LOI For Phase 2 Projects / Subprojects template

Completed Letters of Intent (LOIs) should be sent as email attachments to applications@grand-nce.ca with "GRAND Phase 2 LOI" as the subject line.

A successful proposal will address problems of significant relevance to the GRAND research program and must meet all of the guidelines for projects within GRAND, including the following mandatory requirements:

- The project must address significant research issues relevant to one or more of the GRAND Challenges identified for Phase 2 of the GRAND NCE
- The Project Leader and Co-leader must work at different universities; often they will represent multiple disciplinary approaches, appropriate to the project.
- There must be at least three researchers (including the Project Leader and Co-leader) who are or are eligible to be Principal Network Investigators within the GRAND NCE.
- There must be at least one Project Champion personally involved in planning and carrying out the project who is affiliated with a current or potential GRAND Partner drawn from the receptor community.
- One or more Partners from the receptor community must commit to making significant cash or in-kind contributions to the project.
- A current NSERC Form 100, SSHRC CV, or CIHR Common CV for both the Project Leader and Co-leader must be submitted as attachments to the LOI. Failure to include these attachments will be cause for immediate rejection.

Detailed instructions for completing this LOI template are on Page 2. More information on Phase 2 of the GRAND NCE is available on the GRAND website at the following URL, which will be updated with links to additional information as it becomes available: http://grand-nce.ca/renewal

Please note: If you complete this form using Preview, do not enter more text than is visible within the dimensions of the provided text box. Text that exceeds the visible limits will not be reviewed.

Project Title and Description	○ Full project LOI	○ Subproject only LOI
Title of proposed project Collaborative Research Infrastructures		
Brief description for public use Scholarly work and research is becoming large and interdisciplinary; it needs to be supported and analyzed in novel ways since impact is not what it used to be. Support inolves technical infratsructures of three kinds: (a) adminstrative systems; (b) asset repositories; (c) platforms for conducting experiments. Analysis can be of two types (a) observed and (b) self-reported. The first involves (a) formal productivity; (b) informal/grey impact; (c) activity analysis based on the tools logs. The latter involves surveys of individuals and social networks and their evolution.		

Proposed Project Leader	☑ Form 100, SSHRC CV, or CIHR CCV has been attached
Name Eleni Stroulia	Email stroulia@ualberta.ca
University University of Alberta	Title/Position Professor

Proposed Project Co-leader	☑ Form 100, SSHRC CV, or CIHR CCV has been attached
Name Anatoliy Gruzd	Email gruzd@dal.ca
University (must be different from Project Leader) Dalhousie University	Title/Position Associate Professor

Proposed Project Champion	○ Confirmed	◉ Contacted	○ Not Yet Contacted
Name Charles Humphrey	Email chuck.humphrey@ualberta.ca		
Organization UAlberta, CASRAI, IASSIST, CODATA	Title/Position Head, Data Library & Academic Director, Research Data Centre, UoA		

Instructions for Letter of Intents for Phase 2 of the GRAND NCE

Front Page: All fields are mandatory. (a) Provide a project title and indicate whether the LOI is for a full project with subprojects or is only for a single subproject. LOIs that only propose a subproject will be matched with related LOIs to form full projects. (b) Provide a brief description of the proposed research suitable for posting on a public website that explains the project in terms accessible to the digital media community. (c) Provide the name, email address, university, and title for both the proposed project leader and the proposed project co-leader. (d) Provide the name, email address, organization name, and title for the proposed project champion (a person affiliated with a project partner who will be engaged in planning the project) and indicate whether the project champion has been confirmed, has only been contacted, or has yet to be contacted.

This Page: Read all of the instructions for completing the LOI template before filling out any of the information on later pages.

In **Part A**, provide the names of up to six partner organizations, indicate whether each has been confirmed, has only been contacted, or has yet to be contacted, and provide a brief explanation for how each organization will be involved in the project either as an active participant or as a potential receptor that will benefit from the research.

In **Part B**, list all GRAND projects that are related to the new LOI and also any other LOIs you are aware of that may be relevant to the new LOI.

In **Part C**, list up to nine additional co-applicants (not including the individuals listed on Page 1) who are expected to be involved as active participants in the research project. Indicate for each whether the individual is a project champion from the receptor community or an academic researcher.

