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Capacity, Collaboration and Culture

The Future of the Policy Research Function in the Government of Canada

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Canada

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Executive Summary[1]

The Policy Research Role

Policy research helps the public service to understand and address current and emerging policy issues by providing impartial evidence-based research that can inform the policy development process. In the federal government, policy research contributes research findings and strategic knowledge to medium-term planning, transition planning, budget preparations, and policy development across the system and within departments. This function also includes responsibilities for the strategic knowledge infrastructure, such as survey and data development, and data management. The strength of federal policy research depends on ongoing leadership, access to current and relevant data, senior executive demand, strong analytical capacity, and stable funding.

Forces Changing the Policy Research Function

Policy research is a dynamic function. It is not conducted the same way today as it was two decades ago, and it will continue to change in the decades ahead. Driving this change are information and communications technologies. Their capacity to enable the exchange of enormous amounts of data and information across vast distances, and in the process, build worldwide networks within and between disciplines, is fuelling extraordinary growth in collaborative policy research. This has and will continue to foster more co-production of research, and facilitate knowledge management and transfer at an accelerating rate. The need for a highly specialized and diverse policy research workforce inside government, with strong analytical competencies, is growing, in part because of the unprecedented accessibility to and production of research information that needs to be understood and contextualized. Finally, the increasing volume of research and analysis occurring outside government is providing many more opportunities to source policy research and policy analyses from other players.

Other forces are having an impact on how policy research in government is organized and conducted. These include the increasingly complex, interrelated, and horizontal nature of policy issues requiring research support; global influences on policy formulation; demand for policy tailored to unique regional requirements; the need to produce policy research quickly to enable policy makers to respond effectively to a rapidly changing economy/environment, and accelerating demand for forward-looking insight.

Future Scenarios for the Federal Policy Research Function

In looking at the future of the policy research function in the federal government, three questions need to be asked around three themes:

- **Capacity** - What capacity, both human and informatics, is needed inside government to support the production and sourcing of high quality and authoritative research for policy formulation?
- **Collaboration** - How can government include expanding external knowledge sources as an integral part of the policy research function and the support it provides to policy makers?
- **Culture** - Can government transform its current largely hierarchical culture, towards a structure that encourages and promotes effective network and collaborative participation?

When considering the future of policy research, numerous scenarios could be explored. Four particularly feasible and probable scenarios are:

1. ***Silos Continued:*** fragmented and uneven capacity, with policy research conducted in-house as the principle source of research information and analysis, supported by some contracting; government's information and communications technologies for information sharing and networking do not keep pace with those of the research community outside government, which steadily weakens collaboration; and, there is no appreciable culture change, as this scenario represents the business-as-usual approach.

2. ***Outsourced World:*** capacity shifts, primarily toward enabling policy research to be sourced through the market by contracting and other arrangements; minor reforms and externally accessed information and communications technologies and networks enable research managers inside government to link, promoting collaboration; and, there is some culture change as practices and norms in the broader research community outside government are adopted through increase reliance on market sources.

3. ***Network Enabled Co-production:*** Canadian and international collaborative research networks flourish, with higher quality information and communications technologies enabling more robust data and information sharing, and easier "virtual" access to market-sourced policy research; there is sufficient capacity in the federal government to lever and integrate external knowledge creation; and, there is considerable culture change to significantly more collaboration within and across the government's research community and with external players.

4. ***Policy Research Redefined:*** Supported by high quality information and communications technologies, enabling broad public access to research and tools previously only available to the government, policy research is seen, understood and appreciated as a strategic policy instrument that shapes and supports emerging governance arrangements.

Implications for Renewing the Policy Research Function

The scenarios present a series of plausible trajectories for the policy research function. However, a more collaborative, networked approach, featuring more partnerships within and between government and other market sources for the co-production of policy relevant research, appears the most likely – a state somewhere between scenarios 3 and 4, depending on the availability of resources. Strong in-house capacity is and always will be needed to contextualize research information and provide knowledge and essential policy advice to decision makers. However, this portion of the government's policy research function relies on a broader base of policy relevant data, information and intelligence. Producing, gathering and digesting that will increasingly shift to a widely distributed field of collaborators. With this mind, federal researchers will need to be:

- Information and communications technology adept, able to adapt to new software, platforms, data sets and collaborative forums;
- Innovators in research methodologies as well as research practice;
- Capable managers of projects and people;
- Continuous learners, with learning engrained in practice as well as accessed formally to keep skill levels high;
- As a whole, representative of the breadth of diversity across Canada's changing population, and individually, diversity-sensitive and respectful;
- Networkers, who are active and enthusiastic participants in, as well as instigators of, policy research networks that function in real-time and virtually;
- Collaborative team players, effective within groups, departments and networks;
- Responsive to current policy research priorities as well as forward-looking, able to prepare for medium and longer-term issues; and,
- Adept communicators of complex concepts and findings.

The size of the government's policy research workforce is expected to grow only marginally. Rather, the emphasis will be on the quality of the workforce, with continual "up-skilling" and an increase in the overall skill set and educational attainment levels of new entrants. As they work in and through domestic and international research and/or academic networks, federal policy researchers will require subject matter expertise, knowledge and credentials, as these are the keys to credibility and effective participation. These policy researchers will need intellectual, organizational and personal competencies, but will need to be particularly adept in knowledge management and relationship-building which are important in a networked, collaborative world.

Linkages to Public Service (PS) Renewal

PS Renewal presents an opportunity to pursue a number of immediate actions that align with the direction for policy research renewal and will strengthen the government's policy researcher community. These include:

- The formation of a community of practice focused on individual and collective excellence.
- The implementation of training, development and retraining programs for federal researchers, moving towards the management of distributed networked research.
- The development and implementation of regular surveys on the policy research community conducted by central agencies or Statistics Canada to develop an ongoing statistical profile of the community to assist in the design of strategic HR policies and programs.
- Attention to the development and deployment of information and communications technology tools that enable research collaboration.
- Implementation of incentives, institutional structures, and/or senior level leadership for ongoing policy research collaboration, and networks within and across departments, to address increasingly complex policy issues and forward looking agendas.
- The formulation of a strategic plan and resourcing to develop a policy research functional community to promote and address the ongoing concerns of the community.

1 Introduction

As in all developed democracies, policy makers in Canada are contending with a wide range of pressures from forces including globalization, the information and communications technology revolution, accelerated change, shifting multiple centers of power, and an uncertain and turbulent international security environment. Adding to these pressures are ones that are more unique to Canada: an ageing population and public service, increasing reliance on immigration, growing cultural diversity and a changing regional mosaic. Addressing these tough challenges is not made any easier when policy makers face an increasingly skeptical, diverse and informed citizenry, armed with a profusion of information obtained from many sources, organized and informal, that may be held in higher esteem than government.

Issues that are increasingly complex and multi-dimensional, spanning departmental, jurisdictional and public-private boundaries, pose a serious challenge to the federal public service in fulfilling its role supporting policy makers with sound, timely, comprehensive and coherent information and advice. That role depends on robust policy research, and the government's policy research community, from statisticians and researchers to research communicators and research managers, is currently ill-equipped to fulfill its vital support function in an increasingly complex and demanding issues environment.

Responding to this challenge is not simply a question of rebuilding capacity, increasing or reallocating research budgets, or engaging the external community. The problem is more fundamental, and requires changing the way that the federal policy research community functions and does business. At its core, this would mean redefining and realigning the function to provide policy makers with the best timely, accurate, and relevant knowledge and information possible, and to contribute to the broader policy development process an evidence-based foundation for informed and inclusive policy dialogue.

The purpose of this report is to develop a better understanding of the policy research function in the federal government and its potential to help address the challenges and opportunities of the future. It provides a snap shot of the policy research community, and a view of how the function can be better organized to achieve its potential. It explores how forces of change are affecting the conduct of policy research; the future of the function and the changing nature of policy research work; the composition of the policy research workforce, and the projected competencies for future policy researchers. Its content represents a synthesis of the policy knowledge and voices of the federal researcher community, think tanks, academics, international organizations, associations, consultants, pollsters, media and other organized interests.

There is a strong sense within the community that objective, impartial and systematic policy research can play a stronger role in achieving excellence in policy development. Ultimately this report is about setting a new course for policy research in aid of a policy

development system for Canada that will better meet the challenges of the complex policy issues facing Canadians and their governments.

2 The Case for Evidence-Based Policy

Evidence-based, evidence-informed or knowledge-based policy development refers to an approach that levers the best available objective evidence from research to identify and understand issues so that policies can be crafted by decision makers that will deliver desired outcomes effectively, with a minimal margin of error and reduced risk of unintended consequences.

Compared to subjective values, the factual interpretations of special interests and advocacy groups, and selective or ideologically-driven viewpoints informing the policy development process, an evidence-based approach has as its great advantage neutrality and authoritativeness. This stems from sound, rigorous, comprehensive and unbiased policy research, which improves policy development in many ways, including by:

- Reducing uncertainty,
- Increasing logical clarity and consistency,
- Providing new perspectives and understandings of policy issues,
- Providing increased accountability to the public,
- Providing reliable facts and knowledge, and
- Improving the quality, inclusiveness and constructiveness of public policy debate.

The major goal of evidence-based policy development is to ensure that the experience, expertise and judgment of decision-makers is supported and resourced with the best available objective evidence and systematic research. Policy research is not expected to produce the solutions or decisions. It is meant to provide accurate, reliable and credible information, knowledge and analysis to inform public policy. The knowledge base it produces provides an important ingredient for the policy development process to reduce risk and improve outcomes, but it is not a substitute for the process.

