



HOW STATISTICS CANADA ENCOURAGES INNOVATION

An Innovation, Risk & Control Case Study
May 2010



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HOW STATISTICS CANADA ENCOURAGES INNOVATION

OVERVIEW

“MANAGEMENT SHOULD TEST AND APPLY CREATIVE IDEAS TO SOLVE PROBLEMS AND IMPROVE PERFORMANCE.”

This is the first principle emerging from CCAF’s major research program on *Innovation, Risk and Control*. Managers who follow this principle will encourage a trust-based culture where staff can test creative ways to improve performance.

So what does this look like in practice? What does an organization need to do to foster innovation?

Statistics Canada is highly regarded as an innovative public sector organization. This case study describes Statistics Canada’s culture and management structure. It then looks at how the agency encouraged innovation in the execution of a major project – the 2006 Census.

STRUCTURED FOR INNOVATION

Statistics Canada is Canada’s national statistical agency. It conducts a national Census every five years, as well as about 350 surveys on various aspects of Canadian life. As far back as 1991 it was being described – by *The Economist* no less – as the best statistical agency in the world.¹

Munir Sheikh is the Chief Statistician of Canada. In a 2009 speech to the Toronto Association of Business Economists, Mr. Sheikh described the challenge facing Statistics Canada:

“In a dynamic and evolving world, the quality of the information we produce would tend to erode automatically through time if we did nothing to address the matter. Survey frames would tend to become incomplete and inaccurate, samples would become less representative, survey response rates would deteriorate, data editing and processing systems would likely become outmoded and more error-prone, and the many computer systems on which our statistical production processes depend would certainly become obsolete. Unless we keep investing in our system, addressing its natural tendency to wear down through time, statistical quality will inevitably suffer. Add to it the impact of changing technology, with respondents replacing land lines with cell phones and other products and you can perceive the challenges we face through automatic declines in response rates.”

CONTINUOUS INNOVATION IS ESSENTIAL

To maintain the quality of its data, Statistics Canada clearly needs to be innovative – not just occasionally, but continuously.

As our report on *Innovation, Risk and Control* pointed out, innovation rarely happens by chance. “At Statistics Canada,” Mr. Sheikh told CCAF, “innovation is not a tag-on to something. It is the business model of the organization. Our management structure is fundamental to our ability to innovate.”

¹ “The good statistics guide: official numbers,” *The Economist (US)*, (September 7, 1991).



Under this structure, significant corporate issues are reviewed at the highest appropriate level, collectively, with final decisions rendered by the Chief Statistician.

This business model puts a strong emphasis on good management practices, communication, collaboration and risk-based approaches.

The Policy Committee

The focus of the system is the weekly Policy Committee, which is chaired by the Chief Statistician. Members include six Assistant Chief Statisticians, the Corporate Secretary, and others as required.

The Policy Committee provides strategic direction and makes all decisions related to the corporate-level management of the agency, including financial planning, resource allocation, human resources management, communications and dissemination, program evaluation, and information management/ information technology.

The Committee approves Records of Decision, which are then made accessible to all employees. The Chief Statistician holds the appropriate Assistant Chief Statisticians accountable for the implementation of decisions.

Assistant Chief Statisticians report back to Policy Committee at least monthly on progress and results in implementing Committee decisions. Major projects also receive detailed examination through a review cycle that involves an October Strategic Planning Conference and a February decision-making session.

Corporate-level committees

TO IMPLEMENT POLICY COMMITTEE DECISIONS, STATISTICS CANADA HAS A SYSTEM OF CROSS-DIVISION CORPORATE-LEVEL COMMITTEES RELATED TO EVERY ISSUE OF IMPORTANCE TO THE ORGANIZATION.

The committees are organized primarily along functional lines: Human Resources, Information Management and Information Technology, Corporate Planning, etc. Committee roles and responsibilities are published and committee activity is included in the organization's corporate business plan.

The committees are co-chaired by Assistant Chief Statisticians and/or Directors General. Participants include Directors General, Directors and Assistant Directors with broad representation from across the agency.

The corporate-level committees are in regular contact with the Policy Committee. They not only implement Policy Committee decisions, but also develop options for strategic policy setting, and consult and recommend action for Policy Committee approval. Records of decision for all committees are posted on the internal communications network.

Performance management and innovation

Every executive's active participation and engagement in the agency's management system is monitored and evaluated through his or her individual Performance Management Agreement (PMA).

Moreover, performance pay is based on an executive's success in delivering on two or three "key commitments", as set out in the PMA. Although these key commitments do not reference innovation explicitly, they all relate to change management.

For example, they may require an executive to develop and implement a strategy, or redesign a program. They all require innovation. In this way, performance management and innovation are closely linked.