In **Part D**, succinctly summarize (up to one half page) the problem being solved by the research.

In **Part E**, provide an overview (up to one and one half pages) of the proposed solution and the approach that will be taken in the research. Include relevant details about the theoretical framework, significant previous work, methodological approaches, and how the research will be managed and structured to achieve the desired goals. If you checked the box on the **Front Page** indicating you are submitting an LOI for only a subproject, just use the first box for **Part E**, don't use the second box on the continuation page.

In **Part F**, describe up to six subprojects (up to one half page for each subproject) that will be pursued during the first two years of the project. Indicate for each subproject the research question(s) that will be addressed, the relationship of the subproject to the rest of the project, the deliverables and assessment criteria appropriate for evaluating the success of the subproject, and the time frame (start and finish dates) estimated for the subproject. If you checked the box on the **Front Page** indicating you are submitting an LOI for only a subproject, enter "**N/A**" in all of the fields in **Part F** and continue to **Part G**.

In **Part G**, explain the likely technology transfer, knowledge mobilization, knowledge translation, or other activities that are planned for the project and how they may provide benefits to the receptor community.

In **Part H**, explain how the project will interact with other projects and the ways in which it may support or otherwise enhance the overall impact of the network.

In **Part I**, explain specific ways in which current or future partners will participate in the project and the mechanisms that will be used to ensure that this takes place.

In **Part J**, for each of the seven GRAND Challenges check whether the project will make its primary research contribution (check exactly one box) or a secondary research contribution (as many additional boxes as apply) to the challenge. Check "**N/A**" for any challenge that is not significantly impacted by the proposed research. For each challenge where a contribution is expected, provide a brief description of the likely contribution and its importance to the receptor community. The "Other" category may be used to describe anticipated contributions to the research infrastructure and enabling technologies and methodologies used in the GRAND NCE, or to other areas relevant to digital media that may be impacted, if the proposed research is expected to make a significant contribution in these areas.

Part A: Receptors and Partners list up to six organizations

Organization	Confirmed	Contacted	Not yet contacted
MediaSpotMe	◉	○	○

Brief description of involvement
Stavros Rougas <stavros@mediaspotme.com>
Stroulia is developing an engage grant with them on integarting different sources of information about experts (University expert profiles, Forum results, their own curated DB).

Organization	Confirmed	Contacted	Not yet contacted
SAP and CA	◉	○	○

Brief description of involvement
Lyons is currently working with SAP Jam team; they are interested in providing access to people, technology but have not committed funding. Lyons is currently working with CA Technologies User Community Team; they have developed a social platform to support community interaction and information sharing and may be interested in results of our study;. They have committed funding for a related project on social network analysis of their community, which will share methods with CRI.

Organization	Confirmed	Contacted	Not yet contacted
Intel	○	◉	○

Brief description of involvement
Intel will provide data and in-kind support to Wellman's activity on Networked & Distributed Work (ENOW).

Organization	Confirmed	Contacted	Not yet contacted
Hacking Health	◉	○	○

Brief description of involvement
Jeeshan Chowdhury <jeeshan.chowdhury@gmail.com>
Stroulia has developed a plan for analyzing the data collected by their social-network system for match-making technologists and healthacre-related clients, and for monitoring a number of term-long projects established through this process with the students in a UoA course as developers.

Organization	Confirmed	Contacted	Not yet contacted
Elsevier	◉	○	○

Brief description of involvement
Gruzd has been working with Elservier, who recently bought Mendeley, on a number of web apps for their SciVerse app platform - see http://socialmedialab.ca/?p=6541.

Organization	Confirmed	Contacted	Not yet contacted
OpenText	○	◉	○

Brief description of involvement
(Husam Zein, Senior Program Manager, hzein@opentext.com) Booth has started a discussion with OpenText about possible future collaboration between the GlobalChild, the Forum team and OpenText as part of their OpenText Developer Network and their AppWorks system.

Part B: Relations to existing and proposed projects in the GRAND NCE

Related Current Projects
MEOW, NAVEL

Related LOIs
The ENOW and SNETS LOIs are conceived as CRI subprojects; due to their complexity and scale they have been described in separate LOIs, submitted by Wellman and Marin respectively. GlobalChild, developed by Booth, and Sensemaking++ are also related to CRI.

