Compliance Audit

on the

Policy on Informing Users
of Data Quality and Methodology

REPORT

Audit and Evaluation Division
June 2002

Statistics Canada   Statistique Canada

Canada

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Auditor's Statement

I have completed the internal audit of compliance with the Statistics Canada Policy on Informing Users of Data Quality and Methodology. The objective of this audit was to assess the extent to which statistical products comply with the standards for mandatory documentation in section E.1 of the Policy on Informing Users of Data Quality and Methodology and identify causes for non-compliance. In doing so, it was to identify suggestions or best practices to foster increased compliance.

This internal audit was carried out in accordance with the Internal Auditing Standards for the Government of Canada. During the audit period, I examined 24 statistical products and interviewed approximately 65 employees.

I concluded that for the products examined, there is general compliance with the content requirements in the standard for mandatory documentation. However, they do not follow the prescribed structure—the headings, ordering and the standard message to users emphasizing the importance of metadata. These conclusions are based on the assessment of findings against pre-established criteria and agreed to by the Internal Audit Committee in November 2001 and reflect the audit work conducted principally between December 2001 and March 2002.

In my opinion, sufficient and appropriate audit work has been performed and evidence gathered to support the conclusions contained in this audit report.

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Beverly Prentice

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Date

I. Introduction

Background
Providing users with data quality and methodology information has been a traditional responsibility of programs producing statistical products. Today, with the Internet giving easy access to information to a variety of users with varying needs, the onus to provide data quality and methodology information has never been greater. Making information available about the economic, social and general conditions of the country and its citizens is at the core of Statistics Canada's mandate. The availability of corresponding metadata sufficient to assess 'fitness for use' is an important part of making information accessible.

In April 1999, the Office of the Auditor General tabled its report with a chapter on *Managing the Quality of Statistics at Statistics Canada* containing recommendations to improve practices in informing users of data quality and methodology. As part of Statistics Canada's response to the Standing Committee on Public Accounts on actions taken in relation to this chapter, Statistics Canada stated that a compliance audit of the Policy on Informing Users of Data Quality and Methodology would be initiated in FY 2000-01. Work began in March 2001, with terms of reference approved in July 2001 and modified that November.

In March 2000, the Agency's Policy Committee approved a revision to its Policy on Informing Users of Data Quality and Methodology — from now on, called the policy. It recognizes the need for consistent presentation of data quality and methodology information. The Agency is implementing the Integrated Metadata Base as a strategic tool supporting data dissemination and playing an important role in satisfying the policy requirements. The policy expects that for most statistical products, the same text will meet the needs of the IMDB and the policy requirements and anticipates that web-based (html) products linked to complete entries in the IMDB will result in compliance.

Purpose and Objective
The purpose and objective of this audit is to provide senior management with an independent assessment of the extent to which its policy on Informing Users of Data Quality and Methodology is applied consistently across products and dissemination media. As such, the audit was to assess compliance with the standards for mandatory documentation in section E.1 of the policy and identify causes for non-compliance. In doing so, it was to identify suggestions or best practices to foster increased compliance.

II. Methodology

Scope
The audit focused on registered statistical products disseminated recently by Statistics Canada regardless of dissemination format. It excluded custom products prepared for individual clients on a cost-recovery basis and the Agency's web site, including, for example, CANSIM information.

Criteria

Based upon the standards for mandatory documentation in section E.1 of the policy, we expected to find that products met minimum mandatory standards for all statistical products. Appendix A contains a summary of the elements in E.1.

Approach

The audit team, including a methodologist, developed three tools:

- a self-assessment questionnaire, covering both components of the requirements—the content of the methodology and data quality information, and the use of required headings to structure this content. Subject-matter staff were asked to score their product independently of the auditor. The extent of compliance is based on this tool, with scoring results agreed through discussion at a meeting.
- a participants' questionnaire to tap knowledge of the policy, its application and explore reasons for non-compliance, administered during the meeting with subject-matter staff; and
- interview questions to more fully explore these reasons and ways to mitigate them.

Using the catalogue of products and services for the period August 1, 2000 to July 31, 2001[1], we randomly selected one product from each of 24 subject-matter divisions in National Accounts and Analytic Studies; Business and Trade Statistics; and Social, Institutions and Labour Statistics fields. Within National Accounts and Analytic Studies, Socio-economic and Business Analysis Branch was excluded. The sample of 24 products was designed to give good exposure to divisional practices for producing statistical products. However, the sample product chosen for each division does not represent all products produced by that division. Therefore, results of the self-assessment are indicative rather than conclusive.

III. Findings

We found general compliance with the content elements. However, products we reviewed did not follow the prescribed structure—the headings, ordering and the standard message to users emphasizing the importance of metadata. The structure was new to the March 2000 policy revision. Products continue to contain different structures using a variety of headings, something that the revision was designed to improve.

While section E.1 is mandatory, it requires considered interpretation with regard to a product's purpose, content and audience. There were a few examples where content was very well covered and in our view, authors exercised sound judgement in how the information was structured, although different from the policy. The policy recognizes different ways of accomplishing its objectives and allows applications for exemption. However, having individual products comply with the structure would not only enhance

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[1] Once a catalogue number had been selected and just before work began, we verified that we were assessing the most recent product.

the presentation of metadata to users, but offer consistency to those users accessing the IMDB.

Awareness of the policy emerged as the most important factor contributing to non-compliance. Without referencing the policy, existing products are simply updated or experience and examples thought to be good are used. Interviewees were surprised to learn that the policy describes specific requirements for how to structure metadata.

With regard to content elements, strongest compliance was with information on reference period, data sources, conceptual universe / target population, data accuracy issues and acknowledging that data are subject to error. Weakest compliance was observed with statements about processing methodology, size of revisions and measures or rates of coverage.

