
Preface

Due to rapid developments in technology and in socio-economic transformation, the management of organizational knowledge is becoming increasingly important. This knowledge resides in many places, which includes organizational processes. The extraction of hidden knowledge from business processes, their articulation, and their transfer is a major challenge. Knowledge management and practices combined with semantic business process management open up many new opportunities in the management of organizational knowledge. The prospects are even more challenging if we consider the new approaches of data science since the volume of digital content is growing rapidly, and in many cases traditional methods are no longer suitable. By nature, digital content is diverse, making it another important driver to investigate new methods and procedures.

This book deals with the following key questions:

- How can we utilize the embedded knowledge of business processes in organizational knowledge management and in employees' training?
- How can we connect business processes to organizational knowledge bases, assuming that changes in business logic and business processes would be reflected in the knowledge base?
- How can we make sure that the knowledge required through business processes will be attainable and transferable to employees assigned as performers to specific job roles?

In this book, the authors will discuss the role, importance, and applicable methods of semantic business process management in the context of organizational knowledge management. The ProKEX project provided the right framework for discussion.

The aim of the ProKEX project was to develop a complex methodology and application that addresses organizational knowledge management in terms of knowledge elicitation, knowledge representation, and knowledge sharing. The goal of the ProKEX solution is to extract, organize, share, and preserve knowledge embedded in organizational processes in order to (1) enrich organizational knowledge bases in a systematic and controlled way, (2) support employees to be better able to acquire their job role-specific knowledge, (3) and help govern and plan

human capital investment. In order to keep the methodology consistent, the business process management (BPM) approach and organizational knowledge management (KM) approach were combined. BPM is supposed to be a fairly standard methodology and is the most appropriate for business logic and hence is an outstanding starting point to capture organizational knowledge (i.e. embedded into processes). KM provides ample procedures to represent and elaborate knowledge.

The book is divided into seven chapters which detail the ProKEX approach. Each chapter highlights one specific part of the methodology and illustrates the contribution to the overall approach and the impact within the framework of organizational knowledge management.

The first chapter provides an overview in a nutshell of the ProKEX research and its theoretical background related to knowledge management and business process management. This chapter creates the framework for the chapters that follow, which provide a more detailed discussion of the ProKEX components.

The second chapter illustrates the semantic business process management and discusses these aspects of the ProKEX solution. The method of extracting, organizing, and preserving embedded knowledge is explained in detail. Furthermore, it introduces a method how to translate the business process model into process ontology.

The third chapter presents a text mining solution, which has a key role in the knowledge discovery of the business processes. ProMine is a text mining application used for ontology enrichment based on the extraction of deep representations from business processes. ProMine extracts new domain-related concepts using a new filtering mechanism to filter the most relevant concepts, based on a novel hybrid similarity measure.

Characterizing, structuring, and systematizing the knowledge assets of an organization are a major challenge. The fourth chapter describes how the integrated STUDIO knowledge-based system supports organizations in applying and evaluating knowledge, in a guided learning process. It empowers employees to adapt changes to their own context quickly and supports the conversion of organizational learning into action.

The fifth chapter details the ProKEX solution in a technological context. The main focus in this chapter is devoted to the bridging process model, especially job roles, with the related domain knowledge. The main technological components of ProKEX is therefore ontology tailoring.

The sixth chapter fosters the vision of a context-aware and context-rich assessment for self-assessment. It describes a new adaptive test, which is flexible in terms of the knowledge to assess and adaptive in terms of the knowledge of an individual worker. The concept details the STUDIO knowledge-based system in terms of adaptive testing and knowledge exploration.

The seventh chapter introduces perspectives and the further development of the ProKEX solution and shows how the ProKEX approach may help the process owner to improve the business processes under their control. It provides a brief overview of the theoretical background of the necessary ontology matching

procedures and presents a concept which integrates several methodological results of the ProKEX project—such as XSLT conversion, text mining, similarity measures, and ontology tailoring. This book may be of use to both practitioners and researchers. Since the separate chapters cover quite a wide array of business process management and knowledge management, including the emerging data science, we believe that each chapter can contribute to the exploration of one or more specific scientific and practical areas. The main areas addressed in the book cover knowledge engineering, knowledge discovery, semantic web technologies, ontology management, knowledge transfer, and organizational learning.

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