A Portfolio Method for cross-organisational Process Design

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Abstract

This paper describes a portfolio methodology for developing conceptual frameworks for cross-organisational business process re-engineering projects. After capturing the state of the art in information and knowledge acquisition, a framework to enhance the organizational learning processes – as starting point for reengineering activities – can be defined. The methodology uses business process modelling entities for personal, role and organizational knowledge, objectives and information objects. The classification of the knowledge and information acquisition effort allows to evaluate the benefits of re-engineering alternatives of the contemplated organizational learning processes. The approach was developed for and tested on collaborative product development processes in small and medium sized enterprises.

1   Introduction

Globalisation and the extension of the European Union force the German textile industry to either outsource their labour-intense production processes to low-labour-cost countries or to specialize on the production of innovative and sophisticated technical textiles. The latter challenge requires the ability to identify customer needs in non-textile market sectors[1] and to map them on products and on process configuration. Therefore, companies in the technical textiles sector need sophisticated abilities regarding cross-sectoral co-operation, organisational learning, knowledge and innovation management.

The research project "Knowledge Management in the Textile Value-added Chain" focuses on the adaptation and introduction of state-of-the-art organisational learning and

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[1] Some example sectors with textile application products - construction: sound insulation, geotextiles; - energy production: gas diffusion layers for fuel cells, exhaust air filters; hygienics and health: clean room clothing, antiseptic fabric, absorbable surgery yarns, etc.

knowledge management concepts, methods and tools to the local textile industry. The project is being funded by the Landesstiftung Baden-Württemberg gGmbH and carried out by the Management Research work group of the German Institutes for Textile and Fibre Research, Denkendorf together with ten small and medium sized (SME) textile companies.

The present method was developed on basis of the analysis reports of the research project. The method's main objectives are to

- apprehend and document the current organizational and collaborative cross-organizational learning processes,

- to develop and evaluate process design scenarios with decision makers and

- to form a starting point for more detailed analyses and scenario evaluations.

The following description of the conceptual framework covers the organisational learning parts for simplicity issues, only. The example portfolio shows an extension for knowledge and information entities that are externally available, i.e. from other organisations.

2   Conceptual Framework

The main objective of the research project was to introduce knowledge-oriented approaches in order to facilitate organisational and cross-organisational learning processes (see i.e. Heisig 2003, Huber 1991, Probst & Büchel 1998 & Wesloy 2001). Hence, an approach was needed which "measures" the necessary effort and expenses to acquire knowledge and information entities internally and externally. In this chapter, the approach will be explained for organisational processes, only, because collaborative cross-organisational processes can be seen as a problem extension of organisational learning processes. This will be demonstrated later with an anonymised example scenario.

In the project, the following set-based classification metrics for knowledge and information entities was chosen: an objectives group (1) and the two entity groups "Directly usable or retrievable" (2) and "Available or processable" (3). All relevant entities that can be directly accessed or retrieved without effort – i.e. by a search engine or by a clear folder structure in the company's file system – belong to the first entity group (2). All other available entities need to be retrieved by searches or by asking somebody else where to find them – subsumed after having made some effort – and form therefore part of the second entity group (3). These three groups form the portfolio abscissa.

Further, it is necessary to differ between knowledge and information because of their different roles in the communication process (Jablonski et al. 2001): knowledge is the result from context-based learning of received information; it represents personal expectations about cause-effect-chains (Romhardt 1998). The portfolio methodology differs therefore between person-bound knowledge and information entities and stored infor-

mation objects. These two groups form the vertical portfolio axis and part the objectives column in personification strategy objectives and codification strategy objectives (see Romhardt 1998 & Wesloy 2001). Personification strategy or learning objectives form the impulse and the motivation for people to start communications in order to acquire certain knowledge. An example for a codification strategy objective might be i.e. to establish a groupware system in order to share, retrieve and use information in a team.

Fig. 1 shows objects and entities of the organizational knowledge base (see i.e. Huber 1991, Probst & Büchel 1998) in their portfolio position. Personal, role and organisational knowledge and information entities can be found in the upper half, stored information and data in the lower half. Own knowledge and information entities are placed in the column for directly retrievable and usable entities, as well as directly retrievable information and data. Knowledge and information entities from others are placed in the "available/ processable" column, because it requires some effort to access them.

