Understanding Change: Using the Patterns Paradigm in the Context of Business Domain Knowledge

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Abstract: In today’s global and continuously changing business environment, organisations need a well-structured change process. Organisations and their advisors already have a wealth of experience about their change management process, its products and outcomes. This knowledge may be tacit, and needs to be externalised. We suggest using the patterns paradigm for externalising and documenting business change processes. Patterns exploit domain knowledge, and this domain knowledge in turn could be externalised as domain models. The whole approach and method are illustrated with a case study taken from the financial domain.

1. Introduction

A changing environment induces changes in business in order to survive in that environment. Changes in business can in turn lead to changes in the information systems that support that business. Change is a subject that has been much studied in business, and what needs to be done in particular situations may be well understood. Experts make a living by giving advice on particular kinds of change, and business schools teach courses on the subject. Yet we do not understand how business changes feed through into information systems changes.

We have been observing changes taking place in a major financial institution. In the context of a merger and a concern for the millennium bug, they have adopted the ERP system SAP R/3 for their financial subsystems. Various other benefits were also obtained. But we have been puzzled about the detail of the case study, and why the particular decisions were taken and what the decisive factors were.

Our attempts to understand what we have observed has led us into looking at learning organisations and knowledge management, and how this relates to emerging practices in software development and in particular patterns. This paper reports on that exploration.

In Section 2 we look at the business view of change management and knowledge management, focusing on a particular view of learning organisations developed by Nonaka and Takeuchi. Then in Section 3 we look at a process of business change using patterns. Finally in Section 4 we look at a small example taken from our financial institution and give an account of the changes we observed in terms of patterns and their application.
2. Knowledge Management and Change

It has been shown over the last few decades that a higher investment in the most advanced IT does not necessarily bring about higher profits (Strassmann, 1997). This disparity between the investment and the return has led to the emergence of new thinking based on a knowledge creation and management rather than just information, with knowledge workers sharing knowledge and building on each other’s experience and ideas, thus showing that ‘knowledge derives from minds at work’ (Davenport and Prusak, 1998).

In information-based methodologies the assumption is that environments are predictable and stable and the emphasis is on the data accuracy, integrity and consistency. However, in today’s global and continuously changeable and unpredictable business environments, the application of such methodologies is not suitable. Information on its own is not very useful. The important issue here is how to interpret the information – information together with an effective and useful interpretation is what constitutes knowledge. Unlike information, the process of knowledge creation can occur only as a result of a process of social interaction between people.

Nonaka and Takeuchi (1995) argue for a synergistic and total conceptualisation of the knowledge management process encompassing a number of issues:

- dynamic and continuously evolving base of knowledge, continuously learning and unlearning best practices and concepts through a more proactive involvement of human imagination and creativity (Flood and Romm, 1996; Stacey 1993);
- human-guided context-dependent interpretative knowledge creation from a number of multiple, subjective and meaningful viewpoints, necessary as the knowledge residing in the knowledge base is meaningless on its own;
- diverse knowledge elicitation processes from individual conversation to formal model specification; encompassing objective/goal analysis, natural language techniques, scenario-based elicitation, interviews and other user-participative methods from requirements elicitation (Loucopoulos and Karakostas, 1995);
- practical, constructive and formal knowledge capture and representation, important for consistent and clear representation of the current complex situations and for future references.

When a business analyst is redesigning a business process, he uses a wealth of personal knowledge and experience. Two types of knowledge can be observed here. One type is a clearly visible and formal knowledge about the design process, which is seen in the formal methods, techniques, and tools that he is using. The other type of knowledge that is there somewhere ‘at the back of his head’ cannot be formally represented (Darnton and Darnton, 1997). This tacit knowledge is deeply rooted in an individual’s action and experience, ideals, values, or emotions (Nonaka and Takeuchi, 1995) and is highly individual and hard to formalise and to communicate, even though it forms the basis of enterprise knowledge creation.

According to Nonaka and Takeuchi the knowledge creation process goes through four different modes as shown in Fig. 6.1:

- socialisation: conversion from tacit knowledge to tacit knowledge, passing between individuals and being developed and enhanced as it goes;