

# ***SmartCapital Evaluation Guidelines Report***

**Performance Measurement and Assessment  
of SmartCapital,  
Ottawa's Smart Community Demonstration Project**

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**February 2003**

**Presented to SmartCapital Executive Director**

By

***SmartResults Research Team***  
**Centre On Governance, University of Ottawa**

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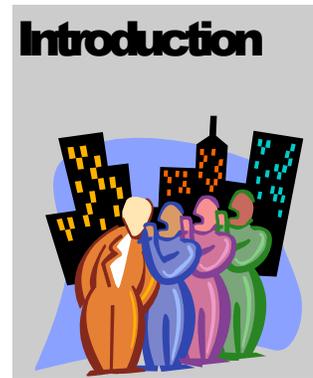
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# Introduction

*Welcome to SmartResults.*

SmartResults is a collaborative project between the Centre on Governance at the University of Ottawa and the Ottawa Centre for Research and Innovation (OCRI). It is a subproject of OCRI's SmartCapital programme, the Ontario initiative of the federally sponsored Smart Communities Demonstration Program (SCDP). As a research project, SmartResults is reviewing SmartCapital's smart community projects to assess their impact on the life of Ottawa's community.

SmartCapital is a multi-million-dollar partnership programme that is being used to advance the use, development, and integration of new information and communications technologies (NICTs) and infrastructure in Ottawa. The vision for this integrated and evolutionary project is articulated its slogan, "Building the world's most connected city". SmartCapital uses the word "connected" to imply more than just technological plumbing but the bringing together of people and organizations in ways and degrees that have not been hitherto possible. This multi-dimensional and multi-stakeholder initiative is being led through the coordinating efforts of OCRI. SmartCapital began as a community response to a variety of local Ottawa attempts to utilize new technologies for the purpose of community building and to leverage the Industry Canada's SCDP support to create a series of community centred applications that use Ottawa's already well established technology infrastructures.

SmartResults will provide a framework and a well-grounded response to the following questions:

- *Has the SmartCapital initiative and its subprojects contributed to the enrichment of the Ottawa community and how?*
- *To what extent have the information and communications technologies that have been utilized contributed to this enrichment and how?*
- *What lessons have been learned from this implementation of a "Smart Community"?*
- *Has the investment in the experiment of SmartCapital been a good use of public funds?*

SmartResults is not and does not see itself in the role of being SmartCapital's auditor or the auditor of any of its subprojects. This is left to others. SmartResults is a witness, a guide, a provider of feedback and ultimately a commentator on SmartCapital's contribution and potential future contribution to the City of Ottawa becoming a 'smart community'. SmartResults is essentially an exercise to capture the social learning around the application of technology in community life that involves the absorption of information, considered reflection and communicated opinion.

The contribution of SmartResults to SmartCapital's accountability to its funders and local citizens is not by way of our ability to assign blame or report on compliance. Its contribution is in collecting information, analysing it and forming judgements that are aligned with the accountability framework of Treasury Board and the Office of the Auditor General. This framework is seen "as a useful and essential management and governance process for:

- understanding the performance of programs, services and operations, agreeing on performance expectations,
- improving performance through supportive assessment and feedback aimed at creating a continuous learning environment, and ensuring corrective action in a timely fashion, and
- demonstrating in a transparent and proactive way to others, including the public, the levels of public sector performance attained."<sup>1</sup>

Our assessment of SmartCapital and its subprojects has four objectives:

- (1) To determine whether SmartCapital's subprojects have achieved their objectives with respect to delivering the agreed upon products and services that are recorded in the individual statements of work for each subproject. This speaks to understanding performance.
- (2) To determine a set of judicious short and long term outcomes that will most likely accrue as a result of implementing the subprojects, and the extent to which these outcomes have already been experienced in the community. Based on empirical evidence, indicators related to the solicited outcomes would be devised and tracked over time to demonstrate evidence of change as a result of SmartCapital. SmartResults will report on these outcomes and conduct an analysis of subprojects' results until the end of the term of the SCDP. However, we recognize that these indicators will likely have their most significant contribution beyond the time frame of the SCDP. This speaks to improving performance of the subprojects themselves.
- (3) To provide better understanding of the dynamics of SmartCapital partnership with respect to strengthening the partners own networks and organization, expanding their opportunities, and enhancing the "connecting" role played by NICTs in the building of Ottawa's community. These dynamics will be examined in the context of the new Smart Growth plan for the City of Ottawa, OCRI's evolving role in economic development in Ottawa, and the expectations of Industry Canada to create a Canadian centre of smart community expertise to showcase Canadian technologies and communities. This speaks to improving the performance of SmartCapital through its contribution to community building.

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<sup>1</sup> Office of the Auditor General of Canada & the Treasury Board Secretariat (1998). Accountability Practices In The Public Sector, 1998 Auditor General of Canada Report, vol. 5, Ottawa, ON.

- (4) To provide empirical documentation of the role played by networks of relationships, created in the process of SmartCapital, in sustaining Ottawa's community innovation. The focus here will be on the relationships between SmartCapital's on-line service providers; between those on-line service providers and other community-based organizations; between those on-line service providers and their beneficiaries (users, clients, and citizens); and among the beneficiaries themselves. All play important roles in the generation and use of Ottawa's information environment. Finally, this speaks to demonstrating performance to local and national stakeholders.

The quest to achieve these objectives begins first with an examination of the stakeholders and partnerships of SmartCapital and then with a review of the principles under which the assessment will be undertaken. The programming and the implementation of the assessment will be conducted for SCDP subprojects and within the context of the perceived needs of their targeted audiences. These investigative results will be combined to inform an assessment of SmartCapital as a whole and how it has achieved its objectives. The impact of these outcomes on Ottawa will be reflected on for its significance.

## SmartCapital

Organizationally, SmartCapital is a division of the Ottawa Centre for Research and Innovation, a not-for-profit community and economic development organization. SmartCapital is a multi-faceted project-based undertaking that fills a three-pronged mission:

- to encourage further construction of a high-speed, high volume, affordable electronic infrastructure in Ottawa,
- to develop advanced on-line services and applications that make use of that infrastructure, thereby improving the quality and convenience of those services for all types of users, and
- to provide public Internet access.

As the Ontario site of the Smart Communities Demonstration Project, SmartCapital will undertake to develop community Internet applications and showcase on-line services. It is comprised of twelve subprojects in five primary areas -- education, business, community services, library services and local e-government sectors. The total investment in SmartCapital over three years will be more than \$13 million, including \$9.5 million of direct and in-kind contributions by SmartCapital's local partners and \$4.5 million in cash support from Industry Canada's SCDP.

The SmartCapital website (<http://www.SmartCapital.ca>) provides comprehensive updated information on the history of the initiative and the details of its current projects and activities. There are currently twenty subprojects operating under the SmartCapital umbrella (eight more than originally covered under the SCDP) involving more than fifty contributing and supporting partners.

**Table 1** below lists the SmartCapital SCDP subprojects that are the subject of SmartResults<sup>2</sup>:

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<sup>2</sup> The use of Sm@rtCapital in conversations is contextual. Sm@rtCapital was used to refer to the community wide project, the organizational unit within OCRI to administer specific externally funded projects, or as a branding label for sponsorship, marketing and promotion purposes. Other projects in Sm@rtCapital will be investigated if they have common components or contextual relationship with the original SCDP subprojects.

Table 1: SmartCapital & SCDP subprojects		
Group	Subproject Title	Champion/ partner(s)
Education Services	1. E-College On-line	Algonquin College
	2. Student Central Services	EduNet
Business Services	3. Ottawa Marketplace	InBusiness Solutions
	4. Entrepreneurship Centre On-line	Entrepreneurship Centre
	5. Ottawa Capital Network	
Community Services	6. Smart Community Centre	Ottawa Citizen (Can West Communications Inc.)
	7. SmartLibrary	National Capital Region Libraries Consortium (Ottawa Public Library, National Library of Canada, University of Ottawa Library, Carlton University Library, and Canada Institute for Scientific and Technical Information)
	8. National Capital FreeNet Community Services	National Capital FreeNet
	9. Smart Services Gateway	OCRI
Local Government Services	10. City of Ottawa Portal	City of Ottawa
	11. E-Democracy	City of Ottawa
Assessment	12. SmartResults	Centre on Governance
Infrastructure <sup>3</sup>	13. SmartCapital on-line Resources (SCOR)	OCRI
	14. Smart Lab(s) and Showcase(s)	National Capital Institute of Telecommunications
		Algonquin Collage
		Telesat
		City of Ottawa
OCRI		

Each subproject has focused on the provision of a particular range of on-line services for a well-defined audience of Ottawa citizens and firms. Each subproject's statement of work outlines its goals and objectives as well as its implementation plan. The statement of work also describes the deliverables for each subproject during the implementation stage. The statement of work also defines some performance measures and targets for the subproject's outputs. **Appendix D** provides a synopsis of each statement of work and the implementation timetable for each subproject.

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<sup>3</sup> The infrastructure sub-projects play a supportive and communicative role to help the sub-projects deliver online services.

## SmartResults and the Centre on Governance

The Centre on Governance is an interdisciplinary teaching and research unit at the University of Ottawa. The common denominator of research work at the Centre is the study of governance and the forms of organizational and social co-ordination that prevail in institutions and firms, and in the development of tools to improve governance at every level. Research is generally conducted with practitioners who have identified governance-related concerns in their organization.

The Centre on Governance has been actively involved with SmartCapital since the early stages of the Industry Canada Smart Communities Demonstration competition. The Centre's researchers prepared the response to "Smart Results" requirements in the SmartCapital proposal documents focusing on community benefits. After finalizing the contribution agreement with Industry Canada for the Demonstration project, OCRI retained the Centre on Governance as an implementation partner to carry the evaluation of the SCDP subprojects. In May 2001, a partnership agreement between OCRI and the Centre on Governance established "SmartResults" as the assessment program for SmartCapital and one of the 12 subprojects to be supported under the SCDP together with a matching in-kind contribution from the Centre on Governance. The SmartResults team at the Centre on Governance currently includes Youssef Barbash, Gilles Paquet, Jeffrey Roy, and Christopher Wilson.

The SmartResults statement of work that is found in **Appendix A** provides the details of its evaluation strategy and deliverables over the 3-year term of Industry Canada's Smart Communities Demonstration Program. The SmartResults team assumes the role of an independent and external evaluator. The team is responsible for assessing the impacts of the SCDP subprojects and will report on their performance and impact over the three-year term of the Smart Communities Demonstration Project. The fieldwork and information gathering for the project will be conducted in co-operation with the subproject teams to provide a firm basis for an outcome assessment. Information gathering tools have been designed in full consultation with the subproject's leaders and SmartCapital's leadership. The SmartCapital Executive Director has been the recipient of the SmartResults reports.

Prior to completing this Evaluation Guideline Report, the SmartResults team drafted and submitted a Performance Management Plan (PMP) for SmartCapital that was submitted to Industry Canada in February 2002. The PMP document became an added deliverable for SmartResults after the first annual national meeting of the twelve Smart Communities Demonstration projects and was added to the original statement of work for SmartResults.

The PMP document has been developed and produced by SmartResults team in co-operation with the SCDP subproject teams. It was based on the theory-based evaluation approach (Weiss, 1997) for classifying *levels-of-evidence* for the implementation and results of SmartCapital's subprojects. It is an expanded implementation of the framework suggested by Industry Canada's Smart Communities Program Directorate.

The Evaluation Guideline Report draws heavily on the PMP draft together with additional consultations with subproject leaders wherein their agreement was obtained on anticipated outcomes, proposed indicators and data collection plans. For each of the subprojects, (see **Appendix D**) information is presented on the outcomes, main indicators, and the key data collection instruments. This report encompasses the content of the PMP, however, the presentation of the information follows a different format from the original PMP.

## Organization of the Report

This Guidelines Report is the first deliverable on SmartResults' statement of work. It provides details of the proposed evaluation and impact assessment of SmartCapital and its SCDP subprojects based on the Smart Community concept researched in the technological change, social science, and governance literature. It draws on the ongoing theoretical work of the Centre on Governance on the subject of 'smart communities' and a variety of published works on community networks, digital cities, smart growth and 21<sup>st</sup> century communities.

Beyond the assessment and accountability requirements of SmartResults, this report is an attempt to develop an understanding of the notions of how technology can be applied to enhance social learning and collective intelligence, particularly in the context of the Ottawa community. It provides a road map for the evaluation of community development efforts using new information and communications technologies. In addition to its specific role in assessing SmartCapital, it will likely be informative as well for community program evaluators and community development practitioners who are tackling the 'thorny' issue of integrating the NICTs into traditional community development processes. With this auxiliary purpose in mind, the report is structured and presented in non-academic style. In addition, at various times excerpts from original sources are presented to expose the reader to the original ideas.

The Guidelines Report is organized in three chapters with six appendices. The appendices are meant to aid the reader find assessment framework information for particular subprojects.

**Chapter One** presents the intellectual basis of SmartResults. First, it provides a contextual analysis of the SmartCapital initiative and its SCDP subprojects. Secondly, it describes the theoretical foundations and produces the analysis to develop the strategy and evaluation framework of SmartResults.

**Chapter Two** focuses on the programming of SmartResults. First, it provides the evaluation criteria and metrics for each of the SCDP subprojects. Secondly, it details the setting of the information structures and data set requirements for evaluating each of the SCDP subprojects.

**Chapter Three** narrows its focus on interpretation of evaluation results. It presents the analytical structure for synthesising performance indicators and drawing conclusions on goal achievements and actual impacts of the SCDP subprojects. Secondly, it provides a coalescence of subproject metrics to provide an assessment basis to judge the success of SmartCapital.

The supporting functions of SmartCapital such as marketing and project management will be evaluated in the final report on SmartCapital. That assessment will make use of the evaluators on-going observations, quarterly progress reports and information collected in interviews with SmartCapital directors.

The six appendices include:

**Appendix A** – SmartResults' Statement of Work

**Appendix B** -- SmartCapital's Business Network

**Appendix C** -- Sample KASA Questionnaire

**Appendix D** -- Evaluation Framework for SmartCapital and Individual Subprojects

**Appendix E** – Sample Web Log Statistics

**Appendix F** -- References

# Chapter 1: The Foundations of SmartResults

*Contextual analysis and the development of the “Smart Community” evaluation framework for SmartCapital and its SCDP subprojects*

## S U M M A R Y

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Project evaluation is a journey. The purpose of Chapter One of the Guidelines Report is to begin that journey by establishing the intellectual underpinnings of the evaluation and assessment framework. Industry Canada, OCRI, the SCDP subproject organizations, the City of Ottawa, various community-based organizations, and the citizens of Ottawa make-up the wide stakeholder environment for SmartCapital’s governance system. Analysing their perspectives provides a basis for setting the approach, scope, and the practical boundaries for the evaluation framework. The assessment framework is therefore informed both by the theoretical understanding and ongoing research of smart communities, but also, by the practical field assessments of practitioners and users involved in the creation of community based on-line services and programs.

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According to Carol Weiss, evaluation is “an elastic word that stretches to cover judgements of many kinds”(Weiss, 1972). The very nature of making judgements, rendering assessments or conducting an evaluation is an interesting mix of art and science, all the more so when the evaluation concerns a new social phenomenon, such as the social impacts from the generalized use of technology in communities.

The evaluation approach for SmartCapital and its SCDP subprojects is therefore dependent on Ottawa’s cultural and paradigmatic context and the contextual ‘fit’ with the philosophical, political, morphological, and pragmatic implications of smart communities. Thus, the process of evaluation starts by grounding what we know about a “smart community” in an Ottawa context, and then using this knowledge to shape the necessary evaluation analysis, and to construct the methodologies to judge the results of SmartCapital and its different SCDP subprojects. The interpretation of any evaluation results would likewise have to be constrained by this local context and any conclusions would of necessity have to be linked to it.

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The terrain of evaluating the “smart community” phenomenon is still very unexposed to research partly due to it’s being less prone to scientific rigor because of its social complexity and the difficulties associated with cause and effect among human interactions. Thus, we need to be always on guard against slipping into debates about the validity and legitimacy of the analysis with respect to other paradigms, theories, analyses, and investigation techniques that could very much alter our understanding of the evaluation work and its results.

It is important to acknowledge that there are many ways of conducting an evaluation of a complex social system. What we have attempted for SmartCapital is well-grounded in the science of evaluation research that has been enhanced through the empirical knowledge provided by the practical experience of subproject organisers. While we believe this assessment foundation is solid, we envision that the framework will be revisited after its initial implementation, which will likely result in some fine-tuning and improvements to the methodology and data collection processes. The evaluation analysis will also benefit from the feedback and constructive criticism of participant groups. In the end, the crux of the SmartResults Guidelines Report is to identify the mechanisms to collect and organize both hard and anecdotal evidence that can inform the best possible judgements of how technology can be made use of to build better communities in Ottawa and across Canada.

## **1 The Mission of SmartResults**

SmartResults is an assessment of a collaborative community network, or more properly series of networks. The very first premise of this work is that SmartCapital and its SCDP subprojects are essentially a federation of independent local community projects, which have collectively presented themselves as Ottawa’s response to the idea of establishing and demonstrating a “Smart Community”. The partnerships involved in SmartCapital have contracted through OCRI to deliver a range of services defined in the contribution agreements signed between Industry Canada and OCRI. Each project partnership has accountability to its own subset of partners and stakeholders for the nature and standards of their project and to OCRI’s SmartCapital for the delivery of generally defined outputs for SCDP. The Guideline Report reflects this federated partnership structure.

However, the mandate of SmartResults extends beyond investigating the simple realization of the contracted outputs and deliverables of each project partnership. SmartResults has also the challenging task of assessing the impacts of SmartCapital and its SCDP subprojects within their relevant constituencies and the community as a whole. SmartResults has been placed in the position of being an observer looking in. This is the unique feature of SmartResults.

The SmartResults assessment of SmartCapital is based on finding pragmatic answers to the following questions:

- (1) Why is becoming a ‘smart community’ important for Ottawa? Does the suite of services presented by SmartCapital and its SCDP subprojects constitute a valid and effective platform for transforming Ottawa into a ‘smart Community’? Is there likelihood of success?***

The foundation for answering these questions lies in SmartCapital’s vision and strategy. The vision and strategy are both clearly discussed in the early documents of the project, both within the letter of intent and the Business Plan, which were presented to Industry Canada. These documents provide the primary

reference for the founding principles and programming directions of SmartCapital and its SCDP subprojects (see OCRI 1999 and OCRI 2000).

During the initial engagement of SmartCapital with its subproject teams and with the SmartResults team, the vision and strategic directions of SmartCapital have remained virtually unchanged. The preparation of this report as well as the Performance Measurement Plan, further confirmed this through personal communications, general discussions, interviews, and presentations by the SmartCapital team and subproject leaders. We found this stability interesting despite the fact that most of the subprojects had adjusted their statement of work in response to a variety of internal and external pressures. At this stage, this suggests to us that SmartCapital has indeed captured a valid and important community theme that resonates well among a wide variety of community groups and leaders.

However, additional stakeholder feedback and contextual analysis will be needed to ground SmartCapital and its subprojects in the larger eco-system of relationships and community forces to provide insight on the value contribution of individual project outputs on their collective capacity to move Ottawa forward as a smart community.

*(2) Can SmartResults develop measures of SmartCapital's success based on the conceptual and practical best practice? Can SmartCapital and its SCDP subprojects define measures that can shed light on the integration of information and communications technologies into Ottawa's community economic and social development process?*

The answer to this question will be unfolding in Chapter Two and Chapter Three of this Guidelines Report.

*(3) Finally, given (2) above, has the public and private investment in SmartCapital and its subprojects been a productive one (see exclusions below), not only in terms of the services it may generate but most especially in terms of the knowledge generated by the project about technology, about the formation and maintenance of community partnerships and the application of technology for the purpose of community building?*

The answer to this question will be a judgement of the SmartCapital team based on both qualitative and quantitative information generated from this study and presented in the final report.

## **1.1 Exclusions from Evaluation Tasks**

SmartResults is an investigation of a community development effort. It is imperative to observe that SmartResults and the Guidelines Report have not been developed for any of the following purposes:

### **(1) Auditing**

SmartResults is not performing a financial auditing or any other type of auditing, internal or external, for SmartCapital or its SCDP subprojects. Internal auditing and monitoring functions are governed by the contribution agreement with Industry Canada. Partners are responsible for reporting expenditures and revenues to SmartCapital project office in quarterly reports. SmartResults will use the quarterly reports and other submitted financial data to assess sustainability and comment on accountability.

## **(2) Assessment of Return on Investment**

Although SmartCapital uses public and private funding sources, SmartResults is not evaluating SmartCapital or its SCDP subprojects as an investment project. SmartResults has no financial programming to calculate return on investment of the different activities in SmartCapital and its different SCDP subprojects. Financial indicators may be developed as needed for tracking performance from a cost savings and efficiency perspective or to extrapolate value outcomes for the community.

## **(3) Technology Engineering Appraisals**

SmartResults will not be involved in a technology or an engineering appraisal of any of the projects. The SmartResults focus is on the multiple impacts of NICTs, the utilization aspects and adoption of applications, and the advantages to end-users in as much as they lead to the generation of a smart community. As such, the information and communications technologies and systems involved will not be assessed from an engineering performance or technical functionality perspective. However, process innovations and new technologies or systems developed in SmartCapital and its SCDP subprojects will be highlighted for their comparative advantages in economic or community development.

The above three types of investigations have unique perspectives and are conducted for specific goals and managerial functions different from the goals of SmartResults. However, some of the indicators that will be developed herein might be helpful for conducting such investigations for others.

# **2 Frames of Reference**

The information presented in this section provides the references and lineage of concepts for establishing and framing the above questions to construct the evaluation and impact assessment approach of SmartResults.

## **2.1 Definition of Smart Community**

For some time advertisers have been using the term ‘smart’ as catch phrase for data embedded or technology intensive products and services. Beyond its obvious implication that using technology means doing things better, the ‘smart’ adjective has come to signify innovation, creativity, or attractiveness in products, services or in new ways of doing business. In what amounts to a growing global movement, governments and public agencies at all levels are embracing the notion of ‘smartness’ to distinguish their new policies, strategies, and programs for targeting sustainable development, sound economic growth, and better quality of life for their citizens and their communities. They associate ‘smart’ with achieving success in those areas. For organizations accountable to the public, ‘smartness’ is most likely to imply a strategy to achieve more efficiency, integration and transparency in their program solutions, often with the aid of technology.

Industry Canada’s definition of a Smart Community in the SCDP context is very much an adaptation of the widely sighted definition developed by the International Centre for Communications in California (ICC) and promoted by the World Foundation for Smart Communities. **Table 2** provides the ICC definition and the two versions of the definition sighted in several of Industry Canada’s publications explaining the Smart Communities Demonstration Program. Each of these definitions strongly recognizes that change requires community leadership with a shared community vision and must be

supported by the actions of groups of participative stakeholders in geographical proximity to one another. The definition in the third column of the table focuses the attention on the community strategies that target changing community dynamics through the evolution of innovative partnerships. It also emphasises the value-laden role of information and communications technologies in implementing those strategies to achieve community goals and objectives, and in particular the role of electronic networks and public Internet use.

On the basis of this understanding, Industry Canada describes the role of the Smart Communities Demonstration Program and anticipates the following specific outcomes from the twelve selected Smart Communities Demonstration Program projects -- one in each of the 10 provinces, in an aboriginal community, and in the North<sup>4</sup>:

- Smart Community Demonstration Program projects will become centres of expertise in the integration of information and communications technologies into communities, organizations, and families.
- Smart Community Demonstration Program projects will provide a powerful catalyst to create other smart communities across Canada.
- The true legacy of Smart Community Demonstration Program projects, however, will be in the development and delivery of strategies and skills, tools and lessons learned for the benefit of all communities seeking to become ‘smart’.

**Table 2: Smart Community Definitions**

<b>Table 2: Smart Community Definitions</b>		
<i>Smart communities: A concept paper</i> , R. Zimmer, Zimmer & Associates, prepared for Industry Canada, Sept. 1996.	<i>SMART Communities™ project</i> , International Centre for Communications, California, Jan.1997.	<i>Guide for Creating a Smart Community</i> , Draft, Industry Canada, Smart Communities Directorate, Nov. 2001
“Any group of individuals, organizations and institutions located in the same geographical area that have made a conscious effort to employ information technology to transform a major portion of their region. This transformation increases economic development and quality of life for the community and is supported by the participation and cooperation among all sectors of the community-private sector, government, health, academia and the general public.”	“A geographical area ranging in size from a neighbourhood to a multi-county region whose residents, organizations and governing institutions are using information technology to transform their region in significant way. Cooperation among government, industry, educators, and the citizenry, instead of individual groups acting in isolation, is preferred. The technological enhancement undertaken as part of this effort should result in fundamental, rather than incremental change”	“Smart communities are where leaders and stakeholders have formed alliances and partnerships to develop innovative ways to extract new economic and social value from electronic networks and the public Internet. Typically, the focus of smart community strategies is to change the dynamics of growth in the community, so as to make it an attractive and competitive location in which to live, invest, and carry on business. This is accomplished by using information and communications technologies as tools to build the community, solve its problems, and transform the way individuals and organizations live, work, learn, shop, and manage their affairs.

<sup>4</sup> Industry Canada (2000). *Smart Communities, Empowering Canadians*, brochure prepared by Industry Canada, Ottawa, ON.

## 2.2 Dynamics of Smart Communities

The SmartResults team has investigated the phenomenon of smart communities and published several papers on the subject that focus on the ecological governance<sup>5</sup> of smart communities. This research has situated the development of smart communities within the evolving ecology of a city-region and identified the importance of networks, both technical and non-technical, in effective social learning and the growth of collective intelligence. The main themes of this research were influential in the development of this Guidelines Report.

The researchers at the Centre on Governance have centralized the theme of “social learning” and its contribution towards collective discriminative capacities, or ‘collective intelligence’, in defining a ‘smart community’. It emphasizes the importance of not only physical technologies but also the social technologies necessary for engagement and consensus building as being of key interest. The Centre also underscores the co-ordination concern that arises with any activity where knowledge, resources and authority are distributed, as is the case with community development. The Centre has therefore provided a theoretical background for the approach of SmartResults in assessing SmartCapital and its SCDP subprojects. A synopsis of the background ideas and thoughts from these research papers are presented in boxed text below.

### **The Centrality of “social learning” in Smart Communities<sup>6</sup>**

A smart community is one that learns fast and well. Learning makes the highest and best use of all the community's intelligence and resources (intellectual, social, physical, financial, personal, etc.) through the use of all the available physical, social, and behavioural technologies, including the new information and communication technologies (NICTs). A smart community is first and foremost a *community* - i.e., a fuzzy geo-political entity that has assets, skills, and capabilities. But it also has a soul, a collective intelligence, and a capacity to transform (i.e., to learn) - because learning is changing. The fact that, in order to transform, it may use NICTs extensively is not inconsequential, but it remains a subsidiary phenomenon. A smart community may be smart without NICTs. Indeed, NICTs are only the tip of the iceberg. The hidden and most significant portion of the iceberg is an ensemble of mechanisms, instruments, and perspectives, generally subsumed under the labels of collective intelligence and social learning. These are the basic forces that make the community smart as a community, and ever smarter as it continues to learn. However, given the wide range of factors contributing to the success of a smart community, it is unwise to reduce smartness to sheer connectedness or to a problem of wiring.

