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# SEMINAR ON INCREASING THE EFFICIENCY AND PRODUCTIVITY OF STATISTICAL OFFICES SESSION I

Statistical Program Planning at Statistics Canada

Submitted by Statistics Canada<sup>1</sup>

#### **INTRODUCTION**

- 1. The effectiveness of statistical programs, that is the extent to which they meet their intended purposes, is crucially dependent on good planning. Without it, statistical programs can lose their real and perceived usefulness in the eyes of data users, respondents and ultimately, citizens and their representatives. As such, maintaining an effective planning capacity is a survival issue for statistical agencies.
- 2. This planning capacity, in whatever form it takes as a planning system, must fulfill the basic functions of gathering information on the "as is" condition of statistical programs, facilitate the articulation of the "to be" condition desired, provide a process for generating proposals to bridge the

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<sup>&</sup>lt;sup>1</sup> This paper has been prepared at the invitation of the secretariat

gap and support priority setting and decision making. To be effective, the planning system must also interface with a management system that is supple and responsive enough to give effect to the resulting planning decisions.

- 3. What do we mean by a statistical program? For the purposes of this paper, a statistical program is a set of activities that result in the production and dissemination of statistical information. It can be thought of in a traditional input-process-output model, in which input refers to observations regarding a population of interest, process refers principally to aggregation and output refers to statistical information and analyses. The statistical program of a given country/jurisdiction is the sum of all such activities carried out by the national statistical institute and its partners in the national statistical system. Given the almost limitless possibilities, and the almost always limited capacity, the main question in statistical program planning is what statistics to produce.
- 4. Answering this question involves difficult trade-offs between often competing factors. This is sometimes summarized as a trade-off between quality, cost and timeliness, but as will be described in this paper, there are in fact many more factors that must be taken into account in statistical program planning.
- 5. The starting point for determining what statistics to produce, however, must be the information needs of the ultimate users of the statistics. Based on the experience of Statistics Canada, this paper will present a framework for identifying and describing these needs and give an overview of some of the processes that are used for collecting and aggregating user needs. The paper will then provide a framework for identifying the full range of factors that must be considered in planning to meet these user needs. In this respect, it will also provide an overview of some processes that can support decision makers in making the trade-offs that are at the heart of statistical program planning.

#### I. A FRAMEWORK FOR USER NEEDS

- 6. Like many national statistical institutes, Statistics Canada has adopted a standard for data quality, the Quality Assurance Framework, based on the concept of fitness for use. We identify six aspects of information quality that are pertinent to the use of information: relevance; accuracy; timeliness; accessibility; interpretability; coherence. The same framework is very effective for identifying user needs and making them actionable through a planning process. In fact, the aim of most statistical program planning is to bring about improvements or other changes in one or more of these dimensions of data quality.
- 7. Determining what statistics to produce is first and foremost a question of relevance, which by definition refers to the degree to which the information produced responds to the needs of the user community served by the program. Improving relevance might mean initiating, or discontinuing, entire statistical programs, or it might mean adding, changing or removing content from existing statistical programs. Timeliness is a closely related dimension that relates both to the periodicity of the measurement required to meet user needs and the acceptable time delay between the reference

period and the publication of the results. Coherence is another user driven characteristic of the statistical program, which has a major impact on survey design in terms of the ease with which survey content in a program can be related to content in other programs.

- 8. As regards accuracy, while a corporate policy may define minimum requirements acceptable for any output of a statistical agency, this is also a dimension that is conditioned by user needs. The choice of how much effort to invest in achieving a stated level of accuracy depends on the uses to which the resulting statistics will be applied. This may be further constrained by capacity factors, as will be seen later, but trade-offs in survey design regarding coverage, sampling and processes to minimize response error, nonresponse and other non-sampling error must be made in the context of the ultimate use to which the data will be made.
- 9. Finally, accessibility and interpretability are dimensions that are largely user defined, determining the modes by which statistical information will be disseminated to different audiences, the availability of catalogues or searching tools that allow users to know what is available and how to obtain it, and the provision of ancillary information to assist users to understand and properly use and analyze information.
- 10. It is with this framework in mind that Statistics Canada evaluates the usefulness of its statistical program for data users, which forms the basis for statistical program planning.

