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# Statistics Canada's Quality Assurance Framework

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## Standard table symbols

The following symbols are used in Statistics Canada publications:

- . not available for any reference period
- .. not available for a specific reference period
- ... not applicable
- 0 true zero or a value rounded to zero
- 0<sup>s</sup> value rounded to 0 (zero) where there is a meaningful distinction between true zero and the value that was rounded
- <sup>P</sup> preliminary
- <sup>r</sup> revised
- X suppressed to meet the confidentiality requirements of the *Statistics Act*
- <sup>E</sup> use with caution
- F too unreliable to be published
- \* significantly different from reference category ( $p < 0.05$ )

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**Document revision control**

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1.0	21-04-2017	Quality Secretariat (QS)	Approved version
2.0	11-07-2017	QS	<ul style="list-style-type: none"> <li>• “Directive on Obtaining Access to Records Maintained by Other Organizations” was updated to “Directive on Obtaining Data under the <i>Statistics Act</i>”</li> <li>• “Guidelines for the Use of Publicly Available Data” was updated to “Guidelines on data available to the public”. Corresponding updates to text were made to reflect this change of terminology.</li> <li>• “Directive on Record Linkage” was updated to “Directive on Microdata Linkage”</li> <li>• “Generic Record Linkage Process Model” was updated to “Record Linkage Project Process Model”</li> </ul>

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# Statistics Canada Quality Assurance Framework

## Preface

The role of Statistics Canada is to provide credible and relevant statistical information to the public, to inform decision-making and to help Canadians better understand their country. The trust of the Canadian people is earned and maintained through transparent and responsible management of statistical information and of the statistical system that produces it.

The Quality Assurance Framework (QAF) serves as the highest-level governance tool for quality management at Statistics Canada. The QAF describes, in general terms, the measures the Agency<sup>1</sup> has put in place to manage quality and provides guidance to statistical program areas as they develop and implement quality management strategies to meet their users' needs. The QAF is used in conjunction with Statistics Canada management practices, such as those described in the Agency's Quality Guidelines.

Simply stated, the QAF sets out the principles that guide the work of Statistics Canada. It may also serve as a useful reference for those interested in the production of official statistics. I encourage its use and support its regular revitalization.

I offer my thanks and congratulations to the numerous Statistics Canada experts who have contributed to the production of the 3<sup>rd</sup> edition of the Quality Assurance Framework, as well as to the Quality Secretariat who led and coordinated this effort under the guidance of the Methods and Standards Committee.



**Anil Arora**

Chief Statistician

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1. The term "The Agency" refers to Statistics Canada.

## Introduction

Statistics Canada’s mission statement “Serving Canada with high-quality statistical information that matters” expresses the Agency’s<sup>2</sup> mandate to provide all sectors of Canadian society with access to a trusted source that serves their information needs. Statistics Canada defines the quality of its official statistics in terms of their fitness for use. Maintaining confidence in the Agency through the management and assurance of quality is essential to the success of Statistics Canada.

The Quality Assurance Framework (QAF) describes the strategies Statistics Canada has put in place to facilitate and ensure effective management of quality in all its statistical programs and organizational initiatives. Underlying these strategies are eight guiding principles.

## Guiding Principles

### Quality is multi-dimensional

Statistics Canada has identified six dimensions of statistical information to define its quality and evaluate its fitness for use.

**Relevance** reflects the degree to which statistical information meets user needs.

**Accuracy** reflects the degree to which statistical information correctly describes the phenomena it was designed to measure.

**Timeliness** refers to the delay between the end of the reference period to which statistical information pertains and the date on which the information becomes available.

**Accessibility** refers to the ease with which statistical information can be obtained.

**Coherence** reflects the degree to which statistical information is logically consistent and can be brought together with information from other sources or different time periods.

**Interpretability** reflects the availability of supplementary information (metadata) necessary to understand, analyze and utilize statistical information appropriately.

The six dimensions are overlapping and interrelated and achieving an appropriate level of quality in all dimensions is required, as failure in any one of them will compromise the fitness for use of an information product. Statistics Canada strives continuously to find innovative methods and data sources that can lead to achieving higher levels of quality in one or more dimensions without adversely impacting others.

### Quality is relative, not absolute

Management of quality must be in conjunction with other important factors including the data needs of users and stakeholders, costs and response burden. As when managing the dimensions of quality, Statistics Canada counts on innovations, in areas such as data integration, to fulfill user needs with high quality data at lower cost and lessened response burden. It also recognizes that effective management of quality does not demand maximization of quality over all other factors. Rather, it is the result of striking an appropriate balance between the resources available to the Agency and the information needs of its data users and stakeholders. Efforts to improve the quality of official statistics take into account factors such as existing budgets, availability of specialized resources and response burden.

### Every employee has a role to play in assuring quality

Statistics Canada’s management of quality reflects the principle, as stated by renowned American statistician W.E. Deming, that “Quality comes not from inspection, but from improvement of the production process.”<sup>3</sup> That is, it is not possible to achieve quality by merely “inspecting” a final product. Rather, quality must be built into processes from the outset. Success in assuring quality at Statistics Canada requires the sound application of knowledge

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2. The term “The Agency” refers to Statistics Canada.

3. W. Edwards Deming (1982) *Out Of The Crisis*. The MIT Press. (2<sup>nd</sup> ed. 1986), p 29.

and expertise by employees at all levels within the Agency – in short, quality is “everyone’s business” at Statistics Canada. An essential component of this strategy is recruitment and professional development programs that lead to a motivated and competent workforce.

### **Quality must be built in at each phase of the process**

As operations at all stages can impact the quality of outputs, effective quality assurance requires measures at multiple phases of the statistical process and consideration of the impact of each phase on the process as a whole. Modelling the statistical process by dividing it into phases has proven to be an effective management tool. One such reference framework is the Generic Statistical Business Process Model, in which the principal phases are “specify needs”, “design”, “build”, “collect”, “process”, “analyze”, “disseminate” and “evaluate”. A quality management structure can be conceptualized by considering each cell of the matrix defined by these phases and the six dimensions of quality. It is important to note that effective management of quality does not necessitate similar measures at all phases.

### **Balancing the dimensions of quality is best achieved through a team approach**

The use of multidisciplinary teams ensures that the dimensions of quality and other important factors including cost and user needs are effectively managed. Subject-matter experts bring knowledge of content, stakeholder needs and relevance while mathematical statisticians (methodologists) contribute a sound foundation in statistical methods and expertise regarding accuracy. Operations personnel have experience in collection and processing methods, are well-placed to consider practicality and efficiency, and represent field staff and respondents. Systems personnel ensure the informatics point of view is considered in design and implementation, and bring specialist knowledge of technology standards and tools. Teams are supported by a committee of senior managers who provide a forum for resolving issues and, when necessary, give guidance related to data quality trade-offs, especially with respect to timeliness and cost.

### **Quality assurance measures must be adapted to the specific program**

At Statistics Canada, responsibility and accountability for quality assurance lie with the Agency’s statistical programs. The Agency develops and maintains quality management strategies and tools that program areas can adapt to their individual needs. Within individual programs the challenge is to achieve an appropriate level of quality by effectively balancing program objectives, evolving user and stakeholder needs, costs, response burden, and the various dimensions of quality.

### **Users must be informed of data quality so that they can judge whether the statistical information is appropriate for their particular use**

Some dimensions of quality, such as timeliness, can be observed directly by users. However for most other dimensions, users require objective information about data quality to evaluate fitness for use. Often, the Agency is the sole source of such information. Both quantitative measures, such as coefficients of variation and response rates, and qualitative information, such as a description of sources of error, are necessary.

### **Quality assurance is a continuous practice**

There is constant evolution of the social and economic conditions in Canada, as well as in the user and stakeholder environments. Consequently, quality is not self-sustaining and will deteriorate in the absence of regular review and refreshment. In particular a “relevance gap” may open if official statistics do not keep pace with the changing needs of the Agency’s users and stakeholders. It is further incumbent on Statistics Canada to ensure its methods remain at the forefront of those used by national statistical offices. This is achieved through a culture that promotes a continuous search for new and innovative sources and methods.

## Background to the QAF

The Statistics Canada QAF was first produced in 1997 and was updated in 2002. This 3<sup>rd</sup> edition was inspired by the generic National Quality Assurance Framework template developed by a United Nations Statistics Division Expert Group. In particular, this version expands the scope of the Statistics Canada QAF by discussing quality management in the Agency's corporate environment and statistical programs.

In the QAF, several references are made to the organizational structure and operating procedures of Statistics Canada. An overview of the functional (reporting) structure of the Agency is given below.

- **Statistics Canada** is headed by the **Chief Statistician**, an appointment at the deputy minister level within the Government of Canada.
- The Chief Statistician is supported by an Executive Management Board, which consists of **assistant chief statisticians** who each represent one **field** of the Agency. A field covers a broad grouping of commitments, such as those related to economic statistics or to corporate services.
- Fields are sub-divided into **branches**, and each branch is made up of **divisions**. Each division is led by a **director**.

## Organization of the QAF

The QAF consists of twelve stand-alone chapters, each defined by a quality management theme. All chapters share a common three-part approach. The first, Description, introduces concepts to be discussed in the chapter, defines relevant terms and provides context and background information. Issues and factors that impact the Agency's capacity to achieve goals related to the concepts in the chapter are discussed, including relationships to concepts described in other chapters. Assessment lists objectives essential to successful operationalization of the concepts in the chapter. Objectives are expressed in generic and qualitative terms, and represent ideals to which the Agency strives. Implementation demonstrates achievement of these objectives through references to specific Statistics Canada activities that contribute to quality, grouped by the objectives in Assessment.



## The Corporate Environment

### A. Quality commitment

#### Description

Trust in the integrity of a national statistical office (NSO) is essential. A crucial element of this trust is belief that the NSO's choices are based on sound criteria and are motivated by statistical considerations, and that the NSO is insulated from undue influence of data users, funding partners and other stakeholders.

The term **quality commitment** is used to describe values, policies, decisions and practices consistent with the ideals and culture described above. Realizing quality goals requires a combination of NSO-wide and program-specific initiatives. Effective management of quality strikes an appropriate balance between the resources available to the NSO and the information needs of its data users and stakeholders. Many of the forces that threaten the ability of an NSO to maintain its quality commitment are beyond its control. The economy and society to which official statistics pertain are changing at an unprecedented pace, and the demand for information about them, both in breadth and depth, is growing as well. Meanwhile, in a continuing long-term trend, households and businesses are becoming less inclined to participate in surveys. Advancements in technology and changes in behaviour, combined with the availability of alternate sources of statistical information, contribute to the expectation of greater efficiency and expediency. Additionally, the emergence of new priorities demanding public funds have increasingly required NSOs to fund improvements and new initiatives through savings harvested internally. It is therefore incumbent upon the Agency to be continuously looking for innovative methods and new data sources to allow it to fulfill its mandate. In spite of all these pressures, an NSO must be managed such that the institutional environment entrenches drivers of quality. In this way, the NSO can continue to uphold and sustain its quality commitment.

#### Assessment

Statistics Canada's adherence to its quality commitment is assessed by evaluating the extent to which the Agency:

1. ensures its employees function to the highest professional standards in terms of both competencies and ethics
2. promotes transparency, impartiality, objectivity and professional independence through its business practices and organizational structure
3. bases its programs on sound methods and scientific principles, and ensures they are consistent with recognized standards and best practices and are supported by a statistical methods group
4. follows through on its quality commitment operationally, throughout the statistical process
5. ensures that exogenous factors and other unanticipated changes do not hinder its capacity to meet its quality commitment
6. utilizes objective and transparent criteria to evaluate and monitor the degree to which it fulfills its quality-related commitments in its programs and outputs.

#### Implementation

Statistics Canada undertakes a broad range of specific initiatives to stand behind and follow through on its quality commitment in its statistical programs. Below is a list of such initiatives, in groups that correspond to the items under Assessment.

## **A.1 Statistics Canada ensures its employees function to the highest professional standards in terms of both competencies and ethics**

- Provide guidance to all staff on their responsibilities and obligations and on expectations of them as Statistics Canada employees, especially pertaining to confidentiality, privacy and security. Related management initiatives include: overarching policies and codes; a binding commitment through oath; training and certification on confidentiality, privacy and security; and guidelines for proper use of electronic networks.
  - ▶ Code of Conduct
  - ▶ Values and Ethics Code (<http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=25049>)
  - ▶ Policy on Conflict of Interest and Post-Employment (<http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=25178>)
- Coordinate recruitment campaigns to identify and attract professionally competent and motivated candidates from the relevant academic disciplines. The processes include national recruitment teams and campaigns for professional groups including mathematical statisticians (methodologists), computer scientists, economists and social scientists.
  - ▶ Integrated Business and Human Resources Plan
- Staff vacancies through objective and fair selection processes, to benefit both employees and the Agency. Statistics Canada: utilizes generic competitions at regular intervals; sets out objective criteria to assess knowledge, abilities and personal suitability and to assign successful candidates to openings; and ensures the participation of senior managers on selection committees that evaluate candidates.
- Foster the professional and personal development of staff through learning opportunities, performance feedback and developmental opportunities. Statistics Canada’s policies outline its commitment to continuous learning. Learning is promoted through development programs for new recruits, a vast catalogue of courses delivered in-house (including a set of required courses) and by the Canada School of Public Service, access to courses at local universities and colleges and support for completion of degree programs. Further, guidance on professional development is provided through regular performance review, mentoring and support activities. Opportunities for employees to expand their professional experience are available through deployment, special assignments and exchanges.
  - ▶ Policy on Learning, Training and Development (<http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=12405>)
- Maintain collaboration and exchanges with the scientific, academic and business communities through participation of employees in professional associations and other peer gatherings.
- Stimulate creativity, innovation and the promotion of professionalism, particularly at the “grassroots” level.
  - ▶ Innovation Channel
- Build a positive, exciting and healthy workplace through employee wellness programs.

