Chapter 10

Analysis and Design of MARKEX

1. INTRODUCTION TO MARKEX

The aim of this chapter is to present a tool designed to support decision makers during the new product development process.

The main goals of the system's philosophy are:

- The support of the decision-maker during the semi-structured or unstructured marketing processes.
- The cooperation between models, databases and techniques for the presentation of the results.
- The possibility to support the decision-maker in specialized topics with the help of expert systems.
- The ability to be used even by decision makers with limited experience in computer systems.
- The possibility of continuous improvement of the decisions made by using the system.
- Its independent function for the implementation of partial tasks.
- The reliable operation of the system.
- The ability to easily and unconditionally use the data to be studied by using special filters.
- The ability to create multicriteria tables with different composition.
- The provision of a flexible and easy to use tool.
- The exploitation of the Windows environment capabilities.
- The possibility of multitasking.
- The ability to simultaneously operate several components of the system.
- The provision of a large number of models and the ability to add new ones.
- The possibility to graphically represent the results of all the tasks.
- The broad support of the decision maker in the various phases of the new product development process (Chapter 3, §3), like
  - The processing of data collected by market surveys.
  - The analysis of the market and the determination of the market's general characteristics.
  - The analysis of the characteristics of the consumers.
  - The study of consumer behaviour.
  - Product and competition analysis.
  - The segmentation of the market.
  - The design, development, and test of products through the calculation of their purchase probabilities and by the simulation of the market.
  - The examination of simple and complex scenarios.
  - The selection of the penetration strategy of the product under development through the application of alternative strategies.

The general procedure of developing an expert system, described in §4 of Chapter 7 is the one followed, in general, in the development of MARKEX. The system was developed for Windows 95 with the help of the Microsoft Professional Visual Basic 6 Enterprise edition programming language. The expert systems and the respective knowledge bases were developed with the help of the M4 expert systems development shell (Cimflex Teknowledge, 1993). The analysis and design of the system were performed by the help of the Computer Aided Software Engineering (CASE) Tool, System Architect.

2. SYSTEM'S STRUCTURE

2.1 10.2.1 System’s Architecture

The general architecture of the system, which is composed by four main subsystems, is presented in Figure 1. The model followed for the integration of the expert systems with the decision support system is the one that supports the adaptation of the ES as independent subsystem, as described in Chapter 8, §5.1.2. We will now describe the details of the expert subsystems and in the following section we will focus on the analysis and design of MARKEX.

2.2 User

The system is designed for use by any member or members of a company's staff that is involved on the development of new products. In the