Three benefits

Bringing managers together from across the organization to identify and address issues collectively is, in CCAF's view, a key to Statistics Canada's success.

Statistics Canada describes the benefits of this approach in these terms:

- ◆ "Firstly, the decision-making infrastructure ensures that decisions are based on what is best for the organization and precludes decisions based purely on a local need.
- ◆ "Secondly, it allows the Department to constantly consider ways to improve efficiency and *evaluate innovative approaches* [italics added]...
- ◆ "Thirdly, the existing infrastructure is capable of integrating any emerging issues or initiatives without the creation of additional infrastructure."²

One small example – the Human Resources Committee, one of Statistics Canada's corporate-level committees, recently agreed on ways to improve the use of pre-qualified pools of candidates for employment at the agency.

INFLUENCING INNOVATION

CCAF's *Innovation, Risk and Control* report cites four conditions that can influence innovation:

- ◆ **Support:** communication, alleviating time pressures, accepting risk and providing resources
- ◆ **Motivation:** empowering, engaging end-users, building diverse teams and rewarding
- ◆ **Skill development:** in risk and project management
- ◆ **Trust.**

Statistics Canada's management structure should, in theory, provide an environment in which these conditions can be met.

Any project of significance is likely to have to receive Policy Committee approval. Such approval is a tacit sign of support from the top and of the acceptance of the risks involved.

The Record of Decision is an opportunity to provide clear communication to all involved employees and to assign whatever resources are required for the project. Because all the major players are involved in the decision-making process, time and resource issues can be addressed as part of the process.

The management structure empowers the corporate-level committees to identify opportunities for innovation, to consult those who have a stake in the matter at hand, and to pull together project teams from across Statistics Canada.

This highly-structured system teaches employees how to manage projects and project risks as they plan and implement approaches to major issues.

THE INNOVATION BARGAIN – BUILDING TRUST

Trust is a critical factor in any organization that wants to encourage innovation. CCAF's *Innovation, Risk and Control* report says trust occurs most naturally in the public sector when:

- ◆ Senior managers buy into the need for innovation – they are aware of the project, accept its risks, and are able to offer sensible relief from administrative constraint
- ◆ Project managers demonstrate control, sound values and competence, and
- ◆ All those involved practice an enlightened form of accountability based on the understanding that some innovative projects will not pan out.

² Statistics Canada, *Statistics Canada Governance and Management Structure 2009*, p. 1.



Statistics Canada's management structure provides a framework within which this "innovation bargain" can be established and met. Over time, employees can attain confidence in the system – they learn what is expected of them, and what they can expect from management. Innovation becomes something that is normal and essential.

CENSUS 2006

Statistics Canada's management structure may theoretically look as if it would be conducive to innovation. But does it work in practice?

AS CCAF GUIDANCE INDICATES, INNOVATION OCCURS WHEN PEOPLE APPLY CREATIVE IDEAS TO SOLVE PROBLEMS OR IMPROVE POLICIES, PROGRAMS, PRODUCTS OR PROCESSES. IN PUBLIC SECTOR ENTITIES, INNOVATION MOST OFTEN OCCURS THROUGH THE WORK OF TEAMS, OPERATING IN THE CONTEXT OF A MANAGED PROJECT.

Census 2006 provides a concrete example of the Statistics Canada structure in action. Like every census, it was a massive project, carried out by a team of hundreds over a period of seven to eight years at a cost of hundreds of millions of dollars (Census 2011, now in the planning stages, will cost approximately \$630 million).

Failure is not an option

Census 2006, like every census, was a highly important and visible project. Census results affect many areas of life in Canada – the distribution of seats in the House of Commons, the level of transfer payments from the federal government to provinces and territories, private sector market research, labour negotiations, social and economic policy analysis, news stories, etc.

In planning for Census 2006, Statistics Canada faced a number of significant risks, pressures and opportunities. For example:

- ◆ Because of the booming economy, the agency knew it would be difficult to recruit people (50,000+ in past censuses) to knock on doors.
- ◆ Another government agency that in the past had provided its employees and facilities to capture census data through manual keying was expected to lack the capacity to process census returns in 2006.
- ◆ New technologies were available to process returns, but they needed to be identified and assessed.
- ◆ Many Canadians were interested in filing their Census returns online. Furthermore, the Government On-Line initiative said federal government transactions should be available online.
- ◆ Concerns regarding the privacy of Census information were growing.
- ◆ There was pressure to deliver Census results quickly.

