

# Chapter XIV

## DYONIPOS:

### Proactive Support of Knowledge Workers

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#### ABSTRACT

*Efficient and effective knowledge management plays an increasingly important role in knowledge intensive organizations. The research project DYONIPOS focuses on detecting the knowledge needs of knowledge workers and automatically providing this required knowledge just in time. The prototype DYONIPOS generates new knowledge out of artifacts, while avoiding additional work and violations of the knowledge worker's privacy. The knowledge is made accessible through semantic linkage of the relevant information from existing repositories. In addition DYONIPOS creates an individual and an organizational knowledge data base to achieve the knowledge. This chapter is structured as follows: the introduction section describes the current knowledge management approach and the new approach with use of the DYONIPOS prototype. The background section addresses the relation between the applied approach and the challenge in E-Government, summarizes the aims of the research project DYONIPOS and delivers also insight into the topic knowledge management by describing and criticizing the "SECI-model" according to Ikujiro Nonaka and Hirotaka Takeuchi. After this the research project DYONIPOS, the semantic and knowledge discovery technologies used are presented as well as the use case project DYONIPOS showing the results of the first and the second test and screenshots of the updated DYONIPOS application. The chapter concludes with presentation of the benefits and the technical advantages of the prototype DYONIPOS.*

## **INTRODUCTION**

Current Knowledge Management approach: a knowledge worker shortly wants to prepare an important topic but he neither knows where the according information is stored nor what colleagues he can ask for expertise. To get an overview about the topic, he normally proceeds in the following way: he successively searches in the available sources (server drive, own hard disk, internet, e-mail archive, specific applications, etc.) for important information with different “search tools”. Therefore he has to run each query individually. In addition he must know the various functionalities of the different “search tools”. Finally he has to screen the delivered search results if they adequately describe the relevant topic.

Knowledge Management with support of the DYONIPOS prototype: first of all the DYONIPOS knowledge worker has to start the DYONIPOS application manually because the automatical start is turned off due to privacy reasons. After activation of DYONIPOS, all keyboard entries and mouse moves are recorded as well as the reactions of the computer system. For instance, if the knowledge worker begins to create a power point presentation DYONIPOS is looking the knowledge worker over his shoulder. DYONIPOS calculates information needs to the entered words. The knowledge worker edits for example the title page for his presentation and writes “DYONIPOS (DYnamic ONtologybased Integrated Process OptimiSation): Effective and Efficient Knowledge Management science and research hand in hand”. DYONIPOS detects the knowledge needs, e.g. “DYONIPOS“, „Knowledge Management“ etc. In addition, DYONIPOS calculates so called “resources”. These are corresponding documents, PDF-files, links to websites, electronic record management data (ELAK) which cover the information needs. The knowledge worker gets these resources indicated only by request. In fact, constantly local and global search results are delivered only if the button for this function is pressed. Apart from this associated concepts of the topic and the detected information need are indicated. These are for example individuals or organizations which deal with this topic. Besides the proactive support, DYONIPOS also offers active search for information.

This is done similar to conventional search tools via entering of a search item in a search window. Moreover DYONIPOS enriches the further handling and analysis of the indicated search results. For example important key words can be displayed which represent the content of the knowledge resource as well as association graphs that visualizes the relations of the associated concepts. DYONIPOS also classifies the detected resources and visualize them in topic landscapes. In these topic landscapes, thematically similar resources are mapped closer together. Through the use of DYONIPOS knowledge workers get an impression of the content of search results without having ever read them. Furthermore, existing knowledge in an organization becomes available, transparent and semantically enriched.

## **BACKGROUND**

“Knowledge is relevant information in context”; this is the underlying definition of the DYONIPOS project. Because of the transformation from the industrial to the information era, knowledge has grown up to an important production factor. This is classified by the part of the immaterial production (services, software, etc.) on the added value which increasingly exceeds the part of the material production. This became possible through electronic data processing. In public administration knowledge has always played a central role because the production of public services would not be possible without knowledge. As a matter of fact knowledge workers need more and more knowledge for processing their daily

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