Collective intelligence and social learning mobilize and marshal intellectual, informational, physical and human resources in ways that produce a continuous flow of additional useable knowledge. This intelligence-cum-learning endeavour creates a geo-governance challenge: the challenge of uncovering the best way to organize the geo-technical communities of practice so that they can make the highest and best use of collective intelligence, and so ensure effective social learning when resources, power, and knowledge are widely distributed.

This perspective refocuses the understanding of smart communities around collective learning and collective decision making that may be enhanced through the application of NCITs.

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<sup>5</sup> The patterns of organizational and social coordination that arise in environments where knowledge, resources and power are distributed.

<sup>6</sup> Paquet, G. (2001). *Smart Communities and the Geo-Governance of Social Learning*, *Optimum online*, vol.31, issue 2, <http://www.optimumonline.ca>

### **New Social Technologies<sup>7</sup>**

It is generally accepted that social innovation is a secondary consideration to an emphasis on new technologies for the sake of both invention and commercialization. However, the philosophy of smart communities implies a profound transformation in everyday life that cuts across a wide spectrum of community activities – beyond the scope of economic and market-based innovations that NICTs will continue to be a critical catalyst of.

To better understand the nature of those social transformations will require understanding the processes of human engagement that define existing governance relationships, ie. those formal and informal relationships that bring coordination into a complex community landscape. This social coordination is encouraged locally because proximity can encourage joint action through pre-existing pools of individual and organizational trust.

The development of smart communities in Canada strongly suggests the potential to encourage new forms of interactivity, to modify existing roles and relationships and to extend the relational reach of community inhabitants to foster the development of innovative forms of community collaboration. While the optimal use of information and communications technologies is therefore an essential element of smart communities, it is not the pivotal one. Rather the development of human connectivity and social relationships that are not well represented by wires are the real networks that bind a community. The extent to which underlying social capacities and networks can be fostered to facilitate such partnering is an open challenge that must be met with new social innovation.

### **Distributed Governance and Multiple Accountabilities<sup>8</sup>**

In times of rapid change, organizations and communities can only govern themselves effectively by developing, *as they proceed*, both the capacity to learn (i) what their goals are and should become, and (ii) what means are to be used to reach them. This is accomplished by tapping the knowledge that citizens and groups already possess, and getting them to invent ways out of the predicaments they are in. This leads to more distributed forms of governance that may deprive a leader of his or her monopoly on the governing of the organization: for the organization or community of practice to learn quickly, everyone must take part in the conversation, and bring forward each bit of knowledge and wisdom that they possess that has a bearing on the issue. This calls for a dispersion of power, for a more distributed governance process.

Distributed governance does not mean only a process of dispersion of power toward localized decision-making within each sector. It entails also a dispersion of power over a wide variety of actors and groups across sectors. In the context of rapid change, the best learning experience for these variegated actors and groups can be effected through flexible multi-sectoral teams, woven by moral contracts and reciprocal obligations, negotiated in the context of evolving partnerships.

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<sup>7</sup> Coe, A., Paquet, G. & Roy, J. (2001). *E-Governance and Smart Communities*, *Social Science Computer Review*, vol. 19, no.1, pp. 80-93.

<sup>8</sup> Paquet (2001). *Smart Communities and the Geo-Governance of Social Learning*.

### Collective Intelligence<sup>9</sup>

Even though it has been established by others that:

1. distributed governance and multiple accountabilities are the defining characteristics of today's new organizations or communities;
2. the environment is defined by an ensemble of mechanisms, network relations, belief systems, and social capital that is providing the environment with a causal texture (Emery and Trist 1965); and
3. the adaptation/adoption dynamic between the community and the environment and among the different groups inside and outside the organization or community (with their diverse frames of reference) plays itself out pragmatically much better than in situ, i.e., in the context of practical meso-situations (Schön and Rein 1994),

this does not suffice to ensure that effective co-ordination and learning will prevail. What is required in addition to these components to ensure that a community becomes smart, is a basic coalescence of all these factors to ensure that the community has the capacity to mobilize competencies effectively, the capacity to probe, learn, and go beyond its limits (Lévy 1994).

Learning entails "the mutually consistent interpretation of information that is not fully codified, and hence not fully capable of being transmitted, understood, and utilized independently of the actual agents who are developing and using it" (Storper 1996:259). Knowledge is dispersed, and exists in a form that is not fully codified; this is a fundamental constraint imposed on the highest and best use of collective intelligence and on effective learning.

A central challenge then is to determine how such knowledge can be made explicit, and can be more effectively tapped and shared (Michael Polanyi, 1964 & 1966).

### Dynamics of Community Adaptation of Technology<sup>10</sup>

There exists a dynamic set of six sub processes, each with an important role to play, in any adaptation of new Information and Communications Technologies:

1. Sectorally based forms of organizational activity:
  - the marketplace and the composition of private enterprise within a locality
  - the state and its public sector components and mechanisms for democratic accountability
2. Social movements and civic associations, which are the networks of civic engagement
3. Contextually based systems of life that shape the socio-economic infrastructure embedding individuals in their different organizational pursuits
4. Financial mechanisms – the injection of capital flows into new and existing ventures (private, public, or civic based)
5. Demographics - the composition of local population by such factors such as age and ethnicity
6. Distribution of wealth and the sharing of prosperity, as it is produced among the various segments of the population.

<sup>9</sup> Ibid.

<sup>10</sup> Coe, Paquet, & Roy (2001). *E-Governance and Smart Communities*.

### Challenges for a Smart Community<sup>11</sup>

1. **For the marketplace:** New enterprises will require a global outlook by necessity and NICTs will provide both small and large enterprises with a more equitable footing in the global information space. While this is understood, can those same enterprises also maintain a local outlook?
2. **For civic sector organizations:** NICTs are a powerful vehicle for fostering the exchange of ideas and promoting learning across localities. The increased mobility of human capital will intensify this process. Can the exchange of ideas among local interest groups and institutions be agglomerated sufficiently to have a community impact?
3. **For governments:** Governments have declared for themselves a role for providing framework conditions for innovative collaborations, technology dissemination, and development of an information infrastructure – all crucial to community performance in knowledge-based economies. Can governments steer away from their tendency towards policy homogenization in order to provide customized support for individual communities?
4. **For regions, cities, neighbourhoods and stakeholder groups not included in the SCDP:** Will there be sufficient exchange and social learning to sustain a collective approach that is rooted in local socio-ecologies but sensitive enough to global processes that it generates partnerships among various segments of the Canadian population.

## 2.2.1 Community Networks

The existence of community technology networks dates back to early 1980s. Although it involved different types of computer-based communications in its early days, the rapid expansion of the Internet and the World Wide Web have made computer networks integral to community development. It is almost a truism to say that there now exists some form of Internet based community network for any type of human interest or activity that involves the exchange of information. The community applications in use today are diverse in nature as well as in the scale and scope of their membership. The concept of community networks and the development tools associated with it have been investigated in the literature both theoretically and empirically (See **Table 3**). The International Centre for Communication expanded upon the community network concept in terms of their geo-centric characters and economic scale and in the process coined the phrase “Smart Community”.

The ideas embedded in the concepts of “smart community” that were defined in **Table 2** and the concepts of community networks share many of the same emphases on the utility of the information and communications technologies. As such, we can think of the implementation of the Smart Community concept in terms of a process for building and expanding a variety of Community networks, each for different purpose and goals. This process views the electronic physical network as a middle network in a system of three interdependent vertically stacked networks. The bottom network represents the

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<sup>11</sup> Ibid.

partnership that would build the electronic network and the top network is a new web of human interactions that are created as a result of the using electronic network.

**Table 3: Defining a Community Network**

Cisler, S. <i>Community Computer Networks: Building Electronic Greenbelts</i> . Apple Library, Cupertino CA, 1993, pg 1.	Colin Millar and Doug Williams, BT Labs, <a href="http://www.labs.bt.com/ourwork/cnet/index.htm">http://www.labs.bt.com/ourwork/cnet/index.htm</a> .	Morino, M. ' <u>Assessment and evolution of community networking</u> ', from <i>The Ties That Bind Conference</i> . Apple Computer, Cupertino CA, 1994.
“... one or more computers providing services to people using computers and terminals to gain access to those services and to each other.”	... an electronic network linking people with information and people with people. It enables communication, education, trade and empowerment and serves the living needs of communities. A goal of community networks is that they will enable whole communities to benefit from electronic interconnection.	“[A community network is] a process to serve the local geographical community - to respond to the needs of that community and build solutions to its problems. Community Networking in the social sense is not a new concept, but using electronic communications to extend and amplify it certainly is.”

It would be obvious to most readers that to consider the impacts of these dynamical networks one must immediately consider the inter-related and systemic nature of the community building process. The development process becomes primarily a question of determining how to govern these interconnected processes and directing them to achieve the desired goals. In an information society, as Beniger suggests, "a society's ability to maintain control [or influence] -- at all levels from interpersonal to international relations -- will be directly proportional to the development of its information technologies" (Beniger, 1986). Thus, the information and communications technologies become integral part of successful governance of the society that allow the human community networks to modify and influence existing governance regimes.

Depending on the type of application and its domain, a community network may seek to use it to modify the flow of community information, the production of goods, the delivery of existing services, or the balance of community power-sharing. For example, a community network of educators who use e-learning services to teach their students are effectively modifying the relationships between students, teachers and educational institutions and hence the governance of the education process. Of course, the introduction of technology may involve the making of new relationships, or maintaining existing ones or breaking them asunder entirely. In the light of SmartCapital, our interest is in how technology modifies the community status quo, particularly with respect to multi-stakeholder co-operation for the benefit of the larger community.

### **2.2.2 Community Collaboratives**

It is important also to reflect on the types of relationships that would be typically found in a community or for that matter in the type of Smart Community introduced above. Community wide relationships involve several types and are established for different purposes. **Table 4** presents five types of

characteristically different relationships or linkages that could emerge in a community<sup>12</sup>. As we move down the table the nature of relationship shifts from loose, heterogeneous networks to more uniform and tightly knit associations. In all cases, parties to the relationship maintain their *independent identity* in the community. What initially differentiates these groups is the external purpose that prompts the tightness of their interaction.

In essence, all five of these relationship types are important in the dynamics of a community. However, it is very useful to note the different temporal requirements associated with developing these relationships. The least amount of time is required for networking and the biggest investment of time required for collaboration. How the linkages between community actors are made or un-made, the quality of their decisions and the strength of their commitments are very dependent on the time needed for relationships to be established and mature. In this context, the presence of collaborative processes is a positive indicator of a community likely to achieve consensus around local issues. Therefore, we should regard the existence of sustained collaboration in a community and the establishment of community collaboratives as an important phenomenon in the dynamics of creating a “smart community”.

**Table 4: Community Linkages - Choices and Decisions<sup>13</sup>**

Types	Purpose	Structure	Process
<b>Networking</b>	<ul style="list-style-type: none"> <li>* Dialog and common understanding</li> <li>* Clearinghouse for information</li> <li>* Create base of support</li> </ul>	<ul style="list-style-type: none"> <li>* Loose/flexible link</li> <li>* Roles loosely defined</li> <li>* Community action is primary link among members</li> </ul>	<ul style="list-style-type: none"> <li>* Low key leadership</li> <li>* Minimal decision making</li> <li>* Little conflict</li> <li>* Informal communication</li> </ul>
<b>Co-operation or Alliance</b>	<ul style="list-style-type: none"> <li>* Match needs and provide coordination</li> <li>* Limit duplication of services</li> <li>* Ensure tasks are done</li> </ul>	<ul style="list-style-type: none"> <li>* Central body of people as communication hub</li> <li>* Semi-formal links</li> <li>* Roles somewhat defined</li> <li>* Links are advisory</li> <li>* Group leverages/raises money</li> </ul>	<ul style="list-style-type: none"> <li>* Facilitative leaders</li> <li>* Complex decision making</li> <li>* Some conflict</li> <li>* Formal communications within the central group</li> </ul>
<b>Co-ordination or Partnership</b>	<ul style="list-style-type: none"> <li>* Share resources to address common issues</li> <li>* Merge resource base to create something new</li> </ul>	<ul style="list-style-type: none"> <li>* Central body of people consists of decision makers</li> <li>* Roles defined</li> <li>* Links formalized</li> <li>* Group develops new resources and joint budget</li> </ul>	<ul style="list-style-type: none"> <li>* Autonomous leadership but focus in on issue</li> <li>* Group decision making in central and subgroups</li> <li>* Communication is frequent and clear</li> </ul>
<b>Coalition</b>	<ul style="list-style-type: none"> <li>* Share ideas and be willing to pull resources from existing systems</li> <li>* Develop commitment for a minimum of three years</li> </ul>	<ul style="list-style-type: none"> <li>* All members involved in decision making</li> <li>* Roles and time defined</li> <li>* Links formal with written agreement</li> <li>* Group develops new resources and joint budget</li> </ul>	<ul style="list-style-type: none"> <li>* Shared leadership</li> <li>* Decision making formal with all members</li> <li>* Communication is common and prioritized</li> </ul>
<b>Collaboration</b>	<ul style="list-style-type: none"> <li>* Accomplish shared vision and impact benchmarks</li> <li>* Build interdependent</li> </ul>	<ul style="list-style-type: none"> <li>* Consensus used in shared decision making</li> <li>* Roles, time and evaluation</li> </ul>	<ul style="list-style-type: none"> <li>* Leadership high, trust level high, productivity high</li> <li>* Ideas and decisions equally</li> </ul>

<sup>12</sup> This applies to virtual or interest based communities as well place based communities

<sup>13</sup> Hogue, T. (1994) *Community Based Collaborations- Wellness Multiplied*, Oregon Centre for Community Leadership, Oregon, OH.

**Table 4: Community Linkages - Choices and Decisions<sup>13</sup>**

Types	Purpose	Structure	Process
	system to address issues and opportunities	formalized * Links are formal and written in work assignments	shared * Highly developed communication

The successful integration of NICTs into a community development process, as imagined in smart communities, can be a powerful tool to catalyze and facilitate purposeful interactions that lead to productivity. In this context, community productivity, not only in the economic sense but also in the sense of the productivity of knowledge and social productivity, (the successful interweaving of all the elements of a community) can be a proxy for that successful integration of technology.

Fundamentally a “smart community” is not a product or a static structure but a process structure that emerges from the effective collaboration and partnership building of a variety of community stakeholders willing to take on the challenge of effecting community change according to their shared vision. What differentiates smart communities from other processes of community development is the commingling of “technology push” from industry with the “service pull” from within the third sector. This results in a bottom-up process, that emphasizes collective learning, local commitment and moral contracts, and a willingness to adjust outputs as the community learns.

If we think of community networks as facilitators of purposeful human interactions and remodelers of existing governance regimes, then a “Smart Community” implementation can be looked at as a process of extending community networks to draw in additional knowledge, resources and authorities. This can produce more effective change within a particular network’s domain of interest or it can address more complex concerns that span multiple networks and boundaries in the community. The main goal of such a process would be to move the community from ad hoc development to evolutionary development through the self-organizing and self-catalyzing mechanisms of technology. As with other types of process structures, form spontaneously emerges from systemic function and the transfer of information to and from the environment<sup>14</sup>.

The *selective scalability* of both the electronic networks and the web of individual and institutional interactions they engender provide a utility-based framework that is appropriate for evaluating and assessing the process structures of “smart community”. The established goals and objectives of the community, the strategy, and the circumstance of the community partnership determine the boundaries of the scalability.

Identifying and optimizing the role of the NICTs is part of improving the governance system of service domains and the community relationships that exist within those domains. That role links the generated benefits not only to the technology tools but also to the governance process. The integration of information and communications technologies into community change processes represents an additional self-referential domain for the community to learn and govern itself.

<sup>14</sup> Wilson, C. (1996). *A Quantum Paradigm of Public Policy*, Faculty of Administration, University of Ottawa, Ottawa, ON.

Many interrelated factors collectively drive communities towards realizing their own vision of a “smart community”. This increases the difficulty in identifying causality between the use of the new technologies and all the other non-technological and contextual factors in a community. A model capable of identifying and tracing causes and effects among contributing community factors and outcomes is wickedly complex, too complex for consideration here. As such, the development of reliable criteria for assessing the effectiveness of smart community strategies represents a methodological challenge.

Examples that have been presented in the literature tend to support the social construction view in assessing the deployment of technology for public benefits. For example, in a study of the development of public information utilities in four American cities in the 1980s, the researchers concluded “it was a series of choices where humans decided at various critical junctures what structure the public information system would take. From this vantage point, technology design is clearly similar to a public policy process, where the outcome is determined more by the authority, influence, and goals of the actors involved and the environments in which they work than by technological necessities.”<sup>15</sup>

Thus for smart communities, the current use of new information and communications technologies, such as the Internet and other on-line services, has in effect already been shaped by previous decision makers and the current social, economic, and political realities of the community. From this perspective, an assessment of smart communities should focus on the nature of the critical agents in the community decision making process, and how the actions of these agents affect the technological trajectory the community commits to in order to achieve its goals.

Collaboration is especially important among projects that have common elements or could benefit from the sharing of resources. SmartCapital provides a great opportunity for knowledge transfer because of the diversity of the subprojects and their focus. As the following comments suggest, there is great potential for social learning through mechanisms of community collaboration.

#### **Milieu and Discovery<sup>16</sup>**

To cope with a technology-driven and dynamically evolving environment, organizations and communities must use their environment strategically to learn faster and to adapt more quickly. This calls for non-centralization, for an expropriation of power away from the top managers in an organization, or from any one organization in a network or a community. To be successful, decision-makers must mobilize all the favourable environmental circumstances, and the full complement of imagination and resourcefulness in the heart and mind of each team player. Consequently, they must be on the spot to take action; they must also become team leaders in task-force-type projects, quasi-entrepreneurs capable of cautious sub-optimizing in the face of a turbulent environment, and of engaging others to join in such ventures voluntarily.

This sort of strategy calls for lighter, more horizontal and modular structures, and for the creation of networks. These new modularized private, public, and civic organizations cannot impose their views on their clients or citizens. But these structural features are not sufficient; mechanisms must be put in place to ensure the requisite degree of consultation, deliberation and negotiation everywhere.

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<sup>15</sup> Guthrie, K. & Dutton W. (1992). The Politics Of Citizen Access Technology: The development of public information utilities in four cities, *Policy Studies Journal*, vol. 20, issue 4, Southern Illinois University, Carbondale, IL, pp.574-597.

<sup>16</sup> Paquet, G. (2001). Smart Communities and the Geo-Governance of Social Learning

Leaders have to become brokers, negotiators, *animateurs*; a consultative and participative mode must be obtained among the firms, the state, and the community groups; and the right balance must be found in this learning process between exploration for new knowledge and exploitation of the newly acquired knowledge (March 1991). While discovery is centrally important, it is equally important to make the highest and best use of the results of these discoveries, and not to mindlessly pursue novelty for novelty's sake.

Moreover, it must be understood that the processes and mechanisms of probing and discovery from within, so to speak, are only one blade of the scissors. The other blade is the external linking of the community with the environment through which a Darwinian selection occurs. These selection processes "provide the source of differential fitness - firms whose R&D turn up more profitable processes of production or products will grow relative to their competitors - and also tend to bind them together as a community" (Dosi and Nelson 1994:162).

The context is a complex nexus of forces shaped by market and non-market components, conventions, socio-cultural factors, and by the broader institutional structure. It is this ensemble of components, conventions, rules, structures, and regimes that constitutes the relevant milieu. But this social learning can only occur if certain conditions are met: i.e., (i) if the conversation with the situation is conducted within a context allowing for a meaningful conversation to be carried out, and (ii) if the conversation, deliberation, and accumulation of judgements are conducted with tact and civility, and a capacity to cope with multiple logics (Paquet 1999b).

The sort of learning generated by multilogue does not necessarily congeal into formalized decision-making and conclusions. It remains very much tacit knowledge, a capacity to deal effectively with matters of practice and to deal with such matters in a timely manner and with a full appreciation of the local and particular context. Often, this tacit knowing materializes as a by-product, as a result of subsidiary or peripheral attention being given to some matters, while addressing other issues in a more focused way. Indeed, as we shall see later, much of the effectiveness of social learning depends on a community's capacity to generate tacit knowledge, and on its capacity to accumulate it, to build on such knowledge, and to make it explicit and easily shareable (Gill 2000).

One may define the notion of milieu as *"un ensemble territorial formé de réseaux intégrés de ressources matérielles et immatérielles, dominé par une culture historiquement constituée, vecteur de savoirs et savoir-faire, et reposant sur un système relationnel de type coopération/concurrence des acteurs localisés"* (Lecoq 1989). Consequently, the notion of milieu connotes three sets of forces: (1) the contours of a particular spatial set vested with a certain unity and tonus; (2) the organizational logic of a network of interdependent actors engaged in cooperative innovative activity; and (3) organizational learning based on the dialectics between adapting actors and the adopting milieu (Maillat 1992).

In these search/discovery-cum-selection processes, social proximity plays a fundamental role. Both on the organization side and on the forum/environment side, proximity breeds interaction, "intelligence" and socio-economic learning (Boswell 1990); and these interactive mechanisms are fuelled by dynamic increasing returns to agglomeration. In most cases, these agglomeration economies are bounded, and therefore do not give rise to monopoly by a single region or location, but they nonetheless generate increasing returns snowballing (Arthur 1990).

At the core of the dynamic milieu are a number of intermingled dimensions (economic, historical, cognitive, and normative) but they all depend to a certain degree on trust and confidence, and therefore on a host of cultural and sociological factors that have a tendency to be found mainly in localized networks, and to be more likely to emerge in the presence of shared experiences, regional loyalties, etc. This is social capital in Coleman's sense, and such social and cultural capital plays a central role both in meso-systems' dynamics and their capacity to learn and transform (Coleman 1988; Saxenian 1994).

### 3 Contextual Analysis

It is worth mentioning that the metrics and criteria provided in the statement of work documents for SmartCapital and its SCDP projects provide a set of output measures. These output measures (Was a service implemented? How many people visited the site, etc.?) are narrowly concerned with the deliverables of the project. In this regard they have very limited value in determining the worth to the community of the subprojects' outcomes and impacts and the overall benefit of SmartCapital to Ottawa. The basket of goals and objectives for SmartCapital and its SCDP subprojects inform on a range of community expectations for the projects. Thus, in conducting an evaluation and impact assessment we need to be attentive to scale those measures to the degree that we can find supportive evidence that points to those expectations being materialized.

The Statement of Work for SmartResults provides a basic framework and the deliverable requirements for conducting the evaluation. However, given the exploratory nature of this assessment, we need to scale the evaluation of SmartResults to reflect its overall size and significance relative to Ottawa, thereby allowing us to identify specific boundaries for the evaluation.

For scaling and setting the boundaries of the assessment, we need to do two things. First, identify the diagnosis points among the different community networks where the change process can be probed for outcomes that are attributable to SmartCapital and/ or its SCDP subprojects. Then second, locate the sources and opportunities for possible social learning within and across subproject networks from the initial experience of engagement in SmartCapital and subsequently their ongoing participation in SmartCapital.

Based on the preceding review of community dynamics and smart communities in general, we argue that the fabric of personal and organizational relationships created around electronic networks provide a very useful milieu to test for variations in the community change process. Changes to these networks would likely tell us how much the community is progressing towards its unique vision of “smart community”. Understanding SmartCapital's context is therefore important to fulfil these relationships. To conduct a contextual review therefore, we need to identify the following:

- The main stakeholders, their needs, assets, and resources and the web of their relationships that have direct links to SmartCapital and its SCDP subprojects
- The political atmosphere and interests in the relevant service domains that could impact the support of SmartCapital and its SCDP subprojects provided by community leaders and local organizations.

This early analysis would provide information to help link each implementation phase of SmartCapital to the next and gauge its performance throughout. In the later phases of the project, this context analysis will be useful to help to:

- maintain the project's relevance by adjusting the project to changing circumstances and/or account for past problems,
- identify the political, social, and economic strengths and weaknesses of each subproject, and
- identify and assess the impact of SmartCapital on the Ottawa environment (political, administrative, and economic).

With this contextual information, we can better document the mechanisms and outputs of collective learning. Further more, if environmental barriers to a subproject's implementation can be identified, an incomplete subproject might be deemed successful based on the team's strategy for overcoming these

barriers. Without such information, it will be difficult to make informed judgements about SmartCapital's success or identify 'best practices' that other communities might well like to utilize.

Defining truly precise criteria for assessing SmartCapital at the community level would need an extremely sophisticated causal model of the Ottawa community, together with a much longer assessment period and a significantly larger community intervention than that represented by SmartCapital. Given that the resource commitment to SmartCapital compared to the size of Ottawa's overall economy is very small ( $5 \times 10^{-4}$ ) and that the range of even wildly optimistic returns on investment might be of the order of 10 times investment, an observable return or quantifiable event is most likely undetectable, notwithstanding the accuracy of any model. The statistical precision required is certainly beyond the capacity of this study or the norms of social science for that matter. However, the longer the window of assessment the greater the likelihood a return will be observed (an inducement for assessing the results of SmartCapital outside the window of the SCDP program).

As a consequence, more qualitative and process related documentation will have to be relied upon to provide rough "rule of thumb" measures to aid a judgement call. While not precisely scientific, it is the type of "best guess" evaluation method widely used by many industry managers, particularly with respect to future technologies.

The results of the SmartCapital evaluation need to be relevant to a broad cross section of interests and stakeholders. We have opted to scale the evaluation based on these interests rather than on the general level of the community interest because our judgement is that the pattern of stakeholder relationships and commitments involved in SmartCapital is where the real story lies. Shifting the analysis to the organizational level and immediate environment of the players rather than the larger Ottawa community can be supported by the fact that currently SmartCapital has a vision and provides leadership to a diverse mix of area stakeholder. We have opted therefore to compromise on the precision of our SmartResults analysis somewhat for the sake of relevancy, as analytical complexity and cost of the former is an obstacle.

As a catalyst in fostering a smart community in Ottawa, SmartCapital finds itself moderating the needs of targeted stakeholder groups and the more generalized interests of the community. It seeks to identify and help address specific technology and behavioural needs for specific groups and balance these with the broader community development concerns in terms of advanced technology, increased community cohesiveness, or improved services. This is depicted in **Figure 1**.

## **3.1 Stakeholders**

In addition to the main stakeholder group represented by the citizens of Ottawa, there are four distinctive stakeholder groups that are engaged in the implementation of SmartCapital.