Subject-matter staff expressed difficulty interpreting some of what was required. While fictional examples in the policy were helpful, they noted that real ones covering a variety of contexts would help more. The policy contains fictional examples because existing ones were not available, but with the intention that real ones would take their place over time. With growing policy awareness and corresponding implementation, real examples should materialize.

Improvements are most easily implemented in products based on a single survey. Those working with products using multiple data sources or compendiums reported that the policy better suited a survey questionnaire environment. Those responsible had not thoroughly considered the policy with respect to their product or other products from the program area. However, most recognized a need to make improvements. In-depth consideration of how best to comply with the policy and its spirit will offer reasonable ways to implement policy elements that on the face of it, seem difficult to apply.

Participants see getting data released and analysed as top priorities. They recognize that giving users good metadata is important, and that they have a role to play in following the policy. Relative to top priorities, they feel less pressure, both internally and from external users to change existing metadata. Users are not asking subject-matter staff for more meta-data and have confidence in results.

The resources required to achieve full compliance will vary with circumstances. The policy gives responsibility to directors of program areas to include "requirements to satisfy this Policy in the design, schedule and budget of new or redesigned statistical activities, programs or products" and therefore many workload issues can be addressed in this fashion. Similarly, directors of program areas are responsible for "ensuring that procedures to generate the information on data quality needed to satisfy this Policy have been, or are, developed and implemented".

IV. Conclusion

For the products examined, we observed general compliance with the content requirements in the standard for mandatory documentation. With respect to corresponding structural elements, we did not find any example that complied with this aspect of the policy. Unawareness of specific policy requirements emerged as an important explanation. However, awareness was heightened for audit participants, representing a key by-product of the audit. Additional investment to put this aspect of the policy into practice would make a significant contribution in providing consistency for users.

Many interviewees indicated that they would make improvements in line with policy requirements so that their products complied completely. These commitments need reinforcement to see improvement and our recommendations address this, respecting the allocation of responsibilities under the policy.

V. Recommendations

1. The Methods and Standards Committee identify ways to provide information, publicity, and sustained guidance to support policy implementation, including the IMDB as a key tool that supports it.

2. Directors of statistical program areas monitor compliance in accordance with their responsibilities under the policy and report on their performance in biennial and quadrennial program reviews; and the Methods and Standards Committee evaluate the quality of this reporting.

3. In program areas where the application of the policy is more challenging, divisions consult closely with Methodology Branch in interpreting the policy within their context. The Methods and Standards Committee can provide any additional guidance that may be required.

The management action plan in response to these recommendations is attached as Appendix B.

Appendix A—Summary of The Standards: Mandatory Documentation[2]

Each statistical product shall include, have imbedded within or be accompanied by:
1. Notes to users (if applicable)

Survey or program name
2. Standard introductory message

Data sources and methodology
3. Conceptual universe and target population
4. Data sources and sampling and collection methodology
5. Processing and estimation methodology
6. Reference period
7. Revisions (if applicable)
8. Adjustments (if applicable)

Concepts and variables measured
9. Definitions of key concepts, variables (or characteristics) and classifications used
10. Definitions of key indicators, indices, or other key data or analytical result provided

Data Accuracy
11. Description of data accuracy issues, measures of different types of error
12. Measure of coverage or coverage rating (for census, survey & administrative data)
13. Measure of sampling error and summary of sample design (for sample surveys)
14. Response rate, handling of non-response, imputation rate and its contribution to the estimates.

Comparability of data and related sources
15. Statement describing comparability issues over time, and reason why (if applicable)

Other Quality Indicators and Assessments (if applicable)
16. Summary of analytic approach, method and discuss effects of accuracy issues
17. Description of other important sources of error
18. Appendices (as necessary)

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[2] Contained in section E.1 of the Policy on Informing Users of Data Quality and Methodology, March 2000
The policy is available in the Agency's Policy Manual on the Internal Communications Network under 'Reference' and on the Statistics Canada web site under 'Statistical Methods'.

Appendix B—Management Action Plan

Recommendations	Management Action Plan	Responsible for Action	Estimated Completion Date	Status
1. The Methods and Standards Committee identify ways to provide information, publicity, and sustained guidance to support policy implementation, including the IMDB as a key tool that supports it.	The Committee will discuss ways (e.g., training, dissemination support, more publicity, etc.) to support policy implementation, paying particular attention to the linkage between the policy and the IMDB. (Additional management information is available from the audit to facilitate discussion.) From this, it will formulate a more detailed plan.	Methods and Standards Committee (MSC)	Dec. 2002	Training possibilities have been reviewed and a module is planned for the fall 2002 Middle Managers meeting. Discussion of all aspects scheduled for the MSC Oct. 2002 meeting
2. Directors of statistical program areas monitor compliance in accordance with their responsibilities under the policy and report on their performance in biennial and quadrennial program reviews; and the Methods and Standards Committee evaluate the quality of this reporting.	The Committee will ask the Quality Secretariat to evaluate the quality of reporting on its behalf. Corporate Planning Division will propose that guidelines for BPR and QPR be modified to require that reports address this element when it applies.	Quality Secretariat Corporate Planning Division Director	ongoing Autumn 2002	
3. In program areas where the application of the policy is more challenging, divisions consult closely with Methodology Branch in interpreting the policy within their context. The Methods and Standards Committee can provide any additional guidance that may be required.	As one program area facing such challenges, System of National Accounts (SNA) will address the issue at a branch level. Standards Division collaborate with SNA to adjust the data collection tool for the IMDB.	SNA Steering Committee DG -Methodology Branch Standards Division Director	 Dec. 2002	 Standards Division is already collaborating with a SNA division