives (i.e., the non-renewed networks). In particular, as explained below, the mid-term review was conducted several months before the actual mid-point of the funding cycle, and approximately only two months after the first year-end review.

The short timeline prevented some networks to demonstrate what their initiative had achieved, in terms of external resources leveraged, outputs and immediate outcomes. One internal key informant noted that non-renewed networks would have benefited from being reviewed 8-9 month later, especially as people need time to acclimatise to the management and organisation of such complex and large networks.

“This year we are starting to see results, after 3 years... But trying to measure those things at the mid-term review, which came a year and a half after our mandate, was a bit difficult”.

Interviewees were also generally dissatisfied with the mid-term review feedback, with 67% judging it to be inadequate. Even networks who received generally good comments were surprised at comments that seemed to contradict what the funding was designed to support, and what the networks had outlined in their proposals. Many respondents felt that too few members of the mid-term expert panel were able to understand and

appreciate the networks' accomplishments and value, particularly as a small number of experts from the networks' respective field were included on the panel. Therefore, the questions and comments made by the committee were sometimes seen as irrelevant.

Overall level of support provided by the NCE secretariat

In general, the NCE secretariat was considered helpful in responding to specific questions and information requests from the networks. However, there was substantial variability among the support provided by pilot managers, officers and staff; given that the NCE–NI initiative was a pilot, the secretariat also did not always have all the answers. Six of the ten interviewees felt that the support provided was adequate. However, some respondents said that it seemed as though the NCE had created the NCE–NI pilot without assessing how the pilot could best be managed internally; more specifically, given the discrepancy in the amount of funding for NIs and full NCEs, it is a massive burden for the NI networks to have to report and to be evaluated in the same manner as regular NCEs.

The value of good management and pilot delivery has been singled out as an important lesson learned by internal key informants (i.e., NCE management and representatives from the three granting agencies). One internal key informant agreed with the view expressed by a network representative from one of the non-renewed networks, in that the networks would have needed more support from the NCE prior to the mid-term review. Several informants felt that a closer management approach is needed on the part of NCE–NI staff, particularly in communicating problem areas to existing networks. A striking example of a probable miscommunication concerns the amount of the total amount of NCE funds that the networks could allocate to staff salaries and human resources. Representatives from four of the five networks reported that a \$150,000/year “cap”¹⁶ has been imposed on the amount networks could spend on staff. Consequently, the networks often find themselves struggling to effectively all of the administrative tasks required for network function, not to mention activities such as stakeholder management, sustainability planning, leveraging external funds, etc. Some networks have thus increased their reliance on students and other volunteers to cover these tasks; the contribution of these volunteers is appreciated by the networks, but the fact remains that volunteers cannot provide the same level of time and effort as staff, resulting in delays in completing some tasks. However, NCE program managers consulted during the evaluation indicated that the only “cap” that applied to network salaries related to the total income of Scientific Directors that could be provided by federal sources.¹⁷ If this is indeed a case of a miscommunication between the NCE Secretariat and network representatives, this issue should be clarified as soon as possible with ongoing networks, so that it no longer acts as a hindrance to their success. On the other hand, if a \$150,000 limit on human resources is indeed imposed by the NCE Secretariat, it should be stated clearly in the pilot guide, and this limit should be re-examined to assess whether it should be modified to better suit the needs of ongoing networks.

Finally, representatives from the SKCs also expressed a desire for more support from their granting agency, particularly in the case of cluster directors who have less experience in administering sizeable grants, in managing or working with partners, or in facilitating knowledge mobilization.

¹⁶ The representatives of one of these four networks did not report the “cap” was set at \$150,000/year but clearly stated that they believed that only a certain percentage could be spent on staff.

¹⁷ NCE-Network Program Guide, “Scientific Director Salary Policy”, http://www.nce.gc.ca/comp/NCE2009/network_Prog_reseaux_e.htm#ss (Accessed July 2009)

“It would have been great for SSHRC to be closer to us and connecting us with other clusters to share experiences. I think they provided good support; our questions were answered immediately. But we would have like to have more support on the managerial side. We were full of ideas. We were ready to be closely involved with them.”

3.3 Relevance

3.3.1 Are the program’s mandate, objectives, and activities consistent with the priorities of the current government’s Science and Technology Strategy? [Question 7.]

Not entirely. While the overall NCE–NI objectives on knowledge mobilization and transfer are by and large compatible with the current S&T strategy and are aligned with the priorities of the three granting agencies, some inconsistencies exist between the NCE–NI pilot’s mandate and objectives and the current government’s S&T Strategy. More specifically, the implementation of the current S&T sub-priorities limited the opportunities and thus hindered the success of the ongoing NCE–NIs, and by extension, probably limited the overall success of the NCE–NI pilot.

Alignment of NCE objectives with government priorities

Evidence from the document and file review suggest that overall NCE objectives with respect to knowledge mobilization and transfer are by and large compatible with the current government’s S&T strategy¹⁸ and are aligned with the priorities of the three granting agencies. Accordingly, the 2007-2008 Reports on Plans and Priorities (CIHR, NSERC and SSHRC) identify the NCE as a program activity that supports knowledge mobilization,¹⁹ knowledge translation,²⁰ and innovation.²¹

In 2008, Industry Canada accepted the S&T Strategy sub-priorities recommended by the Science, Technology and Innovation Council. In total, 4 priority areas and 13 sub-priorities were recommended and accepted:²²

- **S&T priority: Environmental science and technologies**
Sub-priorities: Water (health, energy, security); cleaner methods of extracting, processing and using hydrocarbon fuels, including reduced consumption of these fuels
- **S&T priority: Natural resources and energy**
Sub-priorities: Energy production in the oil sands; Arctic (resource production, climate change adaptation, monitoring); biofuels, fuel cells and nuclear energy
- **S&T priority: Health and related life sciences and technologies**
Sub-priorities: Regenerative medicine; neuroscience; health in an aging population; biomedical engineering and medical technologies
- **S&T priority: Information and communications technologies**
Sub-priorities: New media, animation and games; wireless networks and services; broadband networks; telecom equipment

¹⁸ Industry Canada, Mobilizing Science and Technology to Canada's Advantage, Ottawa, May 2007

¹⁹ Social Sciences and Humanities Research Council (SSHRC) Departmental Performance Report, 2007-08

²⁰ Canadian Institutes of Health Research (CIHR) Departmental Performance Report, 2007-2008

²¹ Natural Sciences and Engineering Research Council (NSERC) Departmental Performance Report, 2007-08

²² Industry Canada, Minister of Industry Accepts S&T Strategy's Sub-Priorities Recommended by the Science, Technology and Innovation Council, Ottawa, September 2, 2008.

In response to the current S&T strategy, design and implementation changes were made to the NCE portfolio in 2007 to support the operation of new Centres of Excellence that are specifically oriented toward business, commercialization and industry alliances. In the most recent NCE competition, the NCE Secretariat implemented the S&T strategy by requiring that applications should be consistent with the S&T priorities and sub-priorities. Ultimately, “[i]t is anticipated that three to four networks may be funded and begin operations in 2009” and a maximum of one NCE would be selected and funded by priority.²³

Alignment of the NCE–NI pilot with government priorities

While the documents reviewed with regard to government and department priorities do not refer to the NCE–NI pilot specifically, some evidence of inconsistencies between the NCE–NI pilot’s mandate and objectives, and the current government’s S&T Strategy were found. At its inception, the pilot was to be open to all research areas. The NCE Steering Committee made its decision as to which new initiatives to support based on the recommendations of the Selection Committee and 1) the amount of funding available; 2) the broad areas already represented in the ongoing networks; and 3) the need to promote or develop specific areas in accordance with national needs. Also, the rationale of the pilot was to foster the establishment of research networks in areas where networking was not established – more specifically, in areas in the social sciences and humanities (SSH). However, the current S&T Strategy and related sub-priorities mainly focus on applied research and technology-driven areas that are more relevant to the natural, engineering, medical and information technology areas. Thus, in terms of alignment with the current S&T strategy priorities and sub-priorities, the proposal to support the social sciences and other related areas is likely to be hindered and even not workable.

The implementation of the current S&T sub-priorities by the NCE also limited the opportunities and thus hindered the success of the ongoing NCE–NIs, and by extension, probably limited the success of the NCE–NI pilot. As mentioned earlier, only NICE applied to the most recent NCE competition, under the sub-priority “health in an aging population”. As CON’s current strategic orientations are not fully aligned with the sub-priorities under “Health and related life sciences and technologies”, the network decided not to submit an application in order to remain consistent with the new priorities, the strategic direction and their partners’ and stakeholders’ needs. The main issues of interest of PREVNet, CDRN and EDGE are violence prevention, design, and emerging global economies, which are not represented by the sub-priorities.

Furthermore, the current S&T strategy will certainly reduce the ability of the pilot to respond to the needs of researchers and receptor communities in the social sciences areas and other interdisciplinary areas in which one or more key strategic orientations are not aligned with the new sub-priorities. The counterfactual analysis of the 42 applications submitted to the NCE–NI pilot (5 funded and 37 unfunded) provided evidence that 1) SSH was the most important field of focus among applicants to the NCE–NI pilot as well as of funded applicants and 2) that networks with potential social impacts were prioritized by the selection process (see Methodology Appendix).

Therefore, the objectives and underlying rationale of the pilot, i.e., to support networking and knowledge transfer more particularly in the SSH, are likely to be inconsistent with current government and NCE priorities, especially if the pilot is continued in the future. In addition, the purpose of the pilot of preparing and

²³ NCE, 2009 Competition for New NCE Networks, http://www.nce.gc.ca/comp/NCE2009/LOI-2009_e.htm. (Accessed July, 2009)

positioning new initiatives to become full NCEs was constrained by the implementation of the current S&T strategy.

Opinion of stakeholders on the alignment of the NCE-NI pilot with government priorities

Not surprisingly, the network representatives interviewed as part of this evaluation support the findings from the document review. Network representatives judged that the rationale and objectives of the NCE–NI pilot are not consistent with priorities of the current government’s S&T Strategy.

“Frankly, given that the NI initiative was designed to help more social science programs become full NCEs, to have this call [on changes to the 2009 NCE competition] blow us out of the water is a failure of the program. At the end of the day, they created an NCE competition that limited the number of social science networks that could go in.”

“Regarding the alignment of the initiative with government priorities, the government has not identified [our network’s issue] as a significant priority. I think the social sciences in general are underrepresented in these priorities. If they are represented, it’s all about commercialization and business, and that represents a very small proportion of individuals who would apply.”

“The new settings, the new priority areas, are entirely science- and technology-focused. It would have been better if somebody who’d had a major role in a [traditional] NCE were to have led an NCE–NI.”

Interestingly, in the case of a transition from NI to NCE, the current S&T sub-priorities areas are likely to limit the diversity of stakeholders and the level of interdisciplinary currently observed in the ongoing NIs.

“We were seriously considering [apply to the 2009 NCE competition], but the full NCE priority areas that were in the request for application (RFA) were not something that [our network] in its current form could have applied for because of the strategic orientation of the network. It was clear that if we were successful, that would be the end of the network ... there are people who [work on sub-priority areas] in the network, but not everybody in the network does ... but there would have been a large proportion of stakeholders and researchers in the network who would not have been represented in any of those strategic areas. If we would have become a full NCE, we would have lost those people.”

3.3.2 To what extent are the initiative objectives adapted to the needs of researchers and of receptor communities? [Question 8.]