Part C: Additional Co-Applicants List up to nine additional co-applicants		
Name Kellogg Booth	Email ksbooth@cs.ubc.ca	☐ Project Champion ☑ Researcher
Organization University of British Columbia	Title/Position Professor	
Name Luanne Freund	Email luanne.freund@ubc.ca	☐ Project Champion ☑ Researcher
Organization University of British Columbia	Title/Position Assistant Professor	
Name David Harris Smith	Email dharrissmith@gmail.com	☐ Project Champion ☑ Researcher
Organization Mcmaster University	Title/Position Assistant Professor	
Name Kelly Lyons	Email kelly.lyons@utoronto.ca	☐ Project Champion ☑ Researcher
Organization University of Toronto	Title/Position Associate Professor	
Name Alexandra Marin	Email alexandra.marin@gmail.com	☐ Project Champion ☑ Researcher
Organization University of Toronto	Title/Position Assistant Professor	
Name Catherine Middleton	Email catherine.middleton@ryerson.ca	☐ Project Champion ☑ Researcher
Organization Ryerson University	Title/Position Professor	
Name Mike Smit	Email msmit@dal.ca	☐ Project Champion ☑ Researcher
Organization Dalhousie University	Title/Position Assistant Professor	
Name Barry Wellman	Email wellman@chass.utoronto.ca	☐ Project Champion ☑ Researcher
Organization University of Toronto	Title/Position Professor	
Name Frauke Zeller	Email fraukezeller@gmail.com	☐ Project Champion ☑ Researcher
Organization Ryerson University	Title/Position Assistant Professor	

Part D: Summarize the problem being solved (1/2 page)

Today's grand challenges, such as climate change, energy shortage and the threat of pandemics, can only be addressed by large-scale projects that involve experts across disciplines and organizations, from academia and industry, and geographically distributed. To effectively support and manage such large-scale projects, important innovations are called for, including (a) integrated digital research infrastructures, on which to conduct the work, manage the team members and activities, and disseminate the work products; (b) new models of communication, interaction, collaboration and dissemination, through traditional scholarly channels and newer special-interest social networks; and (c) new methods for studying research and scholarly activity and its impact.

In the first phase of GRAND, the MEOW and NAVEL projects investigated some of these issues, reflecting on the GRAND community itself. An important outcome of this work has been the development of the Forum, a software platform that primarily supports the administrative functions desired of a research infrastructure. The Forum supports the collection of information about the community and its productivity, the conduct of surveys to collect data on the community's collaborative ties and perceptions, and the statistical analysis of the collected data to understand the community's structure, work processes, and their evolution.

Building on this work, in this next phase, we propose (a) to extend the functionalities of the Forum by integrating it with third-party tools to support specific the scholarly activity and the broad dissemination of its products, and (b) to expand our data-analytics toolkit in order to examine the interplay between types of tool support, research focus, research-community structure and dynamics, and research productivity and (broadly conceived) impact. By partnering with a number of different research communities (macGRID, CWRC, CWN and Hacking Health) we will be able to apply our tools and analyses to these different communities and, therefore, to comparatively analyze how discipline-specific factors impact collaborative activity and productivity.

Part E: Summarize the proposed solution and approach (1 ½ pages)

The proposed project involves three major activities.

The first activity (extending the original MEOW agenda) involves tool development. We plan to integrate the Forum with a number of tools to provide more comprehensive support to the researchers' activities. In principle, we are considering three types of tools. The first type involves standard third-party services for scholarly work, such as ORCID (a system for persistent digital identifiers for researchers), the Canadian Access federation (CAF) that manages access-control credentials to a number of Canadian organizations, and the Canadian Common CV (CCV). These tools are designed to enable the federation of the research ecosystem and simplify access for researchers. As we take advantage of these tools by integrating them with our platform, through the ACRI subproject, we will work to disseminate tools and expertise developed within GRAND to Canada's broader research community. The second type involves shared resources and services used by the community to conduct their specialized, discipline-specific research, such as for example software-asset repositories, curated data sets, and virtual computing platforms. The usage logs of these types of tools capture rich information about the intensity and the patterns of discipline-specific research activities. The MVW subproject is an example of this activity, focusing on a shared VW and a repository of shareable assets. Finally, we will integrate the Forum with research-dissemination platforms, such as publishers' web sites, collaborative-reading applications (such as Mendeley now owned by Elsevier), and scholarly social networks (such as Academia.edu, and ResearchGate for example). This last category of tools enables the broad sharing of research results (which is at the core of the DaD sub-project). Through this more comprehensive research infrastructure, we will be able to better support and study more aspects of the collaborative research activity, from the way research is actually conducted on shared platforms, its dissemination through publications and HQP, and its reception by the global research community. This comprehensive tool support will provide the basis for the CoDyn subproject. As with the design of the Forum, we will adopt service-oriented standards for the integration of these software tools; we will develop APIs to enable the access of their data; and we will develop a comprehensive set of visualizations to support its systematic exploration.