### **3.1.1 Industry Canada**

The first of these is Industry Canada, the largest single funder in the project. Industry Canada's Smart Communities Demonstration Program is one of the six pillars of the Government of Canada's "Connecting Canadians" strategic plan. It is important to observe that Industry Canada's SCDP projects have been established to explore the validity and usefulness of the smart community concept for a broad range of Canadian communities. In the selected SCDP communities, the demonstration project has been

received as an opportunity to help the community build or extend its ICT infrastructure and develop related services and applications by partnering with the federal government. The Demonstration project represents an investment by the federal government and local business, government and civic partners in the community.

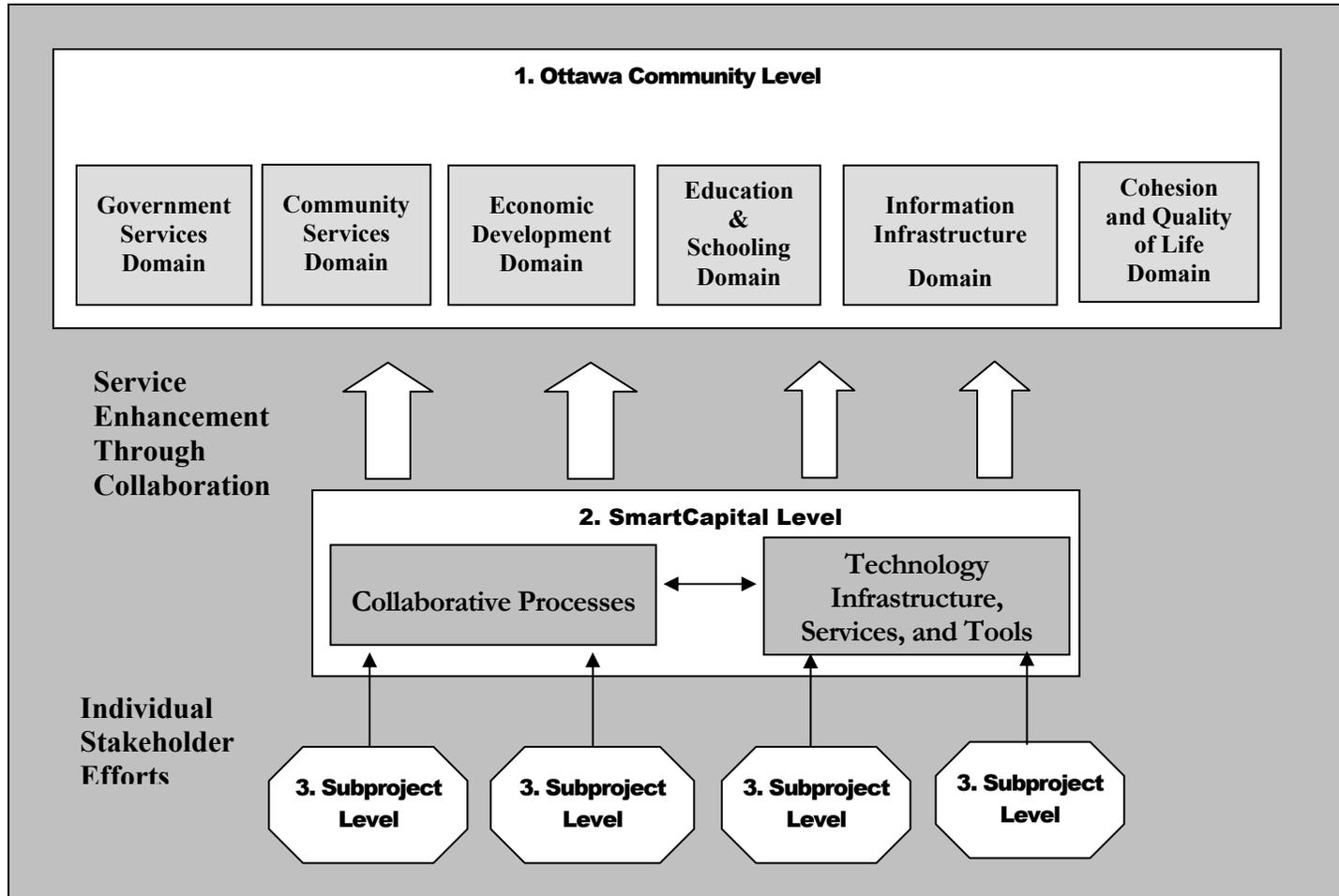
Industry Canada has not sought a return on investment assessment for the demonstration subprojects other than the delivery of services, the identification of best practices and the documentation of tacit knowledge. Each contribution agreement requires the community demonstration projects to have a Performance Measurement Plan and a Sustainability Plan to help guide the implementation, assess its impacts, and determine if the tangible and intangible benefits generated by the project provided value for public investment. Industry Canada has also set a monitoring requirement for each demonstration project in conformance with the contribution agreement<sup>17</sup>. To each of the projects Industry Canada has assigned a Monitor who reports to the Smart Communities Directorate on the ongoing progress performance and implementation of the project's activities.

Industry Canada established a 'blue ribbon' panel of business, academic and community leaders to identify the parameters for 'smart' on-line services (See **Table 5**). These parameters represent the expectations of Industry Canada in the way on-line services are to be developed and managed by the program projects. As SmartCapital and its SCDP subprojects primarily involve the development of on-line services, alignment with these parameters have been integrated into the SmartResults assessment.

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<sup>17</sup> Smart Communities Directorate (2001). *Section 6, Contribution Agreement between OCRI and Industry Canada for the Sm@rtCapital project*, Smart Communities Directorate, Industry Canada, Ottawa, ON.

Figure 1: The Two Levels of SmartResults Evaluation and Their Links to Services Domains



**Table 5: The Five Attributes (5 I's) of On-line Services<sup>18</sup>**

<b>Informative</b>	<b>Interactive</b>	<b>Innovative</b>	<b>Improving</b>	<b>International</b>
Computer games and the World Wide Web have transformed lives by providing an engaging experience. Powerful search engines allow questions to be asked on any subject imaginable and provide an answer seconds later. The interactive part of a Smart service is friendly, culturally and linguistically accessible, demand-oriented, and responsive to clients in real time. It offers a sense of involvement for the community and serves a broad cross section of the public.	Between networks and content there are invisible agents known as applications. These software codes enable content to be delivered as multimedia content through a variety of multi-type devices over many networks. If these applications are not designed with this in mind, they will serve only a narrow purpose. Therefore, the innovative part of a Smart service is adaptive, scalable (adaptable to increased demands and capacity), interoperable, universally accessible, organic, synergistic, ubiquitous, and may support electronic commerce.	Since every citizen may potentially influence community decisions, digital content must help them affect change. The challenges facing a community in the next century will require leveraging the best resources within and outside the community. In essence, these new services must not only be innovative, but also transforming. In fact, this transformation will empower a community to meet these challenges. The improving part of a Smart service encourages new perceptions within the community, permits limited resources to be allocated more efficiently, saves time and fosters lifelong learning.	If Canada is to be a global leader in information and communications technologies, it must showcase Canadian innovation through centres of excellence. The Smart Communities Initiative will extend the reach of Canada globally and advance the nation as a global leader. The international part of a Smart service supports open standards, is transferable, accesses and contributes to the international wealth of knowledge, and enhances the lives of Canadians through interactive communications.	If Canada is to be a global leader in information and communications technologies, it must showcase Canadian innovation through centres of excellence. The Smart Communities Initiative will extend the reach of Canada globally and advance the nation as a global leader. The international part of a Smart service supports open standards, is transferable, accesses and contributes to the international wealth of knowledge, and enhances the lives of Canadians through interactive communications.

In our own exchanges with Industry Canada's Smart Communities Directorate about the evaluation of SmartCapital and its SCDP subprojects, a number of fundamentals emerged that had to be incorporated into this assessment framework. These included:

- A sound performance measurement plan that identified and communicated the nature and extent of the project's impacts over time in relation to the objectives of each service or application would be a prerequisite for maintaining the project partnerships, sustaining community engagement, as well as the financial health of the projects once federal funding came to an end.

<sup>18</sup> The Blue Ribbon Panel (1998). *Report of the Panel on Smart Communities*, Industry Canada, Ottawa, ON. <http://smartcommunities.ic.gc.ca/english/index2.htm>

- The generic performance measurement framework made available to the SCDP projects by Industry Canada was provided as a template that would facilitate discussion and the development of project planning and ensure a common approach.
- It was agreed that the human and social impacts of SmartCapital would be more difficult to ascertain than economic and industrial ones. In this regard, SmartCapital will be carrying out pioneering work. Qualitative and process indicators would therefore represent a valid complement to quantitative indicators.
- It was agreed that the documentation of lessons learned, project stories and case studies would all be valued and their inclusion in a final report would be considered integral to the communications planning.
- The sharing of information among the twelve SCDP projects nationally on the performance measurement plans or any other strategies being undertaken would be of considerable value to Program. Each of the Smart Communities would likely exchange their draft and final strategies together with their PMPs. Each recipient would treat these documents as strictly confidential. Industry Canada was to be copied on all Performance Management Plans.

From the above, we conclude that **Industry Canada needs to account for the creation of value by the SCDP projects and to demonstrate that that value may be shared by Canadian communities nation-wide in order to justify Industry Canada’s investment of public resources in the Smart Communities Demonstration Program.** Thus, this Guidelines Report should provide the means to:

**Target 1:** Report on the performance of SmartCapital and its SCDP subprojects in terms of achieving their goals and objectives as per statement of work for each.

**Target 2:** Identify what factors facilitated delivery of the value added community contribution of SmartCapital and its SCDP subprojects in terms of results and outcomes.

**Target 3:** Identify what the knowledge capital from SmartCapital in terms of the lessons that were learned, the social processes and road maps that were undertaken, the challenges overcome and the benefits and results obtained from SmartCapital and its SCDP subproject that could be transferred to other similar projects and communities.

### **3.1.2 OCRI**

OCRI is the second major stakeholder in SmartCapital. OCRI is the leading partner and initiator of SmartCapital. OCRI’s former President and Chief Executive Bill Collins described the importance of OCRI in Ottawa as the city’s “rallying point”. “OCRI is a point of convergence where people, technology and ideas can connect in such a way that new infrastructures, investments, programs, and services can be created for the benefit of the community and the individuals involved”<sup>19</sup> The vision of OCRI is to “bring people, ideas, and resources together to enhance Ottawa's globally competitive knowledge economy and superior quality of life” It helps to lead the development of the Ottawa as a world-class centre for excellence in technology, business and social innovation through collaboration with business, government, education and the civic sector. To accomplish that vision, its mission is

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<sup>19</sup> Collins, B. (2001). *A presentation to the Dutch smart community delegation from Kenniswijk on SmartCapital*, OCRI, Ottawa, ON.

to be “the rallying point for business, education and government to advance Ottawa's globally competitive knowledge-based economy. With and through its members and partners, OCRI brings people, ideas and resources together - through connectivity - to build wealth and quality of life in Ottawa.”<sup>20</sup>

OCRI has evolved to be the most prominent networking organization in Ottawa since it started in 1983. There are currently about 600 individual and organizational members of OCRI. Thousands participate monthly in its professional development and networking events. They benefit from its wide range of activities in basic research, external marketing of Ottawa’s business community, professional development, education support programs and regional human resource development. OCRI has well established working relationships with all of the local media organizations, including CJOH TV, the Ottawa Citizen and the Ottawa Business Journal. OCRI is also involved with many civic organizations and manages a number of community activities such as the region’s School Breakfast Program.

### **(1) OCRI’s Economic Development Mandate**

As a result of pressures from the recent amalgamation of 11 municipal governments into the new city of Ottawa, OCRI merged with the Ottawa Economic Development Corporation, the City’s former economic development unit. OCRI’s new mandate now includes the promotion of the City’s economy across all sectors, not just technology. Although, OCRI has contributed to economic development activities in the past especially with respect to the promotion of the technology sector, it was done indirectly as a side effect of its focus on developing the region’s economic and talent capacities. Since OCRI’s provides both home base and organizational support to SmartCapital, the changes in OCRI’s role will likely influence the future relationship with SmartCapital.

It is anticipated that additional pressure on SmartCapital will be exerted to contribute to OCRI’s broad economic development mandate. In addition, greater relevancy to the broad spectrum of economic concerns in Ottawa, not just technology, will be demanded. SmartCapital will be greatly challenged to demonstrate that its activities have a significant potential to contribute to Ottawa’s economic and social fabric and that is not an one-time opportunistic funding grab.

We conclude from the above observations that **OCRI must see a value contribution from its management of SmartCapital “to build wealth and quality of life in Ottawa” in order to continue its support of SmartCapital after SCDP funding ends. SmartCapital and its SCDP subprojects need to establish a clear link between the creation of a smart community in Ottawa and the building wealth and quality of life in Ottawa.** Thus, the evaluation Guidelines Report should provide means to:

**Target 4:** Identify the relationships that link SmartCapital and its SCDP subprojects to the economic and social development of Ottawa and the promotion of Ottawa’s industries – primarily the ICT, education, government, health and retail sectors.

**Target 5:** Identify how SmartCapital and its SCDP subprojects may facilitate the creation of value for the economic and social development of Ottawa and its industry sectors.

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<sup>20</sup> www.ocri.ca

### **3.1.3 The City of Ottawa and Community Leadership Organizations**

The City of Ottawa is one of SmartCapital's leading partners that has different links to a number of subprojects including, the local government services subproject which is funded through a SCDP contribution agreement and SmartSites which is not. SmartSites is funded through a variety of local provincial and federal partners in order to provide public Internet access across the City. The government services subproject will help to make local government services available on-line (something the City was committed to do regardless of SCDP funding) and to provide the citizens of Ottawa with new channels to interact with the City of Ottawa. One of those new channels is the e-democracy component that is intended to set Ottawa on a path towards effectively utilizing the NICTs to expand and improve citizen participation in the public decision making process. It is important that the local outcomes SmartCapital should become contributors to the City's future plans for on-line services and e-democracy.

Examining the context of the City's relationship with SmartCapital is important to determine the expectations from the current partnership in shaping the strategic directions of the City's infrastructure and growth planning. In other words, it is necessary that we plug SmartCapital and its SCDP subprojects into the vision that the community sees for itself in relation the world and relate SmartCapital's success or lack of it that.

SmartResults has identified the following four elements that we believe are most likely to impact future decisions of the City and its ancillary organizations with respect to SmartCapital.

#### **(1) Ottawa's Smart Growth Plan**

In January 2001, the eleven municipalities of the Ottawa region were amalgamated into the new city of Ottawa. The City of Ottawa is home to 790,000 people. Ottawa is unique among North American cities. Not only is the National Capital Region, which includes Ottawa and Gatineau, the fourth largest metropolitan area in Canada but unusually 90% of its land mass is also designated as rural. It is Canada's National Capital, the home of a majority of Canada's federal public servants and the home of many international embassies as well. It is Canada's research centre, the home of Canada's most vibrant advanced technology cluster, and an attraction for tourists from around the world.

The population of the city of Ottawa is expected to increase by almost 25% in the decade between 2001 and 2011 requiring an expansion of current urban areas to accommodate new residents and the extension of service infrastructures to support that growth. In a break from the past, Ottawa has embarked on a developmental process that seeks to engage a broad range of community stakeholders and interest groups in preparing its official plan for the next 20 years within a framework of balanced growth. Under the direction of the City's General Manager of Development Services, this process initiated the City's growth management strategy, which has become known as *Ottawa 20/20* and began in June 2001 with the City's sponsorship of the Smart Growth Summit. The Smart Growth Summit was a series of major public conferences that brought to Ottawa leading thinkers and urban planners to share their perspectives on the dynamics of liveable communities in order to catalyze public debate locally. The Ottawa 20/20 Smart Growth Summit was the first step in a two-year process that has sought to obtain citizens' perspectives on the directions and strategies that should be incorporated into the development of Ottawa's various growth management plans.

The next major achievement of the *Ottawa 20/20* process was the production of the document “Charting a Course”<sup>21</sup> which laid out the vision and principles that will guide the development of the City's future growth management strategies. Charting the Course also identified the need for five interrelated sub plans that would form the basis of achieving the City’s vision. They included:

- An Official Plan
- Corporate Strategic Plan
- A Human Services Plan
- An Arts and Heritage Plan
- An Economic Strategy (which was further subdivided into an Export Plan, a local Ottawa Plan, a Rural Plan, a Broadband Plan and a Talent Plan)

Public consultations on the Official Plan and the other growth plans started by the end of 2001 and will be completed in February of 2003. These consultations will provide an opportunity for the citizens and local organizations to participate in the planning process of the City. Of pertinence to SmartCapital are the channels for citizen input that included the use of email and webcasting that were used in the Smart Growth Summit and subsequently in the major public meetings that have been held to discuss “Charting the Course” plans. These activities were considered to be part of the execution of the first two phases of SmartCapital’s e-Democracy subproject.

One of the strategies to achieve a positive balance of wealth, equity, environment and health promoted in Charting the Course is the construction of a Knowledge Network in Ottawa. The City’s vision in this area is that *“The stronger the knowledge base, the stronger the economy. The better citizens’ access to this knowledge base and the greater their ease of participating in democracy and the workforce, the stronger the city”*.

The key plans that have been associated with building a Knowledge Network in Ottawa include:

- **The Talent Plan**

This plan responds to the needs of both the workforce and employers to ensure that a qualified workforce can sustain the area’s economy. Among its recommendations is an emphasis on creating better access to labour force information, principally through the use of web enabled tools.

- **The Broadband Plan**

The Broadband Plan attempts to proactively respond to the emerging need for ubiquitous access to fast, reliable access to a broadband communications network and Internet enabled services that will be increasingly important to knowledge companies and knowledge workers. The plan’s assumption is that connecting the entire City, both urban and rural, to a high capacity broadband infrastructure and providing data rich services will add to the global competitiveness of local companies and enrich the quality of life of local citizens.

- **Invest in Our Libraries Plan**

The Library Plan is positioned to respond to the need for public access to a rich, diverse knowledge base, that is considered an essential ingredient in closing gaps in employment opportunities and talent.

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<sup>21</sup> City of Ottawa (2001). *Ottawa2020, Charting a Course*, City of Ottawa, Ottawa, ON. [www.ottawa2020.com](http://www.ottawa2020.com)

It calls for continued investment in Ottawa's libraries as key points of entry to Ottawa's knowledge base. This plan would enable Ottawa's library system, including its satellite and rural libraries, to continue to offer universal access to information, including business information. The plan recognizes that in addition to the public school system and post-secondary institutions, libraries are well suited for community outreach and the provision of continuous learning for residents of all ages. The plan also calls for the building of a new central library as the cornerstone of a downtown cultural complex.

In summary, the activities of all of the SmartCapital SCDP subprojects have links to one of more of the City's development plans and demonstrate a response to growing demand for these services.

**Table 6** provides a summary of the suggested linkages between the service domain and the city plan.

<b>Table 6: The Relationship Between SmartCapital &amp; Ottawa's Smart Growth Plans</b>		
<b>Group</b>	<b>Subproject Title</b>	<b>Key Ottawa 20/20 Plan</b>
Education Services	E-College on-line	Talent Plan, Broadband Plan
	Student Central Services	
Business Services	Ottawa Marketplace	Economic Strategy, Talent Plan, Broadband Plan
	Entrepreneurship Centre On-line	
	Ottawa Capital Network	
Community Services	Smart Community Centre	Arts and Heritage Plan, Talent Plan
	SmartLibrary	Human Services Plan, Invest in Our Libraries Plan
	National Capital FreeNet Community Services	Broadband Plan
	Smart Services Gateway	Economic Strategy, Broadband Plan
Local Government Services	City of Ottawa Portal	Human Services Plan, Corporate Strategic Plan, Broadband Plan
	E-democracy	Broadband Plan
Infrastructure and systems	SmartCapital On-line Resources (SCOR)	Broadband Plan
	Smart Lab(s) and Showcase(s)	Broadband Plan

## **(2) The Vision of Broadband Connectivity in Ottawa**

The Ottawa Partnership (TOP) is an informal forum of community leaders with the delegated responsibility for co-ordinating and giving strategic direction to economic development in Ottawa. Its membership is drawn from representatives from the City of Ottawa, Ottawa's business and economic development agencies, the post-secondary education sector and the business community at large. At the end of 2001, TOP adopted a series of recommendations for a vision and high-level strategy to make Ottawa a world leader in the provision of affordable broadband access for all citizens. These recommendations stemmed from a Broadband Vision Workshop sponsored by TOP and organized by the City and OCRI. The Workshop's conclusions were that the deployment of a state of the art

telecommunications infrastructure capable of accommodating the next generation of high-bandwidth applications would allow Ottawa to achieve a number of important objectives including:

- The expansion of the City's innovation economy by connecting people and ideas effectively and efficiently through enhanced broadband networks and services;
- The enabling of new companies to build, test and bring to market new high-bandwidth applications and services. These companies would in turn attract more talented knowledge workers to the City and creating new sources employment and wealth creation; and
- Helping to reduce the "digital divide" concerns for Ottawa residents that may stem from uneven access to high-speed Internet enabled services across the region.

The political leadership of the City has endorsed the broadband report. The Mayor, who is also Co-Chair of TOP, recommended the incorporation of TOP's broadband vision report into the City's Economic Strategy. The Mayor has commented that "broadband connectivity is an integral part of the City's infrastructure and must be planned for in the same way we have planned power and gas delivery and other essential services in both the urban and rural areas of Ottawa. By incorporating this [broadband] report into the City's key policy documents, we will provide an overarching blueprint to ensure residents of Ottawa have access to affordable and reliable broadband connections."<sup>22</sup>

The SmartCapital team has been actively involved with the planning of several components in the development of Ottawa's broadband infrastructure, including the Ottawa Metropolitan Area Network, and the linking of educational institutions, hospitals, and other City partners to the Province of Ontario's broadband network initiative, ORION. While these projects do not receive funding from Industry Canada's Smart Communities Demonstration Project they are, however, essential for the future of SmartCapital and the leadership role it plays in the community.

### **(3) Ottawa Rural Community Network (ORCnet)**

ORCnet is a more recent partnership to develop and implement a program to bring broadband Internet service to the more rural areas of Ottawa and Eastern Ontario. The SmartCapital team has been involved with the planning and demonstrations of ORCnet service provision and marketing campaigns in a couple of communities in the Ottawa region. ORCnet aims to close the urban-rural technology gap for Ottawa's rural areas due to a lack of investment by the private sector. ORCnet is attempting to aggregate demand in these areas, creating a new capacity and knowledge in rural community to improve business, community services and quality of life through the application of Internet connectivity. ORCnet<sup>23</sup> is a partnership that strives to:

- offer rural citizens and businesses everything they will need to get the most out of their Internet experience, and
- work with the federal, provincial and municipal governments along with corporate partners to bring both infrastructure and service offerings to rural communities through a flexible and scalable model.

### **(4) Commitment of the City to e-Democracy**

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<sup>22</sup> OCRI (2001). OCRI press release on Ottawa Broadband Connectivity, December 21, 2001, OCRI website. <http://www.OCRI.ca>

<sup>23</sup> ORCnet (2001). ORCnet website homepage. <http://www.ORCnet.ca>

The Smart Growth Summit was Ottawa's first major attempt to showcase the City's new commitment to e-Democracy under Industry Canada's smart communities program. The Summit demonstrated the capability of technology to expand the range public participation in civic consultation activities. The leadership of City of Ottawa has publicly declared their support for e-Democracy as a priority for this administration. The Mayor has indicated "Ottawa is committed to enabling widespread public participation in all of its planning decisions. We will continue to search out innovative ways to engage as many citizens as possible."<sup>24</sup>

## (5) SmartSites & Public Internet Access

The SmartSites program is one of the larger subprojects of SmartCapital, however, it is not part of the SCDP funding. It was established as a continuation and expansion of Industry Canada's Urban Community Access Program with funding from HRDC and the City of Ottawa. SmartSites provides free public Internet access in conveniently located sites in schools, municipal offices, libraries, recreation centres and community places throughout Ottawa. It has co-ordinated the management of staff and volunteers in these locations in co-operation with five independent neighbourhood networks to help clients learn to use computers, navigate the Internet, use email and other electronic services, conduct job searches, find housing, and link to Ottawa's many other online services. The target audience of SmartSites is the estimated 250,000 Ottawa residents who either cannot afford Internet access or don't know how to use it<sup>25</sup>. Ottawa's SmartSites are designed to narrow this "digital divide".

Although there is no direct funding from the SCDP for SmartSites, both HRDC and the City of Ottawa continue remain supportive of this initiative as part of their social equity agendas. The issue of providing access remains a cornerstone of SmartCapital and its relationship with the City is enriched by the presence of the SmartSites program. In the long run, beyond the limits of SCDP, SmartSites will likely serve as a useful research platform to further validate the community benefits of Internet services and broadband infrastructures.

In summary then we observe that **the City of Ottawa, as the lead convenor of local opinion on the management of Ottawa's growth, must perceive that SmartCapital contributes to the social, political, economic well being of its citizens, that it can provide additional tools to better engage those citizens and can assist in the levelling of the technology playing field so no citizen is disenfranchised by virtue of geography or economics.** Thus, the Guidelines Report should provide the means to:

**Target 6:** Identify what constitutes the unique selling points, or value added contributions of SmartCapital which the City of Ottawa and the community-based organizations could exploit in the development and implementation of the City's Smart Growth strategy. In particular, the City is interested in addressing equity issues such as the digital divide.

**Target 7:** Identify what constitute opportunities, challenges barriers, difficulties, or risks which may impact Ottawa's development as a smart community and the integration of SmartCapital into the Smart Growth initiatives and Ottawa's 2020 official plan.

**Target 8:** Identify the factors that may facilitate increased citizen participation in the governance of the City through initiatives like e-Democracy.

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<sup>24</sup> OCRI (2002). OCRI press release May 29, 2002, OCRI website. <http://www.OCRI.ca>

<sup>25</sup> SmartSites (2001). SmartSites website homepage. <http://www.SmartSites.ca>

### 3.1.4 Subproject Partners

According to the Statements of Work signed by SmartCapital's with its SCDP subprojects, SmartCapital will ultimately provide a suite of *smart services* that will include:

#### *For the Local Public Sector*

- Online services to be provided by the municipal government to help keep its citizens better informed and involved in planning consultations for the City's restructuring of public services
- Online versions of existing services to be provided by the municipal government to all residents in both English and French languages

#### *For the Community*

- 'Thin client' applications (application programs that can be temporarily downloaded to the users PC) and web-access to e-mail applications to be provided by FreeNet, Ottawa's community ISP organization, to enhance the quality of its client services
- Search and retrieve tools to be provided by a consortium of area libraries that can simultaneously search multiple library databases within the community, or world-wide, for local citizens
- The creation of a virtual community centre with online workspaces, meeting places and community building tools for any number of community groups, student associations, or local interest groups

#### *For Educational Community*

- The creation of a secure space for students, parents and teachers to exchange information and provide various student services including, student grades, attendance, report cards, or submission of home work
- The creation of a virtual learning centre to permit teachers and other learners to develop or participate in more convenient educational and training programs

#### *For the Business Community*

- The creation of an online business centre to access economic and competitive information, to encourage business networking and to facilitate access to financial and human resources;
- The creation of an online professional development centre that utilizes web based tools to capture, and archive the content from the many professional development events that occur regularly in Ottawa and deliver them to thousands of local business people right at their desk tops.