## **A.2 Statistics Canada promotes transparency, impartiality, objectivity and professional independence through its business practices and organizational structure**

- Convey information regarding the Agency’s priorities, initiatives and progress to the public, stakeholders and employees. Various reports are listed on its website, including its report to Parliament, the Corporate Business Plan and internal audit reports.
  - ▶ Departmental Reports (<http://www.statcan.gc.ca/eng/about/reports2>)

- Commit to providing all Canadians with equitable and timely access to Statistics Canada's data products and information releases. The Agency publishes release dates well in advance. The pre-planned release schedule is publicly available and any pre-release access is communicated transparently. Procedures exist for cases where data are released prematurely. Further, it is required that all releases pass through a uniform dissemination service, where *The Daily* is Statistics Canada's official release bulletin. Policies ensure that communications are effectively managed and are responsive to information needs of the public.
  - ▶ Policy on Official Release
  - ▶ Directive on the Distribution of Registered Statistics Canada Products
  - ▶ Release schedule (<http://www.statcan.gc.ca/dai-quo/cal3-eng.htm>)
  - ▶ *The Daily* (<http://www.statcan.gc.ca/dai-quo/index-eng.htm?HPA>)
  - ▶ Policy on Communications and Federal Identity (<http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=30683>)
  - ▶ Directive on the Security of Sensitive Statistical Information
  - ▶ Information and Privacy Breach Protocol (<http://www.statcan.gc.ca/eng/about/pia/generic/section8>)
- Produce and disseminate standard methodological documentation. Statistics Canada policies describe the procedures for communicating data quality information. These guidelines translate into the development of an integrated metadata repository where definitions, data sources and methods for each survey and statistical program are published. As well, user guides accompany a data release to provide background details on the data and methods. Additionally, technical reports explain procedures used in the creation of the statistics.
  - ▶ Policy on Informing Users of Data Quality and Methodology (<http://www.statcan.gc.ca/eng/about/policy/info-user>)
  - ▶ Integrated Metadatabase
  - ▶ [Definitions, Data Sources and Methods](http://www.statcan.gc.ca/eng/concepts/index) (<http://www.statcan.gc.ca/eng/concepts/index>)

### **A.3 Statistics Canada bases its programs on sound methods and scientific principles, and ensures they are consistent with recognized standards and best practices and are supported by a statistical methods group**

- Base choices of information sources and statistical methods and decisions regarding dissemination on sound criteria motivated by statistical considerations.
- Foster innovation through a statistical methods research and development program that is centrally funded.
  - ▶ Methodology Research Block Fund
- Share expertise within the Agency and externally to evaluate and improve new methods, using accepted scientific principles. This sharing is facilitated through committees that confer on matters relating to the utilization of efficient statistical methods, peer review of papers and presentations and publication of an Agency journal on statistical methods.
  - ▶ Advisory Committee on Statistical Methods
  - ▶ Policy on Peer and Institutional Review
  - ▶ Survey Methodology Journal
- Put in place policies and procedures to ensure that standard concepts, definitions and classifications are consistently applied throughout the Agency. For example, an Agency-level committee advises on the development and application of statistical standards and metadata.
  - ▶ Policy on Standards (<http://www.statcan.gc.ca/eng/about/policy/standards>)
  - ▶ Methods and Standards Committee
- Provide expertise and leadership on design and implementation of sound statistical and survey methods. At Statistics Canada, such services are provided to statistical program areas by a core statistical methods group that is centrally located within the Agency. The Methodology Branch consists of a group

of mathematical statisticians (methodologists) with education and experience in relevant disciplines. In addition to guidance on statistical and survey methods, the Methodology Branch also plays a leading role in promoting and supporting quality assurance within the Agency.

#### **A.4 Statistics Canada follows through on its quality commitment operationally, throughout the statistical process**

- Provide tools and support to foster building quality into all aspects of statistical programs and to ensure all employees are aware of and fulfill their responsibilities regarding the quality of processes and products.
  - ▶ Quality Guidelines (<http://www5.statcan.gc.ca/olc-cel/olc.action?objId=12-539-X&objType=2&lang=en&limit=0>)
  - ▶ Quality Assurance Framework
  - ▶ Directive and Guidelines for the Validation of Statistical Outputs
  - ▶ Quality Secretariat
- Assist statistical program areas in the implementation of sound methods through the statistical methods group. This group plays a leadership role in promoting common methodologies and generalized solutions. The group guides program areas in the proper integration of new methods through adherence to recognized procedures such as pilot tests and parallel runs. Members of the statistical methods group form part of multidisciplinary project teams. As well, centres of expertise, or resource centres, exist for assisting with specific issues (e.g., Time Series Research and Analysis Centre).
  - ▶ Generalized Systems Resource Centre
  - ▶ Resource and support centres

#### **A.5 Statistics Canada ensures that exogenous factors and other unanticipated changes do not hinder its capacity to meet its quality commitment**

- Establish a consistent process for submission, evaluation and funding allocation of proposals. The planning process considers a long-term horizon. It works on an annual planning cycle and covers all stages of planning where financial, human resources and informatics needs are all considered together. It includes a review of corporate priorities and integrates risk management, investment planning, and evaluation into the planning process.
  - ▶ Integrated Strategic Planning Process
  - ▶ Integrated Business and Human Resources Plan
  - ▶ Information Technology Plan
- Forecast regular and strategic investments necessary to preserve the quality and continuity of statistical programs over time. This forecast covers an extended horizon (10 years) and considers the cyclical nature of specific statistical programs (e.g., five-year Census cycle, 10-year redesign cycle for certain surveys) when planning redesigns and other program modifications or enhancements. A separate fund exists for initiatives that cannot be covered by program area base budgets.
  - ▶ Continuity and Quality Maintenance Investment Plan
  - ▶ Continuity and Quality Management Fund
  - ▶ Investment Proposals
- Create corporate initiatives to assure quality in light of changing environments. Corporate committees evaluate impending changes and decide on a course of action. As well, program areas document Business Continuity Plans for use in case of a business interruption.
  - ▶ Human Resources Committee
  - ▶ Information Technology Architecture Committee
  - ▶ Security Coordination Committee

- Implement effective project management by providing tools and guidelines. A centralized office provides support in the development of common processes and tools to improve the timely delivery of projects in a cost-effective fashion while adhering to quality standards and meeting client needs. As a result, a set of standard project management processes, templates and tools is in place.
  - ▶ Departmental Project Management Office
  - ▶ Departmental Project Management Framework

#### **A.6 Statistics Canada utilizes objective and transparent criteria to evaluate and monitor the degree to which it fulfills its quality-related commitments in its programs and outputs**

- Evaluate statistical program areas regularly through internal audits, quality reviews and other techniques. Through the reviews, strengths and weaknesses are identified and current best methods are shared corporately. As well, feedback from data users and stakeholders is solicited and used to guide program areas. As a result, risk mitigation strategies are strengthened. External audits of statistical programs and benchmarking to external indicators are conducted as required.
  - ▶ Audit and Evaluation Plan
- Ensure measures of quality are made available to data users.
  - ▶ Policy on Informing Users of Data Quality and Methodology (<http://www.statcan.gc.ca/eng/about/policy/info-user>)
  - ▶ Directive on Documenting Statistical Metadata
- Use objective measures to track differences between quality targets and realized values, such as producing corporate performance indicators and monitoring of corrections to data releases.

## B. Sound implementation of statistical methods

### Description

**Sound implementation of statistical methods** means that the design is carried out as specified, errors are avoided and proper verification and documentation are completed. Sound implementation of statistical methods also requires alignment with current best methods and standards. The resulting coherence and consistency enhance relevance and utility.

Statistics Canada develops mandatory rules and guidelines that govern the acquisition, production and dissemination of statistical information. These rules and guidelines are referred to as “statistical standards”, and their purpose is to ensure uniformity across statistical programs. The Agency also encourages the use of common tools, approved methods and other current best methods in order to improve coherence and comparability, reduce the cost of design and production, and increase robustness and simplicity.

### Assessment

Statistics Canada’s sound implementation of statistical methods, as well as the use of statistical standards and current best practices, are assessed by evaluating the extent to which the Agency:

1. ensures correct implementation of survey designs and of mitigation of risks to quality
2. promotes and supports the use of statistical standards by program areas
3. contributes to the development and use of conceptual frameworks, standard names and definitions, and best practices
4. promotes and supports the use of consistent data acquisition, processing and dissemination methods across its statistical programs
5. effectively manages and communicates information regarding redesigns and other changes to statistical methods.

### Implementation

Statistics Canada undertakes a broad range of specific initiatives to ensure sound implementation of statistical methods and to promote the use of statistical standards and current best practices in its statistical programs. Below is a list of such initiatives, in groups that correspond to the items under Assessment.

#### B.1 Statistics Canada ensures correct implementation of survey designs and of mitigation of risks to quality

- Implement a comprehensive “matrix” approach to quality management by considering quality assurance at all phases of the statistical process and by considering the multi-dimensional nature of quality. For example, program areas identify and verify that changes in variable definitions, international standards, parameter values and other inputs are correctly incorporated into operations and systems at the beginning of each processing cycle. They monitor collection and processing operations, by using process control and other methods, and make adjustments as required. Moreover, they reconcile estimates and outputs with other comparable statistical and administrative sources on similar subjects, including previous estimates from the same statistical program, and conduct comprehensive post-release program review and analysis.
  - ▶ Generic Statistical Business Process Model (<http://www1.unece.org/stat/platform/display/GSBPM/GSBPM+v5.0>)
  - ▶ Quality Guidelines (<http://www5.statcan.gc.ca/olc-cel/olc.action?objId=12-539-X&objType=2&lang=en&limit=0>)
  - ▶ Quality Assurance Framework
  - ▶ Directive and Guidelines for the Validation of Statistical Outputs

- Implement effective project management by providing tools and guidelines. A centralized office provides support in the development of common processes and tools to improve the timely delivery of projects in a cost-effective fashion while adhering to quality standards and meeting client needs. As a result, a set of standard project management processes, templates and tools is in place.
  - ▶ Departmental Project Management Office
  - ▶ Departmental Project Management Framework
- Use a multidisciplinary team approach to ensure expertise in all areas, effective exchange of ideas and balanced decision-making. Typically, subject-matter experts are responsible for content, stakeholder needs and relevance. Mathematical statisticians (methodologists) contribute a solid foundation in statistical methods and expertise in accuracy and its relation to other dimensions of quality. Operations personnel have experience in collection and processing methods, and bring knowledge of field work, respondent relations and cost. Systems experts ensure informatics considerations are represented and bring specialist knowledge of technology standards and tools.
- Identify and thoroughly understand potential sources of error and of breach in quality. Risk mitigation strategies are integrated into survey design and implementation. Mitigation of risks to quality is assessed and reported periodically.

## **B.2 Statistics Canada promotes and supports the use of statistical standards by program areas**

- Develop and maintain a protocol for statistical standards. Promote and monitor the adoption of statistical standards uniformly across statistical programs. Statistical standards apply to concepts, definitions, frameworks, units, variables, classification systems, protocols and target populations. Exceptions to statistical standards are justified and documented.
  - ▶ Policy on Standards (<http://www.statcan.gc.ca/eng/about/policy/standards>)
- Develop, maintain and disseminate statistical metadata in a corporate repository. The elements in the repository are updated, changes are tracked and users are informed.
  - ▶ Definitions, Data Sources and Methods (<http://www.statcan.gc.ca/eng/concepts/index>)
  - ▶ Integrated Metadatabase
  - ▶ Directive on Documenting Statistical Metadata
  - ▶ Policy on Informing Users of Data Quality and Methodology (<http://www.statcan.gc.ca/eng/about/policy/info-user>)
- Support statistical standards with administrative and governance structures and tools. A corporate committee assists and advises on the development, approval and application of statistical standards and metadata within the Agency's programs. A specific division is responsible for all the classifications and standards - including industry, product, occupation and education classifications, geography and economic accounts - used by Statistics Canada.
  - ▶ Corporate Management Framework (<http://www.statcan.gc.ca/eng/about/cmfm>)
  - ▶ Methods and Standards Committee
  - ▶ Standards Division
  - ▶ Standards Bulletin
- Provide guidance on the interpretation of statistical standards. If appropriate, define classes of standards that differ by the degree of obligation to adhere to them (i.e., compulsory Statistics Canada standards, recommended standards and program-specific standards).
  - ▶ Definitions, Data Sources and Methods (<http://www.statcan.gc.ca/eng/concepts/index>)

### **B.3 Statistics Canada contributes to the development and use of conceptual frameworks, standard names and definitions, and best practices**

- Participate in the development of national and international standards and other frameworks, and encourage consistency with them. Statistics Canada participates in numerous development groups, such as those of the United Nations Statistics Division and the United Nations Economic Commission for Europe. The Agency is also involved in groups developing standard classification systems such as the North American Industrial Classification System and the National Occupational Classification-Statistics.
  - ▶ Definitions, Data Sources and Methods (<http://www.statcan.gc.ca/eng/concepts/index>)
- Participate in various external fora, such as working groups or subject-matter expert groups, to work with other national statistical offices in recognizing and promoting national and international best practices and cutting-edge methods.
  - ▶ International Cooperation (<http://www.statcan.gc.ca/eng/about/cooperation>)
- Set up internal cross-program committees to ensure that quantities being estimated bear relation to each other through use of consistent terminology, commonly formulated questions and comparable variable definitions. In particular, maximize consistency both within (e.g., between quarterly and annual estimates, and between preliminary and final estimates) and across statistical programs.
  - ▶ Policy on Standards (<http://www.statcan.gc.ca/eng/about/policy/standards>)
  - ▶ Policy on the Review and Testing of Questionnaires
  - ▶ Questionnaire Design Resource Centre
- Ensure that program areas periodically assess compliance with standards and frameworks as well as consistency and comparability with related administrative data, other estimates from Statistics Canada and estimates from elsewhere.

### **B.4 Statistics Canada promotes and supports the use of consistent data acquisition, processing and dissemination methods across its statistical programs**

- Use standardized frameworks and systems to support process management.
  - ▶ Generic Statistical Business Process Model (<http://www1.unece.org/stat/platform/display/GSBPM/GSBPM+v5.0>)
  - ▶ Generic Statistical Information Model
- Develop and use common frames and processing environments. Examples of these are the Business Register, Household Survey Frame Service, Social Survey Processing Environment and the Integrated Business Statistics Program.
- Optimize the use of generalized systems, resource centres and centralized services.
  - ▶ Generalized Systems Resource Centre
  - ▶ Resource and support centres
- Ensure internal consistency of outputs during operations. In particular, ensure that arithmetic or accounting operations do not lead to discrepancies (e.g., rounding) and that outputs of complementary processes are integrated properly.
  - ▶ Quality Guidelines (<http://www5.statcan.gc.ca/olc-cel/olc.action?objId=12-539-X&objType=2&lang=en&limit=0>)
  - ▶ Directive and Guidelines for the Validation of Statistical Outputs
- Implement an appropriate structure for approval and testing when developing and implementing new software applications and other processing tools. Develop appropriate guidelines and other oversight tools and structures, as needed.



- Ensure consistency of message and convenient user access through a corporate dissemination framework and access tools. Examples of such tools are *The Daily* and tables from the Agency's socioeconomic database CANSIM.
  - ▶ Statistics Canada Dissemination Model
  - ▶ Directive on Media Relations
  - ▶ Directive on Corrections to *Daily* Releases and Statistical Products
  - ▶ *The Daily* (<http://www.statcan.gc.ca/dai-quo/index-eng.htm?HPA>)
  - ▶ CANSIM (<http://www5.statcan.gc.ca/cansim/a01?lang=eng>)
- Require that program areas collect and store data required for post-release program review and analysis.

### **B.5 Statistics Canada effectively manages and communicates information regarding redesigns and other changes to statistical methods**

- Produce quality reports and other supporting methodological information needed for users to make meaningful comparisons over time and with other sources of information. Program areas provide users with information on changes to concepts, definitions, classifications and methods, as well as deviations from international standards and other practices.
  - ▶ Policy on Informing Users of Data Quality and Methodology (<http://www.statcan.gc.ca/eng/about/policy/info-user>)
  - ▶ Directive on Documenting Statistical Metadata
  - ▶ Directive on the Management of Aggregate Statistics
- For redesigns and other significant changes in survey methodology or international standards, explain breaks in series and develop methods for reconciliation. Produce historical revisions when deemed appropriate. For example, a data series is updated when a classification framework is revised.
- Solicit feedback from users, in particular their experience in producing historical series, comparing estimates between statistical programs, and comparing the Agency's outputs with those of other sources. Identify inadequacies and issues.