2.1 The Blurring Boundaries between Policy Research and Analysis

To be useful to decision makers, research, data and information usually needs to be contextualized – it needs to be analyzed to become policy relevant and meaningful. Most federal departments make a distinction between policy research (gathering and testing the data and information) and policy analysis (contextualization, deriving implications and considerations for decision makers from the data and information) both organizationally and functionally.

With the rise in the marketplace for ideas, think tanks and schools of public policy are becoming more dominant players in policy research and analysis. These players generate ideas, conduct research, package and communicate results, provide policy analysis and advice, and seek to influence the policy development environment. This is blurring the boundaries between policy research, policy advice, and advocacy. Some think tanks are very credible with policy advice based on facts, empirical evidence, and sound research. Others have mandates to advocate for the interests of particular sectors or groups, or to

advance distinct ideological perspectives. Their contributions can make it difficult to distinguish between information and advice that is based on sound objective research versus that which reflects a vested interest.

3 Policy Research in the Federal Government

Across federal departments and agencies there is a wide variation in policy research capacity, from strong to little or none. Finance Canada, the Bank of Canada, Statistics Canada, Industry Canada, Human Resources and Social Development Canada, Health Canada and Agriculture and Agri-Foods Canada have been identified as having strong medium to longer-term research capacity. Other departments are wrestling with how to build or increase capacity, or how to organize the capacity they have to meet an ever growing demand for high quality, relevant, targeted and timely policy research.

In departments where research is centralized and policy research capacity consolidated in one organizational unit (branch or directorate), research is undertaken for internal "clients". These clients are typically strategic policy sectors that include the analytical function and/or senior executives within the department. The research group is directed to undertake targeted research on priority department mandated issues, and policy researchers are providers of particular types of strategic and mandate related knowledge. The department's policy development structure and its policy analysts are the users of this type of knowledge.

In other departments, policy research capacity is decentralized organizationally, concentrated in several different areas, or more evenly disbursed throughout the department. Alternatively, policy research capacity may be decentralized functionally, with policy analysts who have a part-time role in policy research.

3.1 The Policy Research Process

Defining Issues and Research Priorities

The process of research agenda setting in some departments is well developed, with annual and sometimes three-year research plans, whereas in others it is ad hoc. However, the function comes under considerable pressure to meet day-to-day requirements, particularly to support urgent needs of Ministers and arising from news media requests, which can distract resources from planned initiatives.

Meanwhile, the process to identify policy research issues is evolving, from a traditional inward-looking, closed system approach to an outward-looking, open, inclusive approach that is more in line with the interdependent and global nature of contemporary policy issues and the extended capacity of the system to conduct policy research. New tools and techniques are being used to select research issues and priorities that enable insights to be gathered from an expanding network of sources, including:

- International scanning to identify policy issues that are emerging in other jurisdictions and may become part of the domestic policy landscape;
- Dialogue with other countries and international organizations;

- Increasing involvement of think tanks and academic institutions, which can provide a different perspective to that of the public sector;
- The growing role of stakeholders who, through associations, networks and lobbying efforts, can help shape the perception of policy research issues; and
- Reliance on polls and surveys which, with modern information technologies, are becoming an increasingly efficient and effective means to capture public perceptions of policy issues.

Data Acquisition

Data is an important part of any policy research effort. Departments are investing significant sums in the development of statistics for research purposes. Some have entered into partnership arrangements with Statistics Canada to develop new databases with the expectation that the data produced will advance understanding and research efforts in addressing emerging and ongoing policy priorities. Issues surrounding data acquisition are a perennial point of discussion within the policy research community, and include:

- Identifying and addressing data gaps on emerging priorities in cross-cutting policy areas;
- Funding of data proposals and pilot projects;
- Access to data by federal policy researchers;
- Cost of data acquisition and cost recovery; and,
- Availability of international data and comparative data.

Applied Research

Relatively few departments have fully developed internal capacity capable of directly undertaking applied research, however most are able to manage research projects and research contracts, synthesize research findings, and fulfill a challenge function assessing others' research. Those that don't have applied research capacity focus primarily on data presentation and the identification, review and synthesis of research on departmental mandated issues conducted by others. This has been enhanced by the explosive growth of the Internet as an effective tool for finding and accessing research information.

Strong applied research capacity depends on a breadth of tools including statistical tools, micro simulations, macro forecasting, and general equilibrium analysis. Sustaining this capacity requires investments in research infrastructure, research skills, and senior management support and leadership. A lack of investment and leadership has prevented some departments from developing the policy research capacity they need to support departmental agendas.

Technology Impacts

Technological change has had a profound effect on the conduct of policy research including the analytical tools used, the spectrum and sources of information accessed, sources of data and the use of networks, and collaboration. Specific impacts include:

- **Tools** – more sophisticated and detailed modeling such as integrated linear programming, forecasting models, physical models, geographic information systems, computable general equilibrium models and simulations, causing skill

requirements to advance and become more specialized such as in econometrics, optimization techniques, modeling skills, forecasting ability, and high level interpretation and synthesis;

- **Accessing Information** – increased capacity to access vast amounts of data and research from a broad range of sources, such as virtual libraries, knowledge organization websites, research clearinghouses, controlled and open sources, academic research portals, and via electronic distribution of articles and journals and self publication, rapidly expanded the knowledge policy researchers consult and use;
- **Data** – enhanced computing capacity, coupled with strategic investments in data acquisition vehicles and surveys, has generated more 'analyzable' data, more sophisticated and probing research hypotheses and questions, and, generally, a demand for more analytical talent; and,
- **Networks and Collaborations** – varied and diverse progress in networking, cooperation, alliances, partnerships, coalitions and collaboration have all been facilitated by technology, which in turn require competencies in building and sustaining relationships, and in defining expectations and tasks, roles, responsibilities, and work plans to achieve desired outcomes.

However, significant challenges remain *within* the federal research system involving information sharing, virtually and in real time.

Outsourcing

For larger departments with broad policy mandates, strong in-house policy research capacity is essential to:

- Respond effectively to the ongoing demands for evidence and research from within the department and program stakeholders;
- Provide an objective, non partisan and authoritative source of knowledge to policy areas, and develop appropriate terms of reference for, and
- Provide effective oversight of externally commissioned research.

However, most departments conduct at least some of their research through contracts with providers outside government. Various factors play a role in determining whether research is conducted "in-house" or obtained from the market including:

- Availability of internal capacity with the appropriate skill set to undertake and complete the research;
- Sensitivity and confidentiality of the research;
- Availability of contractors with the appropriate policy knowledge, context for policy and research, subject matter expertise and the required set of research skills;
- Financial resources;
- Leverage or commitments with other departments;
- Timeliness - need to meet urgent requests or tight timelines;
- Desirability of external expert analysis or peer review;
- Whether a particular skill or expertise is required to be developed in-house; and,
- Whether the limited external expertise is being contracted at or beyond their capacity.

Communications

The overwhelming volume, speed of proliferation, diversity and complexity of policy research findings being produced today puts a premium on connecting researchers across fields and organizations, and connecting researchers and their findings to decision makers. Collaboration technologies, particularly Web 2.0 applications, offer significant potential to facilitate interdisciplinary and interdepartmental communications, however anecdotal evidences suggests the networking and collaboration tools available now are not being widely used. Meanwhile, transferring information to decision makers in an increasingly complex policy environment is an ongoing challenge. Effective synthesis and integration of knowledge, and knowledge dissemination, are critical to fully leveraging policy research findings and to realizing the value of the investments made in research.

In general, policy researchers are technical in approach. In federal departments it is often communications staff, familiar with research, who provide a communication strategy and associated tools to transform technical materials into more user-friendly and client focused formats. The interpretations of results and presentation of findings is essentially a marketing and packaging process. When done well, it makes research findings understandable, relevant and usable without compromising the integrity and validity of the research findings. Issues surrounding research communications in the federal government include:

- Determining what research should remain internal to government, versus what can and should be disseminated publicly;
- Determining the role of research communications with the emergence of Web 2.0, 3.0 and 4.0 technologies, and its role in closed participatory networks;
- Facilitating the sharing of research across departments and across the government, such as with a repository of policy research working papers, discussion papers and final reports, and in addition to sharing the end products, for sharing direction, priorities, plans and progress; and,
- Whether published hard copies of policy research studies should continue.

3.2 The People Issues

With the aging of the federal workforce, maintaining and developing the strength and skill base of the government's policy research community as competition for knowledge workers intensifies is a concern. New skills requirements are arising as a result of the increasing volume of research conducted external to government, and the need to have "in-house" researchers who can act brokers, intermediaries, and assessors of research conducted by others. Required skills and expertise include not only the ability to define and manage commissioned research, but to assess, understand and use policy research effectively. While research units may be producers of targeted research, they must be content knowledgeable project mangers for externally contracted research, capable of performing quality control on all research, internally or externally generated. Going forward, addressing the demanding skill and experience requirements for the federal policy researcher community will need:

- Innovative and flexible human resource management practices and significant ongoing investments in training and development;

- A range of development approaches and techniques, corresponding to career stages, requirements unique to different sectors and disciplines, and requirements flowing from new technical tools and emerging technologies used;
- More incentives and tools to work horizontally and participate in interdisciplinary, interdepartmental and intersectoral research projects to address cross-cutting issues.

Importance of Leadership

Leadership is critically important to the survival, growth and vibrancy of the policy research community. Strong leadership galvanizes a community, creating and communicating a shared vision that all members can identify with. Policy research leadership is needed to stimulate culture change, particularly to encourage collaborative research across departmental boundaries, and to encourage investment in building human capital. Both are essential to the revitalization of the federal policy research community.