It is important to acknowledge that many of these Smart Services were either planned or in their early implementation phases when Industry Canada announced its SCDP plans. The ability of Ottawa to quickly mobilize and organize itself around the SmartCapital concept and then to win the competition as the Ontario SCDP site has reflected a high degree of readiness within the community to undertake the project. It also indicated that the various partner groups were well aware of the needs of their end-user constituencies. The various team leaders offered this 'readiness' as an explanation for the lack of formal needs assessment in the SCDP application process. The partners had already accumulated significant informal knowledge about their end user needs prior to the application so that when the SCDP opportunity arose they were ready to move to the next stage. It should be underscored that Industry Canada looked for this type of pre-existing readiness in communities as a selection factor for SCDP projects.

The Statement of Work for each of the subprojects has detailed the objectives of each of the subprojects and their implementation timetable. Each subproject team has received matching funding from Industry Canada to help implement their subproject. To date, the advantages of the SmartCapital partnership among the subprojects have been in ensuring project accountability, the sharing of collective assets (such as SCOR and Smart Labs) and promotional services (such as marketing and webcasting). From a utilitarian perspective, one can expect that the extent to which the partners continue to receive practical benefits from this partnership will determine their continued participation in SmartCapital. Therefore the onus is on the SmartCapital management team to identify the value-adding proposition for the partnership that will ensure SmartCapital's sustainability.

We conclude that **the subproject partners in SmartCapital have a primary commitment to their own organizations and serving their end-user audiences. Partners must reap some form of advantage either in the form of increased efficiency or in the form of increased access to resources, human or financial, from engaging with SmartCapital in order to sustain their commitment to SmartCapital after SCDP funding ends.** Thus, the Guidelines Report should provide means to:

**Target 9:** Identify the elements of SmartCapital's collective assets that are judged important by the subproject team leaders that have helped them deliver results to their stakeholders during the course of the project

**Target 10:** Identify the factors that may inhibit the future membership in SmartCapital of the subproject teams because of the added risks or challenges or irrelevance to the partners' objectives

## Chapter 2: An Approach to Assessment

### S U M M A R Y

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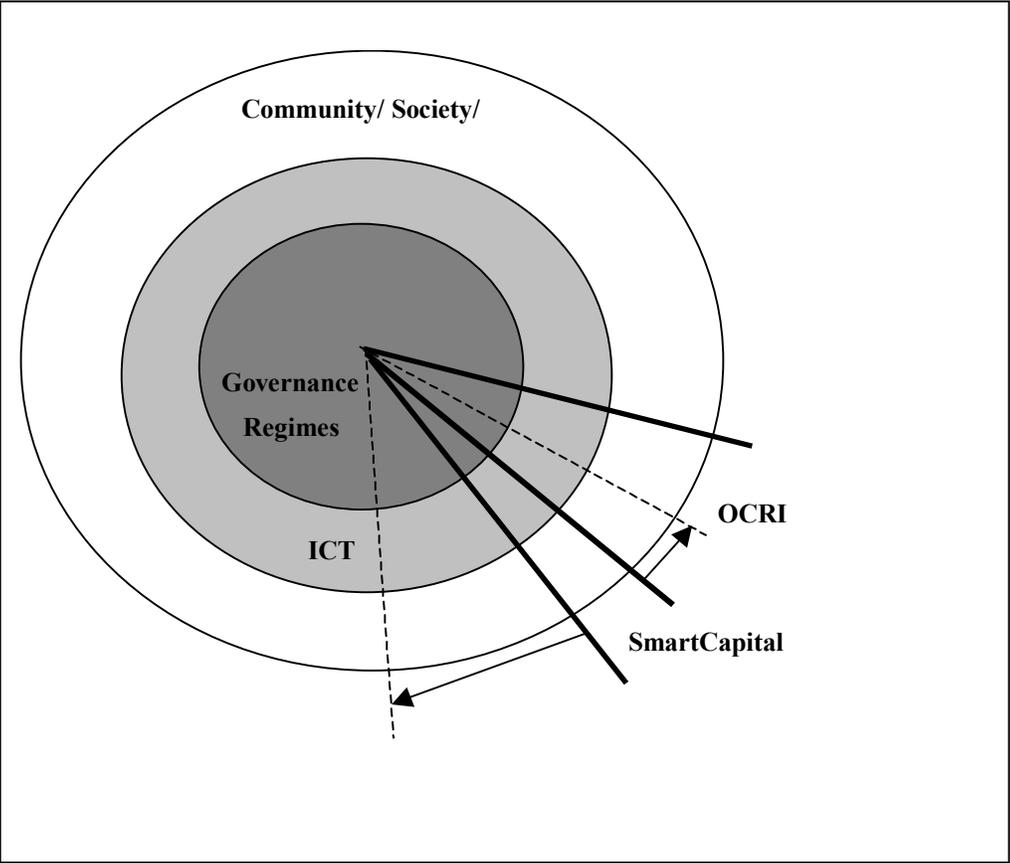
In this Chapter, we propose some common criteria to assess SmartCapital that include such high-level process-oriented attributes as *Accountability*, *Knowledge Management*, and *Collaboration*, as well as high-level results-oriented attributes such as *Sustainability*, *Value-added Impacts*, and *Transferability of Results*. The likely outcomes from these criteria will be principally qualitative in nature and suggestive of trends. This will require the use of judgement on the part of the SmartResults team to provide final conclusions. Due to the short timeframe for the project, especially with respect to social impacts, quantitative data may be either unreliable or completely unavailable. We also propose a *Four-Quadrant Model* to examine the project's systemic impacts and SmartCapital's overall contribution to community building.

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### 1 The Conceptual Basis

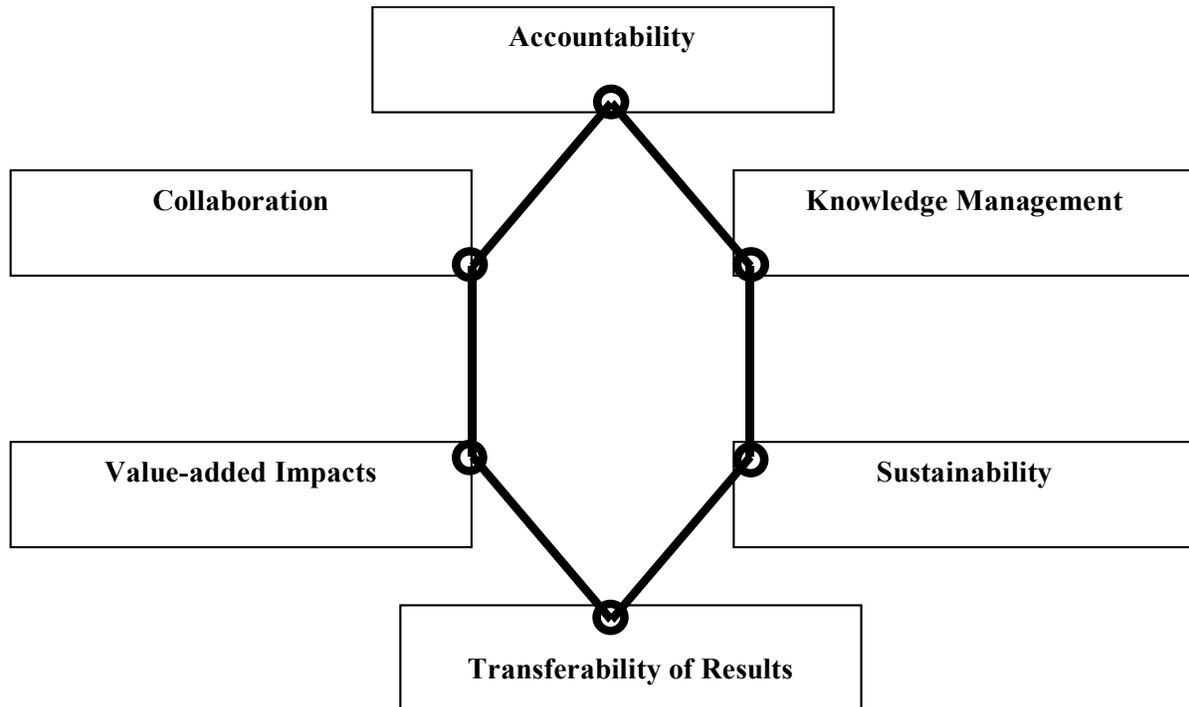
We proceeded in our analysis from the previously defined concept of “smart community” to scale the SmartCapital assessment based on the prevailing interests of the stakeholders and the likely future directions of the Ottawa community. In effect, we will try to narrow the window of investigation to observe the process of institutionalizing the new NICTs into the identified set of stakeholders and their environments. It is important to note also that this institutionalization has already begun because of OCRI's position in the community and the leadership that it has exercised in initiating SmartCapital. For the long term, as shown in **Figure 2**, the institutionalization of the smart community concept has a larger ecological space that it could potentially fill. The success of the SCDP projects would likely increase SmartCapital's influence either within OCRI itself as a key success factor in other areas of OCRI's concerns or in other areas of community interest.

Figure 2: Expanding SmartCapital’s Domain of Influence



It should be evident that assessing the impact on current stakeholders and the relative significance of SmartCapital’s sphere of influence will require common set of criteria that do not relate much to electronics, wires, software or technological plumbing but to the virtues of the processes undertaken for their implementation. We have identified some common criteria that can be used for assessing the governance of SmartCapital as “Smart Attributes”. These *Smart Attributes* can be perceived as a basket of high-level process-oriented attributes (Accountability, Knowledge Management, and Collaboration), coupled with high-level results-oriented attributes (Sustainability, Value-added impacts, and Transferability of Results). It is our belief that these *Smart Attributes* bind people, organizations, technologies and resources together in networks of relationship and action to create a productive, self-organizing community systems, much like electromagnetism binds together atoms and molecules to form organic compounds that ultimately living organisms. Therefore, the more we can identify the presence of these attributes in the various processes of development and implementation in SmartCapital, the greater our confidence can be that it will be moving towards the desired community goals, even if those goals might change in the short term (See **Figure 3**).

Figure 3: Smart Attributes



The characterization of the *Smart Attributes* will result from a set of building blocks or *drivers* of the institutionalization process. The objectives set for the subproject, the stakeholder audience and their interests will of necessity customize these drivers. Depending on the nature of the subproject, not all the building blocks will be apparent in the institutionalizing process of the subproject. SmartResults' evaluation and impact assessment approach will focus on developing measurement criteria for the drivers and negotiating their acceptance with each subproject. Accordingly, our ability to judge the success of the institutionalization process will be determined by the alignment of the measurement criteria for these drivers in the context of the subproject and the quality of the information collected to test the criteria.

In the context of promoting a smart community in Ottawa, SmartResults will seek to identify how the technological and behavioural changes of SmartCapital respond to actual stakeholder needs in the community and their alignment with the community's development strategy in terms of advanced technology, increased capacity, or improved productivity. The assessment will be conducted on two levels: the subproject level, and the SmartCapital collaboration level to assess the short and long term impacts on users and services providers. **Figure 1** illustrated the relationship between the various community interest domains these two levels: the subproject activity level and the SmartCapital collaboration level. The subproject level is of particular interest to us because it is there where we will most clearly be able to identify the *drivers* of the Smart Attributes. The primary set of these *drivers* is provided in the list below. They constitute the general metric of assessment for SmartResults.

## **1.1 The Smart Attributes and Their Component Drivers**

### **1. Accountability**

- Efficiency of Operations
- Effectiveness
- Clarity of roles and responsibilities
- Clarity of performance expectations
- Balancing of expectations and capacities
- Leadership
- Stakeholder co-ordination
- Adherence to internal/external policies of the stakeholder and the partnership
- Benchmarking (for integrity)

### **2. Knowledge Management**

- Efficiency of operations
- Internal competences
- Degree of information sharing
- Learning
- Benchmarking (for innovativeness)
- Marketing & Promotion (for knowledge dissemination)

### **3. Collaboration**

- Identification of shared risks/opportunities
- Participation among stakeholders and users
- Open communications and information sharing
- Common problem definition
- Consensus building
- Problem resolution
- Resource sharing and sustained commitment
- Benchmarking (for innovativeness)
- Marketing & Promotion (for revenue generation)

### **4. Value Adding Impacts**

- Relationship-based management approach (to attract, retain, and learn from users)
- Attitudinal changes in users
- Behavioural changes in users (substitutions, enhancements, innovations, synergies)
- Marketing and promotion
- Benchmarking (for performance)

## 5. Sustainability

- Efficiency of Operations
- Effectiveness
- Marketing & Promotion (for revenue generation)
- Maintaining organizational support (Vertical & Lateral)
- Benchmarking (for competition)

## 6. Transferability of Results

- Maintaining communication channels (Media, Conferences, Demos, Twinning)
- Marketing & Promotion
- Benchmarking (for comparison)

The assessment of SmartCapital as a smart community will be concerned with the combined outcomes of all the efforts at the level of SmartCapital, the contributions of the subprojects taken together and the contribution that occurs at the co-ordination level of the SmartCapital team. These contributions could result from activities in the same interest domain or sector or appear from cross sector interactions. These outcomes could be described in the form of:

- Service or program creation or modifications
- Resource maximization
- Policy developments or refinements
- Governance changes or changes to the knowledge flow
- Economic, social or community development

These outcomes will be more qualitative based on judgement than quantitative because there is an expectation of uncertainty about the ability to collect supporting data, particularly in light of the short timeframe for the project. However, individual observations and anecdotal evidence could well identify trends of some sort.

In the end, these *Smart Attributes* should provide a framework for forming a reasonable judgement about not only the benefits from SmartCapital to Ottawa that may accrue at the end of the Smart Communities Demonstration Program, but also, the potential benefits and returns that may accumulate over time.

## 1.2 Four-Quadrant Model for Continuous Evaluation

The many multidimensional and developmental processes that are the foundation of SmartCapital's collaborative effort may be difficult to codify in the complex and often subjective nature of its outcomes. However, if we are to draw the right conclusions from SmartCapital's assessment we need to examine these outcomes in terms of their links to the local networks of individuals and community organizations.

We attempt here to construct a visual model that illustrates SmartCapital's progress and its outcomes as they relate to beneficiaries. The model is generated from a theoretical base that takes into account the self-

organizing nature of systems. It also recognizes the diverse perspectives that concurrently influence SmartCapital development process. Self-organizing systems always move in the direction of balancing the system state.

Our *Four-Quadrant Model* for continuous program evaluation, leadership development and reflective practice is built on two axes (see **Figure 4**). The horizontal axis is the future time dimension, represented as a continuum. At one end is the present and the Short Term reality and at the other end is the Long Term reality. The vertical axis is the process dimension, which attends to the locus of attention in outcomes. By mapping specific outcomes and examining their concentrations on the four-quadrant model we could draw a picture of how balanced the community system state is, in the same way we balance a tire. A single dimensional point represents a trade off between choices, a win-lose scenario, where short term OR long term benefits exist or individual OR collective benefits. The perfect compromise in this single dimensional view is the centre point, however, the circular area around the centre of the *Four-Quadrant Model* represents the least of desirable state for a community system. In that area, neither short-term or long-term outcomes of consequence nor individual or community benefits are being adequately achieved.

A more optimal condition for a community system exists when the outcomes are two-dimensional depicted by the *doughnut like* shape that surrounds the hollow middle. In this scenario, both individual AND collective interests are addressed while short AND long-term benefits accrue. This shape depicts a win-win scenario that fundamentally rejects the ‘either /or’ mentality and describes a state of acceptance or coexistence of opposite values. In our view this coexistence of different values better defines the reality of a modern community, especially one such as Ottawa.

## The Quadrants

### *Quadrant I—New Learning*

This quadrant represents individual oriented project outcomes that are the focus of individuals located in the quadrant.

### *Quadrant II—Maturity*

This quadrant represents long-term project outcomes that benefit only individuals.

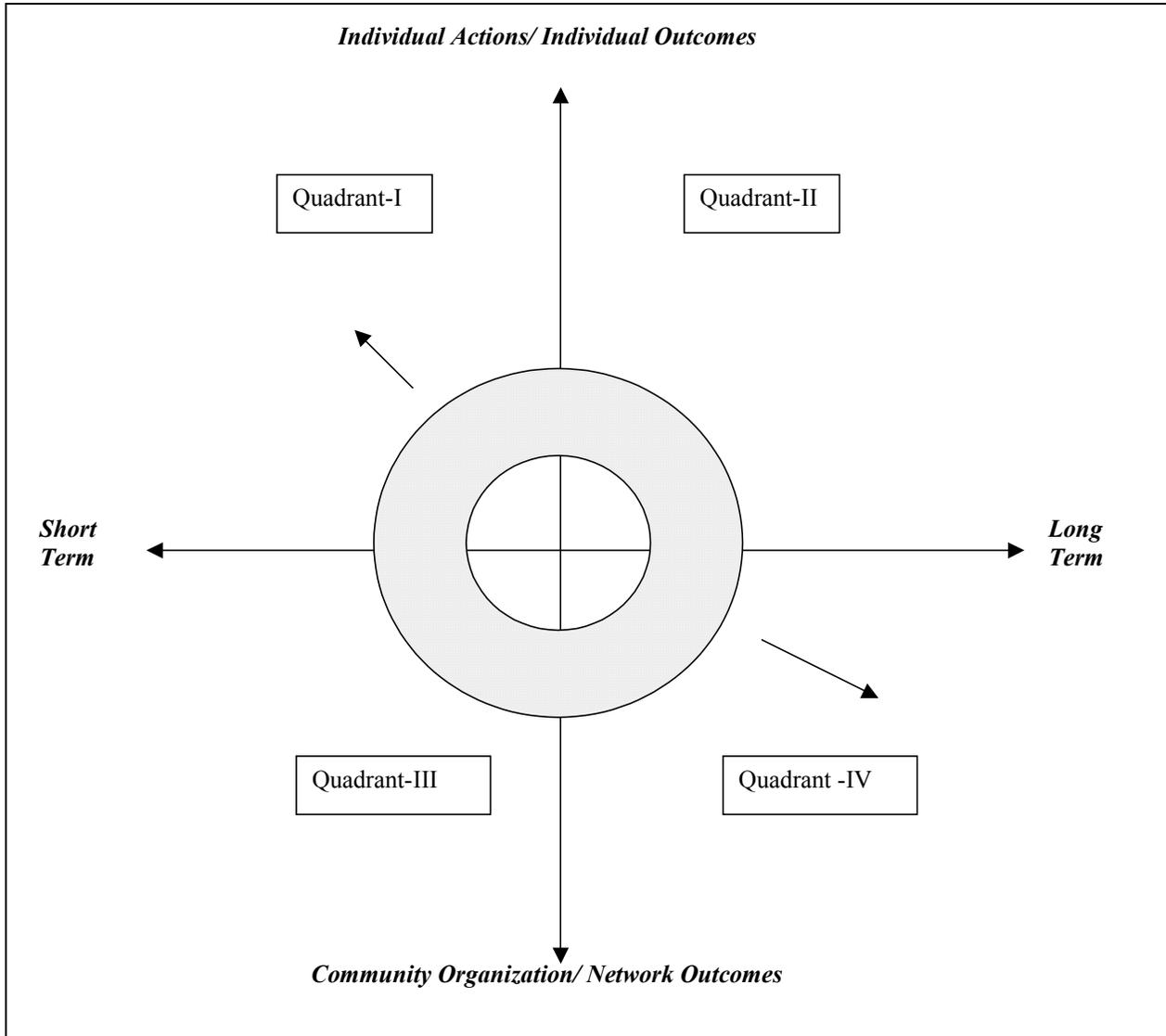
### *Quadrant III—Practice*

This quadrant represents short-term project outcomes that benefit the community.

### *Quadrant IV—Sustainability*

This quadrant represents long-term project Outcomes that benefit the community

Figure 4: Balancing the Outcomes



The more the program can address both the short AND long terms as well as satisfy individual AND community interests, the larger the surface area of this doughnut configuration. The more these differing interests can be simultaneously supported, the more the community as a whole will be moving towards the institutionalization of more effective collective decision making and a more generalized state of social coherence, the key traits we are defining of a smart community.

## Chapter 3: SmartResults Programming

*The implementation approach and setting up the Research structure for evaluating SmartCapital and its SCDP subprojects*

### S U M M A R Y

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Chapter Three continues the journey of the Guidelines Report by defining the underpinnings of the assessment. Consultations with SmartCapital’s different stakeholder groups and an analysis of their perspectives have provided a framework for establishing an assessment approach, the scope of the assessment, and the practical boundaries within which it must be conducted. The measurement framework is therefore informed by the empirical knowledge gained from practitioner experience and the theoretical knowledge on smart communities, described earlier, as well as the theoretical considerations from the disciplines of assessment and evaluation of public programs.

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### 1 The Evaluation Strategy

SmartResults’ approach to evaluation is theory-based evaluation (Weiss, 1997), which has been advocated in the evaluation of comprehensive community initiatives and others not well suited to statistical analysis of outcomes<sup>26</sup>. The theory-based evaluation is an alternative for using the scientific method based approaches -- the dominant evaluation paradigm. The strengths of the theory-based evaluation approach is based on combining a good understanding of the project development process with outcome data to learn about the project’s impacts and its most influential factors. The process of the theory-based approach begins with developing a logic model – or the big picture -- describing how the project is in fact operating.

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<sup>26</sup> W.K. Kellogg Foundation (1998). *W.K. Kellogg Evaluation Handbook: Philosophy and Expectations*, W.K. Kellogg Foundation, Collateral Management Company, Battle Creek, MI.

## 2 Performance Measurement Plan (PMP) Goals and Objectives

As described earlier, SmartCapital has prepared a Performance Measurement Plan to provide a framework for evaluation. The goal of the Performance Measurement Plan is to investigate each of the SCDP subprojects from the following perspectives:

- To what degree is the subproject achieving its goals?
- Is the subproject reaching the individuals and group audiences that were intended?
- How effective is the subproject when it reaches its constituents (did it do the right thing)?
- In what way is the subproject making a difference for its constituents?
- In what way is the subproject helping the partners or agencies responsible for the subproject and others involved in its implementation?

The performance measures that are proposed in this plan will be essential to the subprojects' partner organizations for feedback and management purposes. It will also be important for SmartCapital's project management and Industry Canada's assessment of overall achievement in the Smart Communities Demonstration Program. Specifically, the PMP will help determine whether the subproject:

- SCDP goals are being met.
- is contributing to the satisfaction of clients or customers receiving services from the partner organization.
- is contributing to employee development within the partner organization.
- is contributing to the enhancement of quality and timeliness for the services offered by the partner organization.
- is contributing to productivity gains both for the partner organization and its clients or customers.
- is generating indirect influences, indirect beneficiaries or unintended results.
- is offering new potential contributions to the community's growth and development.
- can be made sustainable.
- can identify activities and services that would be subject to continuous improvement.

The PMP is devised to identify and analyse the supporting evidence that would provide answers to these questions using the theory-based evaluation approach.

## 3 The Performance Measurement Process

SmartResults team has been working closely with the SmartCapital project management team and the subproject teams on the assessment and evaluation of SmartCapital's SCDP subprojects. The goal has been to try and achieve the right balance between performance expectations and the capacity of subproject teams to deliver. Given a lack of independent data sources upon which SmartResults can base its assessment, it was determined early on that co-operation from the subproject teams was essential to our success.

The PMP will be executed as part of a process that combines the efforts of all three groups – SmartCapital management, the subproject management team and SmartResults. The performance measurement system

that results from the implementation of the Performance Measurement Plan will therefore be integral to the management tools available to the subproject teams for their use in continuous improvement beyond the SCDP requirements.

### **3.1 Process Steps**

The performance measurement process is an adaptation of the iterative process of “plan, perform, measure, and improve”, the standard method for performance-based management (Hale, 1998). The iterative process that will be utilized will be a series of six steps:

#### **1. Establish performance goals / standards**

All performance measures are tied to a pre-defined goal, standard, or outcome for the subproject. These could be either explicitly defined in the subproject’s statement of work or elicited as an expected outcome based on investigating the merits of the subproject from the smart community perspective.

#### **2. Establish indicators**

Indicators are measures that summarize information relevant to a particular phenomenon, or a reasonable proxy for such a measure. An indicator provides evidence that a certain condition exists or certain results have or have not been achieved. Indicators enable decision-makers to assess progress towards the achievement of intended outputs, outcomes, goals, and objectives as well as assessing inputs. For each subproject, relevant performance indicators will be established using a Logic Model (described later) that will be tailored for each subproject.

#### **3. Collect Data**

Tools to support data collection and the most appropriate collection techniques will be used for each indicator. Both the time frame and validation process for the data collection are defined for each subproject in the implementation section.

#### **4. Analyze performance**

Collected data on performance measures will be analysed using quantitative and qualitative methods. Comparative analysis will determine variations between performance indicator values and intended targets or standards for the performance period. Annual performance reports will communicate the results on the subprojects’ performance relative to the results of their previous reporting period. The baseline assessment would provide the initial values.

#### **5. Institute changes to meet goals**

The results of the comparison will be used to define possible corrective actions if necessary. The changes if necessary need to be implemented by the subproject to reach its goals or improve performance.

## 6. Identify new goals/ measures if necessary

To achieve continuous improvements in the subproject, goals and measures need periodic reviews to ensure that the on-line services are in step with Information and Communications technology shifts and the evolving needs of customers or clients.

The SmartResults team has been largely responsible for Steps 1 and 2 in the Performance Measurement process with input from the subproject team leaders. Subproject team leaders will then be responsible for the majority of the data collection at the implementation stage of the PMP. For each subproject, data collection tasks will be assigned according to requirements of the Performance Measurement Plan. The implementation section details tasks and responsibilities for each of the subprojects. The SmartResults team is responsible for Step 4 and will produce recommendations to the subprojects during the window of SCDP funding. Step 5 and 6 are the responsibility of the individual subprojects. Beyond SmartCapital's SCDP term, the commitment of the subproject's partner organizations will be essential to the ongoing success of this process.

## 4 Evaluation Design

### 4.1 The Theory-Based Evaluation Approach and the Logic Model

While the scientific method based approach is the dominant evaluation paradigm, the theory-based approach is an alternative for use in evaluating programs and projects. Theory-based evaluation starts with the premise that every program or project is based on a theory which describes how and why it will work (Weiss, 1997). The program theory should be both prescriptive and descriptive (Chen, 1990). The strength of the theory-based evaluation approach is based on combining a good understanding of the program development process with outcome data to learn about the program's impacts and its most influential factors (Weiss, 1997). This process is better explained through the development of a program *Logic Model*. The *Logic Model* is the basis for a convincing story of the program's expected performance. A simple Logic Model is illustrated in **Figure 4**.