## C. Assurance of confidentiality, privacy and security

### Description

A national statistical office (NSO) is entrusted with the authority to compel individuals, businesses and institutions to provide information. Implicit in this provision are certain obligations regarding the NSO's "stewardship"<sup>4</sup> of information provided to it. The NSO must justify the benefits of obtaining information and minimize the burden that its collection imposes, in terms of both invasion of privacy and demands on respondent time and effort. The NSO must also safeguard its data holdings, in particular information attributable to individual respondents, from unauthorized disclosure, access or use.

Three important concepts in data stewardship are confidentiality, privacy and security. **Confidentiality** is the protection of information attributable to an identifiable unit<sup>5</sup> from unauthorized disclosure. **Privacy**, in the statistical context, is the protection of respondents from intrusive enquiries and the provision that individuals have some access to and control over information about themselves. **Security** refers to the policies and practices NSOs use to prevent confidential information from being improperly disclosed, accessed or used. **Disclosure control** refers to the development and implementation of measures that identify and address data items that could expose confidential information in outputs such as data tabulations and public-use microdata files. Examples of disclosure control measures include cell suppression and data perturbation.

The *Statistics Act* enshrines the authority of Statistics Canada to collect, process and publish statistical information. It also prescribes the responsibilities of the Agency to protect the confidentiality of identifiable individual responses. The *Statistics Act* gives Statistics Canada authority to obtain information from citizens and businesses through mandatory surveys, and also guarantees the Agency access to records maintained by organizations. The *Statistics Act* also provides the Agency with discretion to authorize the release, by executive order, of data that would otherwise be protected.

Other federal laws, primarily the *Privacy Act* and the *Access to Information Act*, establish the responsibilities of all federal departments regarding personal information held in government records. The *Privacy Act* requires that individuals be informed of the authority under which data are collected and the intended uses of the information. Information collected by Statistics Canada is for statistical purposes, defined as description or analysis of characteristics of a population to which the individual belongs. As the *Privacy Act* also recognizes statistical purposes as a legitimate secondary use of information, Statistics Canada is able to additionally obtain information collected elsewhere for other purposes. In particular, the Agency is able to obtain information collected for administrative<sup>6</sup> purposes. However the *Privacy Act* dictates that information collected for statistical purposes must not be used for administrative purposes. The *Access to Information Act* ensures that respondents have the right to obtain information they provided to Statistics Canada and other federal departments.

### Assessment

Statistics Canada's efforts pertaining to confidentiality, privacy and security are assessed by evaluating the extent to which the Agency:

1. develops and implements policies and practices to fulfill the obligations of the *Statistics Act*, the *Privacy Act*, the *Access to Information Act* and any other statutes
2. minimizes the intrusiveness of data collection through use of alternate sources of information and effective design of data collection instruments
3. facilitates response by informing respondents of their rights and obligations, the importance of responding and the protection their data will be afforded
4. implements organizational, physical and technological measures to protect the confidentiality and ensure the security of statistical data

4. See "Data Stewardship at Statistics Canada" by Gordon Brackstone and Pamela White.

5. Examples of units include persons, households, enterprises and institutions.

6. Administrative purposes are those related to making decisions about the individual to whom the information pertains. An example is determining eligibility for a government program based on financial information pertaining to a specific person, household or business.

5. provides training and other measures to instill a culture that promotes awareness of issues and obligations related to confidentiality, privacy and security
6. implements effective disclosure control measures, in particular through extensive verification of outputs.

## Implementation

Statistics Canada undertakes a broad range of specific initiatives to protect confidentiality, minimize the impact on privacy and provide data security in its statistical programs. Below is a list of such initiatives, in groups that correspond to the items under Assessment.

### C.1 Statistics Canada develops and implements policies and practices to fulfill the obligations of the *Statistics Act*, the *Privacy Act*, the *Access to Information Act* and any other statutes

- Develop policies to ensure the Agency carries out its responsibilities and obligations, as a federal institution, regarding privacy, confidentiality and security.
  - ▶ Directive on Access to Information and Privacy
  - ▶ Directive on Sensitive Statistical Information
  - ▶ Policy on Access to Information (<http://www.tbs-sct.gc.ca/hgw-cgf/oversight-surveillance/atip-ai/prp/ai/index-eng.asp>)
  - ▶ Policy on Privacy Protection (<http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=12510>)
  - ▶ Companion guide to the *Statistics Act*
- Define directives regarding the release of identifiable information by executive order (discretionary release), as provided in the *Statistics Act*. One justification for discretionary release is permission provided by respondents to release data about themselves (waivers).
  - ▶ Directive on Discretionary Disclosure
  - ▶ Obtaining a Discretionary Disclosure: Guidelines
  - ▶ Directive on Informing Survey Respondents

### C.2 Statistics Canada minimizes the intrusiveness of data collection through use of alternate sources of information and effective design of data collection instruments

- Before undertaking any new collection, determine if equivalent data are available from other sources.
  - ▶ Directive on Obtaining Administrative Data under the Statistics Act
- Reduce response burden through data collection and processing initiatives such as record linkage, data sharing or joint data collection activities (where surveys that collect similar or related data are integrated or combined). Study and implement innovative methods, for example electronic collection, satellite imaging and scanner data.
  - ▶ Business Response Management Committee
  - ▶ *Statistics Act* (Data Sharing under Sections 11 and 12) (<http://laws-lois.justice.gc.ca/eng/acts/S-19/FullText.html>)
  - ▶ Directive on Microdata Linkage
- Assess impact on privacy prior to commencing any new data collection initiative.
  - ▶ Directive on Conducting Privacy Impact Assessments
- Use focus groups and questionnaire testing to uncover factors that will impact data collection. Identify sensitive questions and subjects and evaluate the impact of the mode of collection on the provision of such information. Ensure response is not inhibited by characteristics such as excessively long or onerous questionnaires.
  - ▶ Policy on the Review and Testing of Questionnaires
  - ▶ Questionnaire Design Resource Centre

### **C.3 Statistics Canada facilitates response by informing respondents of their rights and obligations, the importance of responding and the protection their data will be afforded**

- Provide respondents with information on Statistics Canada and the survey in which they have been asked to participate. Explain to respondents the benefits of official statistics and the importance of their participation.
  - ▶ *Statistics Act* (<http://laws-lois.justice.gc.ca/eng/acts/S-19/FullText.html>)
  - ▶ Directive on Informing Survey Respondents
  - ▶ Information for survey participants, including video on importance of participation (<http://www.statcan.gc.ca/eng/survey/index?HPA=x>)
  - ▶ Information for Business Survey Respondents (<http://www.statcan.gc.ca/eng/survey/participant06>)
- Inform respondents of any planned or possible record linkage of their survey responses to data from other surveys or administrative files. If required, obtain permission for linkage.
  - ▶ Directive on Microdata Linkage
- For longitudinal surveys, inform respondents of the repeated nature of data collection and that their information will be combined with that collected in past or future cycles, as applicable.
- Inform respondents of any data sharing or joint-collection agreements to which their data are subject. When applicable, allow survey respondents to opt out of such use of their data.
  - ▶ *Statistics Act* (Data Sharing under Sections 11 and 12) (<http://laws-lois.justice.gc.ca/eng/acts/S-19/FullText.html>)
- Convey to respondents the importance of using recommended mechanisms to return questionnaire data, the risks associated with other means of transmission and the importance of providing data by the specified deadline.
  - ▶ Directive on the Transmission of Protected Information

### **C.4 Statistics Canada implements organizational, physical and technological measures to protect the confidentiality and ensure the security of statistical data**

- Specify the characteristics of information to which “sensitive statistical information” provisions apply and develop appropriate policies and practices to safeguard such information. Some examples of sensitive statistical information are: information attributable to specific respondents (e.g., completed questionnaires, printouts of individual survey records); information which could be exploited for financial or other gain (i.e., information not yet released to the public); and human resources management and other personal information of employees.
  - ▶ Directive on the Security of Sensitive Statistical Information
- Address issues related to confidentiality, privacy and security in risk management and contingency planning.
  - ▶ Integrated Risk Management Guidelines
  - ▶ Information and Privacy Breach Protocol (<http://www.statcan.gc.ca/eng/about/pia/generic/section8>)
- Elaborate a reporting and management structure for assurance of confidentiality, privacy and security and promotion of the importance of these issues. At Statistics Canada, a corporate committee on microdata access provides direction about matters pertaining to access to information, privacy and confidentiality obligations, with other specific responsibilities accorded to certain senior manager positions.
  - ▶ Microdata Access Management Committee
  - ▶ Policy on Privacy and Confidentiality
- Define corporate approval, monitoring and documentation processes for all record linkage initiatives.
  - ▶ Directive on Microdata Linkage

- Define guidelines for retention and documentation of statistical information.
  - ▶ Policy on Document Management
  - ▶ Policy on Information Management
  - ▶ Directive on the Management of Aggregate Statistics
- Implement secure electronic storage and transmission of information, including controlled network access.
  - ▶ Information Technology Security Policy
  - ▶ Directive on Management of Information Technology
  - ▶ Directive on the Transmission of Protected Information
- Limit internal access to sensitive information to only those who require it (“need to know”). Review and update such permissions regularly through a centralized system.
  - ▶ Corporate Access Request System
- Control access to premises. Statistics Canada restricts access and entry to buildings, requires that access (identification) cards be worn by staff members and visitors, and requires specific approval through a centralized system for after-hours access.
  - ▶ Security Practices Manual
  - ▶ Corporate Access Request System
- Apply strict protocols regarding external user access to statistical microdata for research purposes. These protocols apply to external researchers working at Statistics Canada’s offices and at its Research Data Centres. They also cover the use of microdata accessed externally via universities, or through remote access.
  - ▶ Policy on Microdata Access
  - ▶ Directive on the Use of Deemed Employees
  - ▶ Directive on the Security of Sensitive Statistical Information
  - ▶ Research Data Centres (<http://www.statcan.gc.ca/rdc-cdr/index-eng.htm>)
  - ▶ Federal Research Data Centres (<http://www.statcan.gc.ca/eng/rdc/frdc>)
  - ▶ Canadian Centre for Data Development and Economic Research (<http://www.statcan.gc.ca/cder-cdre/index-eng.htm>)
  - ▶ Data Liberation Initiative (<http://www.statcan.gc.ca/eng/dli/dli>)
  - ▶ Real Time Remote Access (<http://www.statcan.gc.ca/eng/rtra/rtra>)

### **C.5 Statistics Canada provides training and other measures to instill a culture that promotes awareness of issues and obligations related to confidentiality, privacy and security**

- Provide a range of training on confidentiality, privacy and security. Address these themes in the orientation course for all new employees and in flagship courses. Develop and implement new training initiatives. Provide employees with tips and best practices.
  - ▶ Survey Skills Development Course (<http://www.statcan.gc.ca/eng/survey/household/8008>)
- Require all staff (both regular and deemed employees) to sign a legal confidentiality commitment prior to accessing any work materials. Currently a new employee’s director administers an oath on the first day of work.
- Require all staff to refresh their confidentiality commitment at regular intervals. Currently employees complete an online course as part of renewing their building access card.

- Require all staff to review and accept a policy outlining responsibilities and obligations of Statistics Canada employees. The policy includes post-employment requirements. Currently review and acceptance of this policy is required annually, as part of employee performance review.
  - ▶ Code of Conduct
  - ▶ Values and Ethics Code (<http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=25049>)
  - ▶ Policy on Conflict of Interest and Post-Employment (<http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=25178>)
- Require all staff to review and accept a policy outlining proper use of Agency electronic networks. Currently acceptance of this policy is required every 90 days to maintain an active user account.
  - ▶ Policy on the Use of Electronic Networks
  - ▶ Network Use Policy
  - ▶ Network Use Policy Agreement
- Ensure employees are aware of the potential penalties for wilful breaches of statistical confidentiality and of the procedures to be followed if they become aware of a breach of statistical confidentiality.
  - ▶ *Statistics Act* (Section 17(1)(b), Section 30(c)) (<http://laws-lois.justice.gc.ca/eng/acts/S-19/FullText.html>)
  - ▶ Information and Privacy Breach Protocol (<http://www.statcan.gc.ca/eng/about/pia/generic/section8>)

## **C.6 Statistics Canada implements effective disclosure control measures, in particular through extensive verification of outputs**

- Develop and maintain expertise in disclosure control and make it available to all statistical program areas. Continue research efforts in identifying new types of risks, measuring disclosure risk and protecting statistical data confidentiality.
  - ▶ Disclosure Control Resource Centre
- Remove names, personal or business identification numbers and other unique identifiers from internal databases and data files, when not required for statistical purposes.
  - ▶ Directive on the Management of Statistical Microdata Files
- Promote and use standardized methods, software and other tools for confidentiality protection such as that for confidentiality (G-Confid), and for tabulations (G-Tab). These methods and tools are reviewed through corporate committees responsible for methods and standards, and for microdata access.
  - ▶ Methods and Standards Committee
  - ▶ Microdata Access Management Committee
- Implement approval procedures, drawing upon the expertise of Agency specialists in the corporate committee on microdata release, prior to release of statistical microdata files and of aggregated data.
  - ▶ Microdata Release Committee
  - ▶ Policy on Microdata Release
  - ▶ Guidelines for the Release of Microdata Files
- Ensure appropriate measures (e.g., anonymization, physical security) are in place for researcher access to microdata files. Properly vet outputs, including those that are generated using complex survey analysis and other statistical techniques.

## The Statistical Program

### D. Management of input data and relations with data providers

#### Description

The three main sources of input data to Statistics Canada are respondents, administrative data providers<sup>7</sup> and repositories of data available to the public. **Respondents**, such as individuals, households, enterprises or administrations, provide data about an entity (typically themselves, but possibly an entity about which they can report) using a data collection instrument, the most common example of which is a survey questionnaire. **Administrative data providers** collect information about a population of interest to them for their own purposes (i.e., regulatory, financial administration, service delivery) and provide this information to Statistics Canada. The general term **data available to the public** refers to data that are available to any user, obtained with or without licence, and with or without payment of a fee. This includes, but is not exclusive to, open data, commercial data and web data. Statistics Canada obtains respondent and administrative data within a legal or regulatory framework that covers the Agency's and data provider's rights and responsibilities regarding collection and use. When obtaining data available to the public, the Agency is bound by terms and conditions that apply to all who access and use the data.

Provision of high quality input data is vital to the success of a national statistical office (NSO). Access to high-quality input data is achieved primarily through the NSO effectively managing relations with input data providers, supported by legislative or regulatory requirements and complemented by goodwill and belief in the value of quality official statistics. Another factor that contributes to the high quality of input data is the consistency in the Agency's collection and pre-processing methods. This consistency leads to shared and standardized treatments during preliminary data processing operations.

Statistics Canada's objective in using administrative data or data available to the public for statistical purposes is to improve the balance between relevance, data quality, response burden and cost. An important responsibility of the Agency is to justify the necessity of any new data collection activity, given its cost and the burden it imposes. In particular, when administrative data or data available to the public are of sufficient quality and adequately match the concepts being measured, they should be considered over direct collection. A further responsibility of the Agency, to both input data providers and the general public, is protecting the privacy, confidentiality and security of all data provided to it, with the provisions applying equally to survey data and administrative data.

