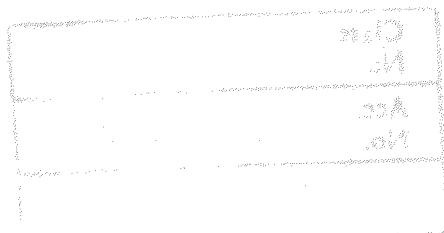
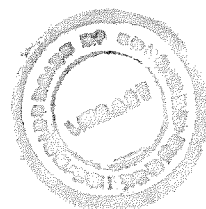


**AN AUTOMATED TOOL FOR SUPPORTING KNOWLEDGE
WORKERS IN THE DEFINITION, SPECIFICATION AND
IMPLEMENTATION OF STRATEGIC INFORMATION SYSTEMS**

A Dissertation Submitted to the Faculty of Science of the University of Colombo in Partial
Fulfilment of the Requirements of the Master of Science Degree in Computer Science,
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ABSTRACT

Involving end-users in the identification, definition and, if possible in the development of Information Systems (IS) is an approach proposed to overcome most of the problems faced by the software industry in respect of the maintenance of ISs. This approach has widened in the recent years in to a form of the strategy of encouraging and supporting end-users in the task of identifying, defining and even building ISs. This is believed to help the industry at least in reducing the ever increasing gap between the demand and supply of ISs, thereby contributing to the resolution of the software crisis. This dissertation documents the analysis, design and the development of an automated tool for supporting knowledge workers belonging to current business organizations in the identification, specification and implementation of Strategic ISs.

The Knowledge workers are a special kind of end-users, who are with the required knowledge to plan and manage business activities in their respective organizations. They are often non computing professionals, who use computers and computer applications for the betterment of the organization's business practices and procedures. Unlike the ordinary end-users, the knowledge workers are often required to propose potential applications for automation through which the organization can achieve its business objectives while maintaining its competitive position. This type of systems are popularly known as Strategic ISs.

The major difference between the traditional ISs and Strategic ISs is that the Strategic ISs are often not with obvious and clear requirements at the stage of their proposal. Further, it is often impossible to delay the development of this kind of ISs until a complete set of requirements are identified, as this delay is with the potential of causing a major opportunity loss to the business.

The tool designed and developed for the purpose of serving the knowledge workers in the identification and definition of strategic ISs serves them at two levels in their responsibilities. At the primary level it supports the knowledge workers who face difficulties in the identification and definition of new Strategic ISs.

The identification of Strategic ISs requires a detail, thorough and patient analysis of the business requirements and priorities, specially because, the ISs that should be identified are with strategic importance to the organization and the investment to be committed in the implementation of these systems has alternative opportunity cost. Once identified the system specifications are to be communicated to systems designers and developers for the follow up activities of designing and developing these ISs.

At the secondary level, the tool helps the knowledge worker to conduct the data analysis on data structures identified during the primary level through a series of interactive actions with the tool and refine the data structures appropriately. It also helps them in the setting up of a set of files for the purpose of storing and manipulating data with the support of selected personal computer DBMSs. After storing and manipulating data in the files the knowledge worker also will be allowed to conduct reviews with the aim of reviewing the appropriateness of refined data structures to support specific business rules of the organization. The tool will also support the knowledge worker in further refinement or integration of these structures appropriately at the end of this review.

The main body of the dissertation carries the results of the application of various structured techniques that have been employed during the analysis, design and implementation of this automated tool.