To address these challenges, the agency undertook what it described, in its 2005-2006 Departmental Performance Report, as "the most fundamental re-engineering of census methodology in the last 30 years."³ Accomplishments included:

- ◆ The mail-out of questionnaires
- ◆ The return of questionnaires to a centralized data processing site
- ◆ The completion of questionnaires over the Internet by 2.26 million households
- ◆ Automated data capture
- ◆ Automated editing
- ◆ Computer-assisted telephone interviewing for follow-up.

³ Statistics Canada, *Statistics Canada 2005-2006 Performance Report*, Section 1 – Overview.



Census management structure

Statistics Canada's 2006 Census was managed within the agency's overall management structure.

Reporting to the Policy Committee described above was the Census Steering Committee, chaired by two Assistant Chief Statisticians and composed of directors general and other senior officials. Its role was to determine policies, provide the Census Manager with direction and share information between the census program and participating functional areas.

The Census Manager chaired the Census Project Team (CPT), composed of 14 project managers from a range of functions across the agency. The CPT provided direction and control for the numerous projects that made up the Census. Each project had a specific mandate and one or more deliverables.

Early in the project, the Census Manager sought input from Statistics Canada's internal auditors. The auditors' suggestions influenced the project in several areas.

Structure isn't everything

"Our system is good, but it's not the whole story," Anil Arora told CCAF. Mr. Arora was the Manager of the 2006 Census and was subsequently the Assistant Chief Statistician responsible for Social, Health and Labour Statistics.⁴

"OUR STRUCTURE POINTS OUT WHERE PRESSURE FOR CHANGE REQUIRES A TEAM TO ADDRESS AN ISSUE. IT PROVIDES A FRAMEWORK FOR RISK MANAGEMENT, ISSUES MANAGEMENT, AND PRIORITY SETTING."

"But equally important is our people. We have the people who can make the connections, build networks, engage senior management, and get things done."

Mr. Arora highlights Statistics Canada's use of a matrix organization structure for the census. With this approach, in use since 1976, Statistics Canada divisions assign personnel with the necessary expertise to carry out census projects. The experts, on such topics as demography, data collection, electronic data processing and others, are loaned to project teams but continue to report to their functional managers.

This allowed the Census Manager to tap into the wide range of skills available within the agency at the right time – as CCAF's report on *Innovation, Risk and Control* notes, innovation projects require different sets of skills and thought patterns at different times.

"It also prevented us from making decisions without thinking through the implications from all angles," Mr. Arora told CCAF. "People could raise issues with their own bosses if they had concerns."

INCENTIVES FOR INNOVATION

CCAF's report on *Innovation, Risk and Control* notes that public sector managers face numerous barriers to innovation:

- ◆ Delivery pressures and administrative burdens
- ◆ Lack of resources
- ◆ Low tolerance for risk
- ◆ Restrictive rules
- ◆ Poor project management skills
- ◆ Insufficient rewards and encouragement.

⁴ In March 2010, Mr. Arora was appointed an Assistant Deputy Minister at Natural Resources Canada.



However, the report says organizations can counteract these barriers with the right incentives. Each of the 10 incentives identified in the CCAF report was a factor in Census 2006.

1 Support from the top

“The Census is Statistics Canada’s number one priority,” Mr. Arora said simply.

2 Empower middle managers

Statistics Canada produced a 2006 Census Management Guide for employees. The Guide made it clear that middle managers were empowered to act:

“Project managers must identify their respective major milestones, plan their budgets and negotiate with divisions for personnel and services. Project managers are also required to monitor progress, costs and quality, make necessary adjustments during the course of the Census Program, evaluate results against expectations and, when required, suggest corrective action.”

According to Anil Arora, “We pushed decision making to the lowest level possible.”

3 Trust

“The Chief Statistician effectively said ‘I trust you to deliver,’” Mr. Arora said.

Because of the management structure’s clear and systematic decision-making processes, employees were able to “make the call” – from senior management to middle managers to front line staff.

“Trust was demonstrated at all levels,” Mr. Arora added. “Senior people were there to share risks where necessary – for example concerning policy, resources, media relations or political sensitivities. If unmitigated risks were evident, people were to consult the next level. Otherwise, they were expected to act.”

4 Stakeholder involvement

Because census results are used by so many people and groups, Statistics Canada carried out comprehensive consultations with stakeholders.

“WE COMMUNICATED FREQUENTLY, AND STRESSED TRANSPARENCY. WE WERE OPEN ABOUT RISKS. WE TOLD PEOPLE WHEN WE WERE TAKING A RISK. WE SHARED TEST RESULTS.”

“When concerns were raised – about the security of private information, for example – we responded by appointing a high level audit team chaired by Denis Desautels,” a former Auditor General of Canada.

5 Resources

When the 2006 Census Project Team identified a need for additional resources, it was able to put forward a business case and obtain the resources. The business case promised returns later for the resources provided. “We delivered,” Anil Arora told CCAF.