A *Logic Model* presents a plausible and sensible model of how the project or program will work under certain conditions to achieve its goals or solve identified problems (Bickman, 1987). The elements of the *Logic Model* are resources, activities, outputs, reach, outcomes or impacts (short, intermediate and longer term), and the relevant external influences (Wholey, 1983 & 1987).

The evaluation literature supports our selection of the theory-based approach and the use of a *Logic Model* to develop a Performance Measurement Plan for SmartCapital and its SCDP subprojects. Various types of evaluation studies have provided descriptions and examples in the use of the *Logic Model* as an analysis tool for performance measurement (Wholey, 1983; Rush and Osborne, 1996; and Jordan and Mortensen, 1997). Others have sought to use the same tool but used different name variations for the *Logic Model* including: "Chains of Reasoning" (Torvatn, 1999), "Theory of Action" (Patton, 1997), "Performance Framework" (Montague, 1997; McDonald and Teather, 1997), and "espoused theory of action" (Patton, 1997). All of these refer to stakeholder perceptions of how the program will work. The use of the *Logic Model* is also recommended for the evaluation of comprehensive community initiatives that are not well suited to a statistical analysis of outcomes (United Way of America, 1996; W.K Kellogg Foundation, 1998).

## 4.2 Distinguishing Between Implementation and Results

Patton (1997) has contributed to the use of the *Logic Model* for evaluation with his focus on utilization. Patton's hierarchy of evolution put measuring impacts or end results at the top of his hierarchy. The bottom of Figure 4 shows Patton's hierarchy with respect to the *Logic Model* components (on the right side of the Figure 4). Patton's hierarchy allows evaluators to discriminate program objectives into the seven levels described below.

The three lowest levels of the objective hierarchy -- the most immediate objectives for programs -- concern inputs and implementation of the program. These include:

### Inputs and Implementation

1. Program inputs, including time and resources (far left of diagram).
2. Specified activities of conduct, including methods and roles
3. Participation and stakeholder involvement

The levels associated with results of the program include:

### Outputs

4. Participants' immediate reactions to program activities

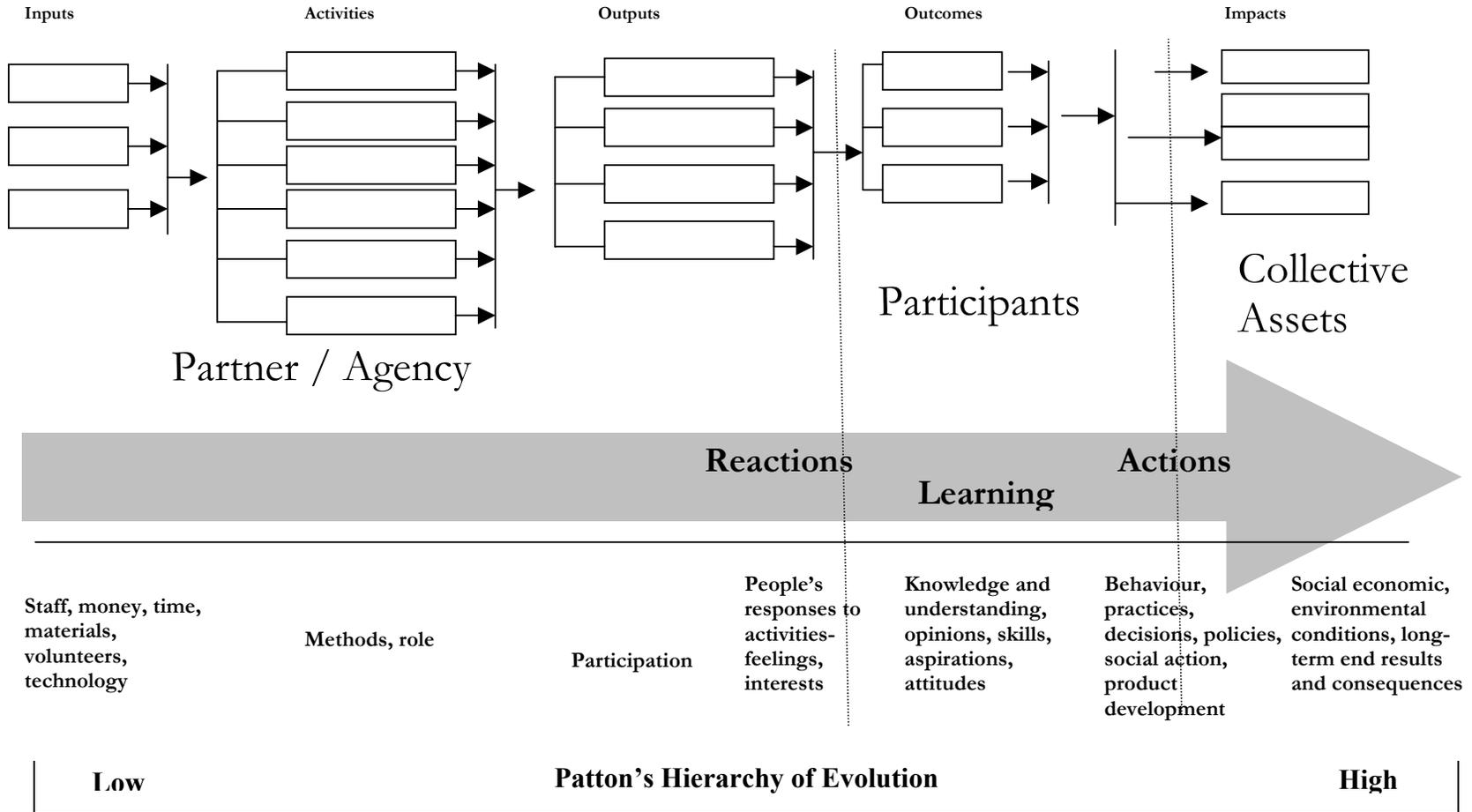
### Outcomes

5. Changes to participants' KASA (knowledge, attitude, skill, and aspiration) (Bennett, 1982)
6. Changes to participant's practice; and

### Impacts

7. The end results that occur as a consequence to changes in the participants KASA or practice.

**Figure 5: The Program Logic Model**



## 5 Implementation Design

This Performance Measurement Plan is primarily concerned with developing the performance measures that will permit a judgement about the achievement of SmartCapital's goals and the identification of possible outcomes for each subproject. The SmartResults team has conducted interviews with the subproject leaders to gather more the information on possible indicators and expected outcomes in addition to those specifically identified in each subproject's statement of work. The information from the interviews and additional research has resulted in the identification of indicators that may shed light on direct and ultimate outcomes for each of the subprojects. A data collection and reporting schedule for each subproject was also prepared. A baseline assessment was conducted within the first quarter of 2002 and is presented under a separate report, *SmartCapital's Baseline Assessment*. Follow-up data collection and measurement activities will be undertaken beginning in the winter of 2003 for the operating subprojects.

### 5.1 Measures

Given the nature of the subprojects being public enterprise projects of limited budget and having designated implementation targets, some key contextual factors and assumptions have been brought to bear on the implications of the use and design of the measures:

1. Subproject partner organizations began their initiative based on either the results of a community needs assessment process or its own insider view of how the proposed on-line service offering would benefit its clients or customers and the community implying that:
  - The goals of the subproject were linked to the partner organization's organizational and internal goals, objectives, and strategic actions as well as to the goals of the general community.
  - The subproject's documentation, including the information prepared by the subprojects' leaders or others designated by them to work with SmartResults team, will be the basis for the development of the subproject's *Logic Model*.
2. Since people are the most important asset in any social organization such as a community, they are the both initiators and subjects of a community change. The on-line service is neither. It is only an *enabler of change*. This implies that:
  - The users of an on-line service are different for each subproject. They could be referred to as clients, customers, or end users depending on the type of their interaction with the partner organization and the point of interface with the on-line service. The PMP describes the same perspective of a partner organization interacting through the on-line service with an external audience and observes the boundaries of such interactions and any limitations they impose on data collection or validation of performance measures.
  - The PMP is centred on the direct beneficiaries, a group that includes not only end users but also the partners' organization staff and its management. Any benefits this group gains from developing or rendering the on-line service are considered valid outcomes of the subproject.

3. Many indicators would require elaborate and expensive data collection and analysis techniques. Given the lack of subproject funding for data collection, these have been deemed impractical. We have adopted the assumption that the more specific and elaborate the number of performance measures, the more the uncertainty the measures would introduce. Further, when the number of indicators becomes large an integrated analysis is increasingly difficult and the ability to draw useful conclusions becomes increasingly limited. This implies that:
  - The number of indicators developed for each subproject should be limited to a critical few.
  - The recommendations from the Smart Communities Demonstration Program Annual General Meeting will be observed (regarding the difficulty of measuring social impacts and the validity of using subjective evidence for the hard-to-measure impacts such as the stories of individuals and groups).
4. Outcome measures will be applied to the objectives of the partner organization. The outcome indicators will measure the impact on the direct beneficiaries or the public in general, rather than the services produced by the partner organization, this implies that:
  - The information concerning the possible outcomes is solicited from the subproject's objectives from the context of their statement of work or from the subproject leader. The endorsement of the subproject leader is essential to insure that outcomes are congruent to organizational capacities and reflective of their organizational and functional goals, objectives, and strategic actions.
  - Where a subproject leader is speculative on outcomes and measures, the evaluator might use benefits from offering similar type of service elsewhere as surrogates for outcomes based on local research. However, these will have less credibility than those identified or endorsed by the subproject leader.
  - Direct outcomes and ultimate impacts will be distinguished as much as possible based on the time frame suggested by Industry Canada Smart Communities Demonstration program (short term: 1-2 years after service launch, and long term is 2~5 years after subproject launch)<sup>27</sup>. It is very possible however, that many of the community outcomes identified will need a much longer time horizon to materialize. No performance indicators will be attempted that measure only those long term outcomes as the performance environment may change. Outcome comprehensiveness is not a target in this PMP.
5. The on-line service technological solutions were selected based on their previously proved economical and technological suitability for the subproject, this implies that:
  - The information technology solution is defined by the complexity of data definition and collection, data transformation into information, performance reporting, systems architecture, software and hardware features, and cost and time to implement, train, and maintain. The evaluation of technological solutions of on-line services will not be considered in this performance measurement guideline.

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<sup>27</sup> Smart Communities Directorate (2001). *Section 6, Contribution Agreement between OCRI and Industry Canada for the Sm@rtCapital project*, Smart Communities Directorate, Industry Canada, Ottawa, ON.

- The performance measurement Guideline will consider as outcomes the benefits derived from the utilization of the on-line service after the subproject launch. The involvement of the users in the planning, design or testing phases of the on-line services will be regarded as process indicators. However, benefits to the users from this involvement could constitute an outcome, especially in terms of raising awareness for the subproject.
- The development and implementation stage activities might produce technological solutions or practices that are considered innovative within their specialized field. These will be considered valid outcomes of the subproject.

## 5.2 From Goals to Measures

Ronald's "Executive Diagnostics" (Ronald et al, 1996) type of analysis was used to determine the sets of critical measures necessary for informing the evaluation questions identified using the *Logic Model*. The Executive Diagnostics method is a high-level analysis tool that directs the attention to the most critical issues in the organization. It is based on identifying two interacting sets of features that characterize any organization, the "*Definers*" and the "*Sustainers*". The *Definers* include: Structures, Culture, and Externals. The *Sustainers* include: Commitment, Systems, and Resources. The *Definers* identify the characteristics that make each organization unique and predict the ability of the organization to promote and survive change. The *Sustainers* determine the degree to which an organization can sustain successful performance inside the framework of the *Definers*.

The following set of *Definers* and *Sustainers* was identified for SmartCapital as a basis for determining the required measures for the subprojects:

### *Definers*

- The benefits a partner organization derives from the subproject activities, for example, improved efficiency
- The economic and social benefits from the subproject to the community channelled through the partner organization
- The capacity change of the partner organization in terms of internal functionality, communications, decision-making, policymaking, and planning

### *Sustainers*

- The commitment of a partner organization to the vision of SmartCapital
- The effectiveness of a subproject for its targeted audience
- The results or lessons learned from the partner organization participation that can be transferred to other organizations in terms of technology issues, people issues, resources, knowledge, etc.
- The impact of the sub project on the partner organization's marketing and revenue budgets which may affect the sustainability of the subproject

An evaluation of the Smart Community Centre provides an illustration of this methodology. First, the required subproject measures is based upon the 'Executive Diagnostics' method as presented in **Table 7**. Second, each evaluation goal maps onto a key corresponding performance criteria and its supporting indicators.

**Table 7: Smart Community Centre Example of Evaluation Procedure**

PMP Objective	Performance Criteria	Indicators	Comments
<b>Evaluate user interaction and satisfaction</b>	Website usability	<ul style="list-style-type: none"> <li>• Homepage effectiveness</li> <li>• Navigation structure</li> <li>• Quality of content</li> <li>• Continuity of theme</li> <li>• Ease of use</li> <li>• Aesthetic appeal</li> <li>• Overall site effectiveness</li> </ul>	Qualitative indicators
	Usage	<ul style="list-style-type: none"> <li>• Active number of users</li> <li>• Most Requested Content Groups</li> <li>• Top referrers</li> <li>• Top Page Stickiness</li> <li>• Server Time</li> </ul>	Quantitative indicators
	Service tools	<ul style="list-style-type: none"> <li>• Ease of information management</li> <li>• Functionality</li> <li>• Data storage capacity</li> </ul>	Qualitative indicators
<b>Measure the effectiveness of the Smart Community Centre:</b>	Improvement in operational efficiency of the direct beneficiaries (Management of Not-for-profit organizations)  <u>First level outcome Measure</u>	<ul style="list-style-type: none"> <li>• Cost savings on Technology</li> <li>• Processing time savings</li> <li>• Staff time allocation</li> <li>• Membership reach</li> <li>• Number of new programs and grants acquired</li> <li>• Backend systems replacements</li> <li>• Use of educational on-line materials and references.</li> </ul>	Information collected to compare performance on yearly basis.
	Capacity improvement of individuals (Clients of Not-for-profit organizations)  <u>Second level outcome Measure</u>	<ul style="list-style-type: none"> <li>• Cost savings on service or information access</li> <li>• Better personal Time management</li> <li>• Learning new computer skills</li> <li>• Participation in other online community and local community events</li> </ul>	

**Table 7: Smart Community Centre Example of Evaluation Procedure**

PMP Objective	Performance Criteria	Indicators	Comments
<b>Measure the Sustainability of the Smart Community Centre:</b>	Efficiency (Cost)	<ul style="list-style-type: none"> <li>• Costs per user ((Total costs/Number of total users)</li> <li>• Costs of attracting users (Marketing Costs/ Number of total users)</li> <li>• Costs per active users (Total costs/number of active users)</li> </ul>	Indicator values calculated to compare performance on yearly basis.
	Productivity	<ul style="list-style-type: none"> <li>• Active usage ratio (Number of Active users/Total number of users)</li> <li>• Service time cost (Total costs of marketing/ Number of hours of usage)</li> </ul>	
	Profitability	<ul style="list-style-type: none"> <li>• Profit per user ((Total revenues-Total costs)/Total number of users)</li> </ul>	
<b>Measure the degree of collaboration between the Smart Community Centre and other SmartCapital projects</b>	Development of shared technologies	<ul style="list-style-type: none"> <li>• Cost savings from sharing in SCOR</li> <li>• Processing time savings</li> </ul>	
	Marketing and Promotion	<ul style="list-style-type: none"> <li>• Cost Savings for combined marketing and promotion.</li> </ul>	
	Shared technical help & consultation	<ul style="list-style-type: none"> <li>• Cost savings on consultant work for getting help from SmartCapital</li> </ul>	
<b>Measure Economic gains generated by the Smart Community Centre.</b>	Economic returns to local economy	<ul style="list-style-type: none"> <li>• Taxes (GST, PST, Income)</li> <li>• New local jobs created</li> <li>• Value of Local contract(s)</li> </ul>	Quantitative indicators
	Corporate	<ul style="list-style-type: none"> <li>• Advertising revenues</li> <li>• Commercial license fees</li> </ul>	
<b>Demonstrate private sector participation in civic sector work</b>	How to protect private information and privacy concerns	<ul style="list-style-type: none"> <li>• Differences in trust level to use Smart Community Centre to communicate private information.</li> </ul>	Qualitative indicators

## 5.3 Data Collection

It should be recalled that the Performance Measurement Plan is a guiding framework that reflects what ideally should be done. Its implementation in SmartCapital will require modifications to account for data collection constraints that are dependent on each subproject context thus creating a measurement strategy that reflects what can be done.

### 5.3.1 Data Collection Strategy

**Table 8** provides a sample illustration of the data collection plan for the Smart Community Centre subproject of SmartCapital. In general, the data collection and analysis of the subproject will follow standard quantitative and qualitative research procedures with the following three observations:

1. Web-based surveys, focus groups, and stakeholders interviews will be used for information gathering based on their suitability to the evaluation task and the subproject circumstances. It is important to make these tools cost-effective and keep the costs of evaluation as low as possible.
2. Automated collection tools that generate data through the online activities of users will be used as much as possible to ensure accuracy. **Appendix E** provides a sample of data to be collected for web traffic and user activities.
3. The collection of new information required for the Performance Management Plan will be coordinated and integrated with the existing tools being used by the subproject teams to limit over burdening the potential respondents or disturbing standard evaluation work conducted by partner organization for other purposes. Some of the partners will conduct large-scale surveys. Information pertinent to the Performance Management Plan will be solicited from those surveys instead of conducting separate ones.

In cases where it is hard to find supporting evidence for outcomes, the evaluator will rely on anecdotal feedback of the change, if any. The evaluator will judge the degree of change following Patton's hierarchy (KASA change -- knowledge, attitude, skill, and aspiration changes). Using the appropriate data collection tool, subjects that are most representative of users of the on-line service will be selected. Participants will be questioned on how their KASA has changed with respect as a result of their use of the on-line service. Standard qualitative analysis of the results will provide an estimation of the degree of change expected (Yin, 1989). However, sample size matters. **Appendix C** provides an example of KASA change method questionnaires applied by Bennett (Bennett, 1982) for the evaluation of cooperative extension programs for the US Department of Agriculture. In addition, the collection of sample stories provided by users and implementers will be another type of acceptable anecdotal evidence.

In an effort to document the development of SmartCapital, increase the collaborative efforts of partners, and capture knowledge on project management, a special interactive website has been being established for use during the course of the project evaluation. Periodical reports of the results will be available to the partners from this website. The networking website will be a comprehensive knowledge base for informing partners on the unfolding activities of Ottawa's SmartCapital. If the website happens to be used by the various partners as intended, data emerging from the activities of the website will be used as measure for the intensity of the collaborative work and types of knowledge sharing that may occur among

SmartCapital's subproject teams. To obtain a more appropriate input from the public, a citizen/user advisory group is contemplated.

**Table 8: Smart Community Centre Example of Data Collection & Analysis**

<b>PMP Objective</b>	<b>Data Sources</b>	<b>Respondent Group</b>	<b>Responsibility for New Data Collection</b>	<b>Analysis procedure</b>	<b>Comments</b>
<b>Evaluate user interaction and satisfaction</b>	Web logs records	Administration of Smart Community Centre	Administration of Smart Community Centre	Descriptive	
	Web-based survey	Volunteer registered users	Administration of Smart Community Centre, and SmartResults	Qualitative Analysis	Incentives might be needed to encourage Response rate
<b>Measure the effectiveness of the Smart Community Centre</b>	Web-based survey	Sample of top active registered nonprofits and community groups management	SmartResults	Comparison of pre/post use, Qualitative Analysis	
	Focus group	Volunteer individual users	SmartResults	Qualitative Analysis	Two focus groups of 7 participants each
<b>Evaluate the sustainability of the Smart Community Centre services</b>	Financial Records	Administration of Smart Community Centre	Admin. of Smart Community Centre & SmartResults	Quantitative Analysis	
<b>Measure the degree of collaboration between Smart Community Centre &amp; other SmartCapital projects</b>	Informal conversations Financial records Observation	SmartCapital Project manager, other SmartCapital projects	SmartResults	Descriptive	
<b>Demonstrate private sector participation in civic sector work</b>	Focus group	Volunteer individual users	SmartResults	Qualitative Analysis	Same focus groups for level 2 outcome assessment
<b>Characterize the economic gains from the Smart Community Centre.</b>	Financial records Project Records	Administration of Smart Community Centre	SmartResults	Descriptive	

### 5.3.2 Reporting

The reports of the evaluation would follow the completion of the analysis of the data and information collected. **Table 9** provides the reporting plan over the three-year term.

<b>Table 9: Reporting Schedule</b>				
<b>Evaluation Audience</b>	<b>Focus of Report</b>	<b>Format</b>	<b>Frequency</b>	<b>Time/event associated with report release</b>
<b>Project Administration, Smart Capital, Industry Canada</b>	Guideline Report	Planning Report	One time	Eighteen months into project
	Baseline Assessment	Evaluation report	One time	Three months to on-line service launching (during testing period)
	Progress and Update on Achievements	Evaluation Report	Quarterly & Annually	By the end of the first & second years
<b>Project Administration, Smart Capital, Industry Canada</b>	Final Report	Evaluation Report	One time	The end of the third year
<b>Smart Communities Demonstration Program</b>	Performance Management & Evaluation model	Plan Report	One time	In conjunction with and prior to baseline assessment report

## **Appendix A: SmartResults Statement of Work (2001)**

This Statement of Work provides all information required to fully describe the Project in conformance with the Contribution Agreement between OCRI and Industry Canada in conjunction with the Smart Communities Demonstration Program. In particular, this Statement of Work includes:

- I. *purpose*: a clear and complete statement of the purpose of the Subproject;
- II. *major tasks and milestones*: a clear description of the major tasks of the Subproject, including a list of tasks with a start and completion date and duration;
- III. *deliverables*: a list of specific outcomes as a result of successfully addressing the purpose;
- IV. *monitoring*: the establishment, composition and frequency of meetings for Subproject review and monitoring are to be set out;
- V. *costing*: terms and conditions addressing cost sharing as it relates to the Subproject, and the respective obligations of the parties, consistent with Schedule B (Costing Memorandum)

### **Purpose**

The University of Ottawa Centre on Governance will provide a number of services to ensure that the Smart Results requirements of the SmartCapital project are met. These include developing and applying smart community performance indicators (both quantitative and qualitative); developing and applying local and international benchmarks; documenting the implementation process; and identifying and influencing business and public attitudes on smart communities, including privacy, accessibility and affordability.

The services of SmartResults will be sustainable and will be offered beyond the 3-year Industry Canada funding period under the auspices of the Chair position for the Research and Management of Smart

Communities or a suitable equivalent. Under the currently envisioned timetable, this position would be established for five years, renewable for another five years, and eventually become an integral part of the offering of the University of Ottawa.

## **Major Tasks and Milestones**

This project includes the following key tasks and activities. The following represents a list of key tasks and milestones for SmartResults including dates and duration follows the description (Refer to **Table 8** for Gantt chart).

Develop metrics: Identifying expected results, evaluation criteria, potential barriers, progress indicators and other useful measurements of success for each of the service platforms and common services.

Conduct a baseline assessment: An initial baseline assessment, using the above metrics, will be performed.

Monitor and Report: Performance against each metric will be monitored regularly. An annual report will be produced for the three years of the project.

Undertake to establish a Smart Communities Research Chair: If adequate private sector funding is obtained, this research chair will be established at the University of Ottawa's Centre of Governance to advance the body of knowledge in the assessment of smart communities.

## **Deliverables**

Smart community performance indicators, baseline assessment results, progress reports, and Industry Canada performance measurement framework and research chair.

## **Objectives**

- To define valid and effective metrics to be used to determine the success of individual SmartCapital projects, and the overall success of the SmartCapital program.
- To conduct a baseline assessment of the SmartCapital program using these metrics.
- To apply these metrics annually, and report progress and improvement to the Executive Director, SmartCapital.
- To create a centre of excellence in smart communities by establishing a research chair position at the University of Ottawa.

## **Metrics and Targets**

- Obtain a set of 10-15 metrics for each project and for the program overall.
- Complete the baseline assessment.
- Produce annual progress report.
- Fund and hire an appropriate chairperson.

Table 10: Smart Results Statement of Work

Task	Year 1				Year 2				Year 3			
	Q1 Oct-Dec 2000	Q2 Jan-Mar 2001	Q3 Apr-Jun 2001	Q4 Jul-Sep 2001	Q1 Oct-Dec 2001	Q2 Jan-Mar 2002	Q3 Apr-Jun 2002	Q4 Jul-Sep 2002	Q1 Oct-Dec 2002	Q2 Jan-Mar 2003	Q3 Apr-Jun 2003	Q4 Jul-Sep 2003
<b>13.0 Smart Results</b>												
<b>13.1 Develop Metrics</b>												
<i>Evaluation Guidelines</i>				X								
<b>13.2 Baseline Assessment</b>												
<i>Assessment Results</i>					X							
<b>13.3 Monitor and Report</b>												
<i>Annual Report</i>								X				X
<b>13.4 Performance Measurement</b>												
<i>Framework</i>												
<i>Performance Measurement Plan</i>						X						
<b>13.5 Research Chair</b>												
<i>Letters of Commitment</i>					X							

**Table 11: Deliverables and Objectively Verifiable Indicators**

<b>Deliverables</b>	<b>Objectively Verifiable Indicators</b>
Evaluation Guidelines Report	A document identifying expected results, evaluation criteria, potential barriers, progress indicators and other useful measurements of success for each of the service platforms and common services. (Sept. 01)
SmartCapital Baseline Assessment Results	A document describing the results of an initial baseline assessment, using the above metrics. (Dec. 01)
Year 2 and 3 Annual Reports	An annual report documenting performance against each metric will be produced for each year of the project. (Sept. 02, Sept. 03)
Industry Canada Performance Measurement Framework	A document describing the performance measurement criteria for the entire SmartCapital project, building on the above metrics and the baseline assessment. (Feb. 02)
Research chair at the University of Ottawa's Centre of Governance	Research Chair proposal (Apr01) Letters of Commitment from Chair partners (Apr01).

## **Monitoring**

Subproject progress will be monitored regularly in conformance with paragraphs 4.1 and 6.1 of the Contribution Agreement. In addition, the Participant will report progress verbally to OCRI on at least a monthly basis, and will respond in a timely fashion to OCRI requests for a verbal report at any time.

## **Costing**

All costs and cost sharing with respect to this Subproject are detailed in the following financial tables.

The development and implementation of the Performance Management and Evaluation Plan for SmartCapital and its SCDP subprojects targets the fulfilment of the first three objectives in the statement of work. The fourth objective is a collaborative project in itself. It is pursued independently from the evaluation work but will maintain an affinity with it. The knowledge gained from SmartCapital evaluation process will enhance research activities and academic studies conducted by Centre on Governance in different contexts. The recently announced International Collaboratory on Smart Communities at the Centre on Governance, co-chaired by the former President of OCRI and the former Director of the Centre on Governance is part of the strategic effort to establish the Centre of Excellence.