#### Assessment

Statistics Canada's efforts pertaining to obtaining and managing high-quality input data, in particular through its relations with respondents and administrative data providers, are assessed by evaluating the extent to which the Agency:

1. justifies the necessity of any new data collection
2. puts policies and practices in place to optimize its use of data that are already available
3. encourages and supports respondent participation through effective communication
4. monitors and manages response burden
5. develops and implements effective, innovative and user-friendly collection tools and provides response options
6. collaborates effectively with administrative data providers and other partners in the information industry
7. provides for secure and efficient acquisition and management of administrative data through a corporate approach supported by common tools.

7. Statistics Canada's Policy on the Use of Administrative Data Obtained under the *Statistics Act* provides definitions of administrative data, administrative data providers and other terms. The Policy also outlines objectives and context for the Agency's acquisition and use of administrative data, and defines roles and responsibilities.

## Implementation

Statistics Canada undertakes a broad range of specific initiatives to effectively obtain and manage the Agency's input data and to build and maintain effective relations with input data providers. Below is a list of such initiatives, in groups that correspond to the items under Assessment.

### D.1 Statistics Canada justifies the necessity of any new data collection

- Before undertaking any new collection, determine if equivalent data are available from other sources. For example, a request to access administrative (tax) data or publicly available financial reports of corporations could be made as an alternative to collection of financial information from respondents.
  - ▶ Directive on Obtaining Administrative Data under the *Statistics Act*
  - ▶ Guidelines on Data Available to the Public
- Introduce a formal review process for new data demands (i.e., increasing sample size of existing surveys or undertaking new surveys) for business and household surveys.
  - ▶ Business Response Management Committee
  - ▶ Household Survey Strategy
- Reduce response burden through data collection and processing initiatives such as record linkage, data sharing or joint data collection activities (where surveys that collect similar or related data are integrated or combined). Study and implement innovative methods, for example electronic collection, satellite imaging and scanner data.
  - ▶ Business Response Management Committee
  - ▶ *Statistics Act* (Data Sharing under Sections 11 and 12) (<http://laws-lois.justice.gc.ca/eng/acts/S-19/FullText.html>)
  - ▶ Directive on Microdata Linkage
- Assess the impact on privacy prior to commencing any new data collection initiative.
  - ▶ Directive on Conducting Privacy Impact Assessments
- Limit the collection of respondent-provided information that is used exclusively for data-management or other survey-support reasons such as editing or imputation.

### D.2 Statistics Canada puts policies and practices in place to optimize its use of data that are already available

- Work actively with partners to collectively optimize the collection and sharing of data. Maintain key contact with other federal government departments and other partners including provincial focal points and industry associations. Ensure consistency through standardized protocols for objectively evaluating the quality, relevance and utility of new sources of administrative or data available to the public.
  - ▶ Policy on the Use of Administrative Data Obtained Under the *Statistics Act*
  - ▶ Directive on Obtaining Administrative Data Under the *Statistics Act*
  - ▶ Quality and Evaluation Framework for Administrative Data
- Keep an inventory of administrative data files available to Statistics Canada programs.
  - ▶ Administrative Data Inventory
  - ▶ Acquisition of Administrative Data
- Promote and support the use of record linkage, small-area estimation and other techniques that bring together information from various sources.
  - ▶ Directive on Microdata Linkage
  - ▶ Record Linkage Resource Centre
  - ▶ Record Linkage Project Process Model (<http://www5.statcan.gc.ca/olc-cel/olc.action?objId=12-605-X&objType=2&lang=en&limit=0>)



- Seek alternatives to traditional survey methodology and administrative microdata, in particular when direct collection is not feasible or is not cost-effective, such as for rare and hard-to-reach populations and sub-populations of large numbers of small units. Examples of such techniques include statistical modelling, proxy response and synthetic estimation.
- Learn about innovative data gathering and treatment methods (e.g., “Big Data”) and gauge their relevance to Statistics Canada. Establish ties with information-industry partners in the private sector, academia and research institutes.

### D.3 Statistics Canada encourages and supports respondent participation through effective communication

- Instill confidence in respondents by emphasizing guarantees of privacy and protection of personal information provided by federal laws and Statistics Canada policies.
  - ▶ *Statistics Act* (<http://laws-lois.justice.gc.ca/eng/acts/S-19/FullText.html>)
  - ▶ Policy on Privacy Protection
- Provide respondents with information on Statistics Canada and the survey in which they have been asked to participate. Explain to respondents the benefits of official statistics and the importance of their participation.
  - ▶ *Statistics Act* (<http://laws-lois.justice.gc.ca/eng/acts/S-19/FullText.html>)
  - ▶ Directive on Informing Survey Respondents
  - ▶ Information for survey participants, including video on importance of participation (<http://www.statcan.gc.ca/eng/survey/index?HPA=x>)
  - ▶ Information for Business Survey Respondents (<http://www.statcan.gc.ca/eng/survey/participant06>)
- Convey the appreciation of Statistics Canada by thanking respondents in publications and, when possible, giving back to respondents information accruing from their survey participation.
- Maintain lines of communication by soliciting respondent feedback, responding to complaints and concerns and using the information obtained to improve programs and processes. This communication strategy includes a single point of contact for respondent inquiry and an approach where social media (including Facebook, Twitter and YouTube) are used to provide access to statistical information and to foster engagement, co-operation and information-sharing with respondents. Further, an ombudsman is available to help business survey participants by responding to their concerns.
  - ▶ Stay connected (<http://www.statcan.gc.ca/eng/sc/index>)
  - ▶ Ombudsman for Business Survey Respondents (<http://www.statcan.gc.ca/eng/survey/ombudsman>)
- Initiate outreach to promote an awareness of Statistics Canada within the Canadian public. Examples of such approaches are regular presentations by the Chief Statistician, relations with the media such that Statistics Canada results are announced to the public, and through the maintenance of a web and social media presence.

### D.4 Statistics Canada monitors and manages response burden

- Put in place controls to prevent a disproportionately high response burden on particular respondents or particular categories of respondents. This strategy entails such measures as offering periodic reporting exemptions for respondents selected for multiple surveys during a time interval, establishing upper limits for the length of time respondents spend in the sample for a specific survey, and taking respondent availability and preference into account when scheduling interviews.
- Consider response burden in the sample allocation phase. For example, identify rare populations from the Census of Population or administrative data to avoid asking identification questions to a broad base of respondents. Response burden can also be minimized through techniques including sample rotation (e.g., Labour Force Survey rotating panel design, where one-sixth of the sample is replaced each month), coordinated allocation and use of differential sampling rates (e.g., selection probabilities proportional to size for skewed populations of enterprises).

- Retain information to quantify response burden and set targets for its reduction over time.
  - ▶ Response Burden Reduction Efforts (<http://www.statcan.gc.ca/eng/about/rbre>)
  - ▶ Household Survey Strategy measures of response burden
- Coordinate all data collection, irrespective of mode, through a corporate collection service. Statistics Canada uses a single portal to plan for all collection needs and an integrated collection and operations system, and achieves consistency in input files through standard methods.
  - ▶ Collection Front Door
  - ▶ Collection Planning and Research Division
  - ▶ Integrated Collection and Operations System

#### **D.5 Statistics Canada develops and implements effective, innovative and user-friendly collection tools and provides response options**

- Use focus groups and questionnaire testing to identify impediments to response. These strategies include detecting sensibilities and social acceptability, minimizing the impact on privacy and degree of invasiveness, and detecting the impact of questionnaire length and “respondent-friendliness”.
  - ▶ Policy on the Review and Testing of Questionnaires
  - ▶ Questionnaire Design Resource Centre
- Build and deploy an electronic data reporting infrastructure. This infrastructure includes the development of electronic questionnaire applications as part of the Corporate Business Architecture modernization, and the adoption of internet response as the default mode for the Census of Population.
  - ▶ Electronic Questionnaire Service
  - ▶ Corporate Business Architecture
- Adapt to changes in technology and behaviour by developing applications for cellphone and tablet response, integrating methods to reach cellphone-only households and initiating the use of tablets by interviewers.
- Where possible and appropriate (i.e., for large or complex enterprises), adapt data collection to conform to the respondent’s accounting system.

#### **D.6 Statistics Canada collaborates effectively with administrative data providers and other partners in the information industry**

- Build and sustain good working relations with providers and custodians of administrative data. In particular, ensure contact between counterparts at a variety of levels and functions, including chief executives, program managers and operational staff. Consult with other federal government departments, provincial government departments or focal points, and industry associations. Strengthen the statistical value of administrative data by communicating Statistics Canada’s requirements in terms of coverage, conceptual definitions and timeliness. Keep abreast of organizational and operational changes at provider agencies and remind providers of Statistics Canada’s commitments to data security, confidentiality and use of data for statistical purposes only.
- Solidify access to data by entering into data sharing agreements and by working to support terms of legislation that give the Agency access, for statistical purposes, to information of other government departments and organizations. For example, Memoranda of Understanding have been signed with Canada Revenue Agency for tax and payroll data.
  - ▶ *Statistics Act* (<http://laws-lois.justice.gc.ca/eng/acts/S-19/FullText.html>)
  - ▶ Directive on Obtaining Administrative Data under the *Statistics Act*

## **D.7 Statistics Canada provides for secure and efficient acquisition and management of administrative data through a corporate approach supported by common tools**

- Ensure an Agency-level coordination of external collaboration (interdepartmental, intergovernmental and international) led by the division responsible for administrative data. Coordinate and support efforts with the appropriate administrative structures, governance, resource allocation and communications plans.
  - ▶ Administrative Data Division
- Require all projects that deal with methods or processes associated with administrative data to pass through Agency-level approval. This practice of using a corporate committee for administrative data management fosters development and implementation of consistent practices, and achieves long-term benefits including increased relevance, gains in efficiency and reduction of response burden.
  - ▶ Administrative Data Management Committee
- Maintain a repository of information on administrative data holdings and initiatives within the Agency. This repository includes tools for use of administrative data (i.e., Metadata Explorer, Tax Data Navigator), an inventory of administrative data files that have been obtained or are in the process of being obtained by the Agency and a collection of relevant, high-level documentation on administrative data.
  - ▶ Administrative Data Inventory
- Standardize pre-processing of administrative data. Create and maintain centralized databases of processed administrative data, including tax data. Require that “downstream” processes draw from these databases, rather than processing administrative data independently.
- Ensure the confidentiality, security and integrity of administrative data provided to Statistics Canada. Protect administrative data with equivalent physical, technological and organizational provisions as survey data obtained directly by the Agency. Apply enhanced security measures when warranted by the sensitivity of administrative data, such as for tax data or health information. Ensure that only authorized staff has access to specific databases, controlled through a centralized system.
  - ▶ Policy on Privacy and Confidentiality
  - ▶ Information Technology Security Policy
  - ▶ Directive on the Security of Sensitive Statistical Information
  - ▶ Directive on the Transmission of Protected Information
  - ▶ Corporate Access Request System

## E. Allocation and management of resources

### Description

The production of most Statistics Canada outputs is supported financially through government revenues allocated to the Agency. Other resources also requiring constant management include human resources, information technology and infrastructure.

It is important to identify and harvest efficiencies in order to fund improvements and new initiatives and to provide a cushion against funding stresses. Consequently the Agency strives to minimize the resources consumed (efficiency) while ensuring that outputs are fit for use (effectiveness).

### Assessment

Statistics Canada's allocation and management of resources are assessed by evaluating the extent to which the Agency:

1. implements effective strategies for organization and management
2. ensures continued production of relevant, high-quality and timely information through effective long-term planning and priority-setting
3. pursues efficiencies through centralization of resources, consolidation of services and use of generalized systems
4. pursues efficiencies in administrative services, infrastructure and technology
5. implements effective project management
6. implements human resources management practices that optimize the contribution of its workforce and demonstrate its commitment to quality.

### Implementation

Statistics Canada undertakes a broad range of specific initiatives to effectively allocate and manage resources in its statistical programs. Below is a list of such initiatives, in groups that correspond to the items under Assessment.

#### E.1 Statistics Canada implements effective strategies for organization and management

- Corporately optimize decision-making. Decisions regarding resource management and allocation are ultimately decided by the Executive Management Board (EMB). However, various internal committees, with specialties in particular subjects, recommend decisions to the EMB. These recommendations are based on reviews that consider the Agency's overall priorities, gaps, risks and budget.
  - ▶ Corporate Business Plan (<http://www.statcan.gc.ca/eng/about/bp>)
  - ▶ Corporate Risk Profile
  - ▶ Field Planning Boards
  - ▶ Integrated Risk Management Guidelines
- Objectively evaluate the Agency's use of resources by fully participating in external audits, scheduling regular internal evaluations and reviews to evaluate objectives in relation to cost, and producing corporate performance indicators that quantify program efficiency.
- Maintain the capacity (staff, infrastructure) to produce custom products in response to client requests for cost-recovery work.
  - ▶ Information on Custom Surveys (<http://www.statcan.gc.ca/eng/cs/overview>)
- Mitigate vulnerability to funding stresses by setting aside sufficient contingency funds, in part through instilling a culture that promotes efficiency.
- Centralize control and monitoring of financial administration, human resources management and information technology infrastructure at the Agency level.

## **E.2 Statistics Canada ensures continued production of relevant, high-quality and timely information through effective long-term planning and priority-setting**

- Implement a sound planning and priority-setting process at the Agency level. This process considers a long-term horizon. It works on an annual planning cycle and covers all stages of planning where financial, human resources and informatics needs are all considered together. It includes a review of corporate priorities and integrates risk management, investment planning, and evaluation into the planning process.
  - ▶ Integrated Strategic Planning Process
  - ▶ Integrated Business and Human Resources Plan
  - ▶ Information Technology Plan
- Forecast regular and strategic investments necessary to preserve quality and continuity of statistical programs over time. This forecast covers an extended horizon (10 years) and considers the cyclical nature of specific statistical programs (e.g., five-year Census cycle, 10-year redesign cycle for certain surveys) when planning redesigns and other program modifications or enhancements. A separate fund exists for initiatives that cannot be covered by program area base budgets.
  - ▶ Continuity and Quality Maintenance Investment Plan
  - ▶ Continuity and Quality Management Fund
- Target efficiencies by regularly conducting Agency-wide reviews of systems and practices. Statistics Canada has in place the Corporate Business Architecture which is a long-term Agency-wide review and modernization that covers the business processes, business rules, computer systems and internal organizational and physical infrastructure that Statistics Canada uses to carry out its main business of collecting, analyzing and publishing statistical information. By consolidating processes and standardizing systems where necessary, cost savings are achieved while still maintaining high standards of quality and timeliness.
  - ▶ Corporate Business Architecture
- Communicate plans and priorities to employees and stakeholders. Besides publicly available documents, internal communication includes the Chief Statistician's annual address and subsequent article published in the Statistics Canada electronic employee newsletter.
  - ▶ Departmental Reports (<http://www.statcan.gc.ca/eng/about/reports2>)

## **E.3 Statistics Canada pursues efficiencies through centralization of resources, consolidation of services and use of generalized systems**

- Limit the number of business processes and computer systems in place; that is, encourage re-use of existing systems. Foster ease of transition of employees between projects by consolidating computer applications and minimizing the number of hardware and software products (tool kits) in use.
- Ensure efficient allocation by centralizing specialized resources and services. Examples include informatics and methodology resources, frame infrastructures for economic and social surveys and administrative data processing operations.
- Establish single corporate service areas for statistical services to generate and capture economies of scale. Mandate their use by requiring justification of local exceptions. This plan involves common processing environments for business and social surveys, a corporate collection service and a single collection system.
  - ▶ Integrated Collection and Operation System
- Develop, promote and support the use of a suite of Statistics Canada generalized systems and common tools.
  - ▶ Generalized Systems Resource Centre
- Streamline data processing activities. In particular, eliminate rework (e.g., editing at multiple stages of the survey process) and pay particular attention to resource-intensive steps such as collection and manual processes such as editing and coding. For example, selective editing can be used to prioritize application

of effort to where it will have the greatest impact on estimates, and responsive collection uses paradata to optimally schedule interviews.