The second activity (extending the original NAVEL agenda) involves the analysis of rich multi-dimensional data (research-tool usage, relations among researchers, publications and activities, metrics of research impact on various dissemination platforms, and information self-reported through surveys and interviews) to gain insights about collaborative interdisciplinary research, learning,

Part E: Summarize the proposed solution and approach (continued, but only for full project LOIs)

and knowledge transfer. Through social-network analyses we plan to estimate the centrality of individual researchers in the context of different networks, based on affiliation, works-with, co-publication, co-citation, co-readership, and co-funding relations. Through statistical methods, we plan to analyze the correlations between inter-disciplinarity, seniority, geographical proximity, social-network centrality (of the relation types mentioned above), research productivity and impact, and investigate the following research hypotheses: (a) senior researchers tend to be more interdisciplinary than junior ones; (b) more interdisciplinary researchers/projects are more productive; (c) more interdisciplinary researchers/projects are more likely to have broad impact in terms of citations, readership and fudning. Through machine-learning methods, such as clustering and sequence mining, we plan to discover typical patterns of researcher profiles, projects, and research activity over time. Exploring these questions further, the ENOW subproject (submitted as an independent LOI) will focus on mapping the structure of the GRAND community (including researchers and partners) and how it supports collaboration and knowledge/technology transfer; ENOW will also study employees at the Intel Corporation to better understand how institutional setting affects collaborative ties, including (a) the connections that define the structure of each network; (b) the exchanges the key players; and (c) the internal groupings that affect community integration. The SNETS subproject (also submitted as an independent LOI) will focus specifically on the issue of "seniority" and how GRAND and NCEs more generally benefit young professionals: it will examine how GRAND assists HQP in forming professional networks and how these networks affect their training, jobs search, and performance on their first job. Through a longitudinal study, we will examine how GRAND HQP (compared to CWN HQP and graduate students in non-networked typical University settings) from several disciplines connect to peers and senior researchers; data collection after HQPs leave GRAND will demonstrate how they mobilize networks to find jobs and, later, to work on the job.

Recognizing that these analyses are not sufficient to explain the patterns of collaborative work and knowledge transfer, nor do they provides insights regarding the mechanisms (including policies, practices, and information technology support) that lead to the formation of the relationships and resulting outcomes, we plan to augment them with semi-structured interviews with researchers, partners, corporate employees, and students. Following such a mixed-methods methodology, we will make best use of the technical and social-science skills of our team towards integrating observed knowledge and reported subjective information and gaining deeper insights regarding effective collaborative research and knowledge and technology transfer.

We have partnered with a number of research communities, in addition to GRAND. macGRID is a community of researchers and practitioners, working on virtual worlds on a shared virtual OpenSim platform, supported by SharcNet. CWRC is a community of digital humanists working on born-digital and digitized texts on a CFI platform, currently under development. Hacking Health is an organization that brings together health-care providers, software teams and designers for developing health-related software applications. The organization manages its client-developer matchmaking process through a social-network tool. CWN is the Canadian Water Network NCE, interested in participating in our young-professionals study. All these organizations are interested in extending their infrastructure with our Forum-centered tools and our comparative analyses of these communities will enable us a more in-depth study of research partnerships.