4 Forces Changing the Policy Research Function

4.1 Global Change Forces

Pervasive and unprecedented global forces of change are causing the federal public service to reflect on its role in addressing future challenges and anticipated priorities, and how it should be preparing now. Because so many of these trends are profound and far reaching, governments around the world, multi-lateral organizations and international research institutions are all building capacity to identify, analyze and explore them to gain insight into possible futures. These forces and trends include:

- Globalization,
- The information revolution,
- The emergence of many more horizontal issues,
- The complexity and changing nature of society,
- Changing public attitudes toward government,
- Changing demographics, which for Canada is an aging population and public service,
- A more knowledgeable public and rising public expectations,
- Population mobility, which for Canada is an increasingly diverse population along ethno-cultural, racial, religious and linguistic lines, and
- Increasingly competitive labour markets.

For the policy research community these forces determine what topics and issues will become the policy research and policy development priorities of the future. Gaining a comprehensive understanding of them, working through their many possible implications and laying a knowledge foundation for the future is an enormous task. The magnitude of that task, coupled with its critical importance to policy makers and to Canada's prospects for the future, requires that federal policy researchers as a community give serious consideration to what they do and how they do it. The community need to be better organized, supported and led to do their work more effectively and efficiently, and more rapidly.

4.2 Key Change Drivers for the Policy Research Function

Policy research is a dynamic function. It is not conducted the same way today as it was two decades ago, and it will continue to change in the decades ahead. This is being driven by:

- Information and communication technologies,
- Increasingly complex, interrelated horizontal issues,
- A changing and diverse policy research workforce,
- Global influences on policy formulation,
- Demand for policy tailored to unique regional requirements;
- Increasing demand for timelier policy research to enable policy makers to respond to a rapidly changing economy/environment, and
- Increasing demand for forward-looking insight.

Information and Communication Technologies (ICTs)

ICTs have had profound impacts on the way we live and operate at home, in the workplace, and in the marketplace. At home, consumers shop, bank, access government services, book a vast array of services, engage in social networks, and communicate and access increasing volumes of information on-line. At work, colleagues e-mail colleagues, download the latest research papers, access data and e-libraries, view on line presentations and participate in various networks. ICTs have redefined how we conduct research, how we access information, data, and research, and how we communicate. Technology has become an entrenched fact of life in the policy researchers' environment.

Over the next 10 to 20 years, the economic and social research sector will continue experiencing enormous change driven by advances in ICTs. Research is moving through the explosion of knowledge (creation, distribution and application) to the explosion of collaboration. Distributed high-performance computing, digital data resources, and high speed communications are just some of the technological developments improving researchers' capacity to interact with their colleagues and share data worldwide in unprecedented ways. New ICT applications geared toward participatory policy research networks, internal and secure policy research nodes, new techniques for data mining and analysis, advanced computational algorithms and resource-sharing networks continue to redefine how research is conducted. Improved access to data, knowledge and information enables researchers to undertake policy research more creatively, efficiently and collaboratively, including across vast distances and in real-time.

Research is increasingly characterized by national and international multi-disciplinary collaboration, with most OECD countries and APEC members investing in underlying capabilities and associated coordinating mechanisms. Governments in countries such as Australia, the UK, Europe and East Asia are investing heavily in research infrastructure, E-research tools, and training and development, to realize the benefits of collaborative research enabled by ICTs. This is occurring in scientific, academic and business research as well as in policy research. Secured, controlled access to specialized participatory policy research platforms provides the type of virtual environment conductive to

collaborative research. With these advancements, there will be greater demands for international policy research cooperation and coordination.

Participatory policy research networks provide the ability to generate and access research and knowledge reflecting Canada's changing regional and cultural diversity on an ongoing basis. ICT enabled participatory networks can provide the tools for research participation from all levels of government, and provide a forum for collaboration with the multiplicity of external research organizations that have interests in policy research. Questions remain, however, about the incentive structure required to participate and contribute to these networks, rather than simply free-ride, and watch and brief.

Access to the public Internet will continue to fuel and accelerate the explosion of information. Connections across media, vested interests, social networks, and commerce will become stronger with advancements in digitization, data storage and processing power. The dissemination of enormous volumes of information will put increasing pressure on policy researchers to assess and screen for the validity and reliability of information. Indeed, without greater capacity to assess quality, authoritativeness and veracity, as more information, data and messages are posted on the publicly accessed Internet[2], there will be increasingly less "knowledge".

Complex, Interrelated Horizontal Issues

Most major policy issues cut across one or more departmental mandates and/or across conventional policy sectors. The complexity and interrelatedness of these issues pose significant challenges for federal policy researchers. The coordination and management of horizontal research and policy issues is a particular problem (Canada, 1996). Some progress has been made developing collaborative research cultures in the public service for specific projects when senior management has promoted collaboration, departmental mandates are aligned with collaborative efforts, and funding has been provided.

Over the next 10 to 20 years, the complexity of contemporary economic and social problems will intensify demand for policy research on interrelated issues to support the development and implementation of public policy. Horizontal issues such as climate change, competitiveness, security, and biotechnology, as well as emerging priority areas of government policy, will invariably require comprehensive, coordinated and collaborative policy research strategies involving a multiplicity of federal departments, other levels of government, and organizations from different sectors of society. Indeed policy makers are already demanding research evidence that addresses the increasing complexity, interconnectedness and global nature of issues, and will expect policy researchers to stay on top of complex horizontal issues to help inform and guide their policy development work.

The federal government will need to experiment with alternative project governance structures, perhaps institutions, virtual or real, and other mechanisms, to undertake more of the collaborative research horizontal issues require.

A Changing and Diverse Policy Research Workforce

Over the next 10 to 20 years the aging Public Service will experience a transformation in

the composition and characteristics of the policy research workforce as successful recruitment campaigns bring in successive waves of younger public servants. The age composition of the policy research workforce will reflect the decline in the percentage of boomers and increases in the relative populations of Gen Xs, Gen Ys, the Millennium generation and a growing proportion of workers born outside of Canada. Ongoing succession planning and historical knowledge transfer, tacit and codified, is critically important. Management practices must continue to evolve to meet the changing composition of the policy research workforce.

Gaps in technical expertise develop between the existing policy research workforce and new entrants as more recent graduates, particularly PhDs, enter the policy research world with the latest and most advance technical tools and research expertise. Lifelong learning, training and retraining becomes a common practice widespread in the policy research community.

The policy research workforce of the future will reflect Canada's changing and diverse population mix. One in five policy researchers over the next 10 to 20 years are likely to be members of a visible minority, and one in ten, South Asian. While excellence in technical, technological and analytical skills will be present in this population, segments who do not have either official language as their mother tongue may require training to gain proficiencies in writing and presentation skills, which are key to success in the policy research world.

Over the next 10 to 20 years, successfully managing diversity in the policy research environment will also mean creating research work environments that value and use the contributions of people with different personal characteristics, cultural backgrounds, experiences and perspectives. Diversity refers to all of the characteristics that make individuals different from each other including factors such as age, race, ethnicity, gender, or having a disability.

Global Influences on Policy Formulation

In many areas of public policy, issues that were once considered to be purely domestic now spill across borders and have relevance worldwide. A global economy that is becoming more integrated through trade, foreign investment, technology flows, and labour migration, and the effects of globalization on culture, language, standards of living, social cohesion and business agglomeration, are creating more interdependencies, complexities and challenges for governments. Global issues such as terrorism, global security, environment degradation, the global spread of infectious diseases, and international financial vulnerability and instability, dominate policy agendas and will continue to do so in the years to come.

For policy research to inform the policy environment and address the complexities and impacts of globalization there must be a departure from the traditional ways that issues have been identified and policy research conducted. Globalization implies that the divides between "domestic" and "foreign", various research disciplines, and departmental boundaries many no longer be helpful, and indeed, may be obstacles to the production of research that effectively addresses global issues. Restructuring and transformation is

required to enable researchers to pursue a more integrated approach to identifying research priorities, incorporating international and global perspectives with domestic ones. In terms of the conduct of research, policy researchers will need to systematically reach across national borders and work collaboratively with their colleagues in other countries and multi-national research organizations.

Responding to Regional Requirements

Regionalism remains a prominent feature of Canadian society. The three largest political parties have exhibited highly regionalized bases of support. Most policy issues, new policies, or government decisions have a regional dimension – whether the topic is economic development, social programs, the environment, tax reform, or gun control. Moreover, recent changes to national social programs and federal-provincial financial arrangements have given Canadian provinces more autonomy to design their own regional solutions to policy problems (without federal involvement) and to pursue their separate regional agendas.

A new regionalism appears to be emerging in Canada, characterized by a competitive "either/or" approach to issues of national concern rather than seeking complementary roles within a national economy. While the national economy and nation-state model still comprises the primary economic and political framework for Canada's regions, it is clearly less important now than it once was.

Canada's distinct regional identities are at least partly attributable to the sheer size of the country and its geographic features, barriers and divisions. Demographics and, in particular, the distinct ethno-linguistic and religious composition of regions' populations is also a factor in the formation of regional identities. Add to this the growing regional imbalances brought on by the considerable variations in economic growth patterns, and population, migration and immigration patterns, and there is clearly mounting pressure to make national institutions more representative and more responsive to local needs. The national treatment of issues in the future will reflect less of a central Canada perspective in favour of regional perspectives, participation and autonomy.

Regional research capacity to input into the national policy-making process is developing through academic institutions and regionally based think tanks, and across a broader range of issues. The question at the federal level is whether to develop federal policy research capacity at the regional/local level, or to rely instead on regionally based knowledge nodes and clusters.