#### **E.4 Statistics Canada pursues efficiencies in administrative services, infrastructure and technology**

- Introduce transformation and modernization initiatives for infrastructure. This includes physical space reduction and modernization, replacement of landline telephones with cellphones and migration of department-specific email systems to a common framework.
  - ▶ Cost Effective Telephone Services Infrastructure
  - ▶ Email Transformation Initiative
- Undertake periodic modernization of the computer network and informatics infrastructure. This includes improvements to informatics security, standardization of employee software toolkit (desktop) and migration of local processing platforms to centralized ones (e.g., SAS Grid).
  - ▶ Network Transformation Initiative
- Centralize and modernize delivery of administrative and other support services. In particular: streamline and standardize through use of Agency-standard business processing systems for human resources management and financial administration; replace paper-based methods by electronic request and approval; and consolidate editorial and translation services.

#### **E.5 Statistics Canada implements effective project management**

- Require the use of a standard project management process, templates and tools covering the entire project lifecycle. This process includes project “gating” (approval and monitoring) at the field level within the Agency.
  - ▶ Departmental Project Management Framework
  - ▶ Departmental Project Management Office
  - ▶ Field Planning Boards
- Require supplemental procedures for evaluation of the informatics component of new projects.
  - ▶ Informatics Technology Architecture Committee (includes the Technical Review Committee and the Security Review Committee)
  - ▶ Integrated Security and Risk Framework
- Facilitate project management by mapping projects to statistical process models.
  - ▶ Generic Statistical Business Process Model  
(<http://www1.unece.org/stat/platform/display/GSBPM/GSBPM+v5.0>)
- Minimize misunderstanding and ensure project goals are respected through effective change management.
  - ▶ Changes, Issues and Risk Management Tool
  - ▶ Change Advisory Board
- Provide tools for monitoring and evaluating project resources. Performance reports, monthly financial reporting and project dashboards are required of each program.
  - ▶ Departmental Project Management Framework

#### **E.6 Statistics Canada implements human resources management practices that optimize the contribution of its workforce and demonstrate its commitment to quality**

- Effectively manage appointment and promotion. Centralized recruitment programs for core professional groups, generic competitions for all management levels and comprehensive “career streams” for all major groups are all standard practices which contribute to the effective use of resources.

- Ensure Statistics Canada’s human resources meet the Agency’s needs in terms of both strength and qualification. Regular Agency-wide performance monitoring and feedback (including training needs), talent management and mentoring are ways of enhancing staff performance.
  - ▶ Training Policy and Framework
- Anticipate future needs through effective human resources management and planning, including succession planning.
  - ▶ Integrated Business and Human Resources Plan
- Cultivate employee motivation, professionalism and engagement. Statistics Canada motivates employees by fostering innovation, as well as by a positive and healthy workplace including physical exercise facilities, flexible work opportunities and a Wellness Centre.
  - ▶ Innovation Channel

## F. Management of relations with data users and stakeholders

### Description

Building and sustaining good relations with its data users and stakeholders is vital for the success of a national statistical office (NSO). Data users and stakeholders transform statistical information into knowledge, as needed for political debate, decision-making or research. When statistical information is fit for use, data users and stakeholders gain confidence in the NSO, return to it for future information and, in some instances, provide the NSO with the support it needs to carry out its work.

The focus of this chapter is activities Statistics Canada undertakes to build and sustain relations with data users and stakeholders. It is important to note that some data users and stakeholders may interact with Statistics Canada in other capacities, such as survey respondents or providers of administrative data.

### Assessment

Statistics Canada's efforts pertaining to managing its relations with data users and stakeholders are assessed by evaluating the extent to which the Agency:

1. makes information about itself readily available
2. improves its programs through the participation of data users and stakeholders
3. ensures all Canadians have equitable and timely access to its data products and information releases
4. meets the communications and support services needs of specialized groups of data users and stakeholders
5. partners and collaborates effectively with other federal departments and agencies and with provincial, territorial and local governments.

### Implementation

Statistics Canada undertakes a broad range of specific initiatives to build and maintain effective relations with its data users and stakeholders. Below is a list of such initiatives, in groups that correspond to the items under Assessment.

#### F.1 Statistics Canada makes information about itself readily available

- State the Agency's mandate and objectives clearly on its website.
  - ▶ About Statistics Canada (<http://www.statcan.gc.ca/eng/about/about?MM=>)
  - ▶ Statistics Canada (the Agency) (<http://www.statcan.gc.ca/eng/about/agency?MM=>)
  - ▶ Mandate and objectives (<http://www.statcan.gc.ca/eng/about/mandate>)
  - ▶ We are Statistics Canada (video) (<http://www.statcan.gc.ca/eng/about/video/statcan>)
  - ▶ Fundamental Principles of Statistics (video) (<http://www.statcan.gc.ca/eng/about/video/fpos>)
- Publicly identify the Agency's stakeholders and the uses to which it puts information it collects.
  - ▶ Stakeholders (<http://www.statcan.gc.ca/eng/about/stakeholders>)
  - ▶ Partners (external links) (<http://www.statcan.gc.ca/eng/reference/partners-eng>)
  - ▶ How data are used (<http://www.statcan.gc.ca/eng/about/used>)
- Convey information regarding the Agency's priorities, initiatives and progress to the public, stakeholders and employees. Various reports are listed on its website, including its report to Parliament, the Corporate Business Plan and internal audit reports.
  - ▶ Departmental Reports (<http://www.statcan.gc.ca/eng/about/reports2>)
  - ▶ Chief Statistician's annual address and subsequent article in the Statistics Canada electronic employee newsletter



## F.2 Statistics Canada improves its programs through the participation of data users and stakeholders

- Regularly engage in consultation with Canadians to gauge satisfaction, seek input and test functionality, using a variety of methods. For example, the Agency consults with: users, as part of program review and evaluation; business and industry associations and labour unions, in particular to learn about information needs and reporting preferences; not-for-profit organizations including community groups, social organizations and volunteer groups; and interested groups on particular programs (e.g., Census of Population content). When possible, the results of consultation are made available to the public.
  - ▶ Consulting Canadians (<http://www.statcan.gc.ca/eng/consultation/index-eng?MM>)
  - ▶ Consultation FAQs (<http://www.statcan.gc.ca/eng/consultation/faq-eng>)
  - ▶ Client satisfaction (<http://www.statcan.gc.ca/eng/consultation/calend-t1-eng>)
- Use advisory groups of experts to ensure the Agency's programs remain relevant in light of emerging needs and trends, to verify its methods remain sound and to foster exchanges that shed light on stakeholder needs and priorities. These groups include the National Statistics Council and executive and professional advisory committees on statistical methods and in each of the major subject-matter areas.
  - ▶ Advisory Groups (<http://www.statcan.gc.ca/eng/about/relevant>)
- Maintain extensive contacts with international, scientific and intergovernmental organizations and membership in international organizations to ensure the Agency's outputs meet international standards and that Canadian data continue to be comparable with those of other countries.
  - ▶ Federal Government Departments (<http://www.statcan.gc.ca/eng/reference/goc-gdc-eng>)
  - ▶ Canadian Statistical Organizations (<http://www.statcan.gc.ca/eng/reference/organ-eng>)
  - ▶ International Organizations and Expert Groups (<http://www.statcan.gc.ca/eng/reference/other-autres-eng>)
  - ▶ International Cooperation (<http://www.statcan.gc.ca/eng/about/cooperation>)

## F.3 Statistics Canada ensures all Canadians have equitable and timely access to its data products and information releases

- Publish release dates well in advance. The pre-planned release schedule is publicly available and any pre-release access is communicated transparently. Further, procedures exist for cases where data are released prematurely.
  - ▶ Release Schedule (<http://www.statcan.gc.ca/dai-quo/cal3-eng.htm>)
  - ▶ Directive on the Security of Sensitive Statistical Information
  - ▶ Information and Privacy Breach Protocol (<http://www.statcan.gc.ca/eng/about/pia/generic/section8>)
- Require that all releases pass through a uniform dissemination service. Currently *The Daily* is Statistics Canada's official release bulletin.
  - ▶ Policy on Official Release
  - ▶ Directive on the Distribution of Registered Statistics Canada Products
  - ▶ *The Daily* (<http://www.statcan.gc.ca/dai-quo/index-eng.htm?HPA>)
  - ▶ Policy on Communications and Federal Identity (<http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=30683>)
- Correct errors in a structured, timely and transparent fashion.
  - ▶ Directive on Corrections to *Daily* Releases and Statistical Products
- Minimize the barrier of cost by providing a set of standard products free of charge on the Statistics Canada website.

- Produce and promote a broad range of statistical products, and define a fair and balanced policy for funding these on a cost-recovery basis. For example, research papers, analytical products, specialized tabulations, as well as the design and implementation of customized surveys, are available.
  - ▶ Research Papers and Analytical Products (<http://www5.statcan.gc.ca/researchers-chercheurs/index.action?lang=eng&start=1&end=25&search=&sort=0&themeld=0&date=&series=&author=&the meState=-1&dateState=-1&seriesState=-1&authorState=-1&showAll=false&univ=7&MMI>)
  - ▶ Information on Custom Surveys (<http://www.statcan.gc.ca/eng/cs/overview>)
  - ▶ Pricing of Cost-Recovery Projects
  - ▶ Policy on Service Standards for External Fees

#### **F.4 Statistics Canada meets the communications and support services needs of specialized groups of data users and stakeholders**

- Work with the media and others to maximize awareness, in particular by encouraging re-dissemination of Statistics Canada information products through use of modern information technology and an open-data licence agreement that requires no payment of fees for specific data products. This approach includes applications for smartphone and tablet access, a presence on social media (including Facebook, Twitter and YouTube), a regular blog and a facility to interact with Agency specialists.
  - ▶ Stay connected (<http://www.statcan.gc.ca/eng/sc/index?MM>)
  - ▶ Statistics Canada blog (<http://www.statcan.gc.ca/eng/sc/blog?MM>)
  - ▶ Chat with an expert (<http://www.statcan.gc.ca/eng/chatwithanexpert?MM>)
  - ▶ Statistics Canada Open Licence Agreement (<http://www.statcan.gc.ca/eng/reference/licence-eng>)
  - ▶ Directive on Licensing
- Provide special and dedicated services for members of the media.
  - ▶ Media Enquiries ([http://www.statcan.gc.ca/dai-quo/smr01/smr01\\_000-eng.htm](http://www.statcan.gc.ca/dai-quo/smr01/smr01_000-eng.htm))
  - ▶ Directive on Media Relations
- Facilitate researcher access to data without compromising data security and confidentiality. Apply protocols regarding external user access to statistical microdata for research purposes. These protocols apply to external researchers working at Statistics Canada's offices and at its Research Data Centres. They also cover the use of microdata accessed externally via universities, or through remote access.
  - ▶ Policy on Microdata Access
  - ▶ Directive on the Use of Deemed Employees
  - ▶ Directive on the Security of Sensitive Statistical Information
  - ▶ Research Data Centres (<http://www.statcan.gc.ca/rdc-cdr/index-eng.htm>)
  - ▶ Federal Research Data Centres (<http://www.statcan.gc.ca/eng/rdc/frdc>)
  - ▶ Canadian Centre for Data Development and Economic Research (<http://www.statcan.gc.ca/cder-cdre/index-eng.htm>)
  - ▶ Data Liberation Initiative (<http://www.statcan.gc.ca/eng/dli/dli>)
  - ▶ Real Time Remote Access (<http://www.statcan.gc.ca/eng/rtra/rtra>)
- Put in place a commitment to serve clients in a prompt, reliable, courteous and fair manner and maintain lines of communication with them. This commitment includes a single point of contact for respondent inquiry and a follow-up response to complaints and concerns.
  - ▶ Standards of Service to the Public (<http://www.statcan.gc.ca/eng/about/service/standards>)
- Explain the value and benefits of quality official statistics to data users and stakeholders.
  - ▶ Policy on Informing Users of Data Quality and Methodology (<http://www.statcan.gc.ca/eng/about/policy/info-user>)
  - ▶ Directive on Documenting Statistical Metadata

## **F.5 Statistics Canada partners and collaborates effectively with other federal departments and agencies and with provincial, territorial and local governments**

- Maintain close bilateral relationships with key federal departments and agencies through connection at the senior management and other levels. These relationships are supported through participation of the Chief Statistician in policy and program discussions with other deputy ministers, through participation in federal government research initiatives and through inter-departmental committees. These contacts foster an awareness of respective needs and information priorities, and allow the Agency to keep abreast of emerging needs.
  - ▶ Advisory Groups (<http://www.statcan.gc.ca/eng/about/relevant>)
  - ▶ Inter-departmental committees
- Collaborate and liaise with provincial and territorial focal points and other representatives. Determine provincial and territorial data requirements, consult on current statistical activities, harmonize provincial and territorial statistics to produce national estimates, and coordinate the dissemination of Statistics Canada's products to provincial and territorial governments.
  - ▶ Federal-Provincial-Territorial (FPT) Consultative Council on Statistical Policy
  - ▶ Subcommittees of FPT Consultative Council on Statistical Policy
- Provide special liaison, consultation and coordination in the areas of health, education and justice, which are primarily under provincial jurisdiction. Examples include assistance to the Board of Directors of the Canadian Institute for Health Information and participation in the Canadian Education Statistics Council and the Justice Information Council.
- Maintain lines of communication with local and regional governments.

## Statistical Outputs

### G. Relevance

#### Description

Statistics Canada aims to provide its data users and stakeholders with information on subjects that are important to them, and in a format and within a time frame that facilitates their research, analysis, decision-making and communications. The **relevance** of statistical information reflects the degree to which it meets the needs of data users and stakeholders.

Managing relevance requires ensuring that the Agency's programs remain aligned with information needs as they evolve. Being aware of changing priorities and having the flexibility to respond to them are vital to ensuring continued relevance.

#### Assessment

Statistics Canada's efforts to maintain relevance of its statistical programs are assessed by evaluating the extent to which the Agency:

1. captures emerging trends and changes to the Canadian sociological and economic framework, and thus identifies information gaps in its current statistical programs
2. communicates information about its mandate, values, priorities and management practices to data users and stakeholders
3. ensures continued production of relevant, high-quality and timely information through long-term planning and priority-setting
4. supports refreshment of current statistical programs and promotion of new initiatives by identifying and redirecting savings in existing programs and by procuring additional funding.

#### Implementation

Statistics Canada undertakes a broad range of specific initiatives to maintain relevance in its statistical programs. Below is a list of such initiatives, in groups that correspond to the items under Assessment.

