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STATISTICS DIRECTORATE

Joint ECE/Eurostat/OECD meeting on the management of statistical information systems
(Geneva, 17-19 February 2003)

Topic III: Efficient management of increasing technical complexity

THE STATISTICAL TOWN PLAN

Invited paper

Submitted by Statistics Canada¹

Summary

1. This paper presents a conceptual view of an automation infrastructure for information management in a Statistical Office. It provides an architectural model that streamlines the *build-time* and *run-time* phases of information systems projects in Statistics Canada. It provides guidance to Business Planners, Information System Architects and System Designers and has the potential to be adapted for use in other Statistical Offices.
2. The paper examines the development of information systems in the language of the survey taker and methodologist. Section I presents the Program and Information Infrastructures as they currently exist, with the exception of workflow management tools, in Statistics Canada.
 - The Program Infrastructure promotes *software reuse* and includes general purpose software and tools that are available for reuse in the development and maintenance of specific survey information systems. Statistics Canada has made investments in software for specific statistical processes (e.g., generalised edit and imputation, statistical edit and imputation) and uses other generalised tools (e.g., Blaise, SAS) when developing specific types of systems.
 - The Information Infrastructure supports *data* and *metadata reuse*. It consists of corporate databases (e.g., Business Register, Integrated Meta Database) and services (e.g., a coding service) that have been designed for cross-survey use. The Business Register is used as a source for deriving survey frames and for implementing survey and profiling feedback. The Integrated Meta Database is used as a corporate repository for storing *business metadata*.
 - The topic of *interface reuse* is discussed in the context of i) the storing and retrieval of micro data and/or macro data output by one stage of processing (e.g., collection, statistical processing) and input to another, and ii) tools for capturing and generating the workflows of one or more cooperating systems.

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3. The Statistical Town Plan serves as a *generic structural model* for a Statistical Office. The scope of the Statistical Town Plan is limited to projects whose implementation involves the development, maintenance and operation of statistical information systems. Section II discusses the Plan using two models:

- A *Function Hierarchy Diagram* is presented first and it outlines the major phases and generic survey processes that are associated with each statistical information system project.
- A Conceptual Model of Statistics Canada is then presented in the form of a three-part *Entity-Relationship Diagram* (ERD). The first part presents the high level entities and relationships of the model and discusses their role in the Town Plan. The second part is a more detailed view of the entities and relationships that are used in the *build-time environment* (i.e., the formulation and development phases of a project) for statistical information systems. The third part discusses the entities and relationships that are part of the *run-time environment* (i.e., the operation, including evaluation, and dissemination phases of a project).

4. The paper provides a vision for streamlining the development of information systems within a statistical organization throughout all phases of the survey life cycle by encouraging, to the extent possible, reuse of existing materials (software, data, business and technical metadata, interfaces and documentation). Other potential uses of the Statistical Town Plan (STP) include:

- It can be used to assess how well the Statistical Office has covered the risks and opportunities identified in each of its major automated components.
- The STP, in conjunction with Zachman Framework, can be used as a template for developing Business Plans for new or re-engineering systems projects. Planners can assess the *coverage* of the Business Plan by examining it with respect to the STP. Architectural artifacts can be evaluated using the six dimensions of quality: relevance, accuracy, timeliness, accessibility, interpretability, coherence (*this topic is covered in a companion document*).
- Most recently the STP has been used to provide feedback to the Office of National Statistics (ONS) in the U.K. on the degree of alignment between Statistics Canada's Information Technology Framework (ITF), the Statistical Town Plan and ONS Architectural principles.

5. Finally, Senior Management can examine the vision, decide which goals (i.e., the *ends*) are most important and develop an action plan (i.e., the *means*) for achieving strategic goals using information technology.