To a great extent. Not only were the initial pilot objectives adapted to and answered the needs of both researchers and of receptor communities, but funded networks achieved tremendous levels of networking and of knowledge transfer (KT) outputs in a relatively short period of time. This is supported by the comparative analysis suggests with SSHRC’s SKC program, which indicates that NCE–NI pilot is likely to be more effective than the SKC program with respect to networking and knowledge transfer with various receptor communities through multidisciplinary, multi-sectoral and national-wide collaborations. Finally, a comparison with other Canadian funding programs suggest that the NCE–NI pilot is uniquely positioned in Canada to support the development of networking and knowledge transfer infrastructure that involve multidisciplinary, multi-sectoral and national-wide collaborations, albeit for a shorter timeframe than other large-scale network-orientate programs examined.

Underlying rationale for NCE-NI pilot design

The NCE–NI pilot was designed to respond to the needs of two main groups: researchers and receptor communities. In particular, the initiative sought to address the under-representation of SSH in the NCE application process by funding and positioning new initiatives in NCE competitions. Indeed, a number of internal informants stressed the fact that the NCE–NI pilot was conceived as a way to explore, in a cost-

effective manner, alternative approaches to funding networks that are more amenable to the way social sciences work. As such, while the pilot intended to emphasize and benefit pilot partners in all fields and sectors, the underlying thrust of the initiative appeared to come from the understanding that the SSH were historically disadvantaged with respect to network participation, perhaps due to the way that the community is structured. Informants largely felt that this under-representation of SSH research was one of the important (though officially unstated) needs that was addressed by the pilot. Incidentally, this may have resulted in a reverse phenomenon—i.e., the NSE are not as well represented in the NCE–NIs, especially when compared to traditional NCE programs, as only 26% of the 42 unfunded applicants were classified as being in the NSE, compared to 31% for Health, and 43% in the SSH.

According to network stakeholders, it is felt that the NCE–NI pilot's focus on greater interdisciplinarity will ultimately help SSH researchers compete more successfully for full NCE awards. Speaking about SSH-focused networks, one informant noted that “one of the aims of the NCE–NI pilot was to help researchers be ‘ready’” for competitions and to allow them to eventually “grow into the NCE program.” Whether intended or not, the initiative has compensated for some of the SSH community's unmet needs in terms of development of linkages and knowledge transfer mechanisms.

Multiple lines of evidence examined in this evaluation support the conclusion that the initial initiative objectives were adapted to and answered the needs of both researchers and of receptor communities. As such, funded networks achieved tremendous levels of networking and of knowledge transfer outputs in a relatively short period of time. Moreover, ongoing networks are planning to expand because of the current momentum with their partners and their stakeholders' ongoing needs. The fact the pilot's mandate was entirely focused on knowledge transfer (which excluded the mandate of funding research) generally led to a shared understanding on the role of funded network both for the research and receptor communities' perspectives, particularly among ongoing networks. As will be discussed below, however, some confusion arose as a result of the underlying rationale to prepare networks for the NCE program (which provides significant levels of funding for research).

Opinion of networks representatives

The network representatives generally judged that the NCE–NI pilot objectives relating to networking and knowledge transfer fully responded to the needs of researchers and receptor communities. However, most of interviewees identified that the main flaws in the objectives of the pilot are:

- 1) Changes in the NCE pilot made to ensure alignment with S&T priorities consequently invalidated the purpose of the pilot, as this prevented new initiatives from applying to the NCE program;
- 2) New initiatives were informed only recently that they would not be eligible to apply for the NCE competition;
- 3) Lack of support provided to new initiatives by the NCE for the transition period, especially considering that the changes presented in 1) and 2) impacted on the ability and time available for ongoing networks to prepare an adequate sustainability plan; and
- 4) Lack of clarity on the ultimate purpose (or change in purpose) of the pilot, i.e., whether it aims to prepare organizations to become a NCE or to prepare them to become knowledge transfer organizations.

Some of the interviewees are of opinion that the fact that no ongoing networks moved forward to a full NCE is a testimony that the design and objectives of the pilot were not adequate, especially in the context of the

changes caused by the new S&T priorities (see also comments discussed under question 4, Added value for sustainability)

“I think the pilot has been excellent in responding to the interests and needs of the receptor communities and preparing organizations in becoming excellent NCEs. However, three organizations are moving forward and there should be the opportunity for at least one of them to become an NCE.”

“The NCE has not supported us through the current transition period. They did not help us to understand that drop-dead funding was in place.”

Opinion of network partners

It was difficult to determine the extent to which the receptor communities of the various networks were aware of the NCE–NI pilot’s design and objectives. Their knowledge is, at best, limited to the Board of Directors and the interactions arising from that. However, given that caveat, some of those interviewed made some valid observations in relation to the design and objective of the pilot. Essentially, all partners agreed that an initiative such as the NCE–NI was very important, as they considered that it responded to a crucial need for networking and knowledge transfer between researchers, receptor communities and other stakeholder groups. Thus, partners were generally in agreement with the objectives of the pilot to promote these types of activities. Several also added that they saw the NCE–NI pilot as a good way of pre-selecting candidates for a full NCE.

The partners of ongoing networks agreed with Scientific Directors and Network Managers that a major flaw in the pilot design was ensuring mechanisms were in place to assist the network to make plans for the future. More specifically, they expressed the view that the pilot should be structured so that networks that have been successful over the course of four years can become full NCEs, be given the opportunity to re-apply to the pilot, or have access to some other source funding to ensure sustainability of the networks.

Opinion of stakeholders on the continued need for the NCE-NI pilot

All network representatives interviewed in the evaluation stated that there is a continued need for the NCE–NI pilot. Interviewees judged it to be important that an initiative from the three granting agencies continue to support ideas in areas that are not traditionally supported. Most of NCE–NI representatives interviewed also thought that other individual knowledge transfer grants would not have allowed them to engage researchers and receptor communities on an equally broad and multidisciplinary perspective, or to the same magnitude. The main reasons stated regarding the continued need for the NCE–NI pilot are the following:

- *“[There is a continued] need to develop new kinds of networks, especially for disciplines that fall between social science and natural sciences or medical sciences.”*
- *“[The program] bridges research and practice in a way that other program or mechanisms do not encourage or facilitate.”*
- *“It promotes collaboration and sharing at a level that just doesn’t occur in other places, both within Canada and internationally.”*
- *“It’s happening at such a broad level... It’s not only the networking, but also the knowledge translation and leveraging of research projects that enhance research capacity.”*
- *“The spin-off effects are so powerful—they’re more powerful than any other grant I’ve ever worked on my life.”*
- *“The uniqueness and innovativeness of this program is its multidisciplinary because it is funded by the Tri Councils.”*
- *“It’s a very valuable program to have because nobody else funds this sort of thing. The main value is that you can bring a lot of people to the table who would not otherwise be talking to each other.”*

However, interviewees expressed concerns about the ultimate goals of the pilot. Again, interviewees are of opinion that the pilot itself needs to be revisited if the opportunity for new initiatives to develop into larger NCEs remains limited. Interviewees also questioned the ability of the NCE to adapt the management of the pilot to non-traditional areas and to non-research focus networks; as mentioned previously, the majority of interviewees indicated that the NCE program management should adjust the level of expectations and adapt the reporting requirements at a level compatible to the size and scope of funded new initiatives.

“Absolutely [a continued need for the pilot]. The original idea we were going into this with was that we would be able to put together a network, a functioning network and that would put us in a better position to go towards putting together one of these full networks. So I think it does have a place because it gives people the opportunity to put together these networks in a better state to go forward for full networks.... And even if they don't go on to become full networks like we haven't—certainly we're upset about that, but at the same time, I think we've had a huge number of successes with what we've done. That wouldn't have existed without the funding anyway. I don't want to close the door on that.”

Two out of the three unfunded applicants interviewed as part of the counterfactual analysis also recognized the continued need for programs like the NCE–NI (i.e., programs that cross granting agencies' boundaries and that support partnerships and transfer of knowledge to receptor communities). However, only one would reapply if the pilot were to be maintained. Several reasons were cited that explain this unwillingness to reapply:

“It wouldn't make sense for me to try to pull this all together again without some assurance that there could be a next step. It is really an offense to our community partners if we engage them in five years of work and then have to dissolve the initiative because funding lapsed. These things are annoyingly short-sided.”

Note that all three SKCs directors interviewed felt there is a vital need for programs supporting networking. More specifically, the directors of the two clusters that comprise community-based partners strongly believe that such programs answer a specific need in their respective fields but also in the community.

“We work with people from justice, public safety, and women issues branches that do recognize that there is a gap in this area. They wanted to see this initiative.”

Opinion of stakeholders on the niche of the NCE–NI pilot

According to network representatives, the NCE–NI pilot is generally seen to be unique in the Canadian S&T system, particularly in terms of developing networking and knowledge transfer (KT) infrastructure. To help assess the niche of the pilot, network representatives were asked to identify other programs that specifically support networking and knowledge transfer activities in their area of research. Most network representatives were not aware of any similar interdisciplinary programs that specifically supported network infrastructure and knowledge transfer activities on an ongoing and large-scale basis.

Nevertheless, half of the network stakeholders interviewed named other funding program that specifically target networking events, knowledge transfer and collaborative projects. Representatives from the three granting agencies consulted during the course of the evaluation also identified many of the same programs, and added two more to the list. In total, seven programs were identified:

- CIHR – Knowledge Transfer Grants (Knowledge to Action – KTA)
- SSHRC – SKC Grants
- SSHRC – Major Collaborative Research Initiatives (MCRI)
- SSHRC – Community-University Research Alliances Program (CURA)
- NSERC – Strategic Network Grants

- MITACS/Accelerate Canada
- NCE Management Funds (NCE MF) program (aimed at KT and technology transfer, although at the end of the NCE networks only)

In addition to the comparative analysis of the NCE–NI pilot with SSHRC’s SKC program (through a document review and interviews of three funded clusters, see Section 3.3.2 for details), a web scan of the seven programs identified during the evaluation was also completed as part of this evaluation to compare them with key characteristics of the NCE–NI pilot. A summary of these seven programs’ characteristics is provided in Appendix C.

Findings from the comparative analysis

On the basis of the initiative description and objectives, the program that is the most similar to the NCE–NI pilot is SSHRC’s SKC program. As discussed below, among the seven Canadian programs examined, the NCE–NI and SKC programs are the only two programs that aim for the creation of new theme-oriented networks involving both university researchers and non-academic organizations, and that provide support for networking activities exclusively (i.e., no funding for research).

As part of this evaluation, a comparative analysis of the SKC program was conducted based on program documentation and a detailed examination of three clusters (including principal investigators interviews and document/file review). Considering that the three SKCs examined had been established more recently than the NCE–NIs, the comparative analysis showed a number of key differences between the two programs:

- The SKCs examined are more research-focused than the NCE–NIs (e.g., offer full studentships and fellowships; cover data gathering to support future research).
- The SKCs examined are more strongly rooted in the academic sector and have no direct partnerships with industry.
- Networking in the SKCs occurs on a smaller scale than the NCE–NIs: clusters have fewer researchers and students, fewer participating partner organizations, more limited multi-sectoral and multi-institutional representation, and (not surprisingly) mainly involve SSH disciplines.
- Partners tend to play a more limited role in cluster governance than in NCE–NI governance and committed to a lower level of contributions (cash and in-kind) compared to NCE–NIs.
- KT occurs on a smaller scale: fewer knowledge transfer activities and projects in the clusters.
- The SKCs’ sustainability plans mostly rely on SSHRC/other programs from granting agencies.
- The two SKC pilot grants were considered essential by all cluster directors to the development of a collective vision and of an organizational model.