Demand for Forward-looking Insight

Governments, industry, academia and civil society are developing capacity to provide early warning of emerging issues, analyze key longer term trends, and develop forward-looking research agendas and the knowledge infrastructure they need. International organization such as the OECD and countries like the United Kingdom, Australia, Denmark, France and Germany are all advancing foresight and forward-looking analytical capacity. The OECD International Futures Programme, for example, provides improved monitoring of the long-term economic and social horizon; more accurate pinpointing of major developments and possible trend breaks; greater analytical

appreciation of key long-term issues; and better dialogue and information-sharing to help set policy agendas and map strategy (OECD, 2008).

Over the next 10 to 20 years, it's safe to assume that the demand for forward-looking insight will increase and the integration of scanning, futures work and policy research will need to improve. Federal research units will need to move from an episodic approach to foresight, to federal "nodes" of sustained forward-looking analytical capacity in order to undertake "futures" research – the exploratory and strategic research that helps policy makers stay ahead of emerging issues.

4.3 The Capacity, Collaboration and Culture Questions

The Cyclical Pattern in Federal Policy Research Capacity

Policy research capacity in the federal government has tended to move through three phases: a good phase, a holding phase, and a decline phase. The good phase occurs in time periods when senior executives understand the interrelationship between policy research and policy development. Research capacity is deliberately nurtured and able to develop strategic linkages with policy, which results in the effective utilization of policy research findings. The holding phase often follows, when for a range of reasons, senior executives aren't able or encouraged to nurture policy research or to provide the necessary leadership and direction to advance a policy research agenda. In these periods, research agendas are typically built from the bottom up. However, without demand for research findings from the "top", difficulties communicating research results to policy makers arise. Gaps begin to emerge between policy research and policy development. In these holding phases, policy research carries on but seems to lack traction and influence. The decline phase inevitably follows the holding phase, often when financial resources across the system are under pressure. In this stage, the various functions associated with policy research are viewed as "non-essential" and are vulnerable to cuts.

Looking to the next to 20 years, it is clear that the challenges the federal government faces will include competing for highly skilled policy researchers in a tight labour market and functioning as a dependable partner in collaborative policy research undertakings. Determining how best to sustain its policy research capacity, whatever the structure of that capacity may be, will be critical to success.

Collaboration: Engagement and Expanding Knowledge Sources

The policy research world is an increasingly complex, interdependent environment, where policy researchers and policy makers face the common problem of using expert knowledge. Both will be flooded with more information than can possibly be used: advice from constituents, papers, and reports from international agencies or civil society organizations, op. ed. pieces and summaries from think tanks and journalists, position papers from lobbyist and interest groups, research from academics and popularized presentations by media. The problem is that the majority of this information will be unsystematic, unreliable, or biased.

Policy researchers will need to continue to develop their information literacy – the ability to discern between information that is relevant and accurate, and that which is not. The number of information providers – academic research institutes focusing on policy issues, academics engaged in policy research, and think tanks acting as knowledge brokers and providers – will grow. Pressures to involve these knowledge producers and providers in the policy research and development process will increase. Many will want to be engaged, which means more than just participating in networks and collaborative research ventures. It means providing knowledge products and services across the entire spectrum, from issues identification and policy research, to synthesis, policy analysis and the provision of advice.

A rapidly growing trend in governments has been the use of markets for the provision of government services, both public services and internal ones. These market-based approaches include competitive sourcing, public-private partnerships, outsourcing, contracting out and privatization. Market sources of policy research include individual academics, consultants, former public servants, networks of researchers, university research institutions, think tanks and other research based organizations. Market-based approaches for research have the potential to reduce costs to government; increase internal operational efficiencies; improve access to expertise, augmenting internal capacity, and address topics that internal researchers may not be equipped for. However, depending on the nature of the issue being researched and its sensitivity to government policy, there may be concerns around matters of neutrality, validity, balance, timeliness, risk-management, and the ability of external resources to adequately address the research topic.

As government looks to augment its research capacity with external-to-government players, attention will be needed on the extent to which the federal government could or should use the market, and whether the approach should be systematic or ad hoc. Fundamental questions will need to be answered, including whether the knowledge sector should become the principle source of policy research, and/or whether internal capacity needs to be reorganized to assure policy makers a continual flow of objective and strategic policy research.

Culture: Silos or Networks?

External forces, including the increasing interrelatedness and complexity of policy issues, the interconnectedness of public and private activities, and the ongoing effects of globalization, are putting a strain on the traditional structure of policy research capacity – namely, maintaining distinct research units or silos within departments. Developing policy solutions for complex and multi-dimensional issues increasingly depends on the knowledge and expertise of a broader set of departments and organizations. Faced with a growing need to undertake targeted research policy projects that are collaborative, coordinated and networked, departments and the government must explore alternative collaborative mechanisms and forums.

However, “siloed” ways of operating are entrenched in the federal government culture, and across many functions. Traditional government structures, relying on an advanced division of labour, issue-specific departmental mandates, and hierarchical lines of

authority and accountability, makes the coordination and governance of horizontal collaborative research projects extremely difficult. Although there is an urgent and rapidly growing need for coordinated, collaborative and networked forums, departmental research units as well as other functional communities continue to struggle to find ways to work effectively on horizontal files.

Concerns about privacy, authenticity, security, standards, and accountability bog down most collaborative undertakings. Effective and efficient solutions to these legitimate concerns must be found. Some progress has been made in addressing impediments to horizontal collaboration. However, despite a large and growing body of literature around horizontal issues and horizontal management that has developed within and outside of government, the issue remains largely unresolved.

The consensus is that government needs new governance and accountability structures that encourage and reward effective networking and collaboration, and a culture that promotes it. This is becoming more urgent as participatory research networks, enabled by new and powerful ICT applications, are rapidly becoming commonplace in more adaptable environments in the private sector and civil society. What that structure should be and how best to change the culture must be answered before federal policy researchers can be expected to be fully functional and effective participants in intra, inter and extra-government policy research.

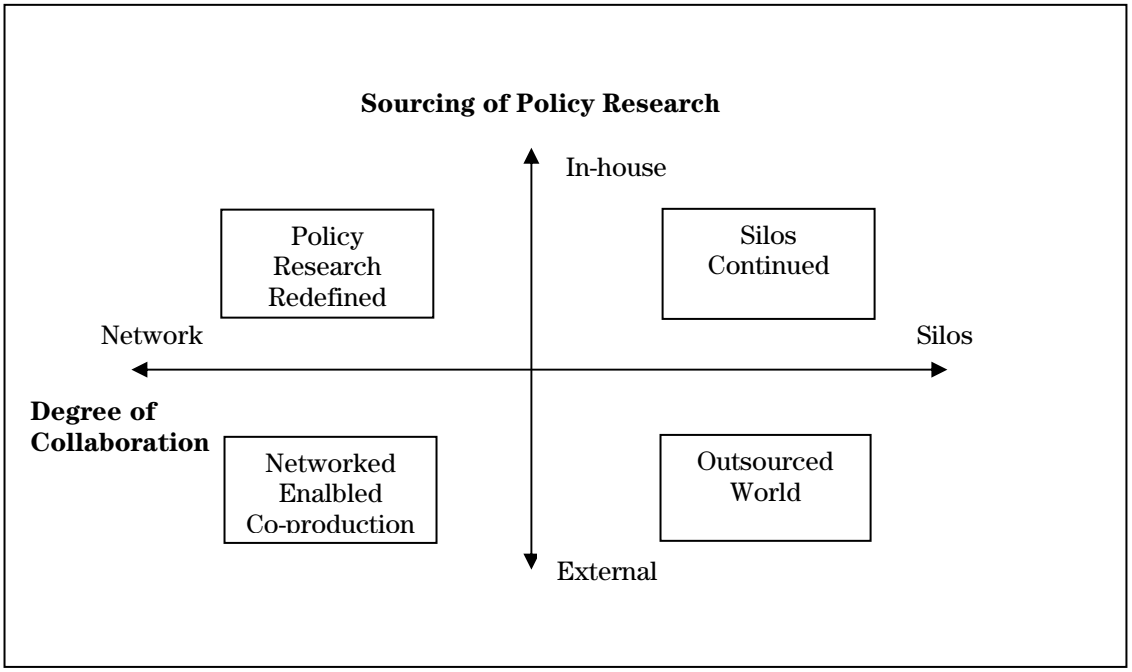
5 Scenarios[3]

5.1 Two Key Uncertainties

Two questions are particularly important for the future of the federal policy research function. They center on whether the policy research community will transition to a collaborative network based approach (degree of collaboration) and how the federal government will use the expanding knowledge sources of policy research (sourcing policy research).

Figure 5.1 combines these two key questions to produce four scenarios for the future of the policy research function.[4] The vertical axis ranges from an emphasis on in-house research capacity at the top, to an emphasis on external sourcing of policy research at the bottom. The horizontal axis ranges from a siloed world with the policy research and the public sector at the right, to a collaborative and networked world on the left.

Figure 5.1: Scenario Schematic



In ***Silos Continued***, federal policy research capacity is augmented with some key external sources but there is little progress made on collaboration. In ***Outsourced World***, the federal research capacity is deployed for research leadership and project management, since the majority of non-core policy research is conducted outside of government.

In the ***Networked Enabled Co-production***, federal researchers are facilitators and synthesizers of resource conducted via collaborative arrangements and participatory research networks within and across the government's research community and with external players. In ***Policy Research Redefined***, federal policy researchers are supported by high quality ICTs, and policy research is seen and understood as a strategic policy instrument that shapes and supports emerging governance arrangements.

5.2 Four Scenarios

The major features of the four scenarios are summarized in Table 5.1.