#### G.1 Statistics Canada captures emerging trends and changes to the Canadian sociological and economic framework, and thus identifies information gaps in its current statistical programs

- Seek input from data users and stakeholders so that Statistics Canada keeps abreast of changes in society, culture and commerce and the impact of these changes. This engagement is accomplished through such practices as meetings of the Chief Statistician and senior managers with counterparts internationally and in other federal departments, federal-provincial-territorial meetings, use of advisory groups of subject-matter and technical experts, and advocacy groups. Further, liaison with businesses, not-for-profit organizations, consortia of data users, the media and other secondary distributors of data are also used.
  - ▶ Advisory Groups (<http://www.statcan.gc.ca/eng/about/relevant>)
  - ▶ National Statistics Council
  - ▶ Inter-departmental committees
  - ▶ Federal-Provincial-Territorial (FPT) Consultative Council on Statistical Policy
  - ▶ Subcommittees of FPT Consultative Council on Statistical Policy
  - ▶ Stakeholders (<http://www.statcan.gc.ca/eng/about/stakeholders>)
  - ▶ International Organizations and Expert Groups (<http://www.statcan.gc.ca/eng/reference/other-autres-eng>)
- Regularly consult with Canadians to monitor data user and stakeholder satisfaction with the current statistical programs, using a variety of methods. For example, the Agency consults with: business and

industry associations, small-business advocacy groups and labour unions, in particular to learn about information needs and reporting preferences; not-for-profit organizations including community groups, social organizations and volunteer groups; and interested groups on particular programs (e.g., Census of Population content). When possible, the results of consultation are made available to the public.

- ▶ Consulting Canadians (<http://www.statcan.gc.ca/eng/consultation/index-eng?MM>)
- ▶ Consultation FAQs (<http://www.statcan.gc.ca/eng/consultation/faq-eng>)
- ▶ Client satisfaction (<http://www.statcan.gc.ca/eng/consultation/calend-t1-eng>)
- Supplement the current statistical program with additions funded on a cost-recovery basis. Develop and maintain the capacity to respond quickly to demands for information on matters of current interest. Allow additions funded on a cost-recovery basis to become part of the core statistical program, if appropriate.
  - ▶ Information on Custom Surveys (<http://www.statcan.gc.ca/eng/cs/overview>)
- Gather information on the use of Statistics Canada's products and services. Statistics Canada's division responsible for dissemination tracks data users and the uses to which they put statistical products. Usage and other statistics are compiled along with bibliometric and webometric analyses. Feedback from data analysts identifies gaps and weaknesses in data holdings.

## **G.2 Statistics Canada communicates information about its mandate, values, priorities and management practices to data users and stakeholders**

- State the Agency's mandate and objectives clearly on its website.
  - ▶ About Statistics Canada (<http://www.statcan.gc.ca/eng/about/about?MM=>)
  - ▶ Statistics Canada (the Agency) (<http://www.statcan.gc.ca/eng/about/agency?MM=>)
  - ▶ Mandate and objectives (<http://www.statcan.gc.ca/eng/about/mandate>)
  - ▶ We are Statistics Canada (video) (<http://www.statcan.gc.ca/eng/about/video/statcan>)
  - ▶ Fundamental Principles of Statistics (video) (<http://www.statcan.gc.ca/eng/about/video/fpos>)
- Publicly identify the Agency's stakeholders and the uses to which it puts information it collects.
  - ▶ Stakeholders (<http://www.statcan.gc.ca/eng/about/stakeholders>)
  - ▶ Partners (external links) (<http://www.statcan.gc.ca/eng/reference/partners-eng>)
  - ▶ How data are used (<http://www.statcan.gc.ca/eng/about/used>)
- Convey information regarding the Agency's priorities, initiatives and progress. Various reports are listed on its website, including the report to Parliament, the Corporate Business Plan and internal audit reports.
  - ▶ Departmental Reports (<http://www.statcan.gc.ca/eng/about/reports2>)
- Provide supporting information to data users and stakeholders regarding the content, quality and timing of Statistics Canada's products. The pre-planned release schedule is publicly available. At release, standard documentation is disseminated such as the definitions, data sources and methods for each survey and statistical program, user guides, quality reports and technical reports. The above information includes changes to concepts, definitions, classifications and methods, as well as any deviations from international standards and other practices.
  - ▶ Policy on Informing Users of Data Quality and Methodology (<http://www.statcan.gc.ca/eng/about/policy/info-user>)
  - ▶ Release Schedule (<http://www.statcan.gc.ca/dai-quo/cal3-eng.htm>)
  - ▶ Integrated Metadatabase
  - ▶ Directive on Documenting Statistical Metadata

### **G.3 Statistics Canada ensures continued production of relevant, high-quality and timely information through long-term planning and priority-setting**

- Manage priority-setting and planning to ensure continued relevance. Weigh competing needs objectively, based on usage statistics and other information, when elaborating Agency-level priorities, and set program-level priorities accordingly. Assess quality of existing statistical programs and adapt to changing needs efficiently and quickly through responsive allocation and flexible deployment of resources. An integrated strategic planning process includes a review of corporate priorities and integrates risk management, investment planning, and evaluation into the planning process.
  - ▶ Integrated Strategic Planning Process
  - ▶ Integrated Business and Human Resources Plan
  - ▶ Information Technology Plan
- Forecast the regular and strategic investments necessary to preserve quality and continuity of statistical programs over time. This forecast covers an extended horizon (10 years) and considers the cyclical nature of specific statistical programs (e.g., five-year Census cycle, 10-year redesign cycle for certain surveys) when planning redesigns and other program modifications or enhancements. A separate fund exists for initiatives that cannot be covered by program area base budgets.
  - ▶ Continuity and Quality Maintenance Investment Plan
  - ▶ Continuity and Quality Management Fund
- Continuously review programs from the perspective of evolving data user and stakeholder needs, and make necessary adjustments to program content. The annual strategic planning sessions provide a forum for addressing relevance issues, as does the annual risk assessment activity. The division responsible for dissemination identifies products for which demand has declined.
- Conduct external audits of statistical programs and benchmarking to external indicators, as required.

### **G.4 Statistics Canada supports refreshment of current statistical programs and promotion of new initiatives by identifying and redirecting savings in existing programs and by procuring additional funding**

- Target efficiencies by regularly conducting Agency-wide reviews of systems and practices. Statistics Canada has in place the Corporate Business Architecture which is a long-term Agency-wide review and modernization that covers the business processes, business rules, computer systems and internal organizational and physical infrastructure that Statistics Canada uses to carry out its main business of collecting, analyzing and publishing statistical information. By consolidating processes and standardizing systems where necessary, cost savings are achieved while still maintaining high standards of quality and timeliness.
  - ▶ Corporate Business Architecture
- Regularly review the cost-effectiveness of statistical programs, in particular those required to meet legislative or regulatory requirements. Manage survey collection, processing operations, dissemination practices and quality assurance procedures so that the resulting statistics will meet needs in a cost-effective fashion. Look for operational efficiencies, in particular by managing and exploiting interdependency among statistical programs.
  - ▶ Quality Guidelines (<http://www5.statcan.gc.ca/olc-cel/olc.action?objId=12-539-X&objType=2&lang=en&limit=0>)
  - ▶ Policy on Standards (<http://www.statcan.gc.ca/eng/about/policy/standards>)
- Partner with stakeholders, especially other federal government departments, to finance valuable additions to the national statistical database, in particular to meet legislative or regulatory requirements or to provide information for policy development and evaluation.

## H. Accuracy and reliability

### Description

Statistics Canada aims to develop, produce and disseminate information that presents its data users and stakeholders with a true reflection of reality. The **accuracy** of statistical information refers to the degree to which it correctly describes the phenomena it was designed to measure. The accuracy of statistical estimates is usually quantified by the evaluation of different sources of error, where the magnitude of an error represents the degree of difference between the estimate and the true value. Common sources of error include coverage, non-response, measurement and processing. For estimates derived from survey data, an additional error source is sampling error, which reflects the fact that the estimates are computed from samples, rather than the entire population.

Related to accuracy is the concept of **reliability**, which reflects the degree to which statistical information, consistently over time, correctly describes the phenomena it was designed to measure. That is, reliability characterizes repeated observations of accuracy, over time. Reliability applies both to multiple measurements of the same phenomenon (e.g., preliminary, final and revised estimates) and to a series of measurements (e.g., monthly estimates of the employment rate).

A definitive assessment of accuracy and reliability is impeded by the fact that an estimate needs to be compared with a true value that possibly cannot be expressed quantitatively or that can be obtained only at great expense. Consequently, much evaluation of accuracy and reliability is qualitative, described by the steps taken to mitigate sources of error. One exception is sampling error, for which a sound mathematical framework exists and quantitative measures, estimates of variance, are typically calculated and made available. The variance is a measure of **precision**. In contrast to accuracy, precision expresses how close the estimates are to their average value, rather than to the true value. Other measures of precision, such as coefficients of variation and confidence intervals, can be derived from the variance. The term **bias** is used to describe average differences between estimates and the true value. Bias is generally due to systematic or non-random sources of error.

In managing accuracy, investment in a strong statistical methods research program increases the capacity to improve accuracy without increasing cost or impacting timeliness, through the incorporation of state-of-the-art statistical techniques.

### Assessment

Statistics Canada's efforts pertaining to accuracy and reliability are assessed by evaluating the extent to which the Agency:

1. incorporates quality assurance measures into program and process design, implementation and execution
2. manages and monitors accuracy during implementation and execution of its statistical programs and processes
3. assesses accuracy and reliability, both pre-release and post-release, and communicates the results.

### Implementation

Statistics Canada undertakes a broad range of specific initiatives to promote accuracy and reliability in its statistical programs. Below is a list of such initiatives, in groups that correspond to the items under Assessment.

## H.1 Statistics Canada incorporates quality assurance measures into program and process design, implementation and execution

- Design and implement a process quality management plan, which includes quality assurance actions and practices to ensure that the process reliably produces the desired results and products, and indicators reflecting the effectiveness of the quality assurance actions and practices. The process quality management plan: includes results from intermediate processing steps; uses information obtained to correct problems detected and reduce error incidence; and also includes process control of manual operations, as needed.
  - ▶ Directive and Guidelines for the Validation of Statistical Outputs
  - ▶ Quality Guidelines  
(<http://www5.statcan.gc.ca/olc-cel/olc.action?objId=12-539-X&objType=2&lang=en&limit=0>)
- Establish accuracy targets for key estimates (variable and domain). Program areas define requirements for corporate performance indicators of accuracy, including the contribution of non-response adjustment.
  - ▶ Quality Guidelines  
(<http://www5.statcan.gc.ca/olc-cel/olc.action?objId=12-539-X&objType=2&lang=en&limit=0>)
  - ▶ Guidelines on coefficients of variation
  - ▶ Corporate performance indicators (coefficient of variation)
- Maintain or improve accuracy while minimizing response burden and cost by identifying and considering alternate sources of the same or similar data, including existing survey data and administrative data. The reduction in response burden is managed in part by the corporate committee responsible for administrative data management.
  - ▶ Administrative Data Management Committee
- Study and evaluate new and alternative statistical methods. Consider their impact on accuracy, reliability and other dimensions of quality as part of the evaluation of design alternatives. The research is guided by an advisory committee of experts and supported by a research fund.
  - ▶ Advisory Committee on Statistical Methods
  - ▶ Methodology Research Block Fund
- Develop expertise in statistical techniques and improve accuracy through incorporating such refinements. Examples of such techniques include calibration, benchmarking and seasonal adjustment.
  - ▶ Time Series Research and Analysis Centre
- Establish, maintain and periodically evaluate survey frames. The use of centrally-maintained frames ensures up-to-date and consistent coverage and classification of target populations for survey programs. Program areas assess coverage of their target population by the proposed survey frame, for the entire population and significant sub-populations.
- Objectively weigh trade-offs between accuracy and other factors, including relevance, timeliness, cost and response burden, both before deciding to undertake a survey and when planning each aspect of it.

## H.2 Statistics Canada manages and monitors accuracy during implementation and execution of its statistical programs and processes

- Execute a process quality management plan. Monitor and interpret indicators reflecting the effectiveness of quality assurance actions and practices. Process quality monitoring is integrated into regular on-going management functions.
- Assess and validate administrative and other source data using standardized guidelines for detecting and correcting errors and assessing accuracy.
  - ▶ Administrative Data Management Committee



- Ensure effective questionnaire design through adequate justification for each question asked, standardized terminology, banks of common questions, and appropriate pre-testing and review. A corporate resource centre is mandated to review and evaluate each questionnaire against these standards.
  - ▶ Questionnaire Design Resource Centre
  - ▶ Policy on the Review and Testing of Questionnaires
- Implement adequate measures for encouraging response, following-up non-response and compensating for total and item non-response.

### **H.3 Statistics Canada assesses accuracy and reliability, both pre-release and post-release, and communicates the results**

- Evaluate the accuracy and reliability of estimates. Program areas conduct an evaluation after each survey cycle and document results. They track differences between target and realized values of measures of accuracy and analyze sampling errors and non-sampling errors in the post-release evaluation of each survey cycle. Reliability can then be studied by analyzing errors over time. Program areas identify best practices, lessons learned and insights gained, and then recommend improvements. This information is shared with other programs within Statistics Canada.
- Address quickly and uniformly errors detected in published estimates and inform users transparently.
  - ▶ Directive on Corrections to *Daily Releases* and Statistical Products
- Ensure that preliminary or revised data are clearly identified as such to users, and that users are provided with the accuracy indicators necessary to make effective use of them. Produce and make public information that quantifies differences between preliminary, final and revised estimates, and use this information to improve the survey process.
- Report data quality and methodology information necessary for data users. Require discussion of sources of error and estimates of accuracy for key variables and domains as part of data quality and methodology information provided to users. Periodically compile and disseminate quality reports. Include both a qualitative and quantitative analysis of all types of errors.
  - ▶ Policy on Informing Users of Data Quality and Methodology (<http://www.statcan.gc.ca/eng/about/policy/info-user>)
  - ▶ Directive on Documenting Statistical Metadata
  - ▶ Corporate performance indicators (coefficient of variation and response rate)

## I. Timeliness and punctuality

### Description

Statistics Canada strives to make its data products available as quickly as possible and to respect its commitments to data availability. The **timeliness** of a data product is defined as the length of time between the end of the reference period (or the reference date) to which the data relate and the date the product is made available. **Punctuality** refers to the difference between planned and actual availability.

Alternate definitions may be used for other products and services. For example, timeliness of a custom data request may be defined as the length of time between the receipt and delivery of a request. For new initiatives, the definition of timeliness may be extended to include development time. Using a new survey as an example, timeliness may be defined as the length of time between the commitment to conduct the survey and the release of its data.

These definitions view timeliness and punctuality from the user perspective (i.e., relative to release or delivery), and will be the basis of discussion in this chapter. Despite efforts to introduce innovation and to effectively manage resources, gains in timeliness may require or lead to affecting other dimensions of quality. Consequently, the impact on other dimensions of quality must be considered when evaluating efforts to improve timeliness.

### Assessment

Statistics Canada's efforts pertaining to timeliness and punctuality are assessed by evaluating the extent to which the Agency:

1. defines policies that reflect its commitment that Canadians have equitable and timely access to its data products and information releases
2. effectively manages user expectations and other issues related to timeliness and punctuality
3. communicates release dates transparently and ensures equitable and timely access to data
4. implements methods to evaluate timeliness and punctuality and to improve outcomes.