This comparative analysis suggests that NCE–NI pilot is likely to be more effective than SSHRC’s SKC program with respect to networking and knowledge transfer with various receptor communities through multidisciplinary, multi-sectoral and national-wide collaborations.

Web scan of Canadian funding programs

Among the seven programs identified as similar to the NCE–NI pilot (and excluding the SKC program), only two are specifically network and partnership oriented: the NSERC Strategic Network Grants and the NCE Management Funds. However, the focus of NSERC’s Strategic Networks program is the natural sciences and engineering (NSE) disciplines, is limited to three targeted areas and provides funding for research.

Meanwhile, the NCE Management Funds is only offered to existing NCEs as an end-of-grant support for KT, and so is not directly comparable to the other programs. Note that MITACS is also very different from the other seven programs, as it supports short-term graduate student internships only, and so cannot be compared with the other programs with regards to funding scope, amounts and length. The remaining discuss will therefore exclude these two programs.

Other than the SKC and NSERC's Strategic Networks program, none of the other programs directly support network infrastructure. Rather, all programs (except the SKC program) offer support for research (including knowledge production and knowledge transfer activities related to research) through the creation of partnerships between university researchers and non-academic organizations.

In terms of disciplinary coverage, only the NCE–NI pilot is open to individuals from all domains and disciplines. It should be noted, however, that NSERC's Strategic Networks can include researchers from other disciplines than the NSE as co-applicants. All other programs support research in the SSH or in health-related disciplines specifically.

In terms of annual funding, NCE–NI pilot is among the programs that provide the highest amount of funding for individual grants, with \$400,000/year. Only the NSERC's Strategic Networks offer superior amounts of annual funding (between \$500,000 and \$1,000,000). All other programs examined (MCRI, CURA, KTA) provide amounts of \$300,000 or less annually, including both research and knowledge transfer expenses.

However, when looking at funding length, the KTA program and the NCE–NI pilot provide the shortest funding timeframe. SSHRC's SKC and MCRI programs run for up to seven years, while SSHRC's CURA and NSERC's Strategic Networks are available for up to five years. Thus, the SKC, MCRI and Strategic Networks programs offer a higher amount maximum total funding than the NCE–NI pilot.

Overall, this analysis shows that only two programs specifically support the creation of networks without funding research activities (i.e., SKC and NCE–NI), but the NCE–NI pilot is the only one open to researchers from all domains and disciplines. In terms of funding amount and length, all three other network-oriented programs provide higher cumulative amounts, while only the SKC program provides an inferior annual amount. In all cases, programs that dedicate funds to large networking and/or partnerships initiatives provide funding over a period five to seven years. This scan suggests that the NCE–NI pilot is uniquely positioned in Canada to support the development of networking and knowledge transfer infrastructure that involve multidisciplinary, multi-sectoral and national-wide collaborations, albeit for a shorter timeframe than other large-scale network-orientate programs examined.

4 Summary and Recommendations

The present study is the first evaluation of the Network for Centres of Excellence–New Initiatives (NCE–NI) pilot. In 2009, the NCE Steering Committee mandated the Social Sciences and Humanities Research Council (SSHRC) to lead the summative evaluation of the NCE–NI pilot, which Science-Metrix was then contracted to design and implement.

The evaluation covers the time period from fiscal year 2005–2006 to 2009–2010, encompassing the entire four-year funding cycle of the first NCE–NI competition. The aims of the evaluation are to assess the extent to which the NCE–NI pilot has met its initial objectives (primarily focusing on outputs and short-term outcomes), to investigate the factors or underlying causes for the success and failure of the funded networks, and to make recommendations for the future orientation of the pilot. It focuses on three issues (and eight specific questions):

- 1) the **results of the pilot**, in terms of outputs and outcomes, as well as its incremental results (4 questions);
- 2) the **delivery of the pilot**, as delivered by the NCE Secretariat and by the NCE–NI networks themselves (2 questions); and
- 3) the **relevance of the pilot** (2 questions).

This following summary presents the findings for each of the eight evaluation questions and concludes with four recommendations.

Q1. Have the objectives of interaction, partnerships, and networking of both researchers and receptors been met?

Yes. Both renewed and non-renewed networks developed a large number of partnerships (more than 300 in the first 2 years) reaching a wide variety of receptor communities in diverse sectors, which recognize the benefits of these interactions. Both cash and in-kind contributions have been effectively leveraged by the networks from external partners; this provides significant evidence of receptor engagement in the networks.

Q2. To what extent are the NCE–NIs broadly based, multi-sectoral, multi-institution, and/or multidisciplinary in terms of collaboration, partnership, and networking?

To a great extent. Both renewed and non-renewed networks created links between institutions and network partners from diverse institutions, sectors and disciplines, successfully facilitating and expanding the level of research collaboration between researchers and partners through opportunities that would not likely have arisen without the networks.

Overall, the NCE–NI pilot has been very successful in reaching new receptor communities across Canada and achieving effective knowledge mobilization/transfer with hundreds of individuals and organizations from different institutions, sectors and areas of practice.

Q3. To what extent are the developed partnerships sustainable over time?

To a moderate extent. All ongoing networks plan to remain active after the end of NCE funding, having achieved a high level of momentum and demand from receptor communities. However, the sustainability of developed partnerships relies on the capacity of networks to secure funding for their infrastructure and operational funding; this capacity is currently uncertain as ongoing networks only recently began to develop their sustainability plans, when the opportunity to become full NCEs did not materialize.

The three ongoing networks have recognized the importance of establishing a sustainability plan that will maintain the progress they have achieved thus far, and respond to the needs of their stakeholders.

However, most ongoing networks have only recently begun to engage in the development and implementation of sustainability plans. These networks have been successful in obtaining financial contributions from partners, receptor communities, and other network stakeholders to support specific networking, knowledge transfer initiatives, and research activities. Nevertheless, networks have been less successful in obtaining a sustainable level of operational funding from external contributors. Note that other funding opportunities that are similar to the NCE–NI pilot (i.e., that are specifically for operational funding) have not yet been found. Therefore, the sustainability of both networks and partnerships relies on the capacity of the networks to secure funding for their operating budgets after the NCE–NI funding ends. Accordingly, New Initiatives are now faced with the challenge of finding new funding or revenue streams by demonstrating the value of the network model, rather than the value of individual network activities.

Note that, as a result of an inability to obtain funding for their operational infrastructure, the two networks that were not renewed have dismantled their network infrastructure and have since moved from a network-centred to a project-centred approach. Evidence from the counterfactual analysis (based on three unfunded recipients) also suggests that the resulting initiatives—i.e., those that were implemented in the absence of funding dedicated to network infrastructure—are considerably more limited.

The management and Board of Directors of renewed networks are currently developing sustainability plans (drawing on multiple strategies) to secure operational funding after the end of the NCE–NI funding (2009–2010). The completion of these sustainability plans and the implementation of chosen strategies are expected to occur within the next year. However, considering the time required to develop and to successfully implement sustainability plans, the networks will only be in a position to assess the effectiveness of these strategies in approximately two years. Some network representatives indicated that at least one additional year of NCE funding would greatly facilitate the transition period, allowing them more time to finalize and implement their sustainability strategies. Regardless, the period required to achieve the expected funding results and adequate financial stability is indeed at least two years.

The provision of transitional funding would minimize the risks of losing the achievements and momentum reached by the networks, particularly with regard to relationships developed with researchers, receptor communities, and to respond to the increased demand observed for network expertise and services. Transitional funding is essential to realizing the full benefits of the NCE funding previously received by the NCE–NI networks. In fact, the findings from the evaluation indicate that the funded New Initiatives provide value for Canadians and will probably continue to do so even if no NCE–NI network becomes a full NCE.

Providing transitional funding would also acknowledge that these networks are complex initiatives that take time to build and develop, particularly as the NIs were created to address the needs of particular fields and receptors communities, for which a need to develop their capacity for networking and collaboration had been identified. Similarly, it would recognize that the impact of such initiatives cannot fully occur in a four-year timeframe, and would allow networks more time to capture and demonstrate the impact of their activities.

Recommendation 1. Provide transitional funding to ongoing networks for at least one year to allow more time for the development and implementation of a sustainable funding model, particularly with regard to their operating costs. The NCE should also consider providing the opportunity to apply for a second year of transitional funding (for a total of six years of NCE–NI funding) to allow networks to adjust their strategy based on the results obtained during the first year.

Q4. What is the value-added or incremental value of the NCE–NI funding?

Added value resulting from NCE–NI funding generally falls into four categories:

1) *Collaborative and interdisciplinary research*: NCE–NI funds available for events and travel ensured a high level of attendance at network meetings and workshops, allowing members to meet and interact with potential partners, and to build and strengthen relationships that previously did not exist. Researchers have benefited from new partnerships formed as a result of these network activities, leading to collaborative projects reportedly worth several million dollars worth of research grants. More broadly, they have also benefited from reduced duplication of research efforts, increased access to evidence-based practice data and hard-to-reach receptors communities, and raised awareness about the benefits of cross-discipline or cross-sector networking.

2) *Knowledge mobilization and transfer*: Preliminary evidence suggests that the collaborative structure of the networks, which placed equal emphasis on researchers and receptor communities, has helped to extend the impact of the research into practice settings, where these can be translated into concrete actions, guidelines, policies and standards. More generally, the networks increased awareness and use of knowledge transfer mechanisms among stakeholders and led to the adaptation of core materials according to partners' specific needs.

3) *Overall success and sustainability of the networks*: Dedicated funds from NCE–NI were essential to setting up and developing the networks, especially considering the challenge in securing external operational funding. Thus, the success of the networks relied heavily on the NCE–NI funds they received for network infrastructure and management. The “NCE” branding associated with the networks also increased the buy-in of top researchers, organizations, and the Board of Directors members in the networks.

4) *Pan-Canadian capacity building, particularly for students*: Hundreds of graduate students were actively engaged in network activities, such as through participation in governance or operational committees; in student-run auxiliary networks (developed for two of the networks); learning and skills development programs; knowledge mobilization projects; poster and oral presentation sessions; and more. Through the networks, students were also provided with travel subsidies to national and international meetings and were invited to write articles. Finally, students also benefited from valuable networking opportunities with established researchers and field practitioners.

Q5. What are the conditions of success or failure of the New Initiatives?

Conditions of success included the following:

- *The quality of the network's leadership, governance, and administration*, such as Scientific Directors that have the ability to champion the group of researchers and engage stakeholder communities (via their profile/reputation, personal contacts, scientific leadership, etc.) and Network Managers with content-related expertise and skills to 1) coordinate the committees and activities, 2) day-to-day functioning of the networks, and 3) ensure appropriate reporting.
- *Shared visions and interests*, including maintenance and clear articulation of network's vision and the related strategic objectives, which increases partners' involvement. This has also fostered a network structure in which activities were focused around themes or pillars and led by multidisciplinary teams or working groups.
- *The commitment and engagement of network partners, members, and students.*

Conditions of failure included the following:

- *Short timeframe for demonstrating results.* All networks noted that insufficient time was allotted for conducting and measuring the results of certain crucial network activities (e.g., the timing of the mid-term review), especially as these relied on the forging and strengthening of mutually beneficial relationships, many of which typically take years to develop.
- *Challenges associated with obtaining sustainable and diverse sources of operating funding.* Partners are generally more willing to support specific projects and activities than to provide operating funds.
- *Challenges associated with nature of some issues/fields.* Many network stakeholders did not function or identify as a community prior to the network, and some issues are easier to market than others, making it more difficult in some cases to establish trust, to achieve partner buy-in and to leverage external funds.