Table 5.1: Major Features of the Scenarios

Hierarchies: Modus Operandi	
Silos Continued	▪ Fragmented capacity caused by business as usual environment ▪ Principle source of research is in-house with supporting contracted research ▪ Government ICT to facilitate internal and external collaboration does not keep pace with ICT advancements
Outsourced World	▪ Minor reforms to promote collaboration ▪ Market sourced policy research through contracting and other arrangements ▪ External ICT structures allow in-house research managers to extensively link to the external to government world.
Brave New Networked World	
Network Enabled Co-production	▪ Canadian and international collaboration required due to limited internal capacity ▪ Virtual market oriented – market sourced policy research ▪ High quality ICT enable networks, collaboration
Policy Research Redefined	▪ Structural realignment incents collaboration ▪ In-house capacity facilitates in-house, interdepartmental, Canadian and international collaborative research ▪ High quality ICT enables networks, collaboration

5.3 Silos Continued

In Silos Continued, departments develop in-house research strategies to support departmental goals with core departmental funding for research. Contracts with academics, think tanks, consultants and external sources are used for targeted and directed research to fill gaps in capacity. However, the majority of policy research is produced by in-house capacity and contracting plays a minor role. There is large, effective and specialized in-house policy research capacity.

Departmental research units continue to operate in departmental hierarchies, resulting in siloed research organizations. There is competition amongst and within departments on cross-cutting issues, with little or no productive collaboration. While there is a predisposition for evidence-based policy development, in the silo world research groups are often asked to undertake policy-based evidence development. The institutional structure and hierarchical culture elevates the urgency of short-term items, blurring of the lines between urgent research requests and important research work. In this siloed world there are a range of institutional, structural, governance and incentive impediments to effective communication, collaboration and policy research community building. Better knowledge management in the hands of non-research managers results in management enabled mediocrity. "Wordsmithing" is a management preoccupation as research results move "up" to the policy makers.

5.4 Outsourced World

Under this scenario there is small but specialized policy research capacity within departments and at the center. Research on sensitive issues continues to be undertaken in house. What remains of departmental research units continues to operate in departmental hierarchies and silos.

The majority of policy research is conducted through contracts, competitive bidding and outsourcing in order to access external specialists and expertise. Time and funding may be required to grow external capacity of sufficient quality. Through a competitive contracting process, a wide range of policy research sources emerges including consultants, interest groups, think tanks, lobbyists, universities, academics and other NGOs. Partisan and ideologically-based research becomes more prominent in this research environment. While federal policy researchers have sufficient skills, training and experience to identify objective, credible and valid research sources and research products, it becomes increasingly difficult to attract and retain highly qualified and highly educated specialists since it appears that federal researchers are only project managers and synthesizers. Federal researchers not located in large or centralized research units, undertake little internal policy research. What they are able to undertake slowly transforms into "Googling" or "Yahooing".

Knowledge management in the hands of non-research managers thrives as policy research is increasingly viewed as an operational process. Synthesis, communications, resorting to presentation "decks" to try to make policy sense of "raw" research that has not been contextualized becomes the major preoccupation of management, as the quality and validity of policy research declines.

5.5 Network Enabled Co-production

Network Enabled Co-production is an ICT enabled and driven world. ICT infrastructure and applications have matured to grow innovative participatory policy research networks, internal and secure policy research nodes and new forums for collaboration, cooperation and joint work sharing. High quality ICT infrastructure, applications and services are purchased from the private sector with implementation undertaken by federal IT personnel.

Institutional, structural, governance and incentive impediments to horizontal, collaborative and networked policy research have been overcome. Departments still remain the principle organizational unit but overarching institutional design and governance mechanisms have been developed for the long-term sustainability of horizontal policy research and collaborative work within departments, government, across the country and internationally.

The majority of federal policy research is conducted by outside specialists and experts on contract. Research on sensitive issues continues to be done in-house. The policy research function is transformed into project research manager, synthesizer, network participant and collaborative facilitator.

"Up skilling" is required for those policy researchers who become participants in international and/or academic collaborative networks as expertise, knowledge, and credentials are the keys to credibility and effective participation. Recruitment and retention of highly qualified and highly educated specialists becomes difficult due to the lack of applied research opportunities.

5.6 Policy Research Redefined

Similarly to Network Enabled Co-production, ICTs have enabled innovative participatory policy research networks, internal and secure policy research nodes and new forums for collaboration, cooperation and joint work sharing. In this world, there is strong policy research capacity within departments and at the center, complemented by systematic outreach to fill knowledge gaps. Contracted policy research is the secondary source of policy research knowledge. In-house research is the principle source.

With the emphasis on networks and collaboration, there are much closer relations and considerably more integration between policy research and policy development, supported by institutionalized collaboration and cooperation frameworks and forums. Strong internal networks involving researchers, developers, and analysts flourish with integrated policy development. Collaborative planning occurs in real time and research products are delivered virtually. Cross-fertilization of research agendas and intra-governmental mobility of research personnel adds to the quality of knowledge provided to policy development.

Policy research hubs and networks flourish around priority themes and complex, interrelated horizontal issues, involving the external research community in Canada and internationally to capture the insights and relevant policy research from around the world.

6 Implications

6.1 Implications for Renewal

The four scenarios present a series of plausible trajectories for the policy research function. However, a more collaborative, networked approach, featuring more partnerships within government and between it and other market sources for the co-production of policy relevant research, appears the most likely – a state somewhere between scenarios 3 and 4, depending on the availability of resources. While core policy research and knowledge provision related to sensitive issues or near-term policy development should remain in-house, emphasis would shift to research management across a broadly distributed field of collaborators. With this view in mind, federal researchers will need to be:

- Information and communications technology adept, able to adapt to new software, platforms, data sets and collaborative forums;
- Capable managers of projects and people;
- Continuous learners, with learning engrained in practice as well as accessed formally to keep skill levels high;
- As a whole, representative of the breadth of diversity across Canada's changing population, and individually, diversity-sensitive and respectful;
- Networkers, who are active and enthusiastic participants in, as well as instigators of, policy research networks that function in real-time and virtually, domestically and internationally;
- Collaborative team players, effective within groups, departments and networks; and,
- Responsive to current policy research priorities as well as forward–looking, able to prepare for medium and longer-term issues.

6.2 Competencies of Researchers

Core competencies for the future federal policy researchers should represent a set of skills, knowledge, and attitudes necessary for the broad practice of policy research that contributes to the early stages of policy development. They should transcend the boundaries of specific disciplines and capture broader competencies such as relationship-building and organizational skills – the competencies suited to working effectively in a networked and collaborative environment. Broad competencies include:

Intellectual Competencies

- *Cognitive Capacity:* Policy researchers have well developed abilities to understand and process complex information related to their work. This includes analyzing, identifying linkages, and synthesizing multiple perspectives and

research on single issues as well as synthesizing multiple perspectives and sources across issues.

- *Creativity:* With the growth of complex, interrelated and horizontal policy research issues, policy researchers need the capacity to think imaginatively but with intellectual rigour to generate original ideas and develop practical solutions. They require the ability to facilitate, encourage, and build upon ideas and research.

- *Future Building:* Not only do policy researchers have a comprehensive understanding of current policy issues, they must also be able to look beyond the immediate situations and demands of the day to consider longer-term perspectives and emerging policy research issues. Lead time is imperative to build the knowledge infrastructure today for the issues that will emerge tomorrow.

- *Continuous Learning*: In a rapidly changing world, policy researchers must be able to acknowledge and identify their own development needs and seek new skills, knowledge and opportunities for learning. They should practice life-long learning – formally and informally - in all facets of their policy research work, to enhance all their core competencies.

Knowledge Competencies

- *Government Context and Policy Development Process*: Policy researchers understand the Canadian government framework and system, as well as current political and government priorities particularly as related to their area of policy research responsibility. They understand the elements of the policy development process and the interrelationship between policy research, policy development and operations within their department, as well as other departments and organizations.

- *External Context*: Researchers understand the roles, perspectives and research of players outside the federal government (other levels of government, key stakeholders, the external research community, international organizations, etc.). They understand the dynamic trends, structures and relationships between domestic, international and global players and issues.

- *Policy Areas and Policy Research Areas:* Policy researchers have substantive subject matter expertise and knowledge of their specific policy research area, of policy research priorities within their departments, and of the broader government-wide policy agenda. They keep current on policy and research priorities.

- *Techno Savvy:* Policy researchers are ICT literate with the ability to use a wide range of media, platforms and software, with the flexibility to quickly learn and adapt to newly emerging applications.

Research Competencies

- *Critical Thought:* Researchers have the ability to critically assess and evaluate data, information, knowledge and research reports with accuracy and perception, and are able to synthesize and use data from variety of sources. Researchers provide an impartial assessment and challenge function on various claims and research evidence.

- *Information and Knowledge Literacy:* Policy researchers are able to recognize when information and knowledge is needed and of what type. Researchers have the ability to locate, evaluate, and effectively use the needed information or knowledge. With well developed subject matter expertise and knowledge literacy, they can evaluate, critically assess and distinguish information, knowledge and research.

- *Technical Expertise:* Policy researchers can undertake a wide variety of quantitative and qualitative research, know when and how to use appropriate research tools and analytical methodologies, and are able to write in-depth research reports. Furthermore, they are up-to-date on research in their field of expertise.

- *Research Sources:* Policy researchers know how to acquire needed knowledge and information resources. They understand the form, format, location and access methods of a broad spectrum of information and knowledge resources. With this ability researchers can discriminate and assess research.

Relationship Competencies

- *Interpersonal Relations:* Policy researchers require the ability to successfully interact with a diverse and broad range of interested parties. Expanding and maintaining professional relations across the policy research community facilitates collaboration.