Finally, the third activity of our project will focus on providing a number of specific services to the researchers in our community.
1) We will support data-interchange between the Forum and the CCV. This activity is already underway.
2) We will develop an aggregator service for collecting a comprehensive researcher profile, based on the data currently collected on the Forum, references to the researcher in publishers' web sites and scholarly research networks, authoritative expertise catalogs such as the ones developed by Universities, and potentially traces of the researchers' activity in open-ended social networks. This service will provide the base of our FiRE and DaD subprojects. Possible receptors of this activity include MediaSpotMe (a media company) and the communications officer of GRAND.
3) We will develop a log-analysis service toolkit to support the managers' awareness of their platforms' usage (a service relevant to GRAND, macGRID, CWRC and Hacking Health). We will aim to design this service as a composition of general and domain-specific components so that we can collect precise and meaningful data, while at the same time being able to comparatively analyze this data across platforms. macGRID is a particularly interesting case study; as an example of a platform on a virtual shared infrastructure, it can substantially benefit from this service as a means of effectively managing this platform to maximize its usage and minimize its downtime. This will be the subject of our MVW and HH subprojects.

Part F: Subprojects list up to six subprojects that will be undertaken in the first two years (only for full project LOIs).

Subproject Name (1)

FiRE - Finding Research Experts (lead: Luanne Freund)

Summary

In this subproject we focus on the problem of expertise location in a research context. This work builds on previous research that resulted in the design of Virtu, an expert search system built as a front end to the Mendeley academic social network, and later implemented in the GRAND Forum. Our approach to expertise location is to identify, extract and represent diverse facets of expertise, such as for example, experience, depth of knowledge and productivity, and to support the searcher to explore the dataset through manipulation of these facets. Currently, there are many web-based systems available to search for scholarly output: e.g. Google Scholar, Microsoft Academic Search, Mendeley, but none of these focus on finding the people behind the research. FiRE will examine two use cases: (a) researchers seeking collaborators and media, and (b) industry representatives seeking consultants or subject experts. The project will entail an environmental scan of existing expert search technologies and relevant standards and tools to support interoperability; a user study to determine how expertise is conceptualized within different groups and how experts are recognized; and the development and testing of prototypes within the GRAND research network infrastructure. The project will connect to other sub projects within CRI and other GRAND projects that focus on information retrieval, social media and text mining. FiRE will also aim to establish new partners, such as Microsoft Academic Search, and ScienceScape.org.

Subproject Name (2)

CoDyn - Collaboration Dynamics (lead: Kelly Lyons)

Summary

In this subproject, we will study the integration of collaboration tools in the Forum to support meetings, social and work interactions, and decision making in the context of structured research workflows as well as ad-hoc collaborative activities. We will integrate existing and newly developed social awareness, collaboration and structured meeting tools (that enable research teams to accomplish collaborative research workflows and decision-making, brainstorming tasks) into the Forum and study their use in collaborative research networks. To this end, we will (a) identify and characterize the set of tools that researchers currently use to carry out their collaborative work and characterize the tool use based on point of the research in which they are used (and how), frequency of use, satisfaction with use, and other characteristics; (b) articulate research work processes and workflows and design tools support them; (c) identify less-structured team activities (such as brainstorming, idea selection) and develop and integrate tools that support those activities; (d) identify social and cooperative work tools (that provide profiles, show awareness, and enable chat) to integrate within the Forum; (e) develop a set of structured workflow-support tools that can be used to carry out structured and unstructured team meetings (making use of game elements in cooperative work platforms); and, (f) analyze how the teams use the collaboration tools in the Forum including an analysis of their satisfaction with and outcomes resulting from using the tools.

Subproject Name (3)

DaD - Dissemination and Discovery (lead: Mike Smit)

Summary

This subproject examines methodologies, analyses, and tools to support and study research dissemination and discovery, and the cloud-scale data required to inform these. For the research communities identified, there are two key questions: (a) which are the most effective dissemination pathway, and what mechanisms would help improve and understand the process? and (b) how do researchers new to a field / community discover reputable and relevant research artifacts, venues, colleagues, etc.? By instrumenting dissemination mechanisms (e.g. standard server logs, social media mentions/shares, citations) to assess impact, we can gather phrases, sentences, and keywords consumers used to describe a given research artifact. These relevant terms form an emergent, human-curated topic map that can be used to improve dissemination efforts, to inform expert identification efforts (e.g. FiRE), to create or inform a topic-driven researcher social network, etc. Informing discovery begins by understanding what researchers unfamiliar with a field are capable of asking, and what answers they are seeking: how do new researchers evaluate relevance and reputation? From this understanding, we can develop approaches and tools to augment existing sources of information (e.g. mentoring) with information from the Forum++, academic social networks, topic maps, etc.