Q6. Is the initiative delivered in a cost-effective manner?

Yes. The New Initiatives have provided a high level of value for money, especially when considering the value of the grants versus the quantity and quality of outputs. In addition, the external contributions leveraged by ongoing NCE–NI networks, calculated as a proportion of their total NCE–NI funding, was nearly twice as much as that of the Networks of Centres of Excellence over the same period.

Because SKC representatives interviewed were not in a position to provide or compile, within the evaluation project period, the data required to perform a comparative cost-effectiveness analysis of the NCE–NI pilot, the evaluation relied on a “value for money” analysis. In this regard, the New Initiatives have provided a high level of value for amount of the funding they received, considering the value associated to the number of new partnerships developed; the number of graduate students actively involved; the diversity and number of workshops and conferences organized through the network; and the diversity of tools (including books, policy reports, brochures, guidelines, and databases) created, disseminated and transferred. The ongoing networks also leveraged significant non-NCE resources (including both cash and in-kind external contributions); this amount increased by 75% between their first and second years of operation. The short-term outcomes and benefits of network activities and outputs for researchers and receptor communities (including students) have begun to be seen even within the short timeframe of the initiatives. Networks will be in a position to demonstrate and measure further benefits and longer-term impacts in the near future.

The comparison of external fund leveraging between NCE–NIs and full NCEs provides additional evidence that the NCE–NI pilot was delivered cost-effectively, from the perspective of both the funded initiatives and the pilot. In fact, the NCE–NIs were more successful in leveraging external contributions (in-cash and in kind contributions, not including research funds received by individual network members) compared to the full NCE Networks. Over their first two years (2006–07 and 2007–08), the external contributions leveraged by ongoing NCE–NI networks, calculated as a proportion of their total NCE–NI funding, was nearly twice as much as that of the NCEs:

- Ratio NCE leveraging/NCE budget (average of 2006–07 and 2007–08): 71.5%
- Ratio NCE–NI leveraging/NCE–NI budget (average of 2006–07 and 2007–08): 134% (160% for the second year alone)

Using leveraging as a proxy indicator of networking and knowledge transfer, this finding suggests excellent performance by the NCE–NI pilot in this regard. This finding is all the more significant

because, unlike the full NCEs, the external contributions leveraged by the NCE–NI do not generally include research funds obtained by partners. Putting networking and knowledge transfer before research has proven to be cost-effective and beneficial both for researchers and receptor communities. For example, several respondents indicated that this led to a research agenda that was better aligned with the needs of receptor communities).

Design and delivery issues

The evaluation findings show that reporting and expectations for the new initiatives should be adjusted to reflect the scope and objectives of the NCE–NI pilot, i.e., in such way that recognizes the difference between NCE–NI pilot and the full NCE program.

More specifically, reporting requirements should be less frequent (at most every year) and collect more meaningful indicators. Furthermore, the necessity of the mid-term review should be revisited, as seen for the full NCEs. Regarding the mid-term review, the consensus appears to be that the review occurred too early in the funding cycle, especially considering the complexity and time required to forge new associations between researchers and receptor communities in areas where such links were previously weak. The mid-term review could be replaced with yearly assessments, which include consultation with the network management to discuss their strengths and weaknesses and their strategies to strengthen the network. In this way, networks can focus their performance measurement on indicators that have the greatest value for their activities and field of action (and for their partners), and they can dedicate a higher proportion of their resources (particularly their operational budget) to building new partnerships, obtaining additional leveraging, and strengthening their strategic plans. As this pilot was created to help address a need for interdisciplinary initiatives—and those with a central SSH component in particular—more interactive support should be offered to these networks to help them develop their capacity for network management and especially for sustainability planning.

NCE Program should also consider adjusting their management practice with regard to: 1) networking and leveraging expectations/requirements, especially in the context of areas where research and receptor communities are weakly linked, 2) performance monitoring and reporting requirements, 3) governance/management structure requirements (considering the size of the grants), and 4) communication regarding eligible expenses for the salaries of network personnel.

Recommendation 2. Adjust the management practice for the NCE–NI pilot to better acknowledge that NCE–NIs have a much different scope, size and funding regime than the full NCEs.

Q7. Are the program’s mandate, objectives, and activities consistent with the priorities of the current government’s Science and Technology Strategy?

Not entirely. Some inconsistencies exist between the NCE–NI pilot’s rationale and the current government’s S&T Strategy. The pilot’s objective—to foster the establishment of new research networks and support knowledge transfer where they are most needed, notably in an interdisciplinary context or where the SSH plays a central role in knowledge translation and transfer—is consistent with those of the NCE Program and the priorities of the three granting agencies. However, in 2007, changes were made to the federal S&T strategy, and new areas and sub-priorities were implemented, which limited the opportunities of the ongoing NCE–NIs. More specifically, applications to the 2009 NCE competition were required to be consistent with these sub-priorities, which focus primarily on applied research- and technology-driven areas that are more relevant to the natural sciences, engineering, medical sciences, and information technology.

Considering that the initial scope of the NCE–NI pilot was to support networking and knowledge transfer activities that address critical issues in areas of importance for Canadians, the current strategy

reduces the ability of the potential upcoming competitions of the NCE–NI pilot to respond to needs in a number of interdisciplinary and social science areas not aligned with the new sub-priorities. In other words, the current strategy will possibly minimize the NCE–NI program’s future ability to fund initiatives that are historically less supported by the NCE (e.g., SSH).

The evaluation indicates that the rationale of the NCE–NI pilot should be revisited by the NCE Program in the context of: 1) the current S&T strategy, and 2) the NCE program portfolio. This internal review could clarify if the creation of new networking and knowledge transfer organizations is the primary niche of the pilot or if the ultimate goal is the creation and grooming of new networks to become independent, self-sufficient research networks organizations. Equally important, the NCE should clarify how the NCE–NI pilot will contribute to the implementation of the current S&T strategy.

Recommendation 3. Clarify the future rationale of the NCE–NI pilot in the context of the NCE program portfolio and the current S&T strategy.

Q8. To what extent are the initiative objectives adapted to the needs of researchers and of receptor communities?

To a great extent. The continued need of the NCE–NI pilot within the Canadian S&T system is high, as no other program in Canada develops and supports a networking and KT infrastructure on an ongoing, large-scale and interdisciplinary basis. Not only were the initial pilot objectives adapted to and answered the needs of both researchers and receptor communities, but funded networks achieved tremendous level of networking and of KT outputs in a relatively short period of time.

The comparative analysis suggests that the NCE–NI pilot is likely to be more effective than SSHRC’s SKC program with respect to networking and knowledge transfer with various receptor communities through multidisciplinary, multi-sectoral and nation-wide collaborations. A scan of the SKC program and six other programs with similar characteristics suggests that the NCE–NI pilot is uniquely positioned in Canada to support the development of networking and knowledge transfer infrastructure that involves multidisciplinary, multi-sectoral and nation-wide collaborations. Of the two programs that specifically support the creation of networks without funding research activities, only the NCE–NI pilot is open to researchers from all domains and disciplines.

In terms of funding amount and length, three other network-oriented programs provide higher cumulative amounts than the NCE–NI pilot, and only the SKC program provides an inferior annual amount. In all cases, programs that dedicate funds to large networking and/or partnerships initiatives provide funding over a period of five to seven years; in comparison, the NCE–NI pilot with a four-year timeframe provides the shortest timeframe of the large-scale network-oriented programs examined. Thus, based on the comparison of similar programs, the opinion of network representatives interviewed and the time required to forge mutually beneficial relationships with receptor communities, the four-year funding timeframe the NCE–NI pilot is probably too short to realize the full benefits of the NCE funding previously received, especially if the transition to a full seven-year NCE does not occur.

Based on the evidence for the immediate outcomes and continued need of the NCE–NIs, as well as the niche of the initiative in Canada, there is every indication that this pilot should be maintained and the funding length should be increased from four to five years to provide a sufficient timeframe to develop a large-scale network. The NCE–NI pilot should be maintained in its pilot form because of the need for NCE to clarify the purpose of the pilot in the context of the NCE program portfolio and the current S&T strategy (see Recommendation 3) and because of the need to assess the longer-term

benefits and impact generated by the pilot. Accordingly, any changes to the pilot should be explicitly documented and clearly communicated to potential applicants.

As stated in Recommendation 1, the opportunity to apply for an additional year of transitional funding should be offered to new NCE–NIs if they choose not to apply for a full NCE—or if they are not successful in this process—during their funding period. Consequently, the maximum period of funding suggested is six (five years plus one year of transitional funding) years, instead of four. In this way, the NCE ensures and shows that it is committed to the long-term success of the networks.

The NCE Secretariat should collect outcome/impact evidence of ongoing and future NCE–NI networks to learn more on the extent to which funded initiatives benefited the receptor communities. In particular, the first cohort of networks (2005 Competition) will soon be in a better position to report on longer-term benefits and impacts. The NCE Secretariat should also consider comparing networking and knowledge transfer performance of the NCE–NIs with the one of the NCE networks and other similar programs. The selection of these programs should be based on the quality and availability of data (e.g., performance, financial and impact data), and importantly, a comparable funding timeframe (e.g., the time elapsed between the inception of initiatives and the measurement of impacts). Future evaluations of the pilot should also include larger consultations (e.g., web surveys with students, partners and receptor communities) to more adequately capture the impact of the pilot. The data collection should be planned and managed in advance of future evaluations, especially with respect to impact data and contact information for stakeholders (e.g., students, partners, researchers and other stakeholders). Future reviews of longer-term impacts of funded initiatives and the review of NCE–NIs will provide a more comprehensive picture of the value and the niche of this pilot, especially in the context of the current S&T strategy.

Recommendation 4: Maintain the NCE-NI pilot for one additional competition round, during which time the initiative should be reviewed as per Recommendation #3.

Appendix A Case Study Impact Summaries

A1. Canadian Obesity Network (CON)

Network at a glance

An estimated 5.5 million adults and half a million children in Canada are obese, and the problem is growing rapidly. Obesity is a major threat to the health and economic well-being of Canadians. The mission of the CON is to reduce the burden of obesity on Canadians by linking obesity researchers with health professionals, policy-makers, and other stakeholders to foster knowledge translation, capacity building, and partnerships among stakeholders. The network links more than 1,000 health professionals, researchers, and policy makers, as well as students, non-profit organizations and companies, for a total of about 3,500 members. Its vision is to be recognized and respected as the leading Canadian network for fostering innovative and effective obesity research, prevention, and treatment solutions in addition to building a comprehensive body of knowledge on the complex biological and environmental factors that contribute to obesity. CON has focused its activities according to four themes: Environmental & Socio-Cultural, Behavioural & Biological Determinants, Prevention, Treatment & Rehabilitation and Health Economics & Policy.