#### II. PROCESSES FOR IDENTIFYING USER NEEDS

- 11. In a well established statistical system such as Canada's, many of these needs have become enshrined in legislation and other statutory instruments, which tends to stabilize the requirements for a large proportion of its program, recently estimated at 75% of its permanent funding. While relevance in these cases is well established, there may be gaps and opportunities in the other dimensions of data quality that are always in scope of the planning process. In addition, information on long standing needs that are not currently served by the statistical system and emerging data needs resulting from new directions and priorities in public policy must somehow be brought into the planning process. Statistics Canada deploys a range of consultation and information gathering mechanisms to keep abreast of evolving users needs.
- 12. Before describing these processes, however, it might be useful to provide an overview of the structure of Statistics Canada's statistical program. Indeed, the consultation and information gathering that is a prerequisite to effective planning is not conducted on the sum total of its program but on its individual components.
- 13. This program structure, known as the Program Activity Architecture, is used by Statistics Canada for its formal reporting to the Canadian Parliament. The overall program is divided into three program activities: Economic statistics; Social statistics; and Census, demography and aboriginal statistics. Each is further sub-divided as shown below.

#### Table - Statistics Canada's Program Activity Architecture

#### 1. Economic Statistics 3. Census, Demography and Aboriginal Statistics 1.1 System of National Accounts 3.1 Census of Agriculture 1.1.1 Income and Expenditure Accounts 3.2 Demography **Environment Accounts and Statistics** 3.3 Aboriginal Statistics 1.1.2 1.1.3 Balance of Payments 3.4 Census of Population 1.1.4 **Public Institutions** 1.1.5 **Industry Accounts** 1.2 Analytical Studies 1.3 **Industry Statistics** 1.3.1 Manufacturing, Construction and Energy Statistics 1.3.2 Distributive Trades Statistics 1.3.3 Services Industries Statistics 1.4 Economy-wide Statistics 1.4.1 **Prices Statistics** 1.4.2 International Trade Statistics 1.4.3 Investment and Capital Stock Statistics 1.4.4 **Industrial Organization and Finance Statistics** Agriculture, Technology and Transportation 1.5 Statistics 1.5.1 Agriculture Statistics 1.5.2 Small Business and Special Surveys 1.5.3 Science, Innovation and Electronic Information Statistics 1.5.4 Transportation Statistics 2. Social Statistics 2.1 Institutions and Social Statistics 2.1.1 Justice Statistics Culture, Tourism and Education Statistics 2.1.2 2.2 Health Statistics 2.3 Social Statistics 2.4 Labour and Household Surveys 2.4.1 Special Surveys 2.4.2 Income Statistics Labour and Household Surveys Analysis 2.4.3 2.4.4 Labour Statistics 2.5 Socio-Economic Analysis

- 14. For internal planning and management purposes, there is a further sub-division of these activities into 120 activity elements. For each of these, there is a clear definition of the uses which are made of the statistics and their principal users, as well as the legal or other basis for the production of these statistics. This is the level at which targeted and effective user consultations can be made and for which full program costs, including attribution of overheads, are compiled. For operational management and direct cost accounting, these 120 elements can be further sub-divided into approximately 400 statistical programs, in the sense described in the introduction to this paper, each of which is listed and fully documented on the Statistics Canada website.
- 15. To gather information on the needs and expectations of users of these statistical programs, Statistics Canada employs a variety of Advisory Committees, bilateral mechanisms, multilateral mechanisms, program evaluations and market mechanisms, each attuned to particular user groups. First and foremost are federal and provincial government departments and agencies. Then there are the private sector users in the business, institutional and academic sectors. Journalists are perhaps a key, if intermediate, user group. Students are an important user group along, increasingly, with the general public. And there are the international organizations.