Part F: Subprojects (continued, only for full project LOIs)

Subproject Name (4)

ACRI - Advancing Canada's Research Infrastructure (lead: Catherine Middleton)

Summary

The objective of this subproject is to work with the Digital Infrastructure Leadership Council to provide research expertise on the further development of research infrastructure in Canada. GRAND researchers are already actively engaged on this issue: Catherine Middleton is on the board of CANARIE, Canada's advanced research and innovation network; Geoffrey Rockwell is a member of the Digital Infrastructure Leadership Council; and Barry Wellman is a Member of the Expert Panel on Memory Institutions, of the Council of Canadian Academies. The DIL council is tasked with leading the further development of research infrastructure in Canada, coordinating efforts among various infrastructure providers (including CANARIE, Compute Canada, CUCCIO, and CARL among others), user communities and additional stakeholders including the granting councils, CFI and Industry Canada. The expert panel is tasked with the assessing and reccomending digital means for preserving Canada's Heritage. This subproject will work to disseminate tools and expertise developed within GRAND to Canada's broader research community as appropriate, seek additional support for work done within GRAND to develop research infrastructure (e.g. through CANARIE's Research Middleware program) and work with the Digital Infrastructure Leadership Council to identify and research the specific challenges of further advancing Canada's research infrastructures.

Subproject Name (5)

MVW - Multidisciplinary Knowledge Transfer and Collaboration in Virtual Worlds (leads: David Harris Smith, Frauke Zeller)

Summary

The purpose of this study is to learn about multidisciplinary collaboration in the context of a research and creation network of artists, technologists, and scientists working together in virtual worlds (VW) media through four specific activities. First, we will conduct focus groups to learn about the salient social and technological features of multidisciplinary collaboration in VWs and to establish the design of subsequent qualitative and quantitative measures of individuals, groups, and technologies engaged in the research network. The focus group will convene twice, for an open discussion of collaboration, and a Q Sort method to rank statements on salient issues in VW collaboration derived from the first meeting. Second, we will apply qualitative/quantitative methods to describe and evaluate collaboration in the VW research network and associated physical world sites. We will conduct a longitudinal survey and ethnographic study of the experiences, practices, and processes of collaborators, the contents and quality of communications, the use of various communication technologies (in and out of the VW), the usage logs of the VW platform and the in-world tools and objects, the use of tools and technologies external to VWs, and the sites and context of their collaborative work. Next, we will analyze and synthesize the qualitative and quantitative accounts of VW research collaboration, drawing upon prior contributions to the field and relevant theory. Finally, we will disseminate the research widely through online and traditional academic venues.

Subproject Name (6)

HH - Studying the relationship between clients and software teams with Hacking Health (lead: Eleni Stroulia)

Summary

Healthcare is a critically important field that deserves attention from the best minds in technology. Many of the people who best understand the problems in healthcare lack the knowledge and network necessary to design and build technological solutions. Likewise, very few designers and developers have the unique medical knowledge and credibility necessary to successfully innovate in the healthcare space. This knowledge-network gap is costly: problems remain unsolved, and current solutions remain inefficient. We must empower technology innovators with the knowledge and network required to improve healthcare. In this subproject, we will modify the weekend hack-a-thon model of Hacking Health (HH) to integrate it with a term-long UoA software-engineering course (CMPUT401) and we will study the collaboration between the healthcare clients and the software teams through the logs recorded by the HH Sparkboard and the CMPU401 GitHub. In addition, we will conduct interviews and focus groups to collect information about the participants' expectations and views on the process. Note that the HH Sparkboard is an example of the types of tools we envision to develop in CoDyn. This project will essentially apply the CRI methdology to a small scale activity, focusing on the client-developer relationship and the technical and social factors that inflence its success.

Part G: Summarize how the proposed project will pursue knowledge and technology exchange and exploitation activities within the context of GRAND.