Table 12 CON Network statistics (2006-2007 and 2007-2008)

Network Characteristics	Type	2006-2007	2007-2008
Number and type of partner organizations	Universities	19	23
	Industries	17	25
	Federal dept./agencies	3	4
	Provincial dept./agencies	5	6
	Other	34	21
	TOTAL	75	76
Number of graduate students involved in network	Master's students	13	70
	Doctoral students	28	69
	TOTAL	41	139
Contributions from non-NCE sources	Cash	\$1,170,443	\$301,683
	In-Kind	\$211,000	\$2,151,236
	TOTAL	\$1,381,443	\$2,452,919

Source: Source: Adapted from NCE–NI Stats Tables; certain organizations have re-categories according to type

Immediate outcomes

CON has been very active since its inception, organizing, supporting and collaborating on a large number of initiatives aimed at various receptor communities, students and new professionals, policy-makers, the media and the public. The main network activities leading to immediate outcomes and impacts include:

- The CON website (www.obesitynetwork.ca), which acts as a gateway to CON services and activities for its 3,500 members, as well as providing branded sites for affiliates (e.g., Dieticians of Canada and aboriginal affiliates, the Centre for Obesity Research and Education, CON's student and new professionals association, etc.). Additional member outreach is provided via prize-winning CONDUIT magazine and monthly newsletters.
- Developing OBESITY+, a unique secondary-level peer review literature alerting services on obesity research (and on preliminary clinical research evidence, through Pre-OBESITY+), in partnership with the Health Information Research Unit at McMaster University and Ethicon Industries, which had attracted over 1,800 registered users.
- A total of 306 health professional were trained through the National Obesity Preceptorships for Family Health Teams, a one-day accredited program aimed at encouraging the implementation of the Canadian Obesity Guidelines (2006 Canadian Clinical Practice Guidelines on the Management and Prevention of Obesity in Adults and Children). These guidelines were developed by CON researchers in collaboration with Obesity Canada and a variety of corporate and other partners and made available via the Canadian Medical Association Journal.

- A new partnership was developed with the Ontario Pharmacists Association (OPA) to survey 800 pharmacists, which led to the development of an Obesity Certification Program for Pharmacists, which has trained 271 pharmacists in 2007.
- A number of other workshops organized by CON researchers have been held to support these guidelines, including the 2007 CORE Fall Obesity Workshop, the Certified Exercise Physiologist Upgrade Course in Toronto and Vancouver, as well as three Listening for Direction stakeholder workshops, and inter-sectoral workshops on specific topics such as on the built environment (in collaboration with the Heart and Stroke Foundation,), on Childhood and Adolescent Obesity (2008), and the Bariatric Rehabilitation Think Tank (2008), which brought a new receptor community (i.e., the bariatric equipment industry) into the network.
- The Western Obesity Summit was organized by CON in May 2007 (following the success of the 2005 Alberta Obesity Conference) and the first National Obesity Summit was recently held in May 2009, which attracted over 400 delegates.
- The annual Summer Obesity Research Boot Camps, hosted by Laval University (4th edition to be held in July 2009) where approximately 20 students, young researchers, clinical fellows, clinical researchers and health professionals participate in an intensive nine-day interactive learning and skills development program that covers multiple aspects of obesity, from clinical management to health policy.
- Support for students and new professionals (SNP) also includes student travel awards (94 awards since 2006 totalling \$49,000), annual student thesis awards, hosting of the SNP website, and over 15 regional (university-based) SNP chapters with over 900 members who organize their own activities, newsletters and elect national representatives, and organized Canada's First Obesity Student Meeting in 2008.
- Various targeted projects with partners, such as a series of half-day public workshops on obesity challenges and solutions held in 2006 in Montreal and Toronto, a survey and “city report cards” on Canadians' knowledge and behaviours relating to the health risks associated with obesity (in collaboration with Sanofi-Aventis Canada Inc), a 35-page booklet on health eating and physical activity distributed to over 1,332,000 households across Canada in collaboration with Dairy Farmers of Canada and Canadian Living Magazine, the annual Salt Lick Awards (with two other NCEs) to highlight the high sodium content in fast food, World Hypertension Day (with the World Hypertension League) targeting dignitaries on Parliament Hill, and more.
- Participation and supporting of collaborative grants and other networking initiatives such as in the formation of Canadian Association of Bariatric Physicians and Surgeons (CABPS), the Addressing Childhood Obesity through Research and Networking (ACORN), who also have produced a number of indirect network outputs (bariatric surgery guidelines, online database, etc.).

Many of these activities, particularly the OBESITY+ knowledge repository and other CON online resources, the National Obesity Preceptorships Program and other training workshops designed to improve the implementation of the Canadian Obesity Guidelines, as well as the regional and national research summits attended by high-calibre researchers represent key knowledge translation and exchange mechanisms that have reached large segments of its targeted receptor communities.

In addition to this, capacity building continues to be a primary strategic objective of CON, with initiatives aimed at SNP, such as the summer boot camps, and the CON Student and New Professionals chapters. These capacity building initiatives are also seen as means to facilitate the integration of younger researchers within the Canadian obesity community, to help them establish personal contacts with researchers/stakeholders and to gain exposure more rapidly (e.g., in media).

More generally, the activities listed above have led to accelerating the creation of linkages and partnerships between obesity stakeholders that were previously working in silos or on different parts of obesity; in this regard, research summits, workshops and network events with focused agendas have been most effective in engaging partners and effectively connecting people from diverse areas with other stakeholders, while the CON website provides the key mechanism to link receptor communities with researchers.

Creating partnerships with various organizations and other obesity stakeholders has also been crucial to leveraging funds for CON, as the network has successfully recovered costs of its initiatives, as well as some in-kind contributions to cover some of its operational costs. Stakeholder expectations for CON are very high, and belief in the key role that CON can

play on obesity issues has increased partner buy-in (e.g., willingness to contribute cash or in-kind, but also willingness to participate in consultations and/or on the Board even without direct return on investment like when funding a specific project). In fact, CON leveraged 70% and 81% of its total resources through cash and in-kind contributions from partners, in 2006–07 and 2007–08, respectively, with the balance coming from the NCE.

Overall, CON has become the go-to organization on obesity for the media, for researchers (e.g., support for grants/proposals), and increasingly, for many stakeholders (e.g., identify an expert on an area). CON has recognized strengths in its credibility (of the network *and* its members) and strong leadership, and stakeholders value its role as an information hub and connector. Indeed, many reports seeing an even greater role for CON, as a national advocate for obesity, in fundraising and financing, as well as in coordinating public relations.

Organizational impacts

Despite the short timeframe since CON was founded, organizational impacts may already been starting to emerge. Both informants internal to the network and external views confirm that CON is progressively becoming the leading organization on obesity issues in Canada, in terms of raising awareness about obesity, of creating links between key stakeholders and researchers and of supporting the development and knowledge transfer of best practices in obesity (e.g., guidelines). Evidence suggests that CON's position in this role will continue to increase, as a resolution adopted by the Canadian Medical Association in 2008 states: "*The Canadian Medical Association encourages provincial/ territorial medical associations to work in conjunction with the Canadian Obesity Network to help develop chronic care models for obesity prevention and management.*" Thus, CON is well positioned coordinate work on the national obesity strategy in collaboration with various stakeholders.

CON's knowledge transfer and capacity building activities are also leading to the creation of a Canadian obesity community across disciplines, sectors and regions (nationally and, to a certain extent, internationally). Multiple sources report that CON is contributing to the sense of urgency about obesity in Canada, and a shared outlook that obesity is a complex issue that engages all levels of society.

Finally, CON is supporting project to assess whether its activities are leading to longer term and broader impacts, such as through supporting a grant application to CIHR by CON research members for a project that was specifically designed to evaluate the impact of CON's activities. In addition, a web survey on the use of the Canadian Obesity Guidelines aimed at CON members and individuals outside of the network, prepared in collaboration with the Public Health Agency of Canada is currently being hosted on CON's website. The results of these studies will be known in coming years.

A2. National Initiative for the Care of the Elderly (NICE)

Network at a glance

Although Canada has an aging population that is larger and more diverse than ever before, it is ill-equipped to deal with this population—fewer students are enrolling in specialties related to the care of the elderly and there is a general shortage of professionals to care for aging populations. In response to these challenges, NICE is an international network of researchers, practitioners, students, and seniors representing a broad spectrum of disciplines and professions who are dedicated to improving the care of older adults. More than 40 gerontology and geriatric researchers, who treat and care for older Canadians, are linked with three main professional groups—doctors, nurses, and social workers. The goals of NICE are to close the gap between evidence-based research and practice; improve the training of existing practitioners, improve geriatric educational curricula, and interest new students in specializing in geriatric care; and effect positive policy changes for making team-training a standard practice for Canadian elder care. The network operates through interdisciplinary "Theme Teams," which include both researchers and practitioners, in five areas of care that network members decided were the top priorities: Care giving, Dementia Care, Elder Abuse, End-of-Life Issues and Mental Health.

Table 13 NICE Network statistics (2006-2007 and 2007-2008)

Network Characteristics	Type	2006-2007	2007-2008
Number and type of partner organizations	Universities	20	20
	Industries	0	1
	Federal dept./agencies	2	5
	Provincial dept./agencies	1	1
	Other	10	11
	TOTAL	33	38
Graduate students involved in network	Master's students	14	24
	Doctoral students	13	25
	TOTAL	27	49
Contributions from non-NCE sources	Cash	\$5,000	\$141,424
	In-Kind	\$131,000	\$131,000
	TOTAL	\$136,000	\$272,424

Source: Adapted from NCE–NI annual reports

Immediate outcomes

NICE has been actively involved in engaging stakeholders and transferring knowledge through a number of activities that have led to immediate outcomes, which are summarized below:

- Starting in 2006, NICE has organized an annual Knowledge Exchange conference, which typically includes panel session, workshops, and a keynote address. In 2008, NICE partnered with CIHR in order to welcome to the annual conference 50 students participating in the Summer Program in Aging. The Knowledge Exchange hands-on workshops feature topics in knowledge transfer such as knowledge transfer with regard to aging; evaluating knowledge transfer; rapid evidence assessments; and knowledge transfer and global health, to further the training of HQP.
- NICE has developed a number of tools aimed at receptor communities (i.e., health practitioners, families, personal support workers, etc.) and to increase the standards of care and quality of life for the elderly (e.g., booklets, quick reference guides, calendar, poster, focused reviews, etc.) on issues relating to aging for each of its five key themes. These tools (and other relevant resources) are freely available via the network's website as well as in hard copies; these have been downloaded thousands of times and it is estimated that a hundred different community organizations approached NICE, including NGOs, hospitals, and other practitioners providing care to the elderly, as well as the older adults themselves, for NICE resources and tools.
- NICE has partnered with the Seniors Health Research Transfer Network (SHRTN) to foster collaboration between the two networks; as a result, links have been created with every national-level organization that works on aging, and NICE is now in a position to target association and accreditation boards in Canada for nurses, doctors and social workers, whose activities have a wider scope than aging.
- NICE members have made a remarkable number of oral, paper and poster presentations on NICE activities at national and national- and international-level conferences, such as a keynote address at the Canadian Association on Gerontology annual conference, leading to increased awareness and visibility of the network and attracting members to the network.
- The international arm of NICE, called the International Collaboration for the Care of the Elderly (ICCE), has developed a number of workshops that have been offered internationally, and has facilitated meetings between Canadian network members and international partners in China, India and South Africa, among others, to discuss end-of-life issues.
- NICE ensures capacity building through student involvement, including networking and skills development opportunities at the annual Knowledge Exchange conferences, as well as the development of the Student

Mentorship Program, in which 20 students were matched with mentors (i.e., researchers and/or practitioners) in their Theme Team and Committees of choice, and thus engaged in a hands-on and high-level manner (e.g., literature reviews, conference presentations, writing policy statements, etc.) in the activities of the Team/Committee.

