Chapter VII

Development of a Task Model for the Analysis and Retrieval of Statistical Data

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ABSTRACT

This chapter explores the task of retrieving and analysing statistical data from external sources, such as national statistical agencies, government departments, the World Bank, etc. Although external statistical data (ESD) is widely used in planning, decision-making and project evaluation, the process of gathering and analysing such data is poorly understood. This chapter describes the usability testing of a prototype Statistical Information System (SIS) and uses the data gathered during that testing to develop an initial task model for retrieving and analysing ESD. The proposed task model would be useful in the development of improved Statistical Information Systems, particularly those intended for use by casual or ad hoc users.

INTRODUCTION

Every year, public and private sector organisations spend millions of dollars, gathering and publishing statistical data intended for use by people outside of those organizations. From the point of view of these outside users, the data is external

statistical data (ESD), because it is provided by an external source over which end users have little or no control. Typical sources of ESD include international agencies, such as the United Nations, national statistical agencies, such as the Australian Bureau of Statistics, both state and national government departments and many businesses, particularly financial institutions.

ESD is made available to users outside of the organization in which the data originates because it is considered to be of interest to a wider group of users, such as researchers, students, business analysts or members of the community at large. These users include both experienced users of ESD, such as professional business analysts, and casual users, such as business managers, executives, researchers and members of the wider community who may only use ESD infrequently. Little research has been done about these types of users of ESD, but studies suggest there are many casual users of ESD in the community (Hyland & Hasan, 1997).

Casual users face a number of distinctive problems in their use of ESD, partly due to their lack of familiarity with the task of retrieving and analysing ESD and partly because the tools provided for retrieving and analysing ESD are more suited to the needs of more experienced users. To begin with, much of the ESD in use has traditionally been provided in print form. This may be problematic for many users because printed tables or charts may not contain all the variables that a user requires or they may contain some or all of the variables at an inappropriate level of aggregation, i.e., in too much or too little detail. When using printed summaries, the user cannot combine variables from different tables or charts and any aggregation of data must be done manually. Because the raw data is not available in printed summaries, it is impossible to disaggregate data, i.e., calculate values for lower levels of aggregation. All of these are significant problems for users of ESD in print form.

It is our contention the problems being experienced by casual users of ESD are due to a lack of understanding of the tasks performed by ESD users and a consequent lack of appropriate tools to support those tasks. Research into the use of ESD is particularly pressing in light of some emergent social and technological trends, such as:

- The increasing availability of statistical data, particularly via the World Wide Web.
- The increasing competence of casual users of statistical data and the consequent increase in the complexity of tasks that they may wish to perform.
- The ongoing development of new technologies to improve access to statistical data.

In an attempt to understand the tasks carried out by casual users of ESD, a computer prototype has been developed to address many of the problems experienced by casual users of ESD. The *Abacus* prototype has been tested with a number of typical casual users and that testing has given rise to an initial model of the task of retrieving and analysing ESD.

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