### Implementation

Statistics Canada undertakes a broad range of specific initiatives to promote timeliness and punctuality in its statistical programs. Below is a list of such initiatives, in groups that correspond to the items under Assessment.

#### I.1 Statistics Canada defines policies that reflect its commitment that Canadians have equitable and timely access to its data products and information releases

- Address both scheduling of release dates and how users and stakeholders are informed about them. The policies outline release procedures and suggest timeliness targets, and they allow for flexibility (i.e., release procedures appropriate for the type of data product, and timeliness targets that reflect the length of the reference period). Timeliness targets are guided by international dissemination standards.
- Outline the procedures for modifying release dates. Users and stakeholders are informed of the reasons for any changes and of new release dates. Further, the policies outline scheduled revisions to data products and inform users about unplanned corrections as quickly and transparently as possible.
- Eliminate incentives for interested parties to influence or delay a particular release for their own benefit through transparency regarding release dates.
- Implement practices to support the Agency's commitment to monitor release dates and track divergence from them.
  - ▶ Policy on Official Release
  - ▶ Directive on the Distribution of Registered Statistics Canada Products
  - ▶ Policy on Communications and Federal Identity  
(<http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=30683>)

## I.2 Statistics Canada effectively manages user expectations and other issues related to timeliness and punctuality

- Consult data users and stakeholders on issues related to timeliness and punctuality. This is done by engaging with data users and stakeholders through such practices as meetings of the Chief Statistician and senior managers with counterparts internationally and in other federal departments, federal–provincial–territorial meetings, internal and external advisory committees and working groups.
  - ▶ Advisory Groups (<http://www.statcan.gc.ca/eng/about/relevant>)
  - ▶ National Statistics Council
  - ▶ Professional Advisory Committees
  - ▶ Inter-departmental committees
  - ▶ Federal-Provincial-Territorial (FPT) Consultative Council on Statistical Policy
  - ▶ Subcommittees FPT Consultative Council on Statistical Policy
  - ▶ Stakeholders (<http://www.statcan.gc.ca/eng/about/stakeholders>)
  - ▶ International Organizations and Expert Groups (<http://www.statcan.gc.ca/eng/reference/other-autres-eng>)
- Give explicit consideration to timeliness in design, planning and project management. A production schedule is created in consultation with the collection, processing and dissemination teams. The schedule is effectively managed through collaboration between the project team and Statistics Canada’s corporate collection service. Conflicts, lapses and other threats to punctuality are identified and evaluated based on their impact and likelihood. Contingency plans and other recourses are elaborated and employed as needed.
- Include quality assurance, peer and professional review and other preventative measures in the timelines. Trade-offs between timeliness, other dimensions of quality and cost are managed effectively so that fitness for use, fiscal responsibility and other Statistics Canada priorities are not compromised.
  - ▶ Policy on Peer and Institutional Review
  - ▶ Quality Guidelines (<http://www5.statcan.gc.ca/olc-cel/olc.action?objId=12-539-X&objType=2&lang=en&limit=0>)
- When feasible, make preliminary data or other leading indicators available, with guidance on their quality and appropriate use. Differences in magnitude and direction between preliminary, revised and final estimates are tracked and used to assess the timeliness–accuracy balance. Persistent or predictable biases in preliminary data are identified and, when possible, addressed in estimation.
- Effectively manage user expectations regarding timeliness and data availability through communication of Agency priorities and constraints. Feedback on the impact of timeliness on relevance to users and stakeholders is of particular interest to the Agency.

## I.3 Statistics Canada communicates release dates transparently and ensures equitable and timely access to data

- Publish release dates well in advance. A single release calendar includes all key economic indicators and major releases planned in the next 12 months. The release calendar is easily accessible with a link on the main page of *The Daily* and gives users and stakeholders sufficient advance notice of upcoming releases.
  - ▶ Release schedule (<http://www.statcan.gc.ca/dai-quo/cal3-eng.htm>)
- Require that all releases pass through a uniform dissemination service, where *The Daily* is Statistics Canada’s official release bulletin. It is made public at a standard time and port of entry (i.e., 8:30 a.m. Eastern time).
  - ▶ Policy on Official Release
  - ▶ Policy on Communications and Federal Identity (<http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=30683>)

- ▶ Directive on the Distribution of Registered Statistics Canada Products
- ▶ *The Daily* (<http://www.statcan.gc.ca/dai-quo/index-eng.htm?HPA>)
- Correct errors in a structured, timely and transparent fashion.
  - ▶ Directive on Corrections to *Daily* Releases and Statistical Products
- Work with the media and others to maximize exposure and awareness of Statistics Canada’s releases. Releases are scheduled so that they do not overshadow each other and do not coincide with other major (planned) news events. User and media anticipation of data releases is built through effective communication and outreach activities. Various social media (including, Facebook, Twitter, YouTube, Statistics Canada blog and “Chat with an expert”) are used to communicate with users. A media spokesperson is always available on release day. Further, many free products are available on the website and the re-dissemination of Statistics Canada information products is encouraged through an open-data licence agreement that requires no payment of fees for specific data products.
  - ▶ Directive on Media Relations
  - ▶ Stay connected (<http://www.statcan.gc.ca/eng/sc/index>)
  - ▶ Statistics Canada blog (<http://www.statcan.gc.ca/eng/sc/blog?MM>)
  - ▶ Chat with an expert (<http://www.statcan.gc.ca/eng/chatwithanexpert?MM>)
  - ▶ Statistics Canada Open Licence Agreement (<http://www.statcan.gc.ca/eng/reference/licence-eng>)

#### **I.4 Statistics Canada implements methods to evaluate timeliness and punctuality and to improve outcomes**

- Develop and implement effective project management tools. A departmental project management office provides support in the development of common processes and tools to improve the timely delivery of projects in a cost-effective fashion while adhering to quality standards and meeting client needs. A supporting framework exists as a set of standard project management processes, templates and tools.
  - ▶ Departmental Project Management Office
  - ▶ Departmental Project Management Framework
- Develop, calculate and publish quality indicators related to timeliness and punctuality and use them to improve outcomes.
  - ▶ Corporate performance indicators (timeliness and punctuality) J. Accessibility and clarity

## J. Accessibility and clarity

### Description

Statistics Canada's goal is to make its official statistics and data products available to meet the information needs of all Canadians. **Accessibility** refers to the ease with which users are able to identify, obtain and use statistical products and services. **Clarity** refers to the degree to which metadata and other information are provided so that users are able to locate and select products or services that correspond to their needs.

Accessibility and clarity apply to all Statistics Canada products and services: statistical products (i.e., aggregate tables, analytical articles), data access programs and other requests (i.e. custom surveys, specialized tabulations, services). They also apply to metadata and other support provided with a product or service. Many factors that influence data availability and access, such as dissemination policies and data access systems, are determined by Agency-wide initiatives. Individual program areas also play a vital role by designing statistical products and providing them in formats that meet user needs. User experience is an important aspect to consider when evaluating accessibility and clarity; i.e., from beginning a search, to identifying and obtaining a product or service and completing the related work.

The Agency must balance the increasing demand for data and the desire to minimize barriers to access with its obligation to protect the privacy and confidentiality of respondents and to ensure equitable access for all Canadians.

### Assessment

Statistics Canada's efforts pertaining to accessibility and clarity are assessed by evaluating the extent to which the Agency:

1. publicizes products and services, including the availability of metadata and other supplementary resources
2. delivers products and services in an impartial and open manner, and ensures equitable access by minimizing cost barriers
3. facilitates the finding of information about products and services so that users can make informed decisions about which ones meet their needs
4. enables the use of its products, by providing clear procedures on accessing them, providing products in formats compatible with user requirements, and ensuring barrier-free redistribution of its data
5. fosters correct use of information products by using clear, audience-appropriate presentation, combined with informative and useful resource materials
6. supports and promotes its data-access programs and services.

### Implementation

Statistics Canada undertakes a broad range of specific initiatives to promote accessibility and clarity in its statistical programs. Below is a list of such initiatives, in groups that correspond to the items under Assessment.

#### J.1 Statistics Canada publicizes products and services, including the availability of metadata and other supplementary resources

- Work with the media and others to maximize awareness, in particular by encouraging re-dissemination of Statistics Canada information products through use of modern information technology and an open-data licence agreement that requires no payment of fees for specific data products. This approach includes applications for smartphone and tablet access, a presence on social media (including Facebook, Twitter and YouTube), a regular blog and a facility to interact with Agency specialists.
  - ▶ Stay connected (<http://www.statcan.gc.ca/eng/sc/index?MM>)
  - ▶ Statistics Canada blog (<http://www.statcan.gc.ca/eng/sc/blog?MM>)
  - ▶ Chat with an expert (<http://www.statcan.gc.ca/eng/chatwithanexpert?MM>)
  - ▶ Statistics Canada Open Licence Agreement (<http://www.statcan.gc.ca/eng/reference/licence-eng>)
  - ▶ Directive on Licensing

- Provide special and dedicated services for members of the media.
  - ▶ Media enquiries ([http://www.statcan.gc.ca/dai-quo/smr01/smr01\\_000-eng.htm](http://www.statcan.gc.ca/dai-quo/smr01/smr01_000-eng.htm))
  - ▶ Directive on Media Relations
- Publish release dates well in advance. A single release calendar includes all key economic indicators and major releases planned in the next 12 months. The release calendar is easily accessible with a link on the main page of *The Daily* and gives users sufficient advance notice of upcoming releases.
  - ▶ Release schedule (<http://www.statcan.gc.ca/dai-quo/cal3-eng.htm>)

## **J.2 Statistics Canada delivers products and services in an impartial and open manner, and ensures equitable access by minimizing cost barriers**

- Require that all releases pass through a uniform dissemination service, where *The Daily* is Statistics Canada's official release bulletin. It is released at a standard time and port of entry (i.e., 8:30 a.m. Eastern time) each business day.
  - ▶ Policy on Official Release
  - ▶ Directive on the Distribution of Registered Statistics Canada Products
  - ▶ Release schedule (<http://www.statcan.gc.ca/dai-quo/cal3-eng.htm>)
  - ▶ *The Daily* (<http://www.statcan.gc.ca/dai-quo/index-eng.htm?HPA>)
  - ▶ Policy on Communications and Federal Identity (<http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=30683>)
- Promote availability by specifying requirements for non-release or restricted release of data. Ensure decisions regarding release are independent of funding source or stakeholder.
  - ▶ Directive on Access to Information and Privacy
- Minimize the barrier of cost by providing standard products, for each statistical program, free of charge on the Statistics Canada website.
- Produce and promote a broad range of statistical products, and define a fair and balanced policy for funding these on a cost-recovery basis. For example, research papers, analytical products, specialized tabulations, as well as the design and implementation of customized surveys, are available.
  - ▶ Research Papers and Analytical Products (<http://www5.statcan.gc.ca/researchers-chercheurs/index.action?lang=eng&start=1&end=25&search=&sort=0&themeld=0&date=&series=&author=&theMeState=-1&dateState=-1&seriesState=-1&authorState=-1&showAll=false&univ=7&MMI>)
  - ▶ Information on Custom Surveys (<http://www.statcan.gc.ca/eng/cs/overview>)
  - ▶ Pricing of Cost-Recovery Projects
  - ▶ Policy on Service Standards for External Fees

## **J.3 Statistics Canada facilitates the finding of information about products and services so that users can make informed decisions about which ones meet their needs**

- Provide modern search capabilities on a single, well-known point of entry to Statistics Canada's online presence, as well as a catalogue and customer service to help users find the desired products. Manage inquiries clearly and consistently.
  - ▶ Statistics Canada website (<http://www.statcan.gc.ca/>)
  - ▶ Standards of Service to the Public (<http://www.statcan.gc.ca/eng/about/service/standards>)
- Provide clear descriptions of products and services, as well as links to complementary information, such as methodological notes and quality measures through the Integrated Metadatabase.
  - ▶ Integrated Metadatabase

- Ensure that Statistics Canada products and metadata are stored in centralized repositories in a logical and organized fashion. The dissemination framework and the socioeconomic database CANSIM are two such examples.
  - ▶ Statistics Canada Dissemination Model
  - ▶ CANSIM (<http://www5.statcan.gc.ca/cansim/a01?lang=eng>)
- Ensure that past products, including those produced before electronic release and storage, are properly archived.
  - ▶ Web Archiving Directive

**J.4 Statistics Canada enables the use of its products, by providing clear procedures on accessing them, providing products in formats compatible with user requirements, and ensuring barrier-free redistribution of its data**

- Tailor outputs to conform to medium-specific content guidelines and standards.
  - ▶ Our Commitment to Accessibility (<http://www.statcan.gc.ca/eng/reference/accessnotice>)
- Ensure that outputs are available in alternate formats to accommodate users with special needs (e.g., outputs in large print or Braille available free of charge, upon request).
- Ensure that outputs are compatible with common user software.
- Develop tools that automate data retrieval and display, and offer them free of charge.
- Encourage citation, quotation, and transmission (re-dissemination) of Statistics Canada information products by the media and other users through the use of modern information technology and social media, and an open-data licence agreement that requires no payment of fees for specific data products.
  - ▶ Policy on Document Management
  - ▶ Directive on Licensing
  - ▶ Statistics Canada Open Licence Agreement (<http://www.statcan.gc.ca/eng/reference/licence-eng>)
- Provide channels for users to interact with Statistics Canada, to communicate their needs, to get support, and to provide feedback.

**J.5 Statistics Canada fosters correct use of information products by using clear, audience-appropriate presentation, combined with informative and useful resource materials**

- Ensure the consistency of messages by using a controlled media-spokesperson strategy.
  - ▶ Directive on Media Relations
- Ensure clear and comprehensible presentation of information products by adhering to publication guidelines and other content standards.
  - ▶ Statistics Canada Publishing Guidelines
  - ▶ Policy on Highlights of Publications
- Ensure consistency of information products over time by specifying standard concepts, definitions and classifications, and adopting best practices.
  - ▶ Policy on Standards (<http://www.statcan.gc.ca/eng/about/policy/standards>)
- Minimize errors and inconsistencies in information products by implementing quality assurance procedures, including staff training and institutional and peer reviews.
  - ▶ Quality Guidelines (<http://www5.statcan.gc.ca/olc-cel/olc.action?objId=12-539-X&objType=2&lang=en&limit=0>)
  - ▶ Policy on Peer and Institutional Review

- Ensure users are able to obtain supporting materials, such as metadata, user guides, help lines, quality reports and supplemental software.
  - ▶ Policy on Informing Users of Data Quality and Methodology (<http://www.statcan.gc.ca/eng/about/policy/info-user>)
- Share analytical tools developed by Statistics Canada to foster the consistent use of the data and to make typical data transformations easier for users.