## Appendix B: SmartCapital Business Network

Smart Capital Service Area	Subprojects (Industry Canada SCDP in bold)	Implementation		Project Leader(s)
<i>Business</i>	Digital Media Platform	Equity Partners	OCRI	Carol Sage
		Subcontractors	Quarterstone Communications	Brian Nolan
	<b>Entrepreneurship Centre Online</b>	Equity Partners	Entrepreneurship Centre	Stephen Daze, Joanne Sass-Williams
		Subcontractors	Internet Institute	
	<b>Ottawa Capital Network</b>	Equity Partners	Entrepreneurship Centre	Stephen Daze
		Subcontractors	Red caddy	
	<b>Ottawa Market Place</b>	Equity Partners	InBusiness.com INC.	Mark Sutcliffe (moved), Tom Lowe
		Subcontractors	Mathieu Beaugard Consulting Inc	
			Zib-O-Logies Inc.	Robert Martin
			Aprentis Consulting	

<b>Smart Capital Service Area</b>	<b>Subprojects (Industry Canada SCDP in bold)</b>		<b>Implementation</b>	<b>Project Leader(s)</b>	
<i>Education</i>	<b>Student Central Services (EduNET project)</b>	Equity Partners	EduNET Consortium (University of Ottawa, Carlton University, La Cité Collegiale, OCRI)	Christopher Cope	
		Subcontractors	EPALS Classroom Exchange	Sherry Massey-Smith (Executive Director of Business Development)	
	<b>E-College Online</b>	Equity Partners	Algonquin College	Jack Treuhaft	
		Subcontractors	BlackBoard Inc		
			Furtherahead.com		
			COGNICASE Ottawa Inc.	Barry Brock	
			Complete Learning Solutions		
			Algonquin College First Class. Computer store		
	Bell Canada				
	Leadership online	Equity Partners	OCRI	Peter Stark	
Subcontractors					
School Link	Equity Partners	OCRI	Peter Stark		
	Subcontractors				
<i>Local Government</i>	<b>E-government</b>	<b>E-Services</b>	Equity Partners	City of Ottawa	David Johnston
		Subcontractors	Deloitte Consulting (Removed)	Greg Lane (Business Development Director)	
	<b>E-Democracy</b>	Equity Partners	City of Ottawa	Alf Chaiton	
		Subcontractors			

Smart Capital Service Area	Subprojects (Industry Canada SCDP in bold)	Implementation		Project Leader(s)
<i>Community</i>	<b>SmartLibrary</b>	Equity Partners	National Library Region Consortium (Ottawa Public Library, University of Ottawa Library, Carlton University Library, National Library of Canada, Canada Institute for Scientific and Technical Information)	Barbara Clubb (city of Ottawa Librarian), Mary Cavanaugh (chair of Smart Library steering committee), Leslie Weir (Member for the University of Ottawa Smart Library Steering Committee), Gilbert Caron (University of Ottawa)
		Subcontractors		
	<b>Smart Community Centre</b>	Equity Partners	CanWest Interactive (Ottawa Citizen)	Seymour Diener, David Baker
		Subcontractors	(Ottawa Citizen)	David Baker
	<b>Smart Services Gateway</b>	Equity Partners	OCRI, city of Ottawa	Carol Sage
Subcontractors		Media Plus		
<b>National Capital Freenet Community Services</b>		Equity Partners	National Capital FreeNet Community Services	Ian MacEachern
		Subcontractors		

Smart Capital Service Area	Subprojects (Industry Canada SCDP in bold)	Implementation		Project Leader(s)	
	SmartSites	Equity Partners	OCRI, SmartSites Networks(City of Ottawa Recreation Department, Ottawa Public Libraries, Millennium Learning Centre, The Anti Poverty project, The youth Stations Network, The Ottawa Carleton Catholic School Board), Contributing Organizations(National Capital FreeNet, The Volunteer Centre of Ottawa, The Social Planning Council of Ottawa, The National Literacy Secretariat; HDRC), Funders(Community Access program; Industry Canada, The Office of Learning Technologies; HRDC, The City of Ottawa)	Sandra Huntley	
		Subcontractors			
<i>Infrastructure</i>	<b>Smart Lab(s) &amp; showcase sites</b>	Ottawa City Hall showcase	Equity Partners	City of Ottawa	
			Subcontractors		
		Algonquin College	Equity Partners	Algonquin College	Jack Treuhaft
			Subcontractors		
		OCRI showcase	Equity Partners	OCRI	Kerry Chalmers
			Subcontractors		

Smart Capital Service Area	Subprojects (Industry Canada SCDP in bold)	Implementation			Project Leader(s)
		NCIT	Equity Partners	OCRI, CRC, NCIT	
			Subcontractors		
		TeleSat	Equity Partners	TeleSat, OCRI	
			Subcontractors		
	<b>SmartCapital Online Resources (SCOR)</b>	City wide Enrolment, registration and Authentication Strategy	Equity Partners	OCRI	Brian Cavan
			Subcontractors		
		Smart Capital E-commerce Platform	Equity Partners	OCRI	Christopher Cope
			Subcontractors		
		Advanced Smart Cast	Equity partners	OCRI	Carol Sage
			Subcontractors	Ntgrating Solutions (current Webcast provider)	
		Other services	Equity Partners	Not determined yet	
			Subcontractors		

Smart Capital Service Area	Subprojects (Industry Canada SCDP in bold)	Implementation		Project Leader(s)
	Smart Infrastructure (Dark fibre build), OMAN, ORION-New, ORCnet	Equity Partners	Dark fibre Consortium (CANARIE, Canadian Space Agency, Carleton University, Cisco Systems, Communications Research Centre, Industry Canada, National Capital Institute of Telecommunication, National Research Council, Nortel Networks, Ottawa Carleton District School Board, OCRI, Ottawa Metropolitan Advanced Network [O-MAN], ONet, City of Ottawa, Telesat, University of Ottawa)	Jim Yuan
		Subcontractors	Videotron (Withdraw)	
<i>Smart Capital Project Management</i>	<b>SmartCapital Project Executive Office</b>	Equity Partners	OCRI	Paul Wilker (Smart
		Subcontractors	EduTech Collaborations	Brian Cavan
	<b>Smart Capital Marketing</b>	Equity Partners	OCRI	Carol Sage
		Subcontractors	Media Plus advertising	Cathy Kirkpatrick
<i>Project Evaluation</i>	<b>SmartResults</b>	Equity Partners	Centre on Governance	Chris Wilson, Youssef Berbash
		Subcontractors		



# Appendix C: Sample KASA Questionnaire<sup>28</sup>

It is expected that many of the on-line services benefits would be difficult to assess. The following questionnaire uses Patton's hierarchy to determine KASA change (i.e. changes in knowledge, attitude, skill, and aspiration). It is tool that will be used to probe evidence of change for SmartCapital users and participants. Participants either in an interview or survey format would be asked about three activities that the on-line service or SmartCapital or its SCDP subproject offer. Answers are provided using a response scale. Qualitative analysis on the results would provide an idea on which activities or subjects might be more beneficial. However, sample size matters.

### Reaction Items

To what extent did (activity 1, 2, and/or 3) meet participant's expectations at the time?

- \_\_\_\_\_to a great extent
- \_\_\_\_\_to a fair extent
- \_\_\_\_\_to a slight extent
- \_\_\_\_\_not at all
- \_\_\_\_\_don't know/don't recall
- \_\_\_\_\_other (specify)\_\_\_\_\_

To what extent did (method 1, 2, and/or 3) on (subject 1, 2, and/or 3) meet participant expectations at the time?

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<sup>28</sup> Bennett, C. F. (1982). *Reflective appraisal of programs (RAP): An approach to studying clientele-perceived results of cooperative extension programs. (Introduction, Guide, Rationale, & Workbook)*, Program Development/ Evaluation and Management Systems, U.S. Department of Agriculture, Washington, DC.

- \_\_\_\_\_ to a great extent
- \_\_\_\_\_ to a fair extent
- \_\_\_\_\_ to a slight extent
- \_\_\_\_\_ not at all
- \_\_\_\_\_ don't know/don't recall
- \_\_\_\_\_ other (specify) \_\_\_\_\_

**Knowledge Change Items**

To what extent did participant learn more about (subject 1, 2, and/or 3) thinking back on the activities in which participant was involved in?

- \_\_\_\_\_ to a great extent
- \_\_\_\_\_ to a fair extent
- \_\_\_\_\_ to a slight extent
- \_\_\_\_\_ not at all
- \_\_\_\_\_ don't know/don't recall
- \_\_\_\_\_ other (specify) \_\_\_\_\_

To what extent did participant involvement makes the participant certain that what he/she already knew about (subject 1, 2, and/or 3) was correct?

- \_\_\_\_\_ to a great extent
- \_\_\_\_\_ to a fair extent
- \_\_\_\_\_ to a slight extent
- \_\_\_\_\_ not at all
- \_\_\_\_\_ don't know/don't recall
- \_\_\_\_\_ other (specify) \_\_\_\_\_

**Attitude Change Items**

To what extent did participant become more interested in (subject 1,2, and/or 3)?

- \_\_\_\_\_to a great extent
- \_\_\_\_\_to a fair extent
- \_\_\_\_\_to a slight extent
- \_\_\_\_\_not at all
- \_\_\_\_\_don't know/don't recall
- \_\_\_\_\_other (specify)\_\_\_\_\_

To what extent did participants become more favourable toward (subject1, 2, and/or 3)?

- \_\_\_\_\_to a great extent
- \_\_\_\_\_to a fair extent
- \_\_\_\_\_to a slight extent
- \_\_\_\_\_not at all
- \_\_\_\_\_don't know/don't recall
- \_\_\_\_\_other (specify)\_\_\_\_\_

**Skill Change Items**

To what extent did participant acquire more skill in (subject 1, 2, and/or 3)?

- \_\_\_\_\_to a great extent
- \_\_\_\_\_to a fair extent
- \_\_\_\_\_to a slight extent
- \_\_\_\_\_not at all
- \_\_\_\_\_don't know/don't recall
- \_\_\_\_\_other (specify)\_\_\_\_\_

**Aspiration Change Items**

To what extent did participant become more determined to try out (subject 1, 2, and/or 3)?

\_\_\_\_\_ to a great extent

\_\_\_\_\_ to a fair extent

\_\_\_\_\_ to a slight extent

\_\_\_\_\_ not at all

\_\_\_\_\_ don't know/don't recall

\_\_\_\_\_ other (specify) \_\_\_\_\_

To what extent is participant more determined to try out (subject 1, 2, and/or 3)?

\_\_\_\_\_ to a great extent

\_\_\_\_\_ to a fair extent

\_\_\_\_\_ to a slight extent

\_\_\_\_\_ not at all

\_\_\_\_\_ don't know/don't recall

\_\_\_\_\_ other (specify) \_\_\_\_\_

To what extent participant is more determined to try out ideas on (subject 1, 2, and/or 3)?

\_\_\_\_\_ to a great extent

\_\_\_\_\_ to a fair extent

\_\_\_\_\_ to a slight extent

\_\_\_\_\_ not at all

\_\_\_\_\_ don't know/don't recall

\_\_\_\_\_ other (specify) \_\_\_\_\_

**Practice Change Items**

To what extent participant puts to use the ideas or skills learned regarding (subject 1, 2, and/or 3)?

\_\_\_\_\_ to a great extent

\_\_\_\_\_ to a fair extent

\_\_\_\_\_ to a slight extent

\_\_\_\_\_ not at all

\_\_\_\_\_ don't know/don't recall

\_\_\_\_\_ other (specify) \_\_\_\_\_

To what extent has participant shared with others the ideas or skills regarding (subject 1, 2, and/or 3)?

\_\_\_\_\_ to a great extent

\_\_\_\_\_ to a fair extent

\_\_\_\_\_ to a slight extent

\_\_\_\_\_ not at all

\_\_\_\_\_ don't know/don't recall

\_\_\_\_\_ other (specify) \_\_\_\_\_

To what extent participant puts to use the ideas or skills learned regarding (subject 1, 2, and/or 3)?

\_\_\_\_\_ to a great extent

\_\_\_\_\_ to a fair extent

\_\_\_\_\_ to a slight extent

\_\_\_\_\_ not at all

\_\_\_\_\_ don't know/don't recall

\_\_\_\_\_ other (specify) \_\_\_\_\_

How often during the past (time period) have participant used the skills or ideas regarding (subject 1, 2, and/or 3)?

Participant is encouraged to provide an example or two—for instance, participants' use of the ideas or skills regarding (subject 1, 2, and/or 3). at school, in community activities, or in jobs.

**End Results Items**

To what extent participants have made use of the ideas or skills regarding (subject 1, 2, and/or 3).

\_\_\_\_\_ to a great extent

\_\_\_\_\_ to a fair extent

\_\_\_\_\_ to a slight extent

\_\_\_\_\_ not at all

\_\_\_\_\_ don't know/don't recall

\_\_\_\_\_ other (specify) \_\_\_\_\_

Overall, how helpful the results have been?

\_\_\_\_\_ very helpful

\_\_\_\_\_ fairly helpful

\_\_\_\_\_ slightly helpful

\_\_\_\_\_ no help at all

\_\_\_\_\_ harmful

\_\_\_\_\_ don't know/don't recall

\_\_\_\_\_ other (specify) \_\_\_\_\_



# **Appendix D: Evaluation Framework for SmartCapital Subprojects**

In this Appendix we present the direct and ultimate outcome indicators identified through a negotiated process with the respective subproject teams along with the output targets identified in the *Statement Of Work*. Data collection would target these indicators. The column of the PMP Key Requirements identifies the most suitable collection method to be used in the evaluation. The subprojects are grouped according to their sector. The activities of SmartCapital management team with regard to project management, marketing and promotion will also be part of the evaluation.

The following is a list of SCDP subprojects grouped by sector.

**Education Sector**

- E-College Online
- Student Central Services (EduNET project)

**Business Sector**

- Ottawa Market Place
- Entrepreneurship Centre Online
- Ottawa Capital Network

**Community Sector**

- Smart Community Centre
- SmartLibrary
- National Capital Freenet Community Services
- Smart Services Gateway

**Government Sector**

- City Portal Services
- E-Democracy

**Infrastructure**

- Smart Lab(s) & showcase sites
- SmartCapital Online Resources (SCOR)

# 1 Education Subprojects

## 1.1 E-College Online

### 1.1.1 E-College on-line Statement of Work

The E-College On line project will begin to establish Algonquin College as a portal for accessing online distance education opportunities for post-secondary and continuing education students, and for working adults and corporate clients seeking on-the-job, workplace-based training, upgrading and retraining. The overall goal of this portal strategy is to increase opportunities for students to pursue their educational objectives in locations and at times that suit their schedules and lifestyles.

The portal strategy will involve the development of three services:

Consumer's Corner: information services, self-assessment tools, and skills development opportunities for potential students and clients from business, industry and government;

Teacher's Corner: information, demonstrations, and tools for teachers using, or contemplating the use of, technology in educational delivery;

Student self-services: remote access to College services for students and corporate clients (e.g., registration and fee payments, status queries, library and bookstore transactions)

At the projected level of growth in online activity, the additional revenue and/or cost reduction will sustain the E-college initiative.

#### Objectives:

- To provide information on opportunities to pursue online learning, as well as self-assessment and skills development opportunities to improve success rates of online learners.
- To provide information about educational options so that potential consumers of college education and training in Ontario can make informed choices.
- To provide an electronic professional development environment for mediated interaction between teachers so that they can develop strategies for the effective delivery of online courses.
- To increase the level of activity in Algonquin College's online offerings by a minimum of 33% per year.

#### Metrics and Target:

- Approximately 5,000 hits per year on the Consumer's Corner site.
- Teachers from Algonquin College and at least two boards of education will be active participants in the Teacher's Corner. On an annual basis, at least 50 teachers will participate.
- The number of online courses offered at Algonquin College will increase by 15% per year.
- Enrolments in online courses at Algonquin College will increase by approximately 40% per year.

*1.1.1.1 Outcome and Impact Evaluation of E-College on-line subproject:*

Subproject Deliverables (Outputs)	Implementation stage (Objectively Verifiable Indicators)	Results Stage						
		Reach	Direct outcomes			Ultimate Outcomes		
			Description	Indicators	Performance Measurement Plan key requirements	Description	Indicators	Performance Measurement Plan key requirements
e-college portal	e-college portal blueprint document (Oct 01) Portal is operational and accessible to the public (Mar 02)	Post-secondary and continuing education students, working adults and corporate clients seeking on-the-job, workplace-based training, upgrading and retraining.	Increased awareness of e-learning opportunities	Increase in No. of information requests via portal website and references to portal in information requests regarding e-learning courses	Survey of enquiry type and frequency from Staff	Set Algonquin college as leader in offering excellent quality college e-learning environment and courses  Efficient use of Classroom space on Algonquin college campus	Benchmarking of e-learning in other colleges: Percentage of students registering in on-line courses, Percentage of students completing the on-line courses or the on-line component offered in supplementary, hybrid e-learning environment. No of courses timesharing Class rooms	Anecdotal feedback





Subproject Deliverables (Outputs)	Implementation stage (Objectively Verifiable Indicators)	Results Stage						
		Reach	Direct outcomes			Ultimate Outcomes		
			Description	Indicators	Performance Measurement Plan key requirements	Description	Indicators	Performance Measurement Plan key requirements
Student self-services	Pilot project report (Sep 01)  Online registration available (Sep 02)  Identified Services Available (Sep 03)	Registered Algonquin College students	Efficient Registration and Admission Process   Bookstore efficiency	Percentage of students registering courses on-line  Errors in on-line course registration  Percentage of on-line book purchase orders	Survey of Records and Anecdotal feedback	Providing convenient learning environment	One-stop-shopping for all students and in particular continuous education and adult distance student	Electronic survey of students satisfaction and  Anecdotal feedback

## **1.2 Student Central Services**

### **1.2.1 Student Central Services Statement of Work**

EduNET will build an information portal for post-secondary students in the region. This portal will offer a number of services, some public, and some private, all of value to persons pursuing higher education. EduNET's goal is to make the life of students attending any of Ottawa's institutions of higher learning easier and more productive by giving them access to a broad range of electronic services that are independent of time and location. This will be done by developing a business model allowing the Universities and Colleges to avoid duplication of effort and associated costs related to providing those services.

At present, we envision the aggregation of a large number of services within the portal, including: Student housing directory; Transportation/Carpooling Brokerage; Student employment directory; Counselling services; Want ads; Entertainment Directory; Purchasing/Shopping Centre; Discussion groups; Web hosting; Email; ASP delivery model for Calendar, contact, email and desktop office applications; Web-based training and support for fundamental skills; Online third-party tutoring for key undergraduate programs to enhance year-1 retention; and Directory Services for University/College environment.

In order to validate and prioritize the envisioned services, EduNET will conduct a needs analysis within the target community, using direct interviews, email and web-based customer surveys. Following upon that needs analysis, EduNET will construct a requirements document to define needs, outline possible solutions and identify challenges related to the fulfilment of those needs. This requirements document will identify a functional specification which will be used as a basis for a public Request for Information (RFI) process to identify partners capable of implementing appropriate solutions and developing a detailed business model which is scaleable, replicable and sustainable.

If functional requirements dictate components that are already in place, or which can be used by more than one entity within the SmartCapital community, EduNET will partner within the community to share development and infrastructure costs, thereby reducing the average cost to the community and leveraging partner investments more fully. EduNET's activities will be made sustainable by drawing upon three sources of revenue (user fees, partner rebates and access fees, fees from member institutions) and by making some components sufficiently attractive to be operated in the long term by one or more private-sector partners.

#### **Objectives:**

- To determine and meet specific needs of members of Ottawa's educational community for shared, consortium or outsourced internet-based services, within a scaleable, integrated technical environment.
- To develop partnerships with private-sector companies for the provision of required technical services, software, implementation services and post-installation support.

#### **Metrics and Target:**

- Savings on present or avoidance of future costs to taxpayers through member institutions of roughly \$100 per year per post-secondary student.
- Negotiate contracts with providers and partners that provide for specific performance targets, value-based savings, and economic sustainability.
- Achieve 5% student sign-up rate among students of participating educational institutions.

*1.2.1.1 Outcome and Impact Evaluation of E-Student Central Services subproject:*

Subproject Deliverables (Outputs)	Implementation stage (Objectively Verifiable Indicators)	Results Stage						
		Reach	Direct outcomes			Ultimate Outcomes		
			Description	Indicators	Performance Measurement Plan key requirements	Description	Indicators	Performance Measurement Plan key requirements
Student Central Services	Equipment Installed (Feb 02): all systems installed and configured. Working demonstration available (May 02): Student Central Services portal is accessible through SmartCapital Portal, and operating with priority services as per service agreements. Operations Transferred (Nov 02): EduNET has transferred operational responsibility to selected private sector organization for ongoing operations. Service agreements fully implemented.	Post-secondary students, EduNET Subscribers	Improved reach of opportunities for university students  (E.g., employment market)	Access of portal services	Survey of student satisfaction	Improve of student life          Reduce demand on University computer resources	Better allocation of student own resources through the service       Less need for buy new computer workstation (students have access to university LAN)	Anecdotal Feedback       University Records

Subproject Deliverables (Outputs)	Implementation stage (Objectively Verifiable Indicators)	Results Stage						
		Reach	Direct outcomes			Ultimate Outcomes		
			Description	Indicators	Performance Measurement Plan key requirements	Description	Indicators	Performance Measurement Plan key requirements
Filtered E-mail Tool	New Features, expanding EDUNET	OCDSB K-12 Students and their families, teachers, and school administrators  Potential reach (85,000 students)	Parent teacher, parent administrative interactions at the school level	Improved Teacher-parent communications Improved efficacy of Teacher parent interviews  Better allocation of student time at home and school	Electronic survey of teachers, students and families for the usability of service  Anecdotal feedback	Development of better trust between the students, and their families, teachers, and school  Integration of OCDSB into the Community	Higher performance on School tests  Responsiveness to the community needs in the schooling process	Anecdotal feedback
Bundling of services with Rogers Cable and Bell Sympatico to provide high-speed access and Cell phones	New features under exploration	Potential Customers EduNET subscribers	Savings costs for students  New partnership with private sector	Cost savings Increased subscriber rates	Electronic Survey of consumer satisfaction	Sustainability of EduNET  Savings on taxpayer money	Increased number of EduNET subscribers Savings on university computer resources	Survey of EduNET Financial records Internet traffic diversion from on-campus
Student self-services	Pilot project report (Sep 01) Online registration available (Sep 02) Identified Services Available (Sep 03)	Registered Algonquin College students	Efficient Registration and Admission Process  Bookstore efficiency	Percentage of students registering courses on-line Errors in on-line course registration Percentage of on-line book purchase orders	Survey of Records and Anecdotal feedback	Providing convenient learning environment	One-stop-shopping for all students and in particular continuous education and adult distance student	Electronic survey of students satisfaction and Anecdotal feedback

## 2 Business Subprojects

### 2.1 Ottawa MarketPlace

#### 2.1.1 Ottawa MarketPlace Statement of Work

Ottawa Marketplace will enable web-based business-to-business posting and matching of market requirements in the following key areas: procurement of business products and professional services; recruiting of pre-qualified employees in the inventory of personnel agencies; training sourcing, covering both business and information technology topics plus a web-based courseware platform for trainers and students; contract worker sourcing for temporary projects; commercial space sourcing for office, retail or industrial space; and opportunities to invest in emerging businesses, including start-up funding and angel/strategic investor matching.

Marketplace will be promoted with a comprehensive and sustained campaign through all of the Ottawa Business Journal’s media channels and trade events. The reach will be to the entire business community, extendable to other Canadian communities wishing to use the same templates.

As the Ottawa Marketplace is a specific implementation of a commercial web service developed by Inbusiness.com, it is the corporate intention and focus of InBusiness Solutions Inc. to sustain the software as a full commercial product. Furthermore, the business model associated with SmartCapital partner Ottawa Business Journal provides for revenue generation through listing fees and local advertising on the site. InBusiness Solutions business models project breakeven status by end of the 2<sup>nd</sup> year of operation.

**Objective:**

To achieve significant local B2B (business-to-business) electronic commerce.

**Metrics and Targets**

	Year 1	Year 2
Marketplace Hits	1K/month	2K/month
Marketplace Transactions	500/Month	1500/month
Customer Satisfaction	> 85% Overall	>90% Overall

**2.1.1.1 Outcome and Impact Evaluation of Ottawa MarketPlace subproject:**

Subproject Deliverables (Outputs)	Implementation stage (Objectively Verifiable Indicators)	Results Stage						
		Reach	Direct outcomes			Ultimate Outcomes		
			Description	Indicators	PMP key requirements	Description	Indicators	PMP key requirements
Ottawa Marketplace website (Version1) provides B2B e-commerce services and features including procurement of business products and professional services; recruiting of pre-qualified employees in the inventory of personnel agencies; training sourcing, covering both business and information technology topics plus a web-based courseware platform for trainers and students; contract worker sourcing for temporary projects; commercial space sourcing for office, retail or industrial space; and opportunities to invest in emerging businesses, including start-up funding and angel/strategic investor matching.	<p>Commercially available marketplace software is installed and hosted by inbusiness.com (Nov00)</p> <p>Ottawa Marketplace ver.1 URL is operational. Commercially available services and features are available to SmartCapital stakeholders, selected businesses, and inbusiness.com affiliates (Nov00)</p> <p>Ottawa Marketplace is promoted and advertised through Ottawa Business Journal's media channels and trade events. Ver.1 URL is available for public access (Jan01).</p> <p>Customer satisfaction surveys including comments and suggestions (Jan01)</p>	All Business seeking Business 2 Business & E-commerce	<p>Improving Business operating efficiency for Ottawa SMEs</p> <p>Introducing SMEs to new experiences of e-commerce</p>	<p>Percentage of successful tendering</p> <p>Customer satisfaction</p>	<p>Electronic Survey of portal users and Anecdotal feedback</p>	<p>Increased contribution of SMEs to the local economy</p> <p>New job creation</p>	<p>Company revenues from B2B Transactions</p>	<p>Anecdotal feedback</p>

## **2.2 Entrepreneurship Centre Online**

### **2.2.1 Entrepreneurship Centre Online Statment of Work**

The Smart Capital Entrepreneurship Centre on-line initiative augments two successful programs of OCRI – OED’s Entrepreneurship Centre:

1. **entrepreneurship.com**, is a web-enabled service which disseminates business information and training to entrepreneurs; and
2. the **Ottawa Capital Network** is venture capital support program, which tries to match Ottawa-based emerging technology companies with local and international investors.

Through the Smart Capital initiative, OCRI-OED will expand and more widely disseminate its information, advisory services and publications, including the Entrepreneurs Handbook and the Financing Handbook. OCRI-OED will also design and launch a web-enabled investment matching service – [ottawacapitalnetwork.com](http://ottawacapitalnetwork.com). This web-based service will allow selected companies to directly input and maintain their investment profiles and similarly permit approved investors to maintain their contact and investment preferences. Both the Entrepreneurship Centre and Ottawa Capital Network web sites will result in increased levels of economic growth in the Ottawa region.