6 Monitoring and learning

Because of Statistics Canada’s management structure, the Census project was monitored constantly. The use of project management software allowed project managers to plan and monitor their activities.



Not all activities related to the Census went smoothly. Monitoring indicated that one major innovation – the outsourcing of some hardware, software and printing services – was raising concerns about the privacy and confidentiality of Census responses. As noted above, Statistics Canada responded by appointing a task force headed by the former Auditor General of Canada, Denis Desautels.

A Review and Evaluation Team, composed of representatives from each project, discussed issues related to evaluation, planned evaluation activities, and reviewed evaluation results. A Research, Evaluation and Quality Management Project coordinated overall research activities, including coordinating the implementation of major evaluation activities.

The ability to learn from past experience is built into the census process. Prior to each census, managers meet at a strategic planning conference. Using the evaluation of the previous census, they question census fundamentals, assess roles, values, methods, technologies and products, and make changes as part of an overall set of strategic objectives.

Statistics Canada also learns from the statistical agencies of other countries through an international Census Forum that was established in 2002.

“WE ALSO LEARNED FROM THE APPROACH THAT WAS USED TO BUILD CONFEDERATION BRIDGE. THE PLANNERS STARTED BY IMAGINING THE FIRST CAR TO CROSS THE BRIDGE, THEN WORKED BACKWARD FROM THERE. THEY ASKED THEMSELVES WHAT NEEDED TO BE DONE, WITH WHAT RESOURCES, IN WHAT ORDER. WE ADOPTED THE SAME APPROACH FOR PLANNING THE CENSUS.”

7 Diversity

Statistics Canada did not just hope that its Census team would be diverse – it selected people who would serve as critics and devil’s advocates. “We were suspicious if there was too much agreement around the table,” Mr. Arora said. “We wanted a diversity of views.”

8 Ownership

Census project managers had clear accountabilities, culminating in the overall responsibility of the Census Manager for achieving results. Innovation, however, was everyone’s responsibility.

“The Census was not a stovepipe operation,” Anil Arora told CCAF. “Everyone involved felt ownership in everything. As a result, everyone looked for risks and they looked for interdependencies.” The matrix management system tended to reinforce this sense of organization-wide ownership.

9 Experimentation

Experimentation played a significant role in the introduction of innovations into the 2006 Census. For example, during the 2001 Census, about 190,000 households in the Crowfoot area near Edmonton and the London census metropolitan area were offered the option of completing the census questionnaire using the Internet. As a result of the success of this test, approximately 13.5 million households were offered the Internet option in 2006.

Census content and questionnaire design were tested using a variety of methods including qualitative testing, such as focus groups and in-depth interviews with respondents, and large sample quantitative testing, such as the Test of Questionnaire Formats conducted in April 2002.

In May 2004, Statistics Canada conducted a detailed Census Test to test all new processes and systems as well as the changes made to the census questions.



10 Rewards and recognition

The individuals responsible for the success of Census 2006 were well recognized for their efforts.

“EVERYONE BENEFITTED. TO ACHIEVE THEIR OBJECTIVES, OUR EMPLOYEES HAD TO STRETCH THEMSELVES. THEY HAD TO LEARN NEW SKILLS, DEVELOP THEIR NETWORKING ABILITIES AND ATTEMPT NEW ASSIGNMENTS.”
THE FREEDOM TO INNOVATE HELPED BOTH INDIVIDUALS AND THE ORGANIZATION.

The program won numerous internal and external awards.

On behalf of the 2006 Census Project Team, Mr. Arora received the 2009 APEX Leadership Award, presented by the Association of Professional Executives of the Public Service of Canada. The award citation reads in part:

Anil Arora has displayed extraordinary leadership in guiding a large interdisciplinary team involving a dozen senior managers and hundreds of employees through changes at Statistics Canada. As the leader of the 2006 Census, and the person responsible for the 2011 Census, Anil led an innovative, major redesign of the Census program, while at the same time fostering loyalty, professional development, good project management and risk management skills among all of his managers and employees.

LESSONS FROM CENSUS 2006

Statistics Canada’s management of the 2006 Census provides public sector organizations with three clear lessons for encouraging innovation:

- ◆ Innovation is more likely to occur if it is encouraged by senior leaders and integrated into organizational frameworks, processes and culture.
- ◆ As CCAF guidance indicates, sound innovative project management requires prior knowledge, risk assessment, risk acceptance, monitoring, sufficient authority and mature expectations – all evident in Census 2006.
- ◆ Creating and maintaining an innovative culture depends on creating incentives at an organizational level, and then using those incentives to encourage innovative behaviours in the management of important projects.