- *Collaborative Orientation and Networking:* Policy researchers participate in and at times lead and manage joint, collaborative or network-based research projects, sharing diverse views, information, experience and knowledge while working cooperatively and collaboratively with others. Contracting, outsourcing and the advanced use of participatory networks requires relationship building, collaborative orientation and networking skills.

- *Communications:* Policy researchers have excellent oral, presentation, written and virtually focused communication skills, with the flexibility to customize communications to a particular target audience. They are effective at transferring knowledge to fellow researchers, policy developers, senior management, academics and other key participants. They have the ability to convey complex information in a straightforward manner without "dumbing down" messages. They are able to engage in purposeful and deliberate discussions to communicate findings and insightful advice.

Organizational Competencies

- *Action Management*: Policy researchers effectively formulate research plans, advance research priorities, conduct, manage and communicate research, manage risk and meet deadlines. Researchers plan and manage time effectively; prioritizing as necessary, and balancing the need for high quality, timely value-added contributions.

- *Project Management:* Policy researchers plan, organize and manage resources to achieve specific project goals and objectives. They are adept at advancing a project forward from conception, to scoping work plans, to implementation and successful delivery.

- *Systems Thinking:* Policy researchers situate research priorities and issues with a larger context that recognizes and understands interrelationships between groups in and outside their department. They understand alternative courses of action, and undertake research in ways that address departmental and government needs, not just the immediate needs of their unit.

Personal Competencies

- *Ethics and Values*: Policy researchers are objective, ethical and professional, striving to act in the public interest while maintaining political and interpersonal neutrality. Researchers ensure that their actions are aligned with fundamental public service values such as integrity, equity, objectivity, honesty, professionalism and non-partisanship. In providing nonpartisan, unbiased policy research in support of departmental and government agendas, researchers are capable of "speaking truth to power".

- *Flexible and Adaptive:* Policy researchers adapt quickly and effectively to new people, situations and assignments. They operate effectively in a range of roles and contexts including situations of uncertainty.

7 Directions and Provisional Conclusions

More than ten years ago, the Fellegi Report stressed the continued need for high-quality policy capacity in the federal government to address key challenges. Weaknesses centred on the capacity to undertake rigorous, longer-term strategic and horizontal analytical work. The Report found that most departments were generally doing little work in this area, owing to a range of factors that included a shortage of resources, urgent day-to-day requirements, a perceived lack of demand from senior managers and officials, and a weak example being set by key central agencies. While longer-term planning may be difficult in an increasingly complex environment, the report affirmed that positioning the government to deal with longer-term issues in a coherent fashion was the central strategic issue for the government. Today, similar issues and challenges persist.

Over the next 10 to 20 years, the federal policy research sector will continue experiencing enormous change driven by advances in ICTs. The sector is moving through

the explosion of knowledge (creation, distribution and application) to the explosion of collaboration to a distributed model of policy research capacity. While the federal policy research community continues to believe that objective, impartial and systematic policy research can play a key and vital role in achieving excellence in policy development, there is a growing awareness that in the new ICT-enabled world, federal researchers must expand their skill sets to be multifaceted - to be communicators, managers, networkers, collaborators, team players, who are techno savvy as well as being outstanding researchers and subject-matter experts.

Today, PS Renewal presents an opportunity to pursue a number of immediate actions that align with policy research renewal and strengthening the federal research community. These include:

Recruitment and Retention

- Revitalize and streamline the staffing process to attract and recruit to the public service well trained, highly educated, well-suited researchers to the research business of government, in a timely and efficient manner.

- Adapt the general interchange program to a specialized researchers' two-way interchange program, which would facilitate knowledge transfer with academia, think tanks and international policy research organizations.

Research Workplace Learning

- Implement training, development and retraining programs for federal researchers to move towards the functioning and management of distributed, networked research.

- Develop and implement lifelong learning plans for policy researchers to keep abreast of advanced research techniques, to adapt to new digitally-based collaborative forums, and to develop and expand effective working networks of researchers.

Portrait of the Policy Research Workforce

- Mandate the Canada Public Service Agency or Statistics Canada to develop and implement annual surveys on the policy research community, to develop and maintain statistical profiles of the diverse federal policy research community and federal policy researchers. Currently, there are significant data gaps on the federal policy research function and the policy research workforce.

- Develop a systematic inventory and evaluation of external domestic and international policy research capacity.

Information and Communication Technologies

- At the departmental level, attention to the development and deployment of ICT tools is necessary to enable the use of more sophisticated research tools, access to broader range of relevant data and the promotion of research collaboration. In

the current environment, ICT policies promote “one size fits all”, which is viewed as barrier to levering the potential benefits of ICTs to policy research.

Policy Research Community

- Implement a set of incentives, institutional structures and/or senior level leadership mechanisms for ongoing policy research collaboration and networks with and across departments to address increasingly complex policy issues and forward looking agendas.

- Formulate a strategic plan with the necessary resources to develop a policy research functional community to promote the ongoing concerns of the community.

Looking at the future of the federal policy research function, there is a sense across the community that it is at a crucial turning point. Deliberate action needs to be taken now and over the medium-term to put the groundwork in place to build a more robust, collaborative and sustainable research system – a system capable of producing the high quality, forward-looking, authoritative and timely research policy makers need now, and will need more of in the future to respond effectively to a rapidly changing economy, society and environment.

Appendix A: The Policy Research Process

Defining Research Priorities and Conducting Research

1. Identifying the Issues and Defining Research Priorities

A strategic component of the policy research process is the identification of policy research issues and priorities. Several constraints exist at this stage of the process:

1. Research issues must correspond to current or projected concerns of an economic or social nature;
2. Those concerns can be addressed through government intervention;
3. They should be suitable for empirical analysis; and
4. Their analysis should lead to potential policy initiatives.

Traditionally, economic and social policy research topics were compartmentalised to correspond to the departments responsible for the policy deemed optimal to address the issue of concern. For example, labour market issues were the reserve of the department of labour or human resources, transportation policies were the concern of the department of transportation, tax issues of the department of finance, immigration of the department of immigration. In this environment, policy issues could be identified in the confines of the department or through a top-down approach. Think tanks, academic institutions, professional associations and stakeholders were at best outside participants with limited influence.

However, several drivers of change have altered substantially both the nature of the policy research issues and the way research is conducted within the public sector. Correspondingly, the process of identification of the policy issues is evolving from a traditional top-down approach to a more open, inclusive approach that is more in line with the new nature of policy issues and the extended capacity of the system to conduct policy research. In response to several drivers of change, this evolution of the policy research function is slowly leading to a paradigm shift from what was largely an inward-looking, closed system to an increasingly outward-looking, open system of policy research.

From a Closed, Top-down to an Open, Bottom-up Approach

A compartmentalised system of policy research is suitable for a more traditional top-down approach to select policy research issues, in which senior actors, such as ministers, deputy ministers, parliamentarians, and senior officials are cognisant of the main policy research concerns and can dictate the policy research agenda.

This is not to say that input from other actors in the system, such as academics, think-tanks, and key stakeholders, is not taken into account and cannot influence the system; but in a world where policy spheres and instruments are organized in a silo shape,

responsibility for selecting research topics and conducting research can be organised in a vertical fashion.

Within the Government of Canada, key central actors in the identification of policy research issues have included the Prime Minister Office (PMO) and the Privy Council Office (PCO), which are responsible for the policy agenda of the government in both the short and medium terms. Traditionally, these two institutions have worked closely together to develop and implement the policy agenda of the government, which requires guiding the policy research agenda of the different departments for policy issues that are in their initial stages and are not ripe for policy development and implementation.

With the emergence of complex policy issues of a horizontal nature, such as competitiveness and social inclusion, the role of PCO has evolved and this institution, as well as its executive head, the Clerk of the Privy Council, has had to emphasize increasingly the need for interdepartmental, horizontal research initiatives. For example, the creation of the Policy Research Initiative in 1996 was the result of the realization by central authorities, mainly PCO, of the need for new mechanisms to address the increasingly cross-cutting nature of the policy research function.

Deputy Ministers are key decision makers in the selection of policy research issues and priorities and in the allocation of resources toward this function. Individually, deputy ministers, as executive heads of the departments and agencies, approved the policy research agenda of their respective departments. Collectively, through DM coordinating and policy committees, they determine largely the research priorities of the government and horizontal research mechanisms to be set up, when required, to deliver on policy research priorities.

In Canada's parliamentary democracy, the executive branch (i.e. the Prime Minister and Cabinet), the legislative branch (i.e. Parliament, parliamentary committees and the political parties) also play a determining role in identifying policy research priorities. An incoming government usually carries with it a specific policy platform that is more suitable for policy development and implementation than for policy research, but throughout a government mandate new policy issues will emerge and require an intense research phase to raise the level of knowledge and understanding, and examine potential policy options.

Traditionally, stakeholders could also influence the policy research agenda of the government through Parliament and political parties; but with the increasingly participative and consultative nature of the policy development process, stakeholders have several other avenues to influence the policy research agenda, including associations, professional lobbyists, news media and regular government consultative processes, such as the pre-budget consultation.

The more traditional, top-down, authoritative process of policy research issue identification is increasingly being challenged by the drivers of change. Globalization, the increased complexity and horizontality of policy issues, and technological innovation in the information and communication systems require that the policy research community

casts a wider net to capture new realities and identify the signals of change in the policy landscape. The process of identifying policy research issues and priorities must adapt to a quickly changing economic and social reality.

In this "world in motion", the selection of policy research issues and priorities is increasingly relying on new tools that allow the actors to go "outside the box" and gather insights from an expanded network of sources.

