Chapter 3.26
A Transactions Pattern for Structuring Unstructured Corporate Information in Enterprise Applications

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ABSTRACT

It is known that 80-85% of all corporate information remains unstructured. As such, many enterprises rely on information systems that cause them to risk transactions that are based on lack of information (errors of omission) or misleading information (errors of commission). To address this concern, the fundamental business concept of monetary transactions is extended to include qualitative business concepts. A Transaction Model (TM) is accordingly identified that provides a structure for these unstructured but vital aspects of business transactions. By highlighting how unstructured information can be integrated into transactions, the TM provides businesses with a much more balanced view of the transactions they engage in or to discover novel transactions that they might have otherwise missed. A simple example is provided that illustrates this integration and reveals a key missing element. This discovery points to a transactions pattern that can be used to ensure that all the parties (or agents) in a transaction are identified, as well as capturing unstructured and structured information into a coherent framework. In support of the TM as a pattern, more examples of its use in a variety of domains are given. A number of enterprise applications are suggested such as in multi-agent systems, document text capture, and knowledge management.

INTRODUCTION

The major benefit of adopting a structured model of a problem is so that such a model, by its inherent nature, draws out all the problem's relevant parameters from which its dynamics can be understood and its possible solutions investigated more meaningfully. Contrast this with a written or spoken text discussion (such as word-processor documents, such as Microsoft Word documents, or emails for example). In such a form, ambiguities and obfuscations can occur easily. This 'natural language' interpretation of problems may be the most flexible and easily followed, but without at least a basis in some structured form it can be dangerously erroneous. Yet it is claimed that 80-85% of all corporate information remains unstructured (Seidman & Ritsko, 2004). It is thus worryingly easy to omit or misinterpret the salient issues of a given business problem. Consequently, enterprises miss valuable business opportunities. Or they undertake transactions that they have come to regret as the recent financial turmoil has only too clearly reminded us (Borio, 2008; Kramer, 2008).

The accounting discipline provides sophisticated models for capturing the problem dynamics of economic activity in a structured way (Zimmerman, 2006). Accounting recognises the concern that "if it can't be measured then it can't be evaluated". Accounting thereby offers the enterprise the tools it needs to capture and analyse otherwise unstructured data. Whilst we shall see that accounting too permits enterprises to omit or misinterpret the salient issues of a business problem, it offers a useful vehicle by which we may be able to capture unstructured information in a principled way – namely through the notion of transactions.

STRUCTURE THROUGH TRANSACTIONS

Drawing from our previous work, we now explore how transactions might provide structure to the unstructured (Hill, Polovina, & Shadija, 2006; Hill, 2007; Polovina, 1993a; Polovina, 1993b). In support of our view we can note that enterprise information systems (EIS) echo this underpinning concept (Groenewegen, 1993). These systems model the enterprise and process its business activity based on the concept of a transaction, be they through databases, accounting, financial/asset management, operational (e.g. payroll and pension), decision support systems or others. Again, these systems may only capture certain transactional elements of the domain that they represent. Accordingly, like accounting, these systems can omit or misinterpret the salient issues by making 'errors of omission or commission' (i.e. omit or misinterpret the salient issues of a business problem as we have described). We therefore return to accounting as our frame of reference.

In Accounting

In order to provide a structure for modelling transactions the traditional model of accountancy, the bookkeeping model, was developed in the Middle Ages (Lee, 1986). The principle behind this model is economic scarcity. In other words for every benefit a sacrifice has to be made. For example, the benefit of a business owning its office is sacrificing £1,000,000 that could be employed elsewhere; a book prepared by its author researching a new exciting area in semantic understanding may have involved that author deciding against many complex yet important alternatives, such as the costs of, say, not participating in his or her growing family. These 'transactions' occur