Chapter 16

Developing an Expert System to Software Selection for Small Business

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The expert system discussed in this chapter, the Expert System to Software Package Selection (ESSS), was developed motivated by the needs of small businesses to support the software packages selection task. ESSS is a rule-based expert system designed to evaluate software packages using the ranking approach. ESSS evaluates software packages using six factors, and point values appropriate for each factor. The factors include: users requirements, technical requirements, vendor support, documentation, user considerations, and costs. Tasks to ESSS developing and its architecture are showed in this paper.

INTRODUCTION

It has been argued that like large organizations, small business performance can benefit from computer-based information systems (Chau, 1995). Nowadays, organizations are using software packages to get competitive advantages. The expert system to software packages selection (ESSS), described in this paper, demonstrate a system to support the software packages selection task for small business.

BACKGROUND

Selecting the right software package is becoming a more important issue for the organizations. For the small business buy software packages, sometimes is...
the one alternative of get information systems to enhanced its competitiveness. (Martin, 1992). Several factors make the software selection problem appropriate for expert systems development. The primary one is that the expertise needed to do this task is becoming scarce (Dologite, 1986).

THE EXPERT SYSTEM TO SOFTWARE PACKAGES SELECTION

The expert system to software packages selection for small business (ESSS), is a rule based expert system designed to evaluate and to select a software package between several options of software packages, using the ranking approach of software selection. ESSS evaluates software packages using six factors, and point values appropriate for each factor. The factors include: Users requirements, technical requirements, vendor support, documentation, user considerations and costs.

ESSS Architecture

ESSS architecture includes a knowledge base, inference engine and an user interface (Figure 1).

Knowledge Base

The ESSS knowledge base include over one thousand rules for deciding the point value for each factor being evaluated (User requirements, technical requirements, costs, and so on). Example of a rule for evaluated vendor support is showed in Table 1.

Table 1: Example of Rule from Factor Vendor Support

| If Technical Staff = Good and |
| Functional Staff = Good and  |
| Clients Opinion = Good and   |
| Number Similar Installations = Good |
| Then Vendor Support = Good   |
| ValueSupport = 100           |

Inference Engine

ESSS employs a forward-chaining or data driven inference approach. The system begins by collecting (asking to user) a set of known facts for each software package being evaluated, derives news facts using rules whose premises match the known facts, and continues this process until a goal state is reached (Durkin, 1994). In this case goal is reached when all software packages are evaluated and ranked by its overall point score obtained in each six factors analyzed.
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