- NICE has engaged a number of large-scale community partners on specific projects, such as to pilot test and evaluate the End-of-Life tools developed by the network and to perform a rapid evidence assessment of all the international best practice guidelines for caring for people with dementia in nursing homes (with the Victorian Order of Nurses and the Alzheimer’s Society, respectively).
- NICE also collaborates with community partners on various research projects, such as by supporting or acting as co-applicants on proposals; receptor communities report that partnering with NICE has strengthened their proposals.

All major stakeholders nationwide who have a common mission in serving seniors have been brought together in this network. In collaboration with these stakeholders, NICE has focused on five key areas (“Theme Teams”) in which there is the greatest need with regard to the elderly (as determined by NICE membership) to guide the developing best practice tools and knowledge transfer activities. These and the networking activities mentioned above have effectively concentrated researchers and practitioners on key issues pertaining to the elderly, so that partners become more aware of what information is available on these issues, and researchers gain a better awareness of where more research is needed. Network researchers are also now more familiar with the key players in the care and support for the elderly. Thus, practice-based and research-based organizations are now engaged in mutually beneficial relationships. It should be noted that NICE’s international-scale activities also stand out, such as the engagement of international partners to discuss end-of-life issues and management in their respective countries.

As of May 2009, NICE has involved in its activities 179 students (undergraduate, masters, doctoral and post-doctoral) from fields as diverse as gerontology, social science, rehabilitation science, social work, law, nursing and medicine. The goal of these activities is to prepare a new generation of students that is interdisciplinary (i.e., not siloed) and expose them to a team approach, with a focus on knowledge transfer to receptor communities. NICE members network and work with members from different disciplines in the field of aging, thus introducing network members to, and training them, in both interdisciplinary and team approaches to the care of the elderly.

Note that external fund raising has also benefited from the creation and strengthening of partnerships within the network, both between academic researchers and between researcher and partners. Thus, about \$1.3 million dollars had been leveraged by network members, including about \$400,000 for network activities (2006–2008), and a significant amount of research funds and knowledge transfer grants.

Organizational impacts

The broader impacts reported by NICE stakeholders provide evidence of changes in the attitudes and behaviour of its members. For example, through their participation in the network, researchers have an increased awareness of the importance of knowledge transfer and better understand that publication of results alone is insufficient to transfer knowledge to practitioners. Furthermore, relationships developed between researchers means they are now more aware of the research undertaken by colleagues before publication of the results. The benefits of this are twofold: first, the researchers can have input on projects before they are realised and second, duplication of efforts is minimized.

Similarly, partners reported many benefits of collaborating with NICE, including broad cultural and operational changes. As explained by a NICE partner: “Marrying practice and research has become much more part of our culture as a result of NICE.” This is because, by working with association who wish to establish best care practices based on solid research, NICE offers these associations access to researchers and knowledge transfer experts. As a result, their funding proposals of partner associations have been strengthened, which has consequently improved their chance of being successful in seeking additional resources.

Finally, closing the gap between researchers and receptor communities, particularly older adults, is expected to lead to longer term impacts in the type and reach of research that is conducted by NICE members. For example, inclusion of older adults on theme teams and increasing two-way communication with this receptor community (i.e., the elderly) means

that these older adults are increasingly inclined to work with researchers and practitioners to make sure their needs are being viewed. Another project (on elder abuse) also included the participation of police officers from across Canada to increase support and appropriate care for older adults.

As mentioned above, the strategic orientation of the network is shifting as NCE funding ends: NICE is now incorporated and is about to be approved as a charitable organization. This enables the network to distance itself from the university and to access alternate funding (donations) to ensure the future sustainability of the network.

A3. Promoting Relationships and Eliminating Violence Network (PREVNet)

Network at a glance

Aimed at the prevention of child and youth bullying and at creating a greater awareness of this growing problem in Canada, PREVNet is a national network of Canadian researchers, NGOs, and governments committed to stopping bullying. Beyond intervention, the network aims to develop tools that will help to create environments where children feel safe through education, assessment, and policy development. PREVNet is founded on four pillars: Assessment; Education and Training; Intervention; and Policy and Advocacy. The network's participants are committed to building the foundations for a national strategy that will help to combat bullying, victimization, and aggression through the identification and application of more scientific, evidence-based, and evaluated approaches in schools and communities. These approaches include standardized training materials, assessment tools, intervention strategies, and national policies.

Table 14 PREVNet Network statistics (2006-2007 and 2007-2008)

Network Characteristics	Type	2006-2007	2007-2008
Number and type of partner organizations	Universities	21	26
	Industries	7	10
	Federal dept./agencies	3	3
	Provincial dept./agencies	2	3
	Other	33	35
	TOTAL	66	77
Graduate students involved in network	Master's students	19	28
	Doctoral students	16	28
	TOTAL	35	56
Contributions from non-NCE sources	Cash	\$432,821	\$880,500
	In-Kind	\$123,500	\$257,460
	TOTAL	\$556,321	\$1,137,960

Source: Source: Adapted from NCE–NI Stats Tables; certain organizations have re-categories according to type

Immediate outcomes

PREVNet developed an effective strategy for networking activities and demonstrated the ability to mobilize resources and include all the needed expertise. As a network representative put it: “Before PREVNet, receptor communities were very fragmented and very siloed. The beauty of the network is that we were able to bring together formerly siloed people from across Canada and help them to shape this national organization”. To do so, PREVNet established seven working groups (i.e., Assessment, Education and Training; Social Aggression; Cyber-Risk; Aboriginal; Workplace Harassment; Intervention; Policy) which invite NGO partners, researchers and graduate students to promote knowledge exchange and collective work on strategic objectives. The working groups build strong connections among PREVNet researchers and NGOs, laying a foundation for future research collaboration.

The main network outreach activities leading to immediate outcomes and impacts include:

- Partnership with the Canadian Teacher’s Federation to help inform their national cyberbullying prevention strategy and the ongoing creation of resources to assist and empower the education community to address the issue of cyberbullying in Canada.
- PREVNet worked closely with Respect in Sport to evaluate an e-learning program developed with the goal of training coaches and youth leaders in Canada; to date more than 20,000 people have been trained. Similar “Respect in…” programs with this and other partners are being developed in collaboration with PREVNet for the workplace and school environments.
- Partnership with the Family Channel on “Stand-UP”, a nationwide bullying prevention campaign during Bully Awareness Week.
- Partnership with the Girl Guides of Canada to create the Girls United Training Module for leaders, and the Girls United Badge, which Girl Guides earn after completing activities designed to develop healthy relationships.
- PREVNet developed a children’s opera addressing bullying in conjunction with Tapestry New Opera. The opera, *Elijah’s Kite*, was performed in front of the Governor General Michaëlle Jean, broadcast nationally on CBC Radio 2, and performed for 43 schools. Following the opera experience students reported a significant reduction in victimization and an increase in knowledge about bullying.
- Consulting and collaborating activities were performed with two electronic gaming companies to educate youth about bullying and effective response strategies, and to develop healthy relationship skills and attitudes.
- PREVNet’s bilingual website, which had more than 5800 downloads by users from 75 nations in its first year. Almost all (99%) of download recipients rated PREVNet material to be at least “somewhat helpful” – 82% indicated it was “very helpful”. PREVNet also developed the first web-based bullying assessment tools for children (Grades 4-6 and 7-12).
- PREVNet also engaged in public education activities, such as organizing an annual public conference, publishing a series entitled “Understanding and Addressing Bullying: an International Perspective” and participating in media events during Bullying Awareness Week.

Despite not being able to fund graduate students directly, the network currently (May 2009) has 70 graduate students involved in PREVNet activities (e.g., in the seven working groups, mentoring program, student executive), and students are welcome at the network’s annual conference. In particular, PREVNet’s Student Executive Committee meets monthly with the Partnership Manager to ensure a high level of connectedness to the network. Students are also provided with diverse learning opportunities, such as on workshops on statistics or presentation skills.

PREVNet’s outreach activities listed above, as well as contacts accessed through its Board members, have also resulted in increased awareness on the issue of bullying and new relationships with business partners, leading to increased leveraging from the private sector. In fact, network management reports that having a central hub for this activity has been really valuable to taking that message to private industry, in addition to creating activities that facilitate both public and private sector buy-in (e.g., projects with Kids Help Phone and Bell Canada). Thus, PREVNet has leveraged over \$1.3 million in cash, in addition to almost \$400,000 in in-kind contributions (often from NGOs) since receiving funding from NCE–NI.

Although both Scientific Directors were well-respected academics when PREVNet was awarded NCE–FI funding, the established network has substantially increased their profile. They have both received awards for their work in the field of bullying prevention, such as the *Award for Distinguished Contributions to Public or Community Service* from the Canadian Psychological Association. Both Scientific Directors feel that the network has been especially rewarding for them. In their own words, running the network “has been the absolute best thing that we’ve done in our careers”.

Organizational impacts

PREVNet’s success has had broader repercussions for all types of partners involved. Concrete examples of added value are the \$7 million of additional funding that researchers involved in PREVNet have managed to secure for their own research project, as well as the fact that the Canadian Red Cross is now number one in the world in terms of leading violence prevention initiatives as a result of their involvement with PREVNet.

There is also evidence that partners in receptor communities are beginning to understand the value of research. Organizations involved in violence prevention increasingly realise that there is a need to be accountable for the funds they receive, to show whether their program is effective and for whom it is effective. Involvement with PREVNet has helped partners, such as NGOs, answer important questions and get evidence-based data which support their programs and ensure their sustainability. In turn, by developing relationships with network partner, researchers are getting access to populations that are sometimes challenging to access. Moreover, by engaging a relatively large of number of diverse disciplines – 19 at last count according to a network representative – PREVNet has managed to promote a cross-disciplinary approach with the social sciences that was previously lacking.

Finally, involving of students in network activities to the extent that PREVNet does has directly and indirectly led to the creation of a network of their generation, as well as provided a gateway to new opportunities with established researchers. For example, younger students are mentored by older students and young professionals are mentoring students, as well as opportunities to network with established researchers at conferences, resulting in a scientist support network for these students after graduation. It is likely that, with regard to capacity building, long-term impacts of student involvement will be high for PREVNet, in terms of how students benefit from these opportunities and where their future careers will take them.

A4. Canadian Design Research Network (CDRN)

Network at a glance

Design improvements, which can be applied to just about anything, can yield surprising social, economic, and environmental benefits. The mission of the CDRN was to realize the potential of design for building a productive and sustainable future for Canada through excellence in design research, innovation, and the transfer of knowledge. This pan-Canadian network joined together 100 graduate students and faculty from various disciplines, along with government and industry partners, to provide these academics with professional development opportunities related to conducting and publishing world-class design research. These academics improved their research methods and results through workshops, professional development seminars, and joint projects with the private, non-governmental, and public sectors. The six key interdisciplinary research themes of the CDRN are sustainability, advanced design technologies, fabrication, interactive technologies, design visualization and simulation, and visual analytics.

Table 15 CDRN Network statistics (2006-2008)

Network Characteristics	Type	2006-2008
Number and type of partner organizations	Universities	28
	Industries	25
	Federal dept./agencies	6
	Provincial dept./agencies	1
	Other	23
	TOTAL	83
Number of graduate students involved in network*	Master's students	406
	Doctoral students	109
	TOTAL	515
Contributions from non-NCE sources*	Cash	\$88,319
	In-Kind	\$415,730
	TOTAL	\$504,049

Note: *exact numbers of students and contributions are not known for 2007–08; note that Figure 3 of the CDRN's Final Report indicates both cash and in-kind were received in 2007, some of which may have been during the 2007–08 fiscal year.