Transaction fees and/or pay-per-use service revenues will be used to sustain and provide for ongoing improvements to the website initiatives. With increasing numbers of Entrepreneurship Centre clients having access to the Internet, services offered via the Entrepreneurship Centre and Ottawa Capital Network web sites will be sustainable well beyond the 3-year Industry Canada funding period.

#### **Objectives:**

- To expand and disseminate information, advisory services, training and publications to a wide reach of entrepreneurs using Internet technology.
- To offer more online training programs via the Entrepreneurship Centre website
- To make in-house publications available to clients via the Entrepreneurship Centre website
- To improve efficiencies in matching local and international investors with available investment opportunities through secure Internet technology

#### **Metrics and Target:**

- Web/email-based information distribution will increase from 3% to 15% of overall distributions. More than 300 new start-ups will be assisted and 200 emerging technology companies assisted through these web services.
- Online training participation will increase to 3% of total training participants in Year 1, and to 9% of total training participants in Year 2.
- Web/email-based delivery of in-house publications will increase from 40% to 60% of total publication deliveries.
- The total number of members/users to grow from 0 to 125 by the end of the first 12 months of operation.

**2.2.1.1 Outcome and Impact Evaluation of Entrepreneurship Centre Online subproject:**

Subproject Deliverables (Outputs)	Implementation stage (Objectively Verifiable Indicators)	Results Stage						
		Reach	Direct outcomes			Ultimate Outcomes		
			Description	Indicators	PMP key requirements	Description	Indicators	PMP key requirements
<p>Improved online access to information, advisory services, training, and publications</p> <p>Online forum established for early stage companies and investors to be introduced through an electronic matching database</p> <p>Promotional materials and events</p>	<p>Redesigned Entrepreneurship Centre website is operational and available to the public (Sept. 01)</p> <p>Redesigned Ottawa Capital Network website is operational and available to the public (Sept. 01)</p> <p>Marketing strategy document (Dec 00)</p> <p>Advertisements and brochures (Nov 01, Apr 02, Oct 02)</p>	Potential Entrepreneurs	<p>Increased efficacy of Entrepreneurship centre</p> <p>Increased Revenue generation</p>	<p>Increased use of Website</p> <p>Service Fees income</p>	<p>Comparison of walk-in and web enquiry traffic and consultation</p> <p>Survey costs of services</p>	<p>Contribution to Ottawa economic development</p> <p>Sustainability of the Entrepreneurship centre</p>	<p>Creating new job and Business opportunities in Ottawa</p> <p>Increased sponsorship of Entrepreneurship centre activities</p>	Anecdotal feedback
<p>Online training modules available through the Entrepreneurship Centre</p>	<p>Course content and collaborative learning environment delivered through entrepreneurship.com (Nov. 01)</p> <p>Lists of online course registrants</p>	Entrepreneurs	<p>on-line courses and on-line documents improve Entrepreneurs efficiency</p>	<p>Entrepreneurs save time and resources</p>	<p>Electronic survey of website users</p>	<p>Better informed Entrepreneurs</p>	<p>Better business organization of start-up companies</p>	Anecdotal feedback

Subproject Deliverables (Outputs)	Implementation stage (Objectively Verifiable Indicators)	Results Stage						
		Reach	Direct outcomes			Ultimate Outcomes		
			Description	Indicators	PMP key requirements	Description	Indicators	PMP key requirements
Downloadable Publications	Three publications converted to electronic downloadable file format such as PDF (Sept. 01) Publications can be purchased and downloaded through entrepreneurship.com (Sept. 01)		Transfer to Electronic library	Increase In number of on-line documents	Survey usage of physical and electronic documents	Specialized and international library for Entrepreneurship education	Increased no of on-line collections and references	Survey of the electronic documents

## 2.3 Ottawa Capital Network

### 2.3.1 Ottawa Capital Network Statement of Work

Refer to the Entrepreneurship Centre on-line subproject Statement of Work above.

#### *2.3.1.1 Outcome and Impact Evaluation of Ottawa Capital Network subproject:*

Subproject Deliverables (Outputs)	Implementation stage (Objectively Verifiable Indicators)	Results Stage						
		Reach	Direct outcomes			Ultimate Outcomes		
			Description	Indicators	PMP key requirements	Description	Indicators	PMP key requirements
Investor Opportunity Program	Web-based environment available for facilitation of opportunity matching (Apr 02)	Local Entrepreneurs and International Investors	Increase in Capital venture investment	Matching companies with investors	Survey of Entrepreneurship records	Bring International Capital to Ottawa	Number of start up funded through venture capitals	Available Records

## **3 Community Subprojects**

### **3.1 Smart Community Centre**

#### **3.1.1 Smart Community Centre Statement of Work**

The Smart Community Centre will guide and assist local community groups to reach their clients, perform work-related tasks, and improve internal communications by providing an online private community for each of these groups to share information and documentation. By establishing a set of advanced technologies, the Smart Community Centre will help the region's non-profit organizations perform such tasks as scheduling and holding meetings, posting information, having online discussions, holding online votes and polls, creating and managing event calendars, managing workflow, and other communication and management-related work.

##### **Objectives:**

- To provide local non-profit organizations with affordable access to an online Communication Centre.
- To expand the capabilities of the Communication Centre by integrating electronic forms and workflow options, e-commerce features, and video conferencing.

##### **Metrics and Target:**

- Year 1: 100 registered groups; 25 actively using Community Centre features.
- Year 2: 300 registered groups; 75 actively using Community Centre features; 20 using workflow features; 8 using e-commerce features.
- Year 3: 600 registered groups; 200 actively using Community Centre features; 60 using workflow features; 50 using e-commerce features; 50 using video conferencing features

**3.1.1.1 Outcome and Impact Evaluation of Smart Community Centre subproject:**

Subproject Deliverables (Outputs)	Implementation stage (Objectively Verifiable Indicators)	Results Stage						
		Reach	Direct outcomes			Ultimate Outcomes		
			Description	Indicators	PMP key requirements	Description	Indicators	PMP key requirements
Online Communication Centre (Jan 01)	<p>Communication Centre accessible through SmartCapital Portal.</p> <p>Related promotional and training activities, events and materials.</p> <p>Preliminary features operating, as per development agreement/contract</p> <p>New members can be added</p> <p>Private communities can be established and administered</p> <p>Focus Groups conducted (Jul 01, Oct 01, Mar 02, Oct 02)</p> <p>New Features integrated and operating as pre New Feature specs (Apr 02, Nov 02)</p>	Not-for-Profit Organizations, Community groups and associations and their clients and members	<p>Improve efficiency of Smart Community Centre Clients</p>	<p>Saving time</p> <p>Saving costs</p>	<p>Electronic Survey of Smart Centre clients</p> <p>Focus group of clients</p>	<p>Bridge the digital divide in the not-for profit sector</p> <p>Increase collaboration between community groups</p> <p>Foster public participation</p>	<p>Not-for-profit organizations are using the technology helping their clients</p>	Anecdotal feedback

Subproject Deliverables (Outputs)	Implementation stage (Objectively Verifiable Indicators)	Results Stage						
		Reach	Direct outcomes			Ultimate Outcomes		
			Description	Indicators	PMP key requirements	Description	Indicators	PMP key requirements
Workflow/Electronic forms (Oct 01)	<p>Community groups can create custom electronic forms.</p> <p>Electronic forms can be routed among community group's membership.</p> <p>Information collected/presented via electronic forms is securely stored in, and retrievable from, a database.</p>	Not-for-Profit Organizations, Community groups and associations and their clients and members	<p>Improve efficiency of Smart Community Centre Clients</p> <p>Networking activities</p>	<p>Saving time</p> <p>Saving costs</p> <p>Use of chat rooms and discussion forum</p>	<p>Electronic Survey of Smart Centre clients</p> <p>Focus group of clients</p>	<p>Bridge the digital divide in the not-for profit sector</p> <p>Increase collaboration between community groups</p> <p>Foster participation in public discussion and e-democracy</p>	<p>Not-for-profit organizations are using the technology helping their clients</p> <p>Expanding of discussion forms on local issues among community groups and neighbourhood association</p>	Anecdotal feedback
e-commerce features (Apr 02)	<p>Membership fees and donations can be collected online.</p> <p>Goods and services can be sold online.</p>	Not-for-Profit Organizations, Community groups and associations and their clients and members	Facilitate financial transactions for the not-for-profit organization	Increase use of credit cards	Records of Transactions	Help not-for profit runs charity business and on-line fund raising	Sales Records and revenues	Volume of Financial transactions

Subproject Deliverables (Outputs)	Implementation stage (Objectively Verifiable Indicators)	Results Stage						
		Reach	Direct outcomes			Ultimate Outcomes		
			Description	Indicators	PMP key requirements	Description	Indicators	PMP key requirements
Video conferencing capability (Oct02)	Members can schedule and conduct videoconferences through the Communication Centre, using appropriately equipped computers connected to the Internet.	Not-for-Profit Organizations, Community groups and associations and their clients and members	Introducing multimedia as new tool to help not-for-profit reach their clients and sponsors in an innovative way	Use of video conferencing in fund raising activities  Video conferencing with clients	Records of Video conferencing	Bridge the digital divide in the not-for profit sector  Increase contact between not-for-profit and their sponsor	Not-for-profit organizations are using the video conferencing capabilities	Records of Video conferencing

## **3.2 SmartLibrary**

### **3.2.1 SmartLibrary Statement of Work**

SmartLibrary will provide Ottawa residents with fast, seamless access to the rich resources of libraries in the new City of Ottawa and worldwide. Residents will be able to simultaneously search and retrieve information from multiple databases within the community, and from compliant databases of other institutions worldwide. The SmartLibrary gateway will function as a regional node in the national virtual Canadian union catalogue. SmartLibrary will make libraries' database information more available in both French and English since the majority of the consortium members are officially bilingual institutions. The partners in this Subproject are: University of Ottawa Library, Carleton University Library, Ottawa Public Library, National Library of Canada, and Canada Institute for Scientific and Technical Information.

All partners are committed to maintain Z39.50 applications and the access to the portal after the completion of the project. Hardware/software maintenance and upgrade is included in each university and public libraries operations and capital budgets. The National Capital Region Libraries Consortium will provide direction and guidance on implementation of new services and programs.

#### **Objectives:**

- To provide seamless, one-stop Internet access to the library catalogues of the participating libraries
- To make all Public Library catalogue records accessible through the SmartLibrary portal.
- To expand public access to the SmartLibrary portal

#### **Metrics and Target:**

- 60% of searches against partner library catalogues will be via Z39.50.
- 75,000 records from Public Library branches will be converted to machine-readable format.
- Upgrade 150 Public Library Internet terminals from text-based interfaces, making SmartLibrary Portal accessible from all public workstations.

**3.2.1.1 Outcome and Impact Evaluation of Sm@rtLibrary subproject**

Subproject Deliverables (Outputs)	Implementation stage (Objectively Verifiable Indicators)	Results Stage						
		Reach	Direct outcomes			Ultimate Outcomes		
			Description	Indicators	PMP key requirements	Description	Indicators	PMP key requirements
Z39.50 Integrated Library System (ILS)	<p>Z39.50 compliant hardware and software purchased and received as per spec. (Mar 01, Jul 01, Dec 01)</p> <p>Infrastructure upgraded (Mar 01, Jul 01, Dec 01)</p> <p>Configuration completed and documented (Jan 02)</p> <p>Interoperability test plan document (May 02)</p> <p>Interoperability test results document (Sept 02)</p>	<p>SmartLibrary</p> <p>Library Consortium</p>	<p>A large scale Infrastructure integration between Libraries of different of scale of operations, collection, service requirements, and types patron</p>	<p>Z39.50 operational</p>	<p>Record accounts of Library Consortium Steering Committee on Lessons learned to be transferred to other communities</p>	<p>More integration between the Library system databases</p> <p>Policy harmonization among partners in the Library consortium</p>	<p>Implementation of new projects</p> <p>Unifying patron borrowing</p>	<p>Anecdotal feedback</p>

Subproject Deliverables (Outputs)	Implementation stage (Objectively Verifiable Indicators)	Results Stage						
		Reach	Direct outcomes			Ultimate Outcomes		
			Description	Indicators	PMP key requirements	Description	Indicators	PMP key requirements
SmartLibrary Portal	<p>SmartLibrary Portal requirements document (Jan 02)</p> <p>SmartLibrary Portal detailed specification document (Feb 02)</p> <p>SmartLibrary Portal purchased and received as per spec. (Jun 02)</p> <p>Portal User Interfaces programmed and documented (Jul 02)</p> <p>Portal configuration completed and documented (Jul 02)</p> <p>Portal test results document (Sept 02)</p>	All Web users and library patrons	Convenience for Library users	Increased use of SmartLibrary Portal	Survey user for benefits of SmartLibrary Portal	Portal becomes main access point for the library system		

Subproject Deliverables (Outputs)	Implementation stage (Objectively Verifiable Indicators)	Results Stage						
		Reach	Direct outcomes			Ultimate Outcomes		
			Description	Indicators	PMP key requirements	Description	Indicators	PMP key requirements
Access to Catalogue databases	<p>Library catalogue records converted to machine-readable format and retrievable using existing technologies (Mar 01, Jun 01, Sept 01)</p> <p>Workstations with graphical user interface provided at all Public Library Internet access terminals (Mar 02)</p>	Web users and Library patrons	<p>Increased access</p>	<p>No of records converted</p> <p>Workstation conversion</p> <p>Increased inter-library loan</p>	<p>Survey user satisfaction</p> <p>Survey Library records</p>	<p>Increase electronic library collections</p> <p>make Ottawa a hub in the Canadian union Catalogue</p>	<p>Converting more catalogue records</p>	<p>Survey of library records</p>
Promotion and Evaluation	<p>Evaluation Framework document (Apr 02)</p> <p>Communications Plan (Apr 02)</p> <p>SmartLibrary evaluation report (Jul 03)</p>		<p>Gives National Library opportunity to work with the local community</p>		<p>Feedback from Steering Committee</p>	<p>Share in acquiring licensing of databases</p> <p>Gain Library community, national and international recognition</p>	<p>Branding: Smart Application, Bath Profile</p>	<p>Awards and sponsorships of Library conferences</p>

## **3.3 National Capital FreeNet Community Services**

### **3.3.1 National Capital FreeNet Community Services Statement of Work**

The National Capital FreeNet (NCF) currently serves approximately 10,000 members and operates more than 200 dial-in access lines as well as a number of public access terminals. NCF members are provided with access to Internet e-mail, personal web-page hosting, NCF community as well as Usenet newsgroups, an NCF server search engine, online chat services, NCF directory of local information - *CapitalFind*, and technical support from the NCF's large volunteer base. Similar services are offered to organizations and small businesses, in the form of organizational accounts.

In partnership with SmartCapital, the NCF will enhance its services in three significant ways: (i) increase its existing access capacity, (ii) expand its thin client (application hosting) service, and (iii) provide a web-based interface for its existing e-mail service. This will permit the NCF to retain existing members and attract new members through the introduction of new and innovative services. Growth in NCF's membership will result in increased donations from members, which will support the on-going sustainability of the NCF and the NCF's SmartCapital initiatives.

#### **Metrics and Targets:**

- Extended Access Service
  - Add 24 dial access lines, providing capacity to support approximately 1200 new NCF members
- Thin Client Service Expansion
  - Operate at least one additional thin client server
  - More than double the number of current sessions and users that are supported by the end of the project
- Web-Mail Service
  - Increase NCF membership by 5000 new members.

**3.3.1.1 Outcome and Impact Evaluation of National Capital FreeNet Community Services subproject:**

Subproject Deliverables (Outputs)	Implementation stage (Objectively Verifiable Indicators)	Results Stage						
		Reach	Direct outcomes			Ultimate Outcomes		
			Description	Indicators	PMP key requirements	Description	Indicators	PMP key requirements
24 new dial access lines available to NCF members  Increased/Upgraded Capacity for NCF Dial-up service	Official launch ceremony and local media advertisements (Jan 02) City of Ottawa phone system routes incoming NCF member calls to NCF modems as specified (Jan 02) Additional/upgraded access capacity installed, configured and tested (Sept. 02) Updated system configuration and user documentation. (Sept 02)	Ottawa Citizen with access to modem and computer	Increases free access to home users  services offered to Business for fee.	Increase number of NCF users  SMEs use the NCF	Electronic survey of usage and member web hosting  NCF records	Bridge the digital divide  Sustainability of NCF	Members of the community take advantage of the technology  New sponsorship from private sector and advertisement revenues	Anecdotal feedback  NCF records

Subproject Deliverables (Outputs)	Implementation stage (Objectively Verifiable Indicators)	Results Stage						
		Reach	Direct outcomes			Ultimate Outcomes		
			Description	Indicators	PMP key requirements	Description	Indicators	PMP key requirements
Increased capacity of Thin Client service. Thin Client service supports 60 concurrent sessions and up to 6720 NCF members	<p>Additional computing capacity and/or application software installed, configured and tested (Sep 02)</p> <p>Updated system configuration and user documentation. (Sep 02)</p> <p>Promotional activities re: service upgrade (Oct 02)</p>	Ottawa citizen and current NCF users	Increase number of services for people who can not afford the buying expensive software	Increase number of user using the thin client service	Electronic Survey of the user to record their benefits from the thin client service and satisfaction level	Bridge the digital divide	NCF users gain new computer skills	Anecdotal feedback
Web-Mail service	<p>Additional computing capacity and/or application software installed, configured and tested (Sep 02)</p> <p>Updated system configuration and user documentation. (Sep 02)</p> <p>Promotional activities re: service upgrade (Oct 02)</p>	Ottawa citizen and current NCF users	Improve system capacity	Web mail services improved	Electronic Survey of user satisfaction	<p>Demonstrate use of community-centric email access</p> <p>Membership in NCF promotes further relationship among NCF members</p>	Users prefer to use NCF web mail over others	Anecdotal feedback

## **3.4 Smart Services Gateway**

### **3.4.1 Smart Services Gateway**

The SmartCapital Portal will provide convenient access to the services being developed in each of the subprojects. For example, clicking on the Government Services button in the illustration above will bring the user to a page that provides links to the new City of Ottawa Portal being developed in the E-Government subproject. Similarly, clicking on the Community Services button will present the user with links to the services developed in the National Capital FreeNet Community Services, SmartLibrary, and the Smart Community Centre subprojects. The Education Services button provides access to the Student Central Services and E-College Online, while the Business Services button provides access to the Ottawa Marketplace and the Entrepreneurship Centre Online. The SmartLab button provides access to the showcase sites.

The services and subprojects listed above are the ones that are directly involved as partners with OCRI and Industry Canada in the context of the Smart Communities Demonstration Project. SmartCapital will continue to evolve as a project and will continue to develop new partnerships and services. As these are developed they will be added to the SmartCapital Portal.

The SmartCapital Portal will be sustainable and will be offered beyond the 3-year Industry Canada funding period. It is anticipated that revenue from advertising and transaction fees will cover the ongoing cost of maintenance.

#### **Objectives:**

The objective of the SmartCapital Portal is to provide a community hub site to all the Smart Services described in this proposal as well as links to other important online services (both English and French) that are available throughout the region.

The services and subprojects that have been previously described above are the ones that are directly involved as SCDP partners with OCRI and Industry Canada. SmartCapital will continue to evolve as a project and will continue to develop new partnerships and services. As these are developed they will be added to the SmartCapital Portal.

The SmartCapital Portal will be sustainable and will be offered beyond the 3-year Industry Canada funding period. It is anticipated that revenue from advertising and transaction fees will cover the ongoing cost of maintenance.

#### **Metrics and Targets:**

- The SmartCapital portal will receive at least 10,000 hits/month by the end of the project.
- Links from the SmartCapital portal to the subproject services will be accessed at least 5,000 times per month by the end of the project.

*3.4.1.1 Outcome & Impact Evaluation of Smart Services Gateway subproject:*

Subproject Deliverables (Outputs)	Implementation stage (Objectively Verifiable Indicators)	Results Stage						
		Reach	Direct outcomes			Ultimate Outcomes		
			Description	Indicators	PMP key requirements	Description	Indicators	PMP key requirements
An aggregated web site of all Informational and transactional services offered by SmartCapital partners		Citizens of Ottawa, and web users	Increased awareness of SmartCapital's service to the community  Provide convenience of access (English/French) to services	Website traffic	Survey we logs	On-stop shopping for all on-line services pertaining to the local citizen needs and others outside the community who want information on Ottawa  Sustainability of the Website	Website expansion include provincial, National and International links to both Transactional and Informational services  Revenues from sponsors and advertisement	Survey of user  SmartCapital records

## **4 Local e-Government Subprojects**

The e-government Subproject will provide online service development and delivery in the context of the new City of Ottawa. A new City of Ottawa Portal, directly accessible from SmartCapital Portal, will provide one-stop access to the online, bilingual services of all three levels of government.

At the municipal level, three fundamental types of online service will be provided: information, transactions, and electronic democracy. A number of services of each type will demonstrate the capability of technology to impact positively on the local communities. In each case the proposed services have been selected to allow for transferability to other communities in Ontario or in the rest of Canada.

The new e-Government services will be sustainable and will be offered beyond the 3-year Industry Canada funding period. The introduction of e-service methods is expected to reduce the overall cost of government service delivery, allowing the services to be absorbed into the City of Ottawa operating budget on an ongoing basis. Also, transaction fees will be applied to some of the new e-service methods, generating new revenues that will be used to ensure that the service offerings are sustained.

### **4.1 City Portal Services**

#### **4.1.1 City Portal Services Statement of Work**

A government services portal for the new City of Ottawa will be established. This will not replace other individual government service sites, nor will it incorporate all services of other governments; rather, it will link users directly to the specific relevant pages from the appropriate governments for a variety of services.

##### **Objective:**

- The objective of the new City of Ottawa Portal is to allow the public to quickly and efficiently access the services that they most frequently use from all three levels of government.

##### **Metrics and Target:**

- The new City of Ottawa Portal will receive at least 10,000 hits/month by the end of the project.

#### **4.1.2 Government Information Services**

This service will demonstrate how important information from the various levels of government can be conveniently accessible to citizens. For the first year or more of the project efforts will focus on integrating and amalgamating information from the eleven different municipal governments that are being amalgamated into the new City of Ottawa. Information associated with the integration of policies, procedures, and operations will continuously be updated and accessible through the City of Ottawa Portal as it becomes available.

During the second year of the project, certain information will begin to be organized and presented online along demographic lines. In particular, SmartCapital will create a Youth Channel, a Seniors Channel and a

Seniors Channel on the Government Services Portal. Each channel will collect the most important information from the three levels of government directed specifically to that particular group and will provide links to other relevant sites as appropriate. An advisory group for each channel will be established, made up of local youth and seniors who will assist in the identification and selection of channel content. Collaborative groupware and webcasting will be used in each channel to provide a series of online interactive programs with participating experts on relevant topics of interest. These engaging formats for real-time interaction will encourage virtually unlimited participation, and will also support archiving so that these discussions and forums can be viewed later.

**Objective:**

- The percentage of information requests that are performed in the traditional method of ‘direct phone call to the department’ will be substantially reduced as e-service capabilities are introduced. Overall information service delivery cost will also be substantially reduced.

**Metrics and Target:**

- Web-based information request will increase from 5% to 20%
- Service delivery cost will be reduced by 20%

### **4.1.3 Government Electronic Transactions**

This service will demonstrate the ability for citizens to transact business with local government from home or neighbourhood centre. This will become a very important part of maintaining a positive connection between citizen and government in a municipality as widespread as the new City of Ottawa (four times the geographic area of Toronto with one-quarter the population). In this smart service the most common transactions, both for individuals and businesses, will be converted to full online transaction.

Online services will include facilities and course bookings, water bill payments, social services transactions, business services such as registrations and permits, and requests for service. Requests for service are usually complaints from residents, often concerning services such as garbage pickup or snow removal that have not been provided as expected or complaints concerning bylaws (e.g. noise) that are being contravened in their neighbourhood.

**Objective:**

- The percentage of service transactions that are performed in the traditional ‘over-the-counter’ method will be substantially reduced as e-service capabilities are introduced. Overall transaction service delivery cost will also be substantially reduced.

**Metrics and Target:**

- Web-based service transactions increase from 0% to 5% of total transaction volume.
- Service delivery cost is reduced by 5%.

**4.1.3.1 Outcome and Impact Evaluation of City Portal Services subproject:**

Subproject Deliverables (Outputs)	Implementation stage (Objectively Verifiable Indicators)	Results Stage						
		Reach	Direct outcomes			Ultimate Outcomes		
			Description	Indicators	PMP key requirements	Description	Indicators	PMP key requirements
Integrated information Services for the new City of Ottawa (Jan01).	A common set of information features for all residents of the previous 11 local municipalities, as specified in the E-Service plan, available through the new City of Ottawa portal.	Ottawa Citizens  Web user interested in getting information on Ottawa	Information Dissemination on city services, by-laws, procedures, and licences	Increased information and web content from the different city departments	Survey of user Satisfaction with the portal services	Provide Better Government services  Setting City of Ottawa as a leader of using e-government services	One-stop shopping for information and services	Benchmarking services with other cities

Subproject Deliverables (Outputs)	Implementation stage (Objectively Verifiable Indicators)	Results Stage						
		Reach	Direct outcomes			Ultimate Outcomes		
			Description	Indicators	PMP key requirements	Description	Indicators	PMP key requirements
Youth Channel Advisory Board Channel Content Specification Health Information Jobs/Training Information	List of Advisory Board members who meet 4 times/year. Document specifying channel content recommended by Advisory Board (June 2002) Information on youth-oriented health care as specified in Channel Content Specification Part-time and summer job postings; links to government youth employment programs; other content as specified in Channel Content Specification	Ottawa Youth Employers Health care Information Department	Better informed Youth Job Opportunity Focus groups provide input on community needs	Increase requests for Information Job ad placement Interview of focus group	Electronic Survey of Website use	Provide Ottawa Youth with better opportunities Link Youth to the city activities Develop local content for Ottawa Youth	Registration in different activities Increase of Youth volunteer Activities Youth participation in providing web content	Anecdotal feedback from social services

Subproject Deliverables (Outputs)	Implementation stage (Objectively Verifiable Indicators)	Results Stage						
		Reach	Direct outcomes			Ultimate Outcomes		
			Description	Indicators	PMP key requirements	Description	Indicators	PMP key requirements
Seniors Channel Advisory Board  Channel Content Specification  Health Information  Education and Recreation Information	list of Advisory Board members who meet 4 times/year.  Document specifying channel content recommended by Advisory Board (June 2002)  Information on seniors-oriented health care as specified in Channel Content Specification  Information and education opportunities related to common hobbies; online recreational activities; other content as specified in Channel Content Specification	Ottawa Seniors Recreation activity provider  Senior services providers  Health care Information Department	Better informed Seniors Reach for Recreation Opportunity  Focus groups provide input on community needs	Increase requests for Information Activities ad placement	Electronic Survey of Website use  Interview of focus group	Provide Ottawa Seniors with better opportunities Link Seniors to the city activities  Develop local content for Ottawa Seniors	Registration in different activities  Increase of Senior volunteer Activities  Seniors participation in providing web content	Anecdotal feedback from social services

Subproject Deliverables (Outputs)	Implementation stage (Objectively Verifiable Indicators)	Results Stage						
		Reach	Direct outcomes			Ultimate Outcomes		
			Description	Indicators	PMP key requirements	Description	Indicators	PMP key requirements
Facilities and Course Bookings	Reservations and registrations at local community centres, pools, rinks, or sports fields can be made, confirmed, and paid for online	Local Residents of Ottawa and surroundings	User Convenience	Increase of service use	Website traffic and utilization	Efficient use of city resources	Improved rate of facilities uses and times	City facility Statistics
Water and Hydro Payments	Residents can pay water and hydro bills online	City of Ottawa	Increase efficiency of service providers and departments	Improve help to people with special needs in Ottawa	Transactions volume	Cost savings	Anecdotal feedback	City Revenue reports
Social Services Transactions	Residents can register online for social service programs, and can perform online self-evaluation of eligibility		Revenue generation			Increase productively of city staff		
Business Services	The City of Ottawa Portal contains links to federal and provincial jobs programs and to employment resource centres					Sustainability of City Portal		
	Entrepreneurs and contractors can make online applications for business registrations and permits			<b>101</b>				

## **4.2 E-Democracy**

### **4.2.1 E-Democracy Statement of Work**

New technologies can provide a means of better connecting citizens to their governments in the exercise of democracy. In this project, SmartCapital will use webcasting and online collaboration to engage the public in the consultative processes. The City of Ottawa, will host a range of webcast events for e-Democracy purposes beginning with the June 2001 Smart Summit. Future events may include Council meetings, public consultations, press conferences, news conferences, public training or information sessions, Councillors' communications to constituents, and open houses on specific municipal government projects and services. Webcasts will be archived for later viewing, and ongoing community involvement will be supported by online collaboration capabilities.