#### III. ADVISORY COMMITTEES

Statistics Canada has a long-standing constellation of advisory committees, which are active in agriculture, culture, demography, international trade, labour and income, social conditions, national accounts, price measurement, science and technology, services and social conditions. Members are selected on the basis of their domain expertise, not as representatives of any particular constituency. In general, they meet twice a year for two days, and members serve without remuneration. The manager of the statistical program most directly concerned serves as the secretary and the meetings are widely attended by staff. The committees provide input through informal interactions at the meetings, feedback on staff presentations recorded in minutes and also through written recommendations to the Chief Statistician. In addition, at least one member from each advisory committee sits as a member of the National Statistics Council. The National Statistics Council provides high level policy guidance to the statistical system and can exercise significant influence on the statistical program. Its members are appointed by the Minister responsible for Statistics Canada and include eminent people from business, universities, research institutions, provincial government, labour unions and the media. In addition, some members of advisory committees also sit as members of the National Statistics Council.

#### IV. BILATERAL MECHANISMS

17. Effective bilateral relations have been established between the statistical programs and the policy departments of the federal government that are the main users of the statistics produced. Ongoing discussion, feedback and interpretation typically occurs at the analyst level, regular formal exchanges are held on a routine basis at the management level and at the most senior level, the Chief Statistician participates in regular weekly meetings of deputy ministers. This provides him with an on-going appreciation of the evolving plans and priorities of the federal government and improves Statistics Canada's ability to maintain the relevance of its statistical program.

18. Another key mechanism for keeping abreast of the information needs of users is the ongoing marketing of our special survey capacity on a cost recovery basis. Statistics Canada maintains a capacity in both the economic and social statistics fields for mounting special surveys to respond to information needs not currently addressed by the statistical system. This service is available on a cost recovery basis and is often accessed by policy departments to deal with emerging issues and new directions in public policy. This type of activity typically represents between 15% and 20% of Statistics Canada's total annual expenditures. These newly identified information needs, validated through this market mechanism, must then be taken into account in statistical program planning.

#### V. MULTILATERAL MECHANISMS

- 19. As policy and program design becomes ever more citizen-focused, they take on a horizontal character, involving many departments and agencies working together towards achieving the Government's objectives. In these cases, bilateral arrangements with Statistics Canada to produce statistical data in support of policy analysis and program design can lead to duplication and overlaps. While consortia can be organized on an ad hoc basis, the Canadian government has established the Policy Research Data Group, a permanent consortium of policy departments, with access to a revolving venture fund. Through this process, data needs for emerging horizontal policy issues are identified and prioritized by the PRDG and pre-authorized start up funds can be accessed directly. Any new initiative launched under this process is phased out no later than three years on, after which time it is either discontinued or permanent funding is sought through regular means, thus making way for new priorities to be addressed. The fund represents about 5% of Statistics Canada's total expenditures.
- 20. These mechanisms deal with the statistical needs of the federal government but, as Canada is a federation, other mechanisms are necessary to address the needs of provincial governments, which have constitutional jurisdiction over such areas as health, education, environment and justice. In several of the areas of major provincial jurisdiction, the Chief Statistician has a forum for discussing statistical priorities with the appropriate provincial deputy ministers. On other areas of provincial priorities, every provincial government appoints a senior official to interact with Statistics Canada on behalf of the government, known as the provincial focal point. This official attempts to provide an integrated picture of provincial priorities. The Chief Statistician and the focal points constitute a federal-provincial-territorial council which oversees about a dozen federal-provincial-territorial committees dealing with particular subject matter areas or cross-cutting issues.
- 21. Finally, agency staff participate actively in numerous professional associations and have a program of liaison with major business associations, which is used as a means to gain insight on their statistical information needs.

#### VI. PROGRAM EVALUATIONS

22. At Statistics Canada, every statistical program, as defined at the lowest level of the Program Activity Architecture (30), undergoes a full program evaluation every four years. A major component of this evaluation is the extent to which existing statistical programs meet the

needs of key clients, on the basis of the Quality Assurance Framework. These self-assessments, conducted according to corporate guidelines, include a standardized client satisfaction survey, also designed according to this framework. The results of each evaluation are recorded in a Quadrennial Program Report, which is subject to review and comment by the Chief Statistician and presented to the Program Evaluation Committee, on which sit the agency's most senior managers. Issues identified through this evaluation are addressed in the planning process.