CRI will pursue KTEE through three different activities.
First, through our collaboration with a number of different communities of knowledge workers (GRAND, CWN, CWRC, macGRID, HH, Intel), we will have the opportunity to study the general question of "how modern digital tools support and inform collaborative work" in a variety of contexts and variants. The various parallel activities across these communities will inform each other and will enable knowledge transfer (of tools and analysis results) across them.
Second, through our collaboration with our industrial partners (CA, SAP, MediaPotMe, Elsevier and OpenText), we will have the opportunity to integrate our methods and tools in our partners' software infrastructures.
Finally, we will work to disseminate our tools and expertise to Canada's broader research community through our participation to Digital Infrastructure Management organizations (in the context of the ACRI subproject) and, for the social network components, through participation in academic and trade conferences (such as the Sunbelt International Social Network Conference, Canadian Sociology Association, American Sociology Association, etc.).

Part H: Summarize how the project will network with other projects within GRAND.

CRI is fundamentally an "infrastructure" project, in that it aims to develop platforms for research and scholarly collaborative work, across disciplines, organizational boundaries and locations; as such, it is relevant to all other GRAND projects. To some extent, this was true of MEOW and NAVEL, but, having established a mature infrastructure for administrative purposes with the Forum, CRI will proceed to expand the Forum with tools to support collaborative scholarly and research work. This has already started with the ad-hoc wikis that some teams have used to collaborate on the LOI phase and will continue with the integration of software repositories, collaboration-support ools, shared virtual worlds, and third-party tools as well as the new services planned in CRI. We envision that individual GRAND projects will choose to adopt some (or all) of these tools and may even drive the integration of new tools relevant to their activities.
More specifically, there are two points of interaction between CRI and other GRAND projects: the macGRID infrastructure that CRI will study and support will be used by HLTHSIM2.0 and G4HLTH researchers; and CRI analyses of collaborative work will feed into a Sensemaking++ subproject of contribution and influence in collaborative design activities.

Part I: Summarize how one or more current or potential GRAND partners will be engaged in and benefit from the proposed research.

The partner that can benefit potentially the most, in the short term, from CRI activities and products is the CCV development and delivery team. In our development of an exchange mechanism between CCV and the Forum, we aim to construct an extendible framework that could potentially be used by other organizations that may want to exchange data with the CCV system. Given the number of CCV users (all researchers funded by the tri-council across Canada) such a tool could improve the efficiency of all Canadian researchers and effectively support their migration to CCV.
In the medium (and longer) term, industrial partners such as MediaSpotMe, CA, SAP, Elsevier, Intel and OpenText will benefit (a) from integrating specific tools (for data analysis and visualization) in their workflows and software platforms, and (b) from adopting our empirical methodologies to study their own software ecosystems and the ways in which they influence their work processes.
The Intel Corporation will benefit directly from ENOW, which will show the most effective structures and practices for collaborative work in corporate setting. CWN and the School of Graduate Studies at the University of Toronto will benefit from understanding how to support graduate students' learning.

Part J: GRAND Challenges Check all that apply and briefly describe anticipated impact	
Entertainment ☐ Primary impact ☐ Secondary impact ☐ N/A	
Learning ☐ Primary impact ☉ Secondary impact ☐ N/A	By studying how researchers and corporate employees exchange information with colleagues in multiple teams or outside their organization, CRI will understand how knowledge exchanges take place, especially knowledge transfer across sectors and disciplines, and what the most effective structures and practices are.
Healthcare ☐ Primary impact ☉ Secondary impact ☐ N/A	HH and ENOW will contribute to the understanding how multi-disciplinary health care teams function and can facilitate the development of guidelines for their recruitment and management.
Sustainability ☐ Primary impact ☐ Secondary impact ☐ N/A	
Big Data ☐ Primary impact ☉ Secondary impact ☐ N/A	Through the analysis of usage logs of software platforms (especially the macGRID VW) and social-network data, CRI will develop algorithms and tools for studying (analyzing, fusing and visualizing) big multi-modal datasets.
Work ☉ Primary impact ☐ Secondary impact ☐ N/A	The core subject matter of CRI is to support and understand the collaboration of scholarly and research communities, and more generally knowledge workers. Since many (most) types of work today involve teamwork and are supported by digital tools, the potential impact of our findings in this area is substantial.
Citizenship ☐ Primary impact ☐ Secondary impact ☐ N/A	
Other ☐ Primary impact ☐ Secondary impact ☐ N/A	