This new tool-kit would encompass:

1. International scanning to identify policy issues that are emerging in other jurisdictions and may become part of the domestic policy landscape;

2. Dialogue with other countries and international organisations;

3. Increasing involvement of think tanks and academic institutions, which can provide a different perspective to that of the public sector;

4. Growing role of stakeholders who, through associations, networks and lobbying efforts, can shape the perception of policy issues; and

5. Reliance on polls and surveys which, with the ICT transformation, are becoming efficient and effective means to capture public perceptions of policy issues.

This more open process of identification and selection of policy research issues and priorities is consistent with the emergence of what has been termed the "marketplace for ideas". This concept is based on the realization that the members of a society, mainly in the industrialized world, have access to a multitude of sources of information ranging from traditional vehicles such as radio, television and newspapers to new and emerging media such as the internet and increasingly versatile wireless communication devices.

Hence, the process of identifying policy research priorities does recognize the increasing complexity of the policy landscape and, as a result, relies on the new technological platforms to scan the landscape.

2. The Research Phase

The same drivers of change that are leading to the increasingly open nature of the issue identification process are also impacting on the research process, which is responding in a similar fashion by becoming more open, horizontal, inclusive, and democratic. From a traditional model where policy research was done by experts working mostly in close proximity and where information was shared freely but viewed as a source of comparative advantage, policy research is evolving toward an open, flexible, and agile model that is more in line with the concept of "knowledge value chain" than with the more traditional enclosed laboratory.

Traditionally, policy research has long been the domain of specific research units within government departments. These units were often staffed by university graduates usually trained and educated in social sciences, particularly economics, political science, and public policy. Policy researchers were usually organized along functional lines corresponding to specific policy areas, for example labour market, education, income support, or tax policy.

This sectoral, specialized approach was effective in addressing narrow, well-delineated policy issues, such as creating or reforming an employment insurance system, toying with corners of the tax system, or developing initial policies to support export-based industries.

Another dimension of the traditional model is a more-or-less reactive, responsive way of managing policy research. Under this model, the conduct of internal policy research is not being continuously challenged by outside forces and new emerging issues. As a result, the policy research function resorts to familiar patterns of research and references, reacting to policy issues as they emerge and responding to internal pressures and demand.

Increasingly, this model is being challenged by:

1) The greater complexity and cross-cutting nature of the policy issues, which requires policy researchers to adopt multi-disciplinary approaches;

2) The need for transparency in the development of policies, which translates into a greater role for outside researchers and stakeholders; and

3) The rising number of alternative sources of research, such as international organizations, think tanks, academic organizations, associations, and lobbyists.

As a result of these ongoing changes, the policy research function has had to evolve. Changes have been occurring and will continue to take place to respond to existing and emerging challenges. The new model taking shape in government tends to be more open, transparent, multi-disciplinary, inclusive and proactive.

The need to be proactive comes from the rapid pace of changes in society. To be timely and effective, policy research must anticipate policy needs. Hence, the policy research function in government must be in continual interaction with outside communities, such as universities, research centres, think tanks, international organizations, as well as media, pollsters, stakeholders, and political parties. It is only through such communication networks that the policy research community can remain abreast of new and emerging policy issues that will shape the research agenda.

Through this process of opening to other actors and integrating outside perspectives, the policy research function becomes more responsive to the potential needs of policy makers and less reactive in the sense that research can better anticipate policy needs

without the long gestation period that may take place between the onset of a societal change and the need for policy action.

Given the possibilities offered by current and expected information and communication technologies, the policy research function will continue to evolve toward a network system. Those networks will be real in some cases where interaction among researchers and policy makers will be necessary or virtual when the object is essentially the exchange of information. In this model, much alike the concept of global value chains, the components are brought together based on comparative advantages, in this case expertise and experience, and can be disassembled and reassembled according to the needs of the moment. Technology allows this to happen in the policy research world, and complexity demands it.

This emerging approach to policy research will establish the conditions for an integrative and inclusive policy research process that reflects extended sources of information, multidisciplinary perspectives, and fresh looks at policy issues.

The opening of the policy research process is taking place as a result of the pressures associated with the key drivers of change: the nature of the policy issues requires a more open process; technology allows it to happen; the new generation of researchers welcomes it.

The increased complexity, horizontality of policy issues also demands that policy researchers examine policy questions with several lenses coming from different professional perspectives. Policy research is no longer the monopoly of economists and related social scientists. To be relevant and effective, policy research must encompass multiple views and the perspectives: economics, law, sociology, psychology, anthropology, as well as hard sciences when relevant. This will only be possible if the policy research system becomes more open and if policy researchers adopt an open mind regarding the contribution of other disciplines.

Another essential dimension of the policy research process is the increasing need for evidence-based analysis. Empiricism has been the hallmark of researchers, policy researchers or otherwise, but the need for factual analysis, empirical evidence and reality-based research is growing with the complexity of the policy issues to be addressed and the emerging network-based, multi-disciplinary research apparatus. Policy makers and society in general, increasingly demand that policy initiatives be grounded on facts and evidence. At the same time, evidence-based research may provide the sole platform on which researchers of different fields can work together in an effective fashion.

Overall, the different phases of the policy research process (i.e. issue identification, data development, the research process, and knowledge dissemination) are being shaped by a series of trends and drivers that are profoundly changing the nature and the rules of the game. The net for identifying and capturing policy issues is increasingly being cast wider to allow new players, such as academics, stakeholders, pollsters, and others, to become integral part of the system. The policy research process is also becoming a network-

based, open system that will need to maximise the contribution of the technology and changing human resources to remain relevant and provide policy makers with the solutions to respond to the changing needs of society.

Appendix B: Knowledge Dissemination

In Support of Policy Research

To appreciate the linkage between knowledge dissemination and policy research, an understanding of the concept of knowledge management (KM) and where knowledge dissemination fits into the knowledge management cycle is required.

How Knowledge is Defined?

Knowledge within an organization is represented by its knowledge assets. Knowledge assets are people, information and data. These assets can be characterized as either explicit or tacit knowledge types (see text box). The data, information and people working in the policy research field are the knowledge assets that can be used to answer various policy related questions. There is also a large body of policy research knowledge outside the federal government in the form of the knowledge assets of stakeholders and partners.

It is the collective knowledge of policy research in both the government and its partners that comprises the policy research knowledge base. The critical question is how to maximize the potential of this collective knowledge to address priority issues.

Knowledge Types

Explicit Knowledge – knowledge that can be easily transmitted among individuals through books, documents, codified procedures, etc. This knowledge is held in many different media.

Tacit Knowledge – knowledge that individuals possess personally, amassed through life experience. It includes insights and skills that are highly personal and hard to formalize, making them difficult to communicate or share with others. This knowledge is typically learned from others through association and interaction.

How do we Maximize the Potential of Policy Research?

Maximizing the potential of collective policy research knowledge both within government and outside requires identifying what is known, and what is not known. This allows existing policy research to be applied to current policy issues, and enables new policy research to be initiated to address and/or identify future domestic and international policy issues for a proactive approach to the development of policy response options. Maximizing the potential of policy research knowledge involves improving knowledge management. The following is a definition adopted by Natural Resources Canada:

> *Knowledge management is an integrated, systematic approach to identify, capture, preserve, share and apply an organization's knowledge assets to maximize results.*

Our collective policy research knowledge base (people, data, information) is managed through a continuous cycle whereby knowledge is **Identified, Captured, Shared and**

Applied. Knowledge Management is enabled by having the right tools, processes, technologies and culture. These enablers provide a foundation for effective knowledge management. Knowledge dissemination fits into the knowledge management cycle in the sharing and transfer of knowledge. Knowledge management and knowledge dissemination are intrinsically linked.

The ability to disseminate policy research knowledge is directly related to the ability to create/identify and then capture and organize policy research knowledge. If knowledge is unable to be disseminated effectively as a result of poor identification, capture and organization, then it will not be possible for decision makers to ensure they are using the best available policy research for consideration in the decision making process.

It is important to understand the relationship between knowledge management and knowledge dissemination as better knowledge management should lead to better knowledge dissemination which in turn will better support policy research.

Outcome of Better Knowledge Management and Dissemination

Through better knowledge management and dissemination the government can achieve more value from its information, data and people in the policy research field. Better knowledge management will enable the government to better integrate its policy research knowledge for dissemination improving efficiency and application of policy research as the best available policy research is available to potential users. In summary the benefits of knowledge management and subsequently knowledge dissemination are:

- **Relevance**: Greater impact on key issues by becoming a source of timely and reliable policy research;
- **Knowledge Integration:** Bringing together the relevant knowledge for any given task;
- **Productivity:** Working from a more complete knowledge base, adding value, innovating**;**
- **Performance:** Improving the quality of our work;
- **Efficiency:** Faster access, reduced duplication and supporting greener operations.

The State of Knowledge Dissemination

Traditionally, **tacit knowledge** (the knowledge of people) has been disseminated through various working relationships. This includes the transfer of ideas, insights and expertise among colleagues, through the development of working groups, or through professional associations. This has often been enabled through travel for face to face meetings or through traditional technologies such as teleconferencing and exchange of e-mails with peers. Furthermore, knowledge transfer has been very hierarchical in that the dissemination of knowledge has had to follow a chain of command.

Explicit knowledge (data and information) has traditionally been disseminated through paper fora and electronically through shared drives, individual computer hard drives, compact disk, through websites and by transferring files through e-mail.

