Chapter VII

Visualisation System:
Facilitating Knowledge Interpretation

Abstract

This chapter addresses the role of visualisation in knowledge management. More particularly, the chapter reports the results of an empirical study of the impact of a visualisation system on user’s knowledge interpretation and resulting performance in the context of a time-series forecasting. The visualisation system used was based on a decomposition method and line graphs. Results show real reduction in forecast errors due to the visualisation system support, but failure to reach optimal performance. This suggests that there is room for further improvement.
Introduction

The advances of digital technologies for collecting and storing large amounts of knowledge artefacts have resulted in the availability of huge collections in most areas of human endeavour. As more artefacts are added to organisational stores, the need for some sort of a mechanism to help organise and search useful knowledge from these stores becomes clearer. Finding technologies that make stored knowledge effective is one of the most challenging research questions in the field of knowledge management.

Responding to this challenge, KM researchers have suggested a number of different tools and techniques for structuring knowledge content and providing guidance to useful knowledge as a means to improve its effectiveness. For example, O’Leary (2003) proposes that knowledge availability provides a basis to facilitate knowledge assimilation. Massaging knowledge into an appropriate format by a KM system could further help the user to better understand and use knowledge. Furthermore, knowledge can be filtered so that the right knowledge gets to the right people at the right time. Alternatively, KM system can provide guidance to relevant knowledge by making it more visible and accessible. Developing knowledge taxonomies or ontologies and linking knowledge to other knowledge or people and navigation tools are other commonly suggested approaches to improve knowledge assimilation (Handzic, 2004).

Knowledge mapping is another feasible KM method to coordinate, simplify, highlight, and navigate through complex webs of knowledge possessed by institutions (Wexler, 2001). The main purpose of knowledge maps is to locate important knowledge in an organisation (Kim, Suh, & Hwang, 2003) and guide users where to find it (Davenport & Prusak, 1998). They can also be used to identify domain experts (Eppler, 2003) and map knowledge flows (Grey, 1999).

Recent empirical findings indicate that all of these approaches were beneficial. With respect to storage and filtering, our earlier study reported that people managed to improve the quality of their decisions due to available knowledge (Handzic & Bewsell, 2005). However, the amount of improvement was highly contingent upon the quantity of the content, as shown in Chapter VI of this book. Another study found out that filtered knowledge, provided in a knowledge mart instead of a knowledge warehouse, resulted in further improved knowledge use and performance (Handzic & Parkin, 2000). Competency maps were also found to be helpful in locating and acquiring expert’s advice (Handzic, 2004). Finally, Chapter X of this book indicates that knowledge rating scores had a positive effect on identifying and using high-quality knowledge.

In this study we take a closer look at the role of visualization as another potentially useful knowledge-massaging technique in KM. The main study objective is to empirically examine the impact of a specific visualization system on users’ knowl-