#### VII. MARKET MECHANISMS

23. As already described above, the conduct of special surveys on a cost-recovery basis for external clients requires a good understanding of client needs and provides useful feedback to the determination of priorities for new statistical information. In addition, as many of Statistics Canada's products are priced, market signals are useful in guiding the packaging and delivery of existing statistical information, particularly in terms of accessibility and interpretability.

#### VIII. ANALYTIC PROGRAM

24. Finally, a strong internal analytic program contributes to an improved understanding of the needs of external analysts. Analysts can champion the development of new products within the agency, by drawing attention to the role that potential new information could have in informing public policy. In our experience this is a vital contribution to maintaining the relevance of statistical information.

#### IX. A FRAMEWORK FOR STATISTICAL CAPACITY

- 25. Answering the fundamental question of what constitutes useful statistical output for data users is a necessary but not sufficient condition for effective statistical program planning. To complete the picture, planning must also address the institute's capacity to produce this information. This requires consideration of a number of other factors, which can be broadly classified under factors related to the supply of data and factors related to enterprise management, represented as a risk framework in figure 1.
- 26. It is appropriate to situate statistical program planning as part of an integrated risk management process, as the object of such planning is to reduce the probability and/or impact of adverse events, defined broadly, on statistical programs.
- 27. This framework sets out the issues about which specific action must be taken proactively or reactively to enable statistical programs to achieve their ultimate objectives and deliver on their strategic outcomes. It can be invoked in two ways. First, reactively, any changes desired in statistical output to respond to user needs will have consequential impacts for most or all of these factors. For example, an initiative to improve the timeliness of a statistical program, in addition to potentially affecting other aspects of data quality, could require adjustments to factors related to the supply of data from respondents or administrative sources as well as to factors related to enterprise management, such as workforce, systems and financial resources. Secondly, proactively, these capacities, or infrastructures, can themselves be the direct object of program planning, not driven by changes in statistical output but rather by efforts to improve efficiency or

reduce risk.

Figure 1

### Statistics Canada Corporate Risk Framework



- 28. Under security of supply are found the policies, procedures and systems used to gain access to respondents, manage their response burden and maintain their trust so as to ensure their continued cooperation as well as the mechanisms for securing and maintaining access to administrative data sources.
- 29. Under enterprise management are found the processes for ensuring the sound stewardship of financial resources and physical, software and information assets; for attracting and retaining a workforce of the right size with the right competencies; for establishing a safe and productive workplace; for structuring an effective organization with clear accountability for results; for providing learning and development opportunities that foster innovation and continuous improvement; for nurturing an effective policy and program capacity; and for managing risk as an integral part of enterprise management.
- 30. Effective planning in respect of these infrastructures depends on timely and accurate information on their current condition and costs of operation. At Statistics Canada, this information is obtained through the program evaluation process described earlier, through specially targeted audits, and through a number of management information systems.
- 31. The corporate guidelines for the Quadrennial Program Reports for statistical programs include sections covering issues, risks and opportunities related to the supply of data as well as specific sections dealing with human resources, information systems and financial performance, based on a consolidation of indicators abstracted from management information systems. In addition to the QPRs prepared for the statistical programs, the areas responsible for the various

infrastructure services, which have been largely centralized in Statistics Canada, also produce Quadrennial Program Reports addressing the performance, risks and opportunities for each specialized support service. For example, individual quadrennial program reports cover data collection systems and infrastructures, corporate data dissemination infrastructure, methodology services, business survey frames, human resource management services, and so on.

32. A program of internal audits as well as external reviews by the Office of the Auditor General, the Treasury Board Secretariat, the Official Languages Commissioner, the Privacy Commissioner, the Public Service Commission, Public Works and Government Services Canada and other central agencies provide information on the adequacy and effectiveness of controls and mechanisms to mitigate or otherwise manage risks throughout the corporate risk framework, thus drawing attention and placing priority on required remedial actions. It is this rich mix of information on user needs and agency capacity, drawn from all of these sources, that informs the planning process at Statistics Canada.