Source: Adapted from NCE–NI Stats Tables and CDRN Final Report; certain organizations have re-categories according to type

Immediate outcomes

The CDRN was quite active during its two-year lifetime, organizing and supporting a large number of initiatives aimed at various receptor communities, including design professionals, students (undergraduate and graduate), policy-makers, the media and the public. The main network activities leading to immediate outcomes and impacts include:

- The CDRN organized 12 workshops and 4 conferences held across Canada that attracted the participation of over 2200 design research stakeholders from multiple institutions, organizations and sectors (31% graduate students, 32% design professionals, 12% undergraduate students, 26% from other organizations) and 122 partner organizations. CDRN members also participated in 7 exhibitions.
- Well-received print and digital knowledge transfer outputs, as cited in the mid-term report, CDRN Final Report and by respondents: 9 publications (5 of which are edited conference proceedings), 5 podcasts (downloaded over 35,000 times), 1 special issues of *Canadian Architect* (readership of 30,000), 1 online report (*Design as an Instrument of Public Policy in Singapore and South Korea*, prepared for the Asia Pacific Foundation), and print pieces published in the *Globe and Mail*, not to mention refereed articles, websites relating to particular projects or events, and citations in media reports. The CRDN estimates that these knowledge transfer and advocacy outputs have reached over 80,000 people.
- As part of the Greening the Curriculum initiative, design educators from across the country worked together in CDRN-sponsored events (research forum, workshops) to ensure that sustainable design becomes an essential part of contemporary design education. A CDRN member was also key in launching the *Ecologez Student Competition* for the design of a green building, involving design students from across Canada (with *Équiterre*).
- The CDRN actively supported two successful bids (out of 20 possible slots) for the 2009 Solar Decathlon, a prestigious international contest run by the US Department of Energy (DOE) where students compete to design, build, and operate the most attractive, effective, and energy-efficient solar-powered house; \$US100,000 is supplied by the DOE, and additional funds are raised by the teams; CRDN prepared two books on the project to help support their development and fund-raising. One of these books features the project prepared by a team led by three Montreal universities in the 2007 competition (also supported by the CDRN), which placed 8 out of 20.
- 29 outreach presentations on design, including evidence-based analysis of the impact of design on climate change, were made to policy-makers (e.g., Ministry of Finance), industry (e.g., RONA). The network then became a member of the Advisory Committee for Product Design and Development Initiative led by Industry Canada and produced a report for the Asia Pacific Foundation of Canada.
- Efforts to develop a pan-Canadian design strategy were underway, and included collaborative work with the Design Exchange and the Design Industry Advisory Council on a policy roundtable for the DX Ourtopias Conference, the results of which were featured in one of the CRDN's publication "*Ourtopias: Cities and the Role of Design*".

Participation of students and professionals in focused workshops (often 20–50 participants), which was supported by travel subsidies for students, researchers and practitioners, was seen as one of the most beneficial activities for receptor communities (i.e., capacity building). Participation in these activities contributed not only to skills development among HQP (which is particularly valuable for HQP because design is an applied discipline), but also provided valuable opportunities for raising awareness of design (and its value/impact as informed by research). In addition, these events provided new opportunities for face-to-face networking, which is the only way to build high-quality relationship among researchers and receptor communities.

Thus, more generally, the activities listed above led to strengthening existing links and creating new linkages and partnerships between stakeholders in design, some of which have persisted at a project-level since the discontinuation of the CRDN. For example, new collaborations between researchers from different disciplines and/or institutions, as well as stronger partnerships or teams built up around existing relationships, have led to subsequent interdisciplinary research grant applications (some of them successful). Networking activities that crossed the boundaries of disciplines (especially between design and engineering), of institutions and of sectors were frequently cited as being especially beneficial, mainly through greater awareness and exposure of design research and other design-related activities being performed in Canada. Indeed, industry, federal government, municipalities and universities had previously been working in silos, and the CDRN's activities created new and different types of opportunities (e.g., non-academic partners gained access to design

researchers) to develop partnerships across these boundaries; in this regard, CDRN was seen as being more effective than full NCEs. In this regard, a network representative stated: “In the two decades I have worked with research networks and projects, I have never seen a group accomplish so much in so little time with such a small amount of funding as the CDRN.”

New or stronger relationships that were fostered by the CRDN have led to important new opportunities, such as consultant contracts and long-term collaborations between CDRN members and industry (e.g., large architecture, engineering, software and aerospace firms) representing up to \$1.3M of industry funds, as well as major research grants from federal granting agencies. Ongoing collaborative activities from teams formed around the core themes of visual analytics and sustainable design appear to be particularly strong. Note, also, the growing public policy role with in the CDRN within its lifetime, particularly those stemming from its outreach presentations made to policy-makers and activities (conference, roundtable and book) partnered with the Design Exchange.

Leveraging was most effective for specific projects and topical events. For example, partners contributed cash and in-kind to support conferences and workshops, while members from receptor communities were willing to pay to attend these events; in other words, they saw real value in supporting and/or attending such events (see above). However, the CDRN’s strategies to develop a maid membership rate to ensure network sustainability or to leverage research funds from different kinds of organizations (i.e., other than design firms) were less successful, although outreach presentations did resulted in a small project grant.

Not surprisingly, all network respondents were unhappy about the discontinuation of NCE funding for the CDRN. All cited the shortened lifespan of the network as a barrier to achieving both short-term benefits to network partners and its long-term goals, such as a national design strategy and maximizing the cultural, social and economic impacts of design. Losing network funding has thus reduced the opportunities for collaboration between design researchers and receptor communities (e.g., face-to-face meetings), for continued leveraging of funds from partners, and for relationships between researcher and highly qualified people (graduates and trainees) to bear fruit.

Organizational impacts

Organizational impacts were largely curtailed by the discontinuation of the network. In particular, there was not enough time for the network to successfully establish itself as a brand or to increase the level of buy-in from new partners to ensure its sustainability. Nevertheless, all respondents believed that the CDRN helped raised the bar for design research and innovation in Canada, resulting in stronger and more visible projects. Many of the benefits of projects that were launched during the network and that have continued since are still forthcoming, e.g., research papers, software, teaching and professional development materials, public demonstration/exhibits (particularly the Solar Decathlon buildings), and will most likely have longer term impacts.

On a broader level, the premature termination of the network was viewed as having a more negative impact than if the network had not received funding in the first place; this is because CDRN management and partners feel that the discontinuation decision sends a strong negative message about the network and its goals, which will significantly hinder any subsequent efforts at establishing a pan-Canadian network of design researchers and stakeholders. Furthermore, while the successful application of the CDRN initially led to positive systemic repercussions on the design community, its discontinuation is seen within the design community as evidence that the Canadian government does not recognize the value of design research and innovation.

A5. Emerging Dynamic Global Economies (EDGE)

Network at a glance

The rapidly emerging dynamic and global economies of China, India, and Brazil are driving massive geopolitical and business realignments in these countries and around the globe, which present both challenges and opportunities for Canada. The purpose of EDGE was to identify the key economic and social impacts of this change and to help Canada develop effective policies and business strategies that will help Canada to play a leading role in the new economic order of

the 21st century and become more productive, competitive, and prosperous. To accomplish this, EDGE linked more than 60 research institutions, think tanks, governments, leading companies, and key business associations from across Canada and the world. The interdisciplinary research partnerships that were fostered by the network involved leading thinkers in international economics, business, law, political science and public policy. As part of its network building, EDGE established four research themes groups: 1) Energy/Environment, 2) Human Rights/Rule of Law, 3) Technology/Intellectual Property, and 4) Trade and Investment/Competitiveness.

Table 16 EDGE Network statistics (2006-2008)

Network Characteristics	Type	2006-2007	2007-2008
Number and type of partner organizations	Universities	35	46
	Industries	11	8
	Federal dept./agencies	5	5
	Provincial dept./agencies	3	2
	Other	14	9
	TOTAL	68	70
Graduate students involved in network	Master's students	18	19
	Doctoral students	2	4
	TOTAL	20	23
Contributions from non-NCE sources	Cash	\$98,640	\$261,048
	In-Kind	\$87,781	\$130,337
	TOTAL	\$186,421	\$391,386

Source: Adapted from NCE–NI Stats Tables and the EDGE Final Report; certain organizations have re-categories according to type

Immediate outcomes

Shortly after its inception the network established its four research themes (Energy/Environment, Human Rights/Rule of Law, Technology/Intellectual Property, and Trade and Investment/Competitiveness). Through these research groups, the Network embarked on a series of workshops, conferences and other networking activities to link key stakeholders including:

- A series of meetings with Export Development Canada and the Brazil-Canada Chamber of Commerce, among others, to identify the key barriers to developing new business and managing existing trade flows with Brazil.
- EDGE facilitated the interaction between a select group of researchers to work together to develop new policy proposals for Canada's relationship with China and other emerging economies concerning issues relating to energy security and the implications for the environment of exploitation of natural resources.
- EDGE collaborated on a project with researchers from Canada, Australia, Japan and China to learn about and discuss the results of a five-year policy research program on local implementation of international treaty standards in trade and human rights.
- Efforts were made to engage the private sector and the policy community to take stock of Canada's role in global knowledge governance regime and its influence on international property policies. As a result of these efforts, a multi-national and multi-disciplinary group of authors are currently working on a series of policy papers containing strategic recommendations on implementing the development agenda of the World Intellectual Property Organization.
- Collaboration with international partners on the World Trade Organization's Institutional Reform project. The objective of this project is to take five key topics and recommendations from the 2004 consultative report on the future of WTO as an international organization and develop them into specific, concrete, practical proposals, capable of being implemented within the WTO. This project has received funding from the International Development Research Council to enable it to continue beyond the discontinuation of NCE–NI funding.

- EDGE developed research groups and held workshops/meetings on 1) auto trade and investment policy (in collaboration with AUTO21 Network of Centres of Excellence) and on 2) the implications of global value chains (in cooperation with Foreign Affairs and International Trade Canada and Industry Canada).

EDGE spent much of its first year working on establishing linkages and partnerships which impeded its ability to deliver key milestones in time for the mid-term review. Nevertheless, EDGE mobilized the private sector in Canada to work together with major think tanks, prominent researchers and federal and provincial government departments to develop several key new projects on the impact of the emerging economies on Canada as well as on the governance structures of international organizations.

Organizational impacts

The non-renewal of NCE–NI funding for EDGE and its subsequent cessation make the long-term organizational impacts difficult to assess. However partners have reported some broader impacts for their organizations following their involvement with EDGE.

More specifically, partners also feel that their involvement with EDGE has raised their visibility, particularly with government, which will benefit their organization. The collaborations initiated by EDGE will continue in the form of several important projects which the network has played a key role in establishing. Although no longer funded by NCE–NI, the Scientific Director has managed to maintain the EDGE network, albeit on a smaller scale (i.e., project-based), and continues with knowledge transfer activities such as workshops and books. The network partners interviewed still have relationships with some of the other network participants, but on a much reduced scale compared to when EDGE was funded by NCE–NI. The long-term continuation of these linkages remains fragile.

