Chapter 3.24

Industrialisation of the Knowledge Work:
The Knowledge Conveyer Belt Approach

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ABSTRACT

When analysing the transformation of the information society an industrialisation of knowledge work can be observed. The maturity, the quality, the process-orientation and the alignment of knowledge to personal or organisational requirements are industrialisation aspects covered by knowledge work. This chapter focuses on process-orientation, discusses the evolution of process-oriented knowledge management and sees the current industrialisation of knowledge work as a challenge that needs to be tackled not only on social and technical level but also on a conceptual level. Hence the so-called knowledge conveyer belt approach is introduced that is a realisation framework of process-oriented and service based knowledge management. This approach is seen as an answer for the requirements of industrialisation of knowledge work that keeps the "human in the loop" and enables the business and knowledge alignment. The realisation concepts and two implementation show cases are introduced.

INTRODUCTION

Knowledge work is becoming a mainstream activity in organisations and is emerging towards becoming a holistic critical success factor. Focusing on the business-aspects it can be stated that almost all areas of daily work within an organisation are affected by the way knowledge is treated.

Before discussing the knowledge work in more detail it is important to distinguish between Knowledge Engineering (KE), which is prioritizing machine interpretable knowledge, and Knowl-

edge Management (KM) which is focused on the human interpretable knowledge.

After both KE and KM already passed their hypes, both found their ways into applications although some of the original visions have not been realised yet. The technical KE approaches are prominently represented in the Semantic Web, whereas the human driven KM approaches can be found in Web 2.0 initiatives.

Today, knowledge techniques are used in everyday work by applying various methods and tools to steer, use or distribute knowledge. The challenge is to align knowledge with business requirements in a smart and flexible way. Hence the alignment between business requirements and knowledge provision is the topic of this paper.

This paper introduces the knowledge conveyer belt as a realisation framework for process-oriented knowledge management that is based on service-oriented knowledge management and is now strongly influenced by flexible and ad-hoc knowledge technologies.

In the conveyer belt approach the knowledge worker is seen as participant in a knowledge process that produces knowledge products. The knowledge product is a concept that defines the "knowledge" that is used by knowledge workers in a product-like way (cmp. (Make, 2005)). Each knowledge product can then be aligned with the consuming business process, similar to IT-Infrastructure which is now been aligned with business (Karagiannis, 2008).

Therefore the knowledge conveyer belt is based on the following concepts: (1) definition of the knowledge product that are as a result of the conveyer belt; (2) definition of the knowledge management processes that represent the knowledge conveyer belt; (3) formalisation of the knowledge in order to mediate between the human knowledge worker and the IT-based machines; and (4) the identification of required knowledge resources that are the tools and raw material that is used at the conveyer belt.

In the following, the overview of the evolution of the knowledge conveyer belt approach is discussed through a brief overview of the history of Knowledge Management –Engineering and then a discussion introducing the idea, the concept and the realisation approach is discussed. Praxis reports of the knowledge conveyer belt are then described, where one scenario demonstrates the realisation of a conveyer belt using KE and the second scenario explains the realisation of a conveyer belt using KM.

OBSERVATIONS OF KNOWLEDGE MANAGEMENT

The history of KE started in the 1940's with the first attempts of artificial intelligence. After the hype, disillusionment and first commercial success, KE can be found today in semantic technology (Karagiannis, 2001). A prominent sample is the Semantic Web.

KM in contrast evolved out of the KE community and has its origin in 1995 (Despres, 1999). KM is a holistic view on the knowledge space that considers human interpretation – more prominently, but also take account of machine interpretation (Woitsch, 2004a,b; Mak, 2005; v.Brocke, 2007; Beckman, 1999).

In both cases model-based approaches provide concepts for the formalization although the level of formalisms is different. Humans have the ability to interpret incomplete and partly corrupted models – such as mind maps, processes or textual guidelines -, whereas machines require knowledge representations in a complete and correct manner – such as ontologies, workflows or rules. Hence in both cases it is reasonable to apply a model-based approach.

Process-oriented knowledge management is established since 2000 as an own discipline although the term has been mentioned earlier in the literature. From that time we observed three phases. The first phase was the introduction of

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