## **J.6 Statistics Canada supports and promotes its data-access programs and services**

- Facilitate researcher access to microdata without compromising data security and confidentiality, by using secure remote-access tools and flexible staffing arrangements.
  - ▶ Policy on Microdata Access
  - ▶ Directive on the Use of Deemed Employees
  - ▶ Directive on the Security of Sensitive Statistical Information
  - ▶ Research Data Centres (<http://www.statcan.gc.ca/rdc-cdr/index-eng.htm>)
  - ▶ Federal Research Data Centres (<http://www.statcan.gc.ca/eng/rdc/frdc>)
  - ▶ Canadian Centre for Data Development and Economic Research (<http://www.statcan.gc.ca/cder-cdre/index-eng.htm>)
  - ▶ Data Liberation Initiative (<http://www.statcan.gc.ca/eng/dli/dli>)
  - ▶ Real Time Remote Access (<http://www.statcan.gc.ca/eng/rtra/rtra>)
- Facilitate access to Statistics Canada’s staff and expertise through consultation, participation in peer groups, and international and private-sector collaboration.
- Define objective release or suppression criteria for custom tabulations and other special requests. Implement a vetting process that includes confidentiality measures.
  - ▶ Quality Guidelines (<http://www5.statcan.gc.ca/olc-cel/olc.action?objId=12-539-X&objType=2&lang=en&limit=0>)
  - ▶ Policy on Microdata Release
  - ▶ Guidelines for the Release of Microdata Files
- Ensure that software and other non-data products, such as generalized systems, are marketed effectively to benefit Statistics Canada and users.
  - ▶ Policy on Software Dissemination



## K. Coherence and comparability

### Description

Statistics Canada aims to develop, produce and disseminate statistics that are consistent and comparable over time and across jurisdictions, and can be used in conjunction with information from other sources. **Coherence** of statistics refers to the extent to which they are logically consistent in terms of definition and measurement and thus can be reliably combined in different ways and for various uses. **Comparability** refers to the extent to which differences over time or among sources can be attributed to changes in the true values of the statistics, and not to changes in definition or measurement.

The use of standard concepts, definitions, classifications and target populations promotes coherence and comparability, as does the use of common methodology, statistical techniques and processes across surveys. Lack of coherence or comparability is generally attributed to two primary sources: differences in concepts and definitions; and differences in collection, processing and dissemination methods. In the first case, the target of measurement is not consistent; in the second, the process of measurement introduces inconsistency.

### Assessment

Statistics Canada's efforts pertaining to coherence and comparability are assessed by evaluating the extent to which the Agency:

1. applies concepts, definitions, frameworks and protocols uniformly to ensure consistency across its statistical programs and to facilitate comparison over time and with alternate sources of related information
2. designs and implements common methods for data collection, processing and dissemination to minimize inconsistency during operations and to manage change between cycles
3. verifies outputs, including comparisons with estimates from other sources and related information
4. provides documentation and other supplementary information and applies statistical techniques to help users make meaningful comparisons over time and with other sources.

### Implementation

Statistics Canada undertakes a broad range of specific initiatives to promote coherence and comparability in its statistical programs. Below is a list of such initiatives, in groups that correspond to the items under Assessment.

#### K.1 Statistics Canada applies concepts, definitions, frameworks and protocols uniformly to ensure consistency across its statistical programs and to facilitate comparison over time and with alternate sources of related information

- Develop and maintain a protocol for statistical standards. Statistical standards apply to concepts, definitions, frameworks, units, variables, classification systems and target populations. The Agency promotes and monitors the adoption of statistical standards uniformly across statistical programs. Exceptions to statistical standards are justified and documented.
  - ▶ Policy on Standards (<http://www.statcan.gc.ca/eng/about/policy/standards>)
- Maintain and disseminate information on statistical standards in a corporate metadata repository. The elements in the repository are updated, changes are tracked and users are informed.
  - ▶ Definitions, Data Sources and Methods (<http://www.statcan.gc.ca/eng/concepts/index>)
  - ▶ Integrated Metadatabase
  - ▶ Directive on Documenting Statistical Metadata
  - ▶ Policy on Informing Users of Data Quality and Methodology (<http://www.statcan.gc.ca/eng/about/policy/info-user>)

- Provide structures and tools that support administration and governance of statistical standards. A corporate committee assists and advises on the development, approval and application of statistical standards and metadata within the Agency’s programs. A specific division is responsible for all the classifications and standards - including industry, product, occupation and education classifications, geography and economic accounts - used by Statistics Canada.
  - ▶ Corporate Management Framework (<http://www.statcan.gc.ca/eng/about/cmf>)
  - ▶ Methods and Standards Committee
  - ▶ Standards Division
  - ▶ Standards Bulletin
- Participate in the development of national and international standards and other frameworks, and encourage consistency with them. Statistics Canada participates in numerous development groups, such as those of the United Nations Statistics Division and the United Nations Economic Commission for Europe. The Agency is also involved in groups developing standard classification systems such as the North American Industrial Classification System and the National Occupational Classification-Statistics.
  - ▶ Definitions, Data Sources and Methods (<http://www.statcan.gc.ca/eng/concepts/index>)
- Set up cross-program committees to ensure that quantities being estimated bear relation to each other through use of consistent terminology, commonly formulated questions and comparable variable definitions. In particular, maximize consistency both within (e.g., between quarterly and annual estimates, and between preliminary and final estimates) and across statistical programs.
  - ▶ Policy on Standards (<http://www.statcan.gc.ca/eng/about/policy/standards>)
  - ▶ Policy on the Review and Testing of Questionnaires
  - ▶ Questionnaire Design Resource Centre
- Participate in various external fora, such as working groups and subject-matter expert groups, to engage with other national statistical offices in recognizing and promoting national and international best practices, arithmetic and accounting identities and other standards. Ensure communication of information so that program areas are acquainted with and guided by national and international best practices and cutting-edge methods.
  - ▶ International Cooperation (<http://www.statcan.gc.ca/eng/about/cooperation>)
- Ensure program areas periodically assess compliance with standards and frameworks as well as consistency and comparability with related administrative data, other estimates from Statistics Canada and estimates from elsewhere.

**K.2 Statistics Canada designs and implements common methods for data collection, processing and dissemination to minimize inconsistency during operations and to manage change between cycles**

- Use standardized frameworks and systems to support process management.
  - ▶ Generic Statistical Business Process Model (<http://www1.unece.org/stat/platform/display/GSBPM/GSBPM+v5.0>)
  - ▶ Generic Statistical Information Model
- Develop and use common frames and processing environments. Examples of these are the Business Register, Household Survey Frame Service, Social Survey Processing Environment and the Integrated Business Statistics Program.
- Optimize use of generalized systems and corporate services.
  - ▶ Generalized Systems Resource Centre
  - ▶ Resource and support centres

- Ensure internal consistency of outputs during operations. In particular, ensure that changes to definitions or other inputs are incorporated, arithmetic or accounting operations do not lead to discrepancies (e.g., rounding)<sup>8</sup> and that outputs of complementary processes are integrated properly.
  - ▶ Quality Guidelines (<http://www5.statcan.gc.ca/olc-cel/olc.action?objId=12-539-X&objType=2&lang=en&limit=0>)
  - ▶ Quality Assurance Framework
  - ▶ Directive and Guidelines for the Validation of Statistical Outputs
  - ▶ Quality Secretariat
- Implement an appropriate structure for approval and testing when developing and implementing new software applications and other processing tools. Develop appropriate guidelines and other oversight tools and structures, as needed.
- Ensure consistency of message and convenient user access through a corporate dissemination framework and access tools such as *The Daily* and tables from the Agency's socioeconomic database CANSIM.
  - ▶ Statistics Canada Dissemination Model
  - ▶ Directive on Media Relations
  - ▶ Directive on Corrections to *Daily* Releases and Statistical Products
  - ▶ *The Daily* (<http://www.statcan.gc.ca/dai-quo/index-eng.htm?HPA>)
  - ▶ CANSIM (<http://www5.statcan.gc.ca/cansim/a01?lang=eng>)

### **K.3 Statistics Canada verifies outputs, including comparisons with estimates from other sources and related information**

- Reconcile estimates and outputs with other comparable statistical and administrative sources on similar subjects, including previous estimates from the same statistical program. Any differences are identified and substantiated.
  - ▶ Directive on the Management of Aggregate Statistics
- Elaborate a strategy for detecting and correcting errors in previously released data. Retroactive corrections are implemented, if necessary.
  - ▶ Directive on Corrections to *Daily* Releases and Statistical Products
- For redesigns and other significant changes in survey methodology or international standards, explain breaks in series and develop methods for reconciliation. Produce historical revisions when deemed appropriate. For example, a data series is updated when a classification framework is revised.
- Solicit feedback from users, in particular their experience in producing historical series, comparing estimates between statistical programs, and comparing the Agency's outputs with those of other sources. Identify inadequacies and issues.

### **K.4 Statistics Canada provides documentation and other supplementary information and applies statistical techniques to help users make meaningful comparisons over time and with other sources**

- Document changes to concepts, definitions, classifications and methods, including changes between preliminary and final estimates. Changes are expressed in quantitative terms when possible.
  - ▶ Directive on Documenting Statistical Metadata

8. Ensuring consistency and comparability does not necessarily imply full numerical consistency.

- Produce and distribute quality reports and other supporting methodological documentation that address internal consistency, comparability over time and comparability with other statistics. Changes to important parameters and methods are emphasized, as well as deviations from international standards and other practices.
  - ▶ Policy on Informing Users of Data Quality and Methodology (<http://www.statcan.gc.ca/eng/about/policy/info-user>)
- Provide quantitative and qualitative information that allows users to compensate for differences in periodicity, survey population, variable definitions and processing methods when comparing data from different sources and comparing data over time.
  - ▶ Integrated Metadatabase
  - ▶ Directive on Media Relations
- Develop expertise in statistical techniques and produce data products that incorporate such refinements. Examples of such techniques include calibration, benchmarking and seasonal adjustment.
  - ▶ Time Series Research and Analysis Centre
  - ▶ Advisory Committee on Statistical Methods
  - ▶ Methodology Research Block Fund

## L. Interpretability and management of metadata

### Description

Statistics Canada has a responsibility to provide both statistical information and the necessary tools and guidance to ensure its proper interpretation and appropriate use. Without such tools and guidance, statistical information is of limited use and its interpretation becomes subject to the bias of the user. There is also a risk of information products becoming a liability to the Agency if they are misunderstood or misinterpreted as supporting a particular agenda. **Interpretability** refers to the ease with which users are able to understand, properly analyze and draw correct inferences from statistical information. **Statistical metadata** are defined as “information about statistical data and the statistical business process”.<sup>9</sup> Thus managing interpretability primarily involves providing metadata<sup>10</sup> so that the statistical information can be understood and used appropriately.

The information needed to understand statistical data falls under three broad headings. **Concepts, variables and classifications that underlie the data** define what is being measured or estimated in the statistical information product, and are required by users to assess the product’s relevance to their needs. Information on the **methodology of data collection, processing and dissemination** addresses how the concept is being measured, in particular whether methods were scientific, objective and carefully implemented. If users are aware of the methodology, they can choose the appropriate analytical tools. **Data-quality measures** quantify how well the concept was measured and help users associate the appropriate level of confidence with the results.

### Assessment

Statistics Canada’s efforts pertaining to interpretability are assessed by evaluating the extent to which the Agency:

1. enshrines metadata requirements in policies and practices
2. provides users with the basic information they need to interpret data
3. strives to ensure the correct interpretation of its data releases by the media and the public
4. establishes metadata requirements for public-use microdata files and custom data products.

### Implementation

Statistics Canada undertakes a broad range of specific initiatives to provide, manage and disseminate metadata and thus promote interpretability in its statistical programs. Below is a list of such initiatives, in groups that correspond to the items under Assessment.

#### L.1 Statistics Canada enshrines metadata requirements in policies and practices

- Define policies that specify metadata requirements for every statistical product and data release, including the provision of information on data quality and methodology. Responsibility is directly assigned to ensure that these requirements are met.
  - ▶ Directive on Documenting Statistical Metadata
  - ▶ Policy on Informing Users of Data Quality and Methodology (<http://www.statcan.gc.ca/eng/about/policy/info-user>)
- Define a governance for metadata. To ensure that statistical metadata are managed as a corporate resource, governance for statistical metadata needs to be established at the Agency level. This will allow the management of statistical metadata to be coordinated across the Agency, in particular for statistical metadata that cross domains, organizational groups or systems.
  - ▶ Metadata Architecture Modernization

9. The source of this definition of statistical metadata is Statistics Canada’s Strategy for Statistical Metadata Management. In summary, it defines statistical metadata as information relating to designing, producing and disseminating statistical products. It distinguishes statistical metadata from other information that contributes to the production of statistical products, including regulatory, financial management, administrative and security information.

10. Statistical metadata are a specific type of metadata, which is commonly defined as “information about information”. As the focus is statistical information, the term “metadata” will be used to refer to statistical metadata.

- Define a metadata management structure. The Agency’s metadata architecture includes the establishment of operational governance as well as formalization of centres of responsibility for statistical metadata.
  - ▶ Strategy for Statistical Metadata Management
- Ensure that metadata are aligned with statistical business processing standards.
  - ▶ Generic Statistical Business Process Model (<http://www1.unece.org/stat/platform/display/GSBPM/GSBPM+v5.0>)
- Ensure that metadata are reviewed regularly and updated when needed, particularly prior to data releases.
- Define processes to ensure that the exchange of metadata between projects is transparent and efficient.

## **L.2 Statistics Canada provides users with the basic information they need to interpret data**

- Establish an integrated metadata repository that contains the information needed to describe each of Statistics Canada’s data holdings.
  - ▶ Directive on Documenting Statistical Metadata
  - ▶ Integrated Metadatabase
- Ensure that metadata are released concurrently with the data product. At release, standard documentation is produced and disseminated such as the Integrated Metadatabase (which publishes definitions, data sources and methods for each survey and statistical program), user guides (which accompanies a dataset release to provide background details on the data and methods), and technical reports (which explain procedures used in the creation of the statistics). Program areas also produce quality reports and other supporting methodological information needed for users to make meaningful comparisons over time and with other sources of information. The above reports provide information on changes to concepts, definitions, classifications and methods, as well as any deviations from international standards and other practices.
  - ▶ Policy on Informing Users of Data Quality and Methodology (<http://www.statcan.gc.ca/eng/about/policy/info-user>)
  - ▶ Release Schedule (<http://www.statcan.gc.ca/dai-quo/cal3-eng.htm>)
  - ▶ Integrated Metadatabase
  - ▶ Directive on Documenting Statistical Metadata
- Provide metadata in formats that are convenient to users and in language that is understood by users and not obscured by statistical jargon.
- Include the usefulness and adequacy of metadata in discussions with data users and stakeholders.
  - ▶ Consulting Canadians (<http://www.statcan.gc.ca/eng/consultation/index-eng?MM>)
  - ▶ Consultation FAQs (<http://www.statcan.gc.ca/eng/consultation/faq-eng>)
  - ▶ Client satisfaction (<http://www.statcan.gc.ca/eng/consultation/calend-t1-eng>)

## **L.3 Statistics Canada strives to ensure the correct interpretation of its data releases by the media and the public**

- Implement a clear, timely and consistent communications strategy. Such a strategy ensures that the media and the public understand and draw the correct inferences from information in a data release, in particular when they first read or hear about it.
- Publicly address misinterpretations of the Agency’s data.
  - ▶ Policy on Highlights of Publications
  - ▶ Directive on Media Relations

**L.4 Statistics Canada establishes metadata requirements for public-use microdata files and custom data products**

- Provide a record layout and documentation of concepts and definitions.
- Provide a “codebook”, data dictionary or other source of coding and classification details.
- Provide metadata in a format compatible with the data file (i.e., in the same software).
  - ▶ Policy on Information Management

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