#### **Objective:**

- An increased number of citizens will participate in the public consultation process as webcast and online collaboration capabilities are introduced.

#### **Metrics and Target:**

- The number of people participating in public consultations or Council meetings via webcast will increase from 0% to 10% of the total number of participants.

**4.2.1.1 Outcome and Impact Evaluation of E-Democracy subproject:**

Subproject Deliverables (Outputs)	Implementation stage (Objectively Verifiable Indicators)	Results Stage						
		Reach	Direct outcomes			Ultimate Outcomes		
			Description	Indicators	PMP key requirements	Description	Indicators	PMP key requirements
Smart Growth Summit (Phase I)	-website and 10 Discussion Boards operational (May01) -Configure at least 25 SmartSites to allow residents without computer access to participate in Summit (May01) -media advertisement to public on how to participate in the Summit and webcasts (Jun01) -24 bilingual webcasts of Plenary and Town Hall sessions (14 English; 14 French) as per Summit Program schedule (Jun01) -10 focus groups for Town Hall sessions (Jun01) -post event public participation via archived webcasts and 10 Discussion Boards (beginning June 01) -Final report (Dec01) summarizing impact of technology on e-democracy demonstration including comparison of responses of those who attended the event, those in focus groups and those who participated by webcast	Ottawa citizens	Participation the Summit	Archived webcasts Record of email participation	Interview with project leader on the summit success factors	Demonstration and Practice of e-democracy Connecting Ottawa citizens with their city government	Public participation via Internet	Media reports

Subproject Deliverables (Outputs)	Implementation stage (Objectively Verifiable Indicators)	Results Stage						
		Reach	Direct outcomes			Ultimate Outcomes		
			Description	Indicators	PMP key requirements	Description	Indicators	PMP key requirements
Smart Growth (phase II)		Ottawa citizens	Participation in the “Charting the course” for the Ottawa2020 Official Plan discussion in year 2002	Public consultation using Webcasting and on-line survey	Survey and Comparison of Plan workbook for on-line participation, Telephone survey, Town Hall meetings	Efficient official plan implementation	Less number of official plan amendments	Benchmarking Official Plan amendment with previous Plan over 5 years period
		City staff and Councillors	Break the distance Barrier for participants	People from Ottawa fringes can participate in the discussion with the need to come to City Hall	Survey users of Webcasting	Balance the public interest with the private interest	Increase in number of participation from the public and the small groups	
			Improve productivity and decision making	Ability to get input from more than once sources and point of view	Anecdotal feedback	Social Cohesion Connecting city with the community	Increase chance for low-income and minorities participation Politicians responsiveness increase	Anecdotal feedback

Subproject Deliverables (Outputs)	Implementation stage (Objectively Verifiable Indicators)	Results Stage						
		Reach	Direct outcomes			Ultimate Outcomes		
			Description	Indicators	PMP key requirements	Description	Indicators	PMP key requirements
Smart Growth (phase III)	Community group Channel	Ottawa citizens and community and neighborhood groups	Efficient Discussion of city information to Local groups	Use of Community Channel	Survey of Local groups	Better informed interest groups  Balance the public interest with the private interest	Larger participation of community groups in Council and committees meetings	Anecdotal feedback

## **5 Infrastructure Subprojects**

### **5.1 SmartCapital Online Resources (SCOR)**

#### **5.1.1 SmartCapital Online Resource Statement of Work**

SmartCapital Online Resources (SCOR) is a suite of services based on enabling technologies that will be broadly engineered to provide a common platform for community-based smart applications. SmartCapital intends to provide the following SCOR services: Public Key Infrastructure, community-based e-mail and public internet access, Webcasting and video servers, local directory services, collaborative groupware, e-commerce for small business, and caching. These enabling technologies exist in the private sector and will be applied and integrated in the context of a smart community. SmartCapital will be responsible for brokering the initial acquisition of the technologies, engineering them for community-based applications, managing the initial service offerings to other smart application developers, and developing a transition plan so that the services may eventually be self-sustaining.

The SmartCapital Online Resources will continue to provide services beyond the 3-year Industry Canada funding period. The business plan developed during the course of the project will include a sustainability plan that will provide specifics. At this time it is expected that subscriber fees will provide the required revenues to sustain operations.

#### **Objectives:**

- To provide a suite of common technology services supporting SmartCapital applications.
- To provide the infrastructure for video streaming that can be shared by the public sector.
- To integrate webcast technology into online services including Professional Development, Education (K-12), and Community Services.

#### **Metrics and Target:**

- Define required technology services by identifying areas of overlap and redundancy within the various SmartCapital partner project plans as they relate to these technologies.
- Develop a plan and business model to provide these common services while saving costs by minimizing redundancy.
- Detailed data from server logs will be gathered indicating total user hits and length of time that users streamed video content. At the end of the project the targets are 1,500 user hits per month, and an average streaming time of 30 minutes.
- Revenue from sponsorships, content producers and end users will be generated to cover annual operating expenses of approx. \$50K

**5.1.1.1 Outcome and Impact Evaluation of SmartCapital Online RESOURCES (SCOR) subproject:**

Subproject Deliverables (Outputs)	Implementation stage (Objectively Verifiable Indicators)	Results Stage						
		Reach	Direct outcomes			Ultimate Outcomes		
			Description	Indicators	PMP key requirements	Description	Indicators	PMP key requirements
SCOR Application Service Provider Contract(s)	<p>SCOR analysis report identifying redundancies and potential cost savings (Mar01)</p> <p>RFP issued to potential service providers (Mar02)</p> <p>Service providers identified and contract(s) signed (Jun02)</p>	SmartCapital partners	<p>Identification of value added from internal collaborative work</p>	<p>Expanding Knowledge of partners</p> <p>Providing new options</p>	<p>Survey partners for the benefits of collaboration on the technologies</p>			

Subproject Deliverables (Outputs)	Implementation stage (Objectively Verifiable Indicators)	Results Stage						
		Reach	Direct outcomes			Ultimate Outcomes		
			Description	Indicators	PMP key requirements	Description	Indicators	PMP key requirements
SCOR Services	<p>SCOR pilot service as per service contract (Sept02)</p> <p>Service additions and/or updates as per ASP contract (Dec02 and quarterly thereafter)</p> <p>SCOR business plan (Mar03)</p>	SmartCapital partners	<p>Reduce development costs</p> <p>Share common platforms services for (registration, authentication, e-business)</p> <p>Develop partners staff</p>	<p>Cost savings</p> <p>Training</p>	Survey SmartCapital partners	<p>Sustainability of partner subprojects</p> <p>Innovative solutions with leading technologies</p>	<p>Revenues from advertisements and sponsorship</p> <p>Cost savings</p> <p>Mutual benefits</p> <p>Large scale deployment</p>	<p>SmartCapital records</p> <p>Benchmarking technologies and solutions</p>
SmartCast	Pilot webcast hosted and archived for on-demand access (Jun01)	SmartCapital partners and other users	Use of Webcasting licenses	Sales Revenues	SmartCapital records	Sustainability of SmartCapital	Sales Revenues	SmartCapital records

## 5.2 SmartLab(s) & Showcase Sites

### 5.2.1 Outcome and Impact Evaluation of SmartLab(s) & Showcase Sites

Subproject Deliverables (Outputs)	Implementation stage (Objectively Verifiable Indicators)	Results Stage						
		Reach	Direct outcomes			Ultimate Outcomes		
			Description	Indicators	PMP key requirements	Description	Indicators	PMP key requirements
National Capital Institute of Telecommunications (NCIT) Lab		Local training and International visitors	Increase use of Advanced training facilities	No of training courses	Survey of user satisfaction with the facility			
Algonquin College Lab		Algonquin college students and visitors			Survey no of international visitors	Improve learning environment for designing multimedia applications  Market Algonquin college	New registration of students	
Telesat Lab		International visitors			Survey no of visitors	Help export Canadian Satellite technology		

Subproject Deliverables (Outputs)	Implementation stage (Objectively Verifiable Indicators)	Results Stage						
		Reach	Direct outcomes			Ultimate Outcomes		
			Description	Indicators	PMP key requirements	Description	Indicators	PMP key requirements
Ottawa City Hall Showcase		Ottawa citizens and City Staff	Use of web casting for e-democracy	Webcasting	Survey users of Webcasting session	Increase public participation Increase productivity of city staff	Webcasting in committee meetings Better use of staff time	Anecdotal feedback
OCRI Showcase		OCRI international visitors	Endowment of OCRI with advanced presentation facility			Promote OCRI		

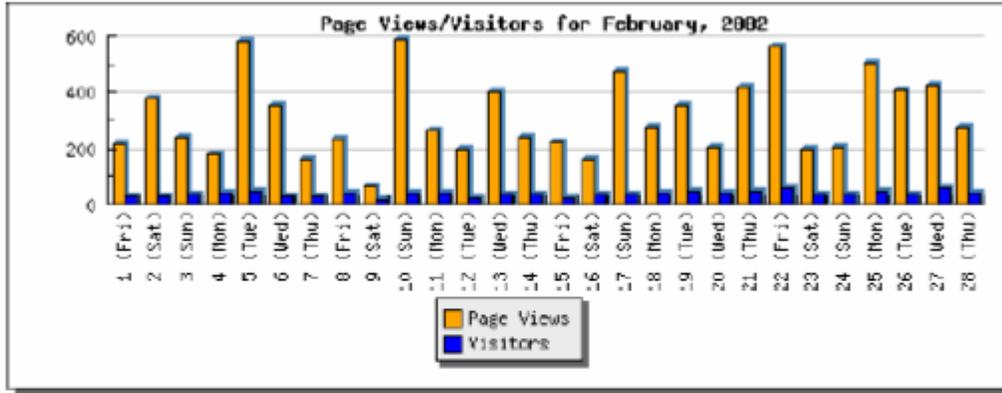
## Appendix E: Web Log Statistics

The report on the usage of the online services makes use of the power of Web Statistics analysis captured by web traffic logger such as Webstat. Information of interest to the evaluation is Monthly Summary, Visited pages, Hourly page views, Monthly trends, frequent visitor, visits origin. This appendix presents Webstat examples of such data collection.

PerFXion — Free Photos, Graphics, Email Stationery  
<http://www.perfxion.com>

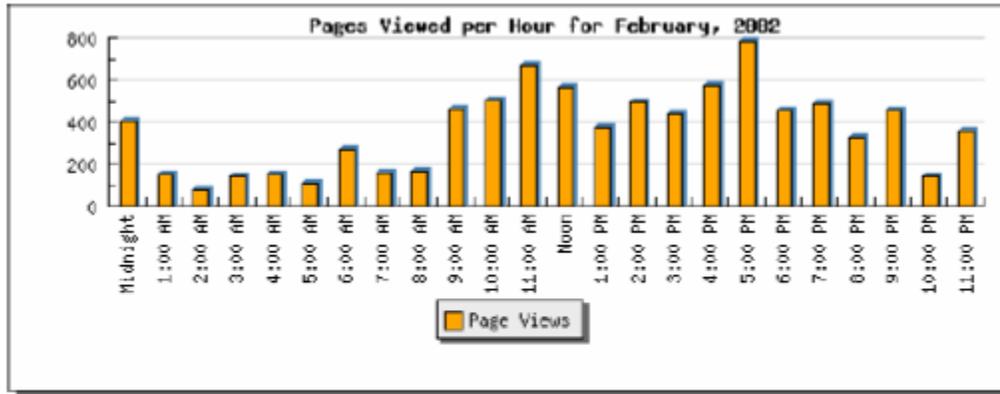
WebSTAT.com

Statistical Summary for: February, 2003		
<i>Report Generated on</i> Thu, Feb 13, 2003 at 11:56:34 am	<i>Page Views</i>	<i>Unique Visitors</i>
<i>Today:</i>	158	27
<i>Yesterday:</i>	662	60
<i>Last Seven Days:</i>	3,209	388
<i>Average Page Views / Visitors per Day</i> (this month):	451.08	53.62
<i>Total</i> (this month):	5,864	697
Unique Visitors are counted by unique IP addresses that have visited your site		
<i>First Page View:</i>	Thu, Apr 22, 1999 at 10:08:05 pm	
<i>Last Page View:</i>	Thu, Feb 13, 2003 at 11:17:47 am	
<i>Total Page Views / Unique Visitors</i> (last month):	15,753 / 1,974	
<i>Total Page Views</i> (cumulative):	270,958	
<i>Highest # Page Views in One Day:</i>	1,619 ( Sun, Jun 16, 2002 )	

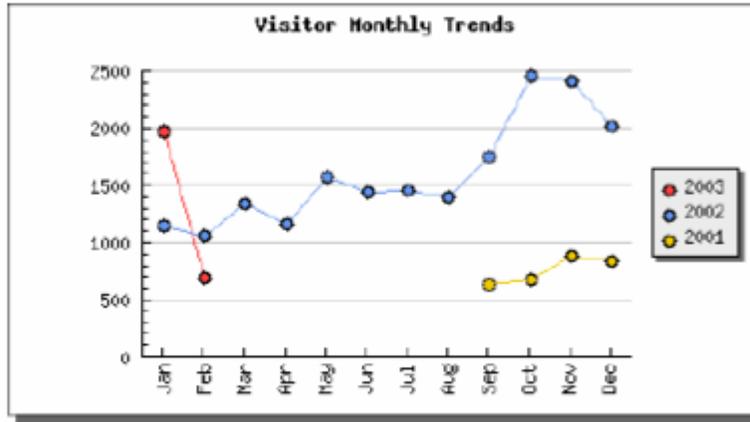


**Total Monthly Page Views:** 8,783      **Total Monthly Visitors:** 1,066  
**Average Page Views A Day:** 313.68      **Average Visitors A Day:** 38.07

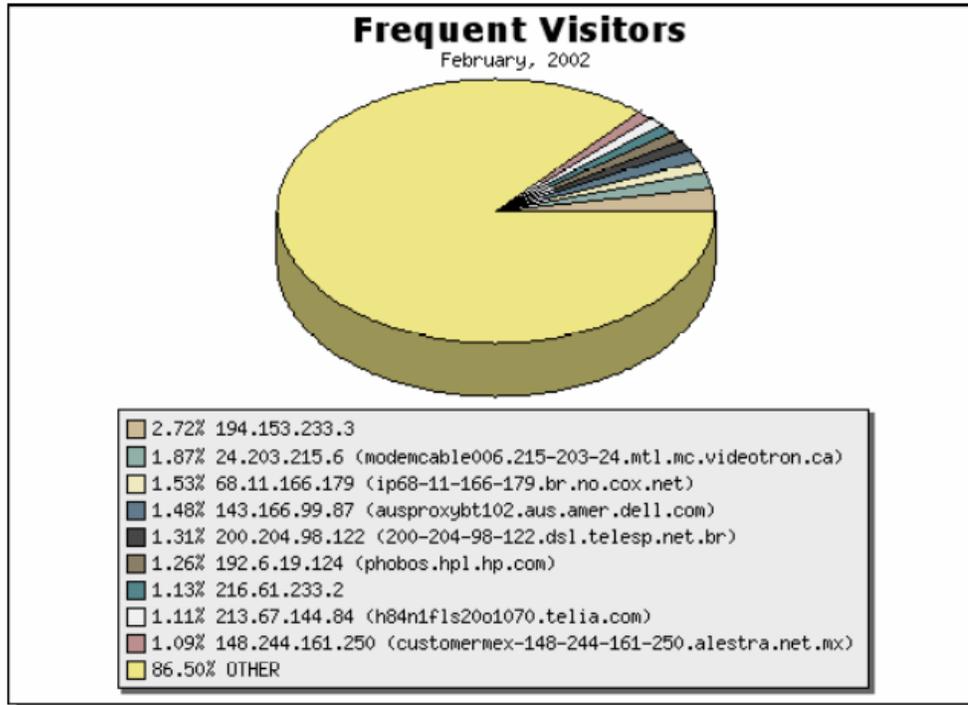
Day	Page Views	Visitors
1 (Fri)	215	28
2 (Sat)	378	29
3 (Sun)	241	35
4 (Mon)	177	39
5 (Tue)	579	48
6 (Wed)	353	32
7 (Thu)	161	31
8 (Fri)	235	28
9 (Sat)	241	35
10 (Sun)	599	48
11 (Mon)	277	39
12 (Tue)	207	28
13 (Wed)	407	32
14 (Thu)	235	28
15 (Fri)	227	31
16 (Sat)	169	30
17 (Sun)	487	36
18 (Mon)	287	38
19 (Tue)	353	34
20 (Wed)	207	28
21 (Thu)	427	37
22 (Fri)	579	48
23 (Sat)	207	28
24 (Sun)	207	28
25 (Mon)	507	36
26 (Tue)	407	32
27 (Wed)	427	37
28 (Thu)	287	38



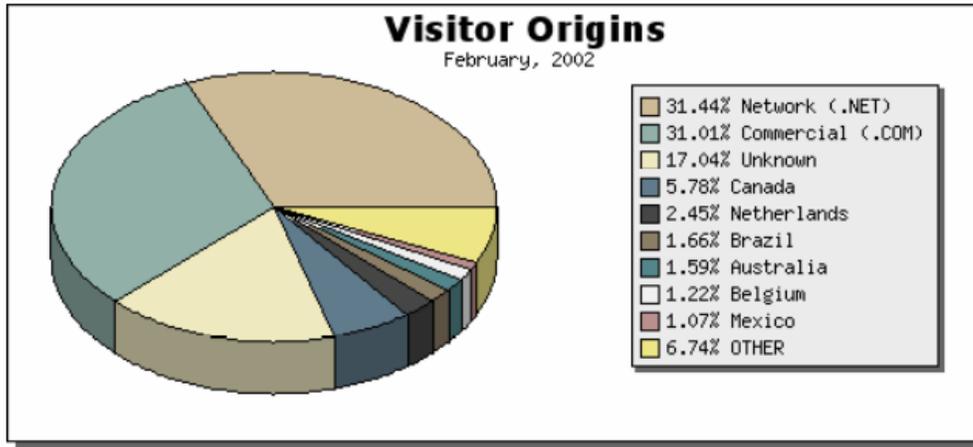
Hour	Percentage Page Views	Page Views
Midnight	4.68%	411
1:00 AM	1.74%	153
2:00 AM	0.89%	78
3:00 AM	1.65%	145
4:00 AM	1.73%	152
5:00 AM	1.31%	115
6:00 AM	3.09%	271
7:00 AM	1.83%	161
8:00 AM	1.92%	169
9:00 AM	5.29%	465
10:00 AM	5.76%	506
11:00 AM	7.63%	670
Noon	6.49%	570
1:00 PM	4.32%	379
2:00 PM	5.67%	498
3:00 PM	5.03%	442
4:00 PM	6.59%	579
5:00 PM	8.94%	785
6:00 PM	5.23%	459
7:00 PM	5.52%	485
8:00 PM	3.76%	330
9:00 PM	5.16%	453
10:00 PM	1.65%	145
11:00 PM	4.12%	362



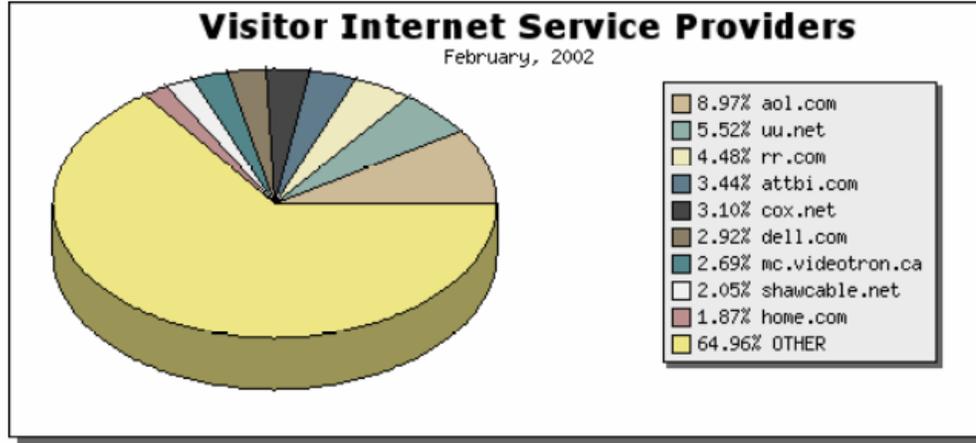
Month/Year	Percentage	Visitors
February, 2003	2.80%	697
January, 2003	7.92%	1,974
December, 2002	8.11%	2,020
November, 2002	9.67%	2,410
October, 2002	9.86%	2,456
September, 2002	7.04%	1,755
August, 2002	5.64%	1,404
July, 2002	5.82%	1,449
June, 2002	5.76%	1,434
May, 2002	6.32%	1,574
April, 2002	4.65%	1,158
March, 2002	5.38%	1,341
February, 2002	4.28%	1,066
January, 2002	4.58%	1,142
December, 2001	3.38%	842
November, 2001	3.54%	882
October, 2001	2.73%	681
September, 2001	2.52%	627



Frequent Visitor	Percentage	Visits
194.153.233.3	2.72%	231
24.203.215.6 (modemcable006.215-203-24.mtl.mc.videotron.ca)	1.87%	159
68.11.166.179 (ip68-11-166-179.br.no.cox.net)	1.53%	130
143.166.99.87 (ausproxybt102.aus.amer.dell.com)	1.48%	126
200.204.98.122 (200-204-98-122.dsl.telesp.net.br)	1.31%	111
192.6.19.124 (phobos.hpl.hp.com)	1.26%	107
216.61.233.2	1.13%	96
213.67.144.84 (h84n1fls20o1070.telia.com)	1.11%	94
148.244.161.250 (customer-mex-148-244-161-250.alestra.net.mx)	1.09%	93
67.217.229.203 (1Cust203.tnt3.lansing.mi.da.uu.net)	1.07%	91
24.69.255.202 (px1wh.vc.shawcable.net)	1.05%	89
12.254.242.82 (12-254-242-82.client.attbi.com)	1.02%	87
63.17.8.96 (1Cust96.tnt22.phl6.da.uu.net)	1.02%	87
163.203.138.57 (user10809.vip-za.com)	1.01%	86
209.74.184.35 (cts2led35.xtraport.net)	0.95%	81
143.166.99.251 (ausproxybt101.us.dell.com)	0.94%	80
64.231.205.100 (HSE-Quebec-City-ppp130711.qc.sympatico.ca)	0.92%	78
208.59.249.8 (cache-1.atw.pa.webcache.ren.net)	0.85%	72
213.93.128.43 (proxy2.rot.chello.nl)	0.83%	71
212.47.4.96 (hide1.kr-moravskoslezsky.cz)	0.82%	70
198.81.16.177 (spider-ntc-tb062.proxy.aol.com)	0.81%	69
161.184.8.33 (a3h946jwy43v4.ab.hsia.telus.net)	0.80%	68



Visitor Origins	Percentage	Visits
Network (.NET)	31.44%	2,761
Commercial (.COM)	31.01%	2,724
Unknown	17.04%	1,497
Canada	5.78%	508
Netherlands	2.45%	215
Brazil	1.66%	146
Australia	1.59%	140
Belgium	1.22%	107
Mexico	1.07%	94
Czech Republic	0.80%	70
United Kingdom	0.72%	63
Antigua and Barbuda	0.67%	59
Denmark	0.65%	57
United States	0.57%	50
U.S. Educational	0.52%	46
New Zealand (Aotearoa)	0.42%	37
Sweden	0.38%	33
Spain	0.33%	29
France	0.27%	24
Uruguay	0.19%	17
Argentina	0.18%	16
Saudi Arabia	0.17%	15
Portugal	0.13%	11
Non-Profit Organization (.ORG)	0.10%	9
Germany	0.09%	8
Switzerland	0.09%	8
Estonia	0.07%	6
Malaysia	0.06%	5
Italy	0.06%	5
Singapore	0.06%	5



Visitor's Internet Service Providers	Percentage	Visits
aol.com	8.97%	657
uu.net	5.52%	404
rr.com	4.48%	328
attbi.com	3.44%	252
cox.net	3.10%	227
dell.com	2.92%	214
mc.videotron.ca	2.69%	197
shawcable.net	2.05%	150
home.com	1.87%	137
telia.com	1.57%	115
telesp.net.br	1.52%	111
hp.com	1.49%	109
qc.sympatico.ca	1.27%	93
alestra.net.mx	1.27%	93
viptx.net	1.20%	88
gtei.net	1.17%	86
vip-za.com	1.17%	86
swbell.net	1.15%	84
xtraport.net	1.11%	81
sympatico.ca	1.08%	79
tctc.com	1.07%	78
ren.net	0.98%	72
rott.chello.nl	0.97%	71
telus.net	0.97%	71
kr-moravskoslezsky.cz	0.96%	70
bigpond.net.au	0.91%	67
btopenworld.com	0.89%	65
t-dialin.net	0.86%	63
metalink.net	0.85%	62
sprint-canada.net	0.85%	62

## Appendix F: References

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