#### X. THE PLANNING PROCESS

- 33. The planning process at Statistics Canada operates on a continuous annual cycle, covering a three to five year planning horizon, and serves to assimilate and aggregate the information collected on user needs and agency capacity, establish strategic priorities, generate proposals and support decision making on budget adjustments required to give effect to approved plans. The process blends top-down strategic direction and decision-making with bottom-up issue identification and proposal development by program managers throughout the department, aiming for transparency and consensus-building across the organization. The process covers all statistical programs, leading to adjustments in the ongoing program and integrating the impact on infrastructure services of programs that are externally funded, either through cost recovery arrangements or dedicated special funding such as the Census or other earmarked funds. Approximately 3-4% of the agency's budget (excluding the Census budgets) is reallocated in each planning cycle.
- 34. As statistical programs cross formal organizational boundaries, a special committee structure is struck through which the planning process occurs. This is a permanent structure, orthogonal to the formal hierarchical structure, which ensures that all internal stakeholders are part of the planning process. This is not an unusual arrangement for Statistics Canada as it is organized on a matrix basis, with technical specialization in the vertical dimension defining the formal structure and statistical programs defining the horizontal dimension. Committee structures binding and coordinating this horizontal dimension abound in the organization.
- 35. At the base of the planning structure are sixteen Planning and Review Teams (PRTs), each covering one or more statistical programs and/or infrastructure services. They are chaired by Directors General and comprise the managers (usually Directors) of the programs and services for which each PRT is responsible and also managers from other parts of the Agency who have a significant interest in the PRT. The PRTs review plans, proposals and issues put forward by managers and determine which should proceed to the Syndicate for consideration. They perform a challenge function, ensuring that all costs and benefits and the relationship of proposals to corporate and program priorities are fully examined.

- 36. The Planning and Review Teams are grouped into five Planning Syndicates: Economic statistics, Social statistics, Statistical infrastructure, Operational and administrative infrastructure and a special syndicate for Human resources management. Each is chaired or co-chaired by Assistant Chief Statisticians and brings together the senior managers (primarily Directors General) responsible for a group of programs and services. The role of the Syndicates is to review and integrate strategic priorities, issues, plans and proposals put forward by the Planning and Review Teams and determine which priorities and proposals will be recommended to the Senior Management Review Group for consideration and to Corporate Planning Committee for decision. They also monitor the progress of initiatives and projects approved during previous planning cycles and plan appropriate program reviews.
- 37. The Corporate Planning Committee is comprised of the Chief Statistician, Assistant Chief Statisticians, the Directors General of Finance, Planning and Evaluation, Human Resources and Informatics, and the Director of Corporate Planning. It is the ultimate decision making body. It is supported by the Senior Management Review group, which includes the Corporate Planning Committee and all Directors General. Two conferences of the Senior Management Review Group are held during the planning process one in the fall to review and make decisions on strategic priorities, the second in January to review Syndicate plans, proposals and issues.
- 38. Strategic planning is the first formal step in the cycle, taking place during the spring and summer (the fiscal year for the Canadian government runs from April 1 to March 31). It is at this time that the available information on user needs and the Agency's technical and management infrastructures is assimilated and assessed by management committees and the Syndicates. Syndicate and associated management committee chairpersons work with the appropriate managers and planning staff to document strategic issues. Each fall, the Senior Management Review Group meets to discuss the strategic priorities and issues identified by the Syndicates. On the basis of these discussions and the financial outlook, the Corporate Planning Committee establishes the strategic priorities and issues that are to be specifically addressed in the current planning cycle.
- 39. Guided by these strategic priorities, PRTs and Syndicates meet in November and December to review the long-term plans for their individual programs and prepare specific planning proposals. Six categories of proposals can be submitted three of which contribute to corporate resources for reallocation and three which draw on corporate resources available for reallocation. Efficiencies are proposals to carry out activities with fewer resources without diminishing the level of output. They usually require initial investment, repayable from the generated savings over a 3 year period. To encourage these types of proposals, an efficiency tax of 1% is levied annually from all program budgets, which is waived or reduced, however, by any savings generated through efficiency proposals. Contracting out proposals involve the external acquisition of a service or function currently performed internally, through the use of a commercial supplier, employee devolution or the fostering of private sector capacity. Contingencies are proposals to liberate resources by reducing content, coverage or frequency of statistical programs, reducing levels of service, or eliminating an activity. These come into play especially, though not exclusively, when the department is facing budget cuts.

