Situational Method Engineering to Support Process-Oriented Information Logistics: Identification of Development Situations

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ABSTRACT

Process-oriented information logistics is proposed as a novel concept aimed at supporting and improving the execution of an organization’s operational processes by the embedding of analytic information and/or analysis capabilities into process execution. The article reports on findings of an exploratory study that is directed at identifying design factors and realization approaches of process-oriented information logistics. Based on this empirical analysis, so-called development situations are identified. They represent abstractions of situational characteristics that influence the applicability, effectiveness, and efficiency of an information systems development method. The development situations are systematized in a so-called context type vs. project type matrix. Insights into development situations of process-oriented information logistics are particularly useful for the engineering of situational methods aimed at the implementation and advancement of this concept.

Keywords: Behavioral Research, Business Process Management, Context Type, Data Warehousing, Design Research, Development Situation, Information Logistics, Operational Business Intelligence, Situational Method Engineering

INTRODUCTION

Providing the right persons with the right information at the right time has become increasingly important for an organization in order to ensure competitive advantage (Ives & Learmonth, 1984). To meet this challenge, analytical information systems represent meanwhile an essential component of the enterprise application landscape. Business intelligence (BI) as the underlying concept is used as an umbrella term to describe the processes and systems dedicated to the systematic and purposeful analysis of an organization and its competitive environment. So far, BI has focused mainly on the support of decision makers at the management level. However, the need to provide analytical information in the context of (business) process execution is accepted in scientific discussions and in practice (Marjanovic, 2007).

With respect to these requirements we will outline and discuss a new paradigm that we

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will refer to as ‘process-oriented information logistics’. In this regard, we understand ‘information logistics’ (IL) as planning, execution, and control of information flows within or between organizational units and/or organizations (Dinter, Lahrmann, & Winter, 2010). ‘Process-oriented’ means the embedding of analytical information, codified knowledge, and/or data analysis capabilities into operational processes in order to support process execution. For a detailed discussion of process-oriented IL we refer to the section “Concept of Process-oriented Information Logistics”.

The article is directed at contributing to the current discussion of the process-oriented IL concept. It provides methodic advice in order to support the concept’s implementation and advancement in organizations. Such contributions are valuable since the current state of knowledge about situational aspects of process-oriented IL is rather immature. The insights may be beneficial to both the scientific community and real-world organizations. The corresponding fundamental research questions are:

- What are the predominant design factors of process-oriented IL? i.e., which factors characterize different approaches to and maturity levels of process-oriented IL within organizations?
- Based on these design factors, which realization approaches of process-oriented IL can be distinguished?
- Based on these realization approaches, which development situations have to be distinguished in order to enable the engineering of situational methods for the implementation and advancement of process-oriented IL?

The remainder of this article is structured as follows: The second section provides an introduction to the concept of process-oriented IL. The third section includes the fundamentals of situational method engineering. The design and procedure of an exploratory analysis that was conducted in order to address the first and the second research question is outlined in the forth section. The fifth and sixth sections include results of the factor analysis, i.e., the design factors of process-oriented IL, and the outcome of the cluster analysis, i.e., the realization approaches of process-oriented IL. The findings are interpreted in the context of situational method engineering within the seventh section. Furthermore, development situations of process-oriented IL are derived and discussed (cf. research question 3). The last section summarizes the main findings, highlights the research contribution, identifies need for further research, and concludes the article.

CONCEPT OF PROCESS-ORIENTED INFORMATION LOGISTICS

Before discussing the concept of process-oriented IL in detail, we introduce the two underlying concepts of process orientation and information logistics.

**Process Orientation**

Process orientation has been discussed intensively in the management literature. This organizational approach is aimed at replacing function-oriented separation of work by processes that span both functional and organizational boundaries. Related approaches and methodologies differ with respect to scope and procedure: Some propose revolutionary concepts for reengineering and managing an organization’s processes whereas others take a more evolution-like approach (Smith & Fingar, 2003). Business process reengineering (BPR) is an example of the former category whereas business process management (BPM) is described as “a holistic organizational management practice” (Rosemann & de Bruin, 2005, p. 2). It spans various activities which involve – but are not limited to – the (re-)design of an organization’s processes (Bucher & Winter, 2006).

Hammer and Champy (1993) argued in their seminal work on BPR in favor of empowering frontline workers by granting them more leeway for decision making. Those who
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