Appendix B Data Collection Matrix (DCM)

Evaluation issues/Questions	Indicators	Success Case Study		Unsuccessful Case Study		Counterfactual Analysis	Comparative Analysis	Document and File Review
		NCE–NI Interviews	Receptor Interviews	NCE–NI Interviews	Receptor Interviews			
Relevance								
1. Are the program's mandate, objectives, and activities consistent with the priorities of the current government's Science and Technology Strategy?	1.1 Alignment of program objectives with government priorities 1.2 Evidence of inconsistencies between the program and the government priorities 1.3 Opinion of different actors regarding the alignment of the program and the government priorities	●	●	●	●	●	●	●
2. To what extent the program objectives are adapted to the needs of researchers/receptor communities?	2.1 Opinion of network managers and scientific directors regarding the program design and objectives 2.2 Opinion of network receptors communities (partners) regarding the program design and objectives 2.3 Opinion of different actors on the niche of the program for researchers/receptors communities in the context of the current NCE program portfolio and other networking/partnership programs	●	●	●	●	●	●	●
Results								
3. Has the objectives of interaction, partnerships and networking of both researchers and receptors been met?	3.1 Number of partnerships developed through the new initiatives 3.2 Number of receptors communities involved 3.3 Receptors communities' perception of the benefits of networking 3.4 Receptors communities' perception of the change in behaviour, culture or attitude 3.5 Evidence of external funding/leveraging	●	●	●	●	●	●	●
4. To what extent are the NCE–NIs broadly based, multi-sectoral, multi-institution and/or multidisciplinary in terms of collaboration, partnership and networking?	4.1 Evidence of multi-sectoral networking 4.2 Evidence of multi-institution networking 4.3 Evidence of expansion of networking	●	●	●	●	●	●	●

Evaluation issues/Questions	Indicators	Success Case Study		Unsuccessful Case Study		Counterfactual Analysis	Comparative Analysis	Document and File Review
		NCE–NI Interviews	Receptor Interviews	NCE–NI Interviews	Receptor Interviews			
	4.4 Evidence of increased collaboration	●	●	●	●		●	●
	4.5 Nature of developed linkages (e.g., multidisciplinary)	●	●	●	●		●	●
5. To what extent are the developed partnerships sustainable over time?	5.1 Number of researchers and receptors communities collaborations that will persist after grant period*	●	●	●	●			
	5.2 Average duration of researchers and receptors communities collaborations*	●	●	●	●			
	5.3 Opinion of the stakeholders on the likelihood of networks' sustainability	●	●	●	●		●	
6. What is the value added or incremental value due to the NCE–NI funding?	6.1 Evidence of the value added or incremental value for <u>collaborative research</u>	●		●		●	●	●
	6.2 Evidence of the value added or incremental value for <u>interdisciplinary research</u>	●		●		●	●	●
	6.3 Evidence of the value added or incremental value for <u>knowledge mobilization/translation and transfer</u>	●	●	●	●	●	●	●
	6.4 Evidence of the value added or incremental value for <u>success (achievement of strategic outcomes)</u>	●	●	●	●		●	●
	6.5 Evidence of the value added or incremental value for <u>strategic positioning and network sustainability</u>	●		●		●	●	●
	6.6 Evidence of <u>other (unintended or unexpected) effects/changes or outcomes</u>	●	●	●	●	●	●	●
Delivery								
7. What are the conditions of success or failure of the New Initiatives?	7.1 Evidence of shared vision	●	●	●	●		●	●
	7.2 Evidence of shared interests	●	●	●	●		●	●
	7.3 Governance procedures	●	●	●	●		●	●
	7.4 Quality of leadership	●	●	●	●		●	●

Evaluation issues/Questions	Indicators	Success Case Study		Unsuccessful Case Study		Counterfactual Analysis	Comparative Analysis	Document and File Review
		NCE–NI Interviews	Receptor Interviews	NCE–NI Interviews	Receptor Interviews			
	7.5 Conjunction of resources from both researchers and receptors	●	●	●	●		●	●
	7.6 Pre-existent links	●	●	●	●		●	●
	7.7 Sustainably and diversity/source of operating funding	●	●	●	●	●	●	●
	7.8 Opinion of the stakeholders on <u>other conditions</u> of success and failure	●	●	●	●	●	●	●
8. Is the initiative delivered in a cost-effective manner?	8.1 Networks' cost per quantified outputs**						●	●
	8.2 Networks' cost per funds leveraged**						●	●
	8.3 Networks' cost relative to identified short-term outcomes/impacts/benefits**	●	●	●	●		●	●
	8.4 Opinion (satisfaction) of the stakeholders on the delivery of the NCE–NI pilot	●	●	●	●	●	●	●
	8.5 Evidence of pilot design and delivery aspects that would requires adjustments/improvement	●	●	●	●	●	●	●

* Obtaining useful data for these indicators is challenging for ongoing NCE–NIs. For indicator 5.1, it would be difficult to obtain the number of collaborations developed through the network that will persist after the grant period for three ongoing networks because their funding cycle ends in 2009–2010—in other words, the period in which evidence for this indicator can be measured has not yet occurred. As such, the perception of network participants will be collected on whether they believe that collaborations developed though the network will persist once the grant period ends, rather than actual counts of sustained collaborations. Similarly, for indicator 5.2 (average duration of collaborations), interviewees could be asked for examples of how long collaborations have lasted thus far, but considering that the ongoing networks have only been operating for 3 years (and so the average duration of collaborations developed through the network will be somewhere between 0 to 3 years) and that NCE–NI funding has been available during the entire period to support collaborations, these data would not be of great value to address the sustainability of the networks over time. Data for both these indicators should be collected by the networks and reported at a later date (i.e., some time after the funding cycle is complete).

** Data to produce comparable indicators with similar programs (SSHRC's SKC program) were not available

Appendix C Web Scan of Canadian Funding Programs with Similar Characteristics

Table 17 Web scan of Canadian funding programs with similar characteristics (seven programs)

Organization/Program	CIHR Knowledge Transfer Grants: Knowledge to Action (KTA) 2009-10	SSHRC Strategic Knowledge Cluster Grants (SKC)	SSHRC Major Collaborative Research Initiatives (MCRI)	SSHRC Community-University Research Alliances (CURAs)
Objectives	To facilitate and accelerate the translation of knowledge to improve the health of Canadians, provide more effective health services and products and strengthen the healthcare system. KTA is oriented towards knowledge co-production (integrated KT) and research dissemination to specific audiences (end-of-grant KT).	To build upon and add value to research supported through SSHRC's other programs by supporting Canadian researchers in their efforts to develop and sustain creative, innovative knowledge networks. The Strategic Knowledge Clusters' foci are networking, knowledge mobilization, and research impact.	To support leading edge collaborative research and knowledge transfer in the social sciences. The MCRI involve scholars from different perspectives and with different types of expertise, which implies effective coordination and integration of diverse research activities and research results.	To support the creation of alliances between community organizations and postsecondary institutions which, through a process of ongoing collaboration and mutual learning, will foster innovative research, training and the creation of new knowledge in areas of importance for the social, cultural or economic development of Canadian communities.
Network oriented	No	Yes	No	No
Partnership oriented	Yes	Yes	Yes	Yes
Eligibility	In addition to standard CIHR applicant roles (i.e., Principal Applicant, and Co-Applicant), two additional applicant roles apply to this competition: Principal Decision-Maker Applicant and Decision-Maker Applicant, which are equivalent to Principal Applicant and Co-Applicant respectively (as an individual who is likely to be able to use the knowledge generated through research to make informed decisions about health policies, programs and/or practices.)	Cluster Director: Applications must be submitted by the cluster director on behalf of all the cluster participants. Cluster Participants: must include a sufficient number and range of participants to cover the perspectives and expertise required by the issue or topic outlined in the proposal and to fulfill the objectives of the program.	The project director must satisfy all the regular eligibility requirements for an applicant (principal investigator) as set out in the definitions. The research team must represent a minimum of two Canadian postsecondary institutions (including the Canadian host institution), and must include sufficient members to cover the diverse perspectives and expertise required by the breadth of the research questions outlined in the proposal.	Applications must be submitted jointly by one or more postsecondary institutions and one or more organizations from the community.
Allowable Costs: Research	Yes (support for data collection, research assistant)	No	Yes	Yes
Allowable Costs: KT	Yes	Yes	Yes	Yes
Main disciplines	Health related	Social Sciences related	Social Sciences related	Social Sciences related
Funding amount	Up to \$100,000 annually	Up to \$300,000 annually	Minimum \$100,000 per year	Development grant of \$20,000 at the LOI stage Up to \$200,000 annually
Funding length	Up to 2 years	Up to 7 years	Up to 7 years	Up to 5 years
Maximum funding	\$200,000	\$2,100,000	\$2,500,000	\$1,000,000

Organization/Program	NSERC Strategic Network Grants	MITACS ACCELERATE (Tri-Council)	NCE Management Funds (NCE-MF)
Objectives	To increase research and training in targeted areas that could strongly enhance Canada's economy, society and/or environment within the next 10 years. Funds large-scale, multi-disciplinary research projects in targeted research areas that require a network approach and that involve collaboration between academic researchers and Canadian-based organizations. Strategic Networks may be local, regional or national.	MITACS ACCELERATE is a national internship program for graduate students managed by MITACS Inc and supported by the Government of Canada and several provincial ministries, which connects companies and other organizations with the vast research expertise in Canada's universities.	To provide support to networks that can demonstrate that, beyond their final seven year cycle of NCE funding: <ul style="list-style-type: none"> • their knowledge and technology transfer and exploitation activities will continue to be of critical importance to Canada's economic and social development; • the funding requested is essential to realizing the full benefits of the NCE funding previously received.
Network oriented	Yes	No	Yes
Partnership oriented	Yes	Yes	Yes
Eligibility	The network must involve a minimum of five academic researchers who are eligible to receive NSERC funding, from at least three separate departments/faculties or institutions. The applicant should be an established researcher with a solid track record in collaborative research, student training and grant management, and who demonstrates the leadership and other skills necessary for managing a complex, interdisciplinary, multi-institutional project. The network must have the strong commitment and active involvement of Canadian-based partners.	The conduit between the partner company (must be for-profit) and the university is a graduate student or post-doctoral fellow, who brings a new perspective and the latest knowledge to a research challenge faced by the partner. The project undertaken by the intern is defined by the partner company. Projects can be undertaken in a wide range of areas, including manufacturing, technical innovation, business processes, IT, social sciences and much more, and it can involve any university faculty or department.	Eligible networks are: <ul style="list-style-type: none"> • Networks ending their first seven-year NCE funding cycle and that do not apply for a second 7-year cycle • Networks ending their second seven year NCE funding cycle.
Allowable Costs: Research	Yes	Yes (via internships)	No
Allowable Costs: KT	Yes	Yes (via internships)	Yes
Main disciplines	Natural sciences and engineering, possibility to include researchers outside the natural sciences and engineering as co-applicants.	Tri-Council (three granting agencies)	NCE (Tri-Council)/(three granting agencies)
Funding amount	Between \$500,000 and \$1,000,000 annually	<i>Four-month internship:</i> partner contributes \$7,500 which is matched by MITACS through the support of federal and provincial funding partners. The intern receives a minimum stipend of \$10,000. The remaining \$5,000 supporting other research costs <i>8 and 12-month internships:</i> \$15,000 or \$22,500 from both the partner and MITACS.	Up to \$500,000 annually
Funding length	Up to 5 years (only one term)		Up to 2 years
Maximum funding	\$5,000,000	N/A	\$1,000,000

Source: Program documentation available on the granting agencies' web sites, except for SSHRC's SKC program: the web page is no longer available and was provided by SSHRC.