- 40. On the take side, adjustments are requests to modify CPC decisions from previous planning rounds. "Ongoing" proposals seek additional resources necessary to maintaining a program or service at its current frequency, level of detail, and quality, whereas new initiatives are proposals to improve an existing activity or to initiate a new activity.
- 41. As the process unfolds, management discussions are always guided by estimates of the cost implications, both in terms of budget dollars and in terms of scarce manpower availability. Costs are tracked very carefully retrospectively, currently and prospectively. Their main elements are various kinds of human resources (economists, sociologists, accountants, mathematicians, informatics specialists and a wide variety of other professionals and semi-professionals representing about 85% of Statistics Canada's total costs), informatics-related costs (computer hardware and software), travel costs, and general materials and supplies. The cost model tracks these different elements in two dimensions: by statistical program and by functional area of responsibility. Thus, for example, the cost of the CPI program includes cost elements for methodology services, informatics services, data collection and processing services, marketing and dissemination services and a few other functional components. During the planning discussions all proposals, whether for 'puts' or 'takes', are associated with specific and detailed cost estimates.
- 42. The results of PRT and Syndicate deliberations are recorded in Syndicate reports, produced with a standard table of contents. These are distributed to the Senior Management Review Group and presented at the second senior management conference held in January, leading to the final decision meeting of the Corporate Planning Committee in February.
- 43. This process of scrutiny, challenge, clarification and support at successive levels of the planning structure, engaging a broad cross-section of the management cadre, promotes the development of consensus around the priority issues and risks that need to be addressed and the optimality of the trade offs between user needs, data supply and agency capacity embedded in the planning proposals. Decisions are ultimately made by the department's top management, via the Corporate Planning Committee, but the process by which they are arrived at is intended to involve managers from all across the organization, to inform everyone fully as to the issues involved and the trade-offs being faced, and to encourage consensus around the final outcome.
- 44. The output of the planning process is a series of planning documents, which are widely distributed, and form the authoritative basis for activities in the upcoming planning period. The first of these is the Planning Decision Record, which records the decisions for every planning proposal: rejected, accepted, accepted with conditions, and associated approved budget levels and allocations. The Decision Record is directly used to set the program and divisional budgets for the next fiscal year.
- 45. Other planning documents result from the planning process covering the level and allocation of various infrastructure services to statistical programs. The technical services plan covers professional resources in informatics and methodology, while the computing services plan covers the use of informatics methodology. The capital replacement plan covers the renewal of physical assets, including software applications. The Marketing and Dissemination plan covers planned products and services. The Revenue plan extracts information on projected revenues

from the latter, and consolidates it with revenue projections for special statistical services, such as cost recovery surveys. Finally, the Human Resources plan consolidates information from all the program plans along with demographic projections of the workforce to establish the appropriate levels of recruitment, replacement and development required to meet the needs of the organization.

#### XI. CONCLUSION

- 46. The operation of a comprehensive, predictable and well orchestrated planning system has allowed Statistics Canada's statistical program to evolve in response to user needs, while modernizing its infrastructure and maintaining a robust capacity to react to changes. This last characteristic is crucial and has been achieved by paying special attention in priority setting to supporting analysis, innovation and experimentation; maintaining professional infrastructure; keeping the operational infrastructure in good repair; and ensuring a strong capacity for client sponsored surveys.
- 47. The planning system is effective also because it is pragmatic and oriented to incremental changes rather than massive transformations. The planning decisions favour innovations, pilot surveys, demonstration projects, and investments in future efficiency gains. It is based on good information on project costs which makes possible the accurate estimation of savings brought about by planned changes and of costs of proposed new activities.
- 48. The planning system at Statistics Canada is a shared common infrastructure that brings together its entire management team to chart the Agency's course into the future. It contributes significantly, along with other management systems and practices, to the collegiality and common purpose that is the hallmark of the organization.

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