The traditional forms of knowledge dissemination are limited in their ability to maximize the benefits associated with knowledge management and dissemination. It is difficult to effectively disseminate knowledge when our knowledge base is not integrated. This happens because knowledge is lost in the complexity of shared drives, stuck on the drive of an individual's computer or stuck in the process required to get information onto a website. This is further complicated by the mass e-mailing of files. This form of dissemination makes it difficult to integrate information with the variety of other information being received via e-mail. At the end of the day, it is hard to organize information to ensure that you have the best available information for the issue at hand. As an organization we aren't as efficient because we don't have fast access to our knowledge base and finally we are less relevant as we cannot ensure timely and reliable policy research to address key issues.

Drivers for Knowledge Dissemination Improvement

There are a variety of drivers for improving the way in which knowledge is managed and disseminated. The following are two key drivers.

- **Innovation** – The knowledge economy has a direct impact on innovation. The ability to have quick access to the best available knowledge directly impacts the innovative capacity of an organization ensuring that we are applying the best available knowledge to tackle issues and allow the community to add value to this knowledge to push further along the innovation curve. Organizations having access to a well integrated knowledge base have a competitive advantage through innovation.

- **Globalization** – the internationalization of research is trending upwards resulting in the increase in international co-authorship and the growing need of researchers to have access to more international literature. Globalization might lead to creation of specialized regional knowledge nodes linking into the global knowledge network.

Enablers of Knowledge Dissemination

There are several enablers of knowledge dissemination impacting the nature of dissemination and improve dissemination. They include:

- **Technology** – a combination of worldwide electronic networks and the digitization of information offer easy access and navigation to rich, multimedia formats allowing the integration of text, sound, graphics, video as well as increasing interactivity. Global communication and worldwide access to publications and data. This technological progress enhances ability to report, review and disseminate research results regardless of geographic location. However, new tools will be needed to manage and filtrate research will be needed in order to cope with an overload of knowledge.

- **Clear understanding of user needs and flexibility to adapt to those needs** – models of knowledge dissemination should be based on the unique context and reflect the diverse needs of different disciplines. In order to meet a variety of user information needs and requirements, a multitude of communication channels have evolved to communicate different types of information. Some channels include interpersonal or oral means of communicating.

- **Economics, copyright and intellectual property legislation** – changing economic conditions affect various components of the communication process. The acquisition of research can be constrained by budgets and continuously increasing prices. Developing countries with very limited budgets might have decreased access to knowledge.

Considerations

- **Commercialization of research** – diverse policy mechanisms promote greater collaboration and exchange among universities, businesses and governments. Universities seek to translate research into commercial enterprises as a means of revenue generation. The transfer of ideas and technology through commercialization may undermine the traditional mission of academic research, expanding the pool of knowledge. These restrictions may have significant long-term effects on the knowledge dissemination.

- **Changing demographics** – many of today's professors will be soon retiring. New faculty could spawn an increase in publishing and greater productivity of research as well as a greater comfort level of younger professorate with new technologies for research and communication.

Challenges to Knowledge Management and Dissemination

In a knowledge economy, knowledge dissemination is as important as its generation. It determines society's ability to make use of knowledge to remain competitive on the international scene. For research to have an impact, its output must be shared whether through its publication, the development of new products, or the creation of policies. While technological advancements in general support knowledge dissemination, some policies or lack of them may restrain it.

- **Lack of mechanisms or tools to facilitate collaboration in the creation and dissemination of knowledge** – there might be a proliferation of different tools and technologies but located in isolated pockets across an organization (e.g., several softwares that differ from sector to sector).

- **Copyright and intellectual property legislation** – stiff regulation may inhibit sharing of knowledge but lack of legislation may discourage the creation of knowledge.

- **Absence of integrated knowledge** – knowledge that is scattered is also difficult to access and share.

- **Human resources** – loss of "corporate" memory occurs when people retire; sharing of tacit knowledge becomes very important.

- **Organizational culture** – could be both, a threat or an opportunity. It is a risk when need for knowledge management is not articulated or understood, and in many instances is perceived as a 'waste of time'. Implementation is then viewed as a cost not as an investment. Unwillingness to share knowledge for fear of giving up some 'power' and resistance to change, including cynicism and sabotage through indifference are major obstacles. On the other hand, when there is the executive leadership and commitment to knowledge management, free knowledge flows allow the organization to realize its full potential.

- **Organizational structure** – in functional silos information flows only within a division/sector and does not cross other parts of the organization. It's compounded by lack of proper technology and incentives for sharing, competitive internal pressures that do not facilitate collaboration and the lack of executive leadership and commitment to knowledge management.

The Evolution of Knowledge Management and Dissemination

Dissemination Model Change (from push to pull) – Knowledge management and dissemination is quickly changing from a push to a pull dissemination model. More specifically, in the past dissemination has been pushed out from an organization to other organizations and individuals. Knowledge dissemination has often been to targeted audiences and colleagues based on working relationships and known users. As a result of current technology, knowledge workers are often collaborating with and helping to develop the knowledge with a knowledge providing organization or are able to quickly find and access knowledge from a variety of knowledge sources.

Integrating an Organization's Knowledge Base – Technology is permitting organizations to more readily integrate their knowledge into a central integrated knowledge base for easy access internally and externally by outside stakeholders and partners. As such, potential users are able to find and more easily access central knowledge gateways (one stop shop). The ease of access and the search capabilities of federated search engine technologies have enabled users to find and go to the knowledge they are seeking in a proactive manner on an as needed basis instead of waiting for things to be disseminated to them.

Flattening of an Organization – Traditionally, organizations are very hierarchical, siloed or both. As a result, knowledge was often hidden under a hierarchy or in various silos of the organizational structure making access to knowledge difficult within an organization and often impossible outside of an organization by stakeholders and partners. We are moving to flatter organizations where knowledge is shared and flows throughout the hierarchy and between organizational structures.

Collaborative technologies and spaces – More and more organizations are realizing the importance of collaborative space (physical spaces) in the dissemination and transfer of knowledge. Physical spaces are particularly important for the transfer of tacit knowledge. Knowledge is also being developed and disseminated in real time as a result of new collaborative technologies (virtual collaboration). Web conferencing and collaborative content management software are resulting in knowledge being developed and transferred and applied in real time within an organization and often with partners and stakeholders. Furthermore, the sharing of tacit and explicit knowledge is possible when combining virtual collaboration technologies with physical spaces. Wired open spaces promote knowledge dissemination and remove the physical barrier of geographical separation.

Collaborative tools and Social Networking – Knowledge is more often being disseminated through informal social networks. Software such as "Facebook" and tools such as "Communities of Practice" are enabling these informal networks to

form allowing people to transfer their knowledge, skills and expertise to others. This enables an organization to more fully leverage its knowledge assets as knowledge workers are enabled to transfer knowledge they have in a subject area they are currently not responsible for but for which they have experience, expertise or even an interest.

Demographics and Knowledge Retention – The capture and dissemination of tacit and explicit knowledge of retiring workers is now an issue in the workplace. A lot of knowledge is currently being lost in the form of retiring workers. This knowledge is lost if it is not capture and disseminated to the new generation of workers. Various policies, procedures and technologies are being implemented to capture and disseminate knowledge from this cohort. If we start to implement the right knowledge management tools the dissemination of knowledge from retiring workers will be seamless in the future as knowledge is retained in real time negating the need to do brain dumps at the end of a person's career.

A New Generation of Workers – Organizations are adapting to a new generation of workers who are tech savvy accustomed to having and using collaborative tools and technologies. They are also accustomed to working in a flat organization where hierarchy and organizational structures are not impediments to knowledge sharing in the workplace. The generation of knowledge workers entering the workforce will be in high demand as a result of an aging population. HR renewal in the public sector may therefore be impacted if the public sector is not able to compete with the private sector in creating this type of workplace.

The Future Policy Researcher

A policy researcher is one of many knowledge workers in the public sector. The skill set of policy researchers will need to change relative to the changing characteristics of knowledge dissemination. Overall, knowledge workers of the future will need to be comfortable with new and emerging collaborative tools and technologies, be comfortable working in a flat organization where sharing of knowledge is the norm and creating and disseminating knowledge in a collaborative environment. Finally, policy researchers will need to find ways to acquire and retain the substantive knowledge that is quickly leaving as our population ages. In time this should subside as we get the right knowledge management tools in place to capture knowledge throughout a person's career.

Policy Research Scenarios

The emerging knowledge dissemination trends identified in this paper will have an impact on the federal policy research function. Given the aging workforce in Canada and the growing knowledge economy there will be greater pressure on a potentially smaller federal policy research capacity. However, much of this

reduced capacity in terms of human resources will be offset by better knowledge management and collaborative tools and technologies that enable greater capacity to develop share and apply knowledge. Subsequently, the market-based -client focused scenario is the most realistic scenario for the future functioning of federal policy research. The entrepreneurial and competitive scenario does not factor in the improvement to knowledge management as a result of emerging collaborative tools and technologies whereas the public sector core scenario does not take into consideration the aging workforce.

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Notes

[1] This is an abridge version of the larger paper *Future of the Federal Policy Research Function.*

[2] In 2002, according to Lyman and Varian (2003), the *World Wide Web* contained about 170 terabytes of information on its surface; in volume this is seventeen times the size of the Library of Congress print collections. The authors estimated that that new stored information grew about 30% a year between 1999 and 2002 and coined the phrase the information explosion?

[3] Two facilitated scenario sessions were conducted for this project. The first involved senior staff of the PRI and was intended to test the scenario exercise. The second scenario session benefited from the active participation of DGs from the federal policy research community and those results are reflected in this report.

[4] Two key uncertainties result in four scenarios. These scenarios are meant to illustrate the extremes of the uncertainties. However within the scenario schematic space there is a spectrum of scenarios which could be examined.