Stored information objects like paper-based documents, books, WWW pages, database entries, etc., that are not directly retrievable and usable are documented in the lower left portfolio part.
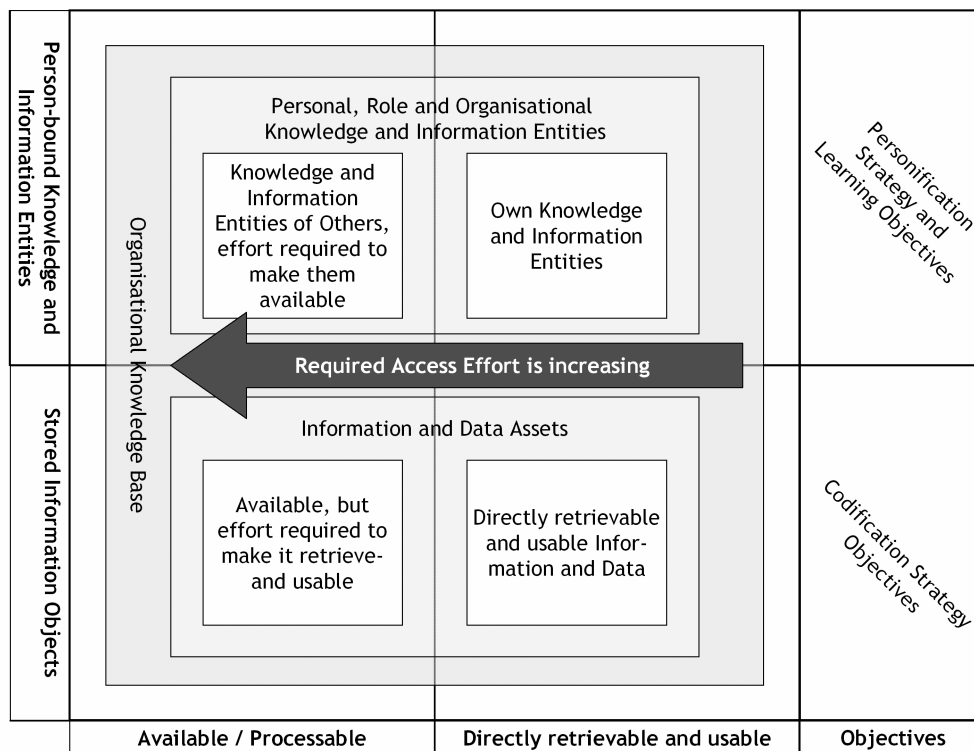

Fig. 1. Objects and entities of the organizational knowledge base and their portfolio position.

In the research project scenarios, the following person-bound knowledge and information (K & I) entity classes were used: K& I entity of an organisation unit (marked with

"O"), K& I entity of a role (marked with "R") and K& I entity of a single person (marked with "P"). For stored/documented information objects, the following object class was used: information object (marked with "I").

The K & I entities and information objects are placed in the portfolio according to their acquisition and access effort. In the portfolio (see Fig 1), the two acquisition and access effort groups and the objectives were put in the order (3-2-1). Therefore, the nearer an entity is positioned to the corresponding objective, the easier it is to retrieve and to use it.

The K & I entities and the information objects can be linked by transformation processes. These transformation processes – i.e. organisational learning or knowledge-based methods as well as the introduction resp. adaptation of information systems – can be discussed with decision takers on a general level.

3   Procedure

The portfolio is built by following these steps:-

1. Establish the objectives. Assign to each personification strategy objective the corresponding person group (person, role, organization) and to each codification strategy objective an appropriate information system type. Insert the objectives in corresponding column in the portfolio.

2. Discuss – basing on the objectives – which K & I entities and information objects will fulfil the given objectives. If necessary, identify to whom or what they are bound to. Insert these target entities and objects (dotted in Fig. 2) in the portfolio and link them to the objectives. You might retrieve and use them directly without pre-processing activities – therefore place them in the column "Directly Usable/ Retrievable", next to the objectives.

3. Build a list of currently available or known K & I entities and information objects that might serve as K & I sources for the entities and objects. Identify to whom or what they are bound to. Evaluate the access effort for all entities and objects. Place them in the corresponding portfolio cell.

4. Now discuss general scenarios for the necessary transformation processes. These processes link the given K & I entities and information objects to the target entities and objects . Insert the communication flows in the portfolio.

Fig. 2 shows an example portfolio with an innovation process improvement scenario, which deals with easier access to market information and product data sheets in order to increase the product's market attractivity. Because external knowledge and information are being accessed, the abscissa was extended with two further groups; one for K & I in the organisational knowledge base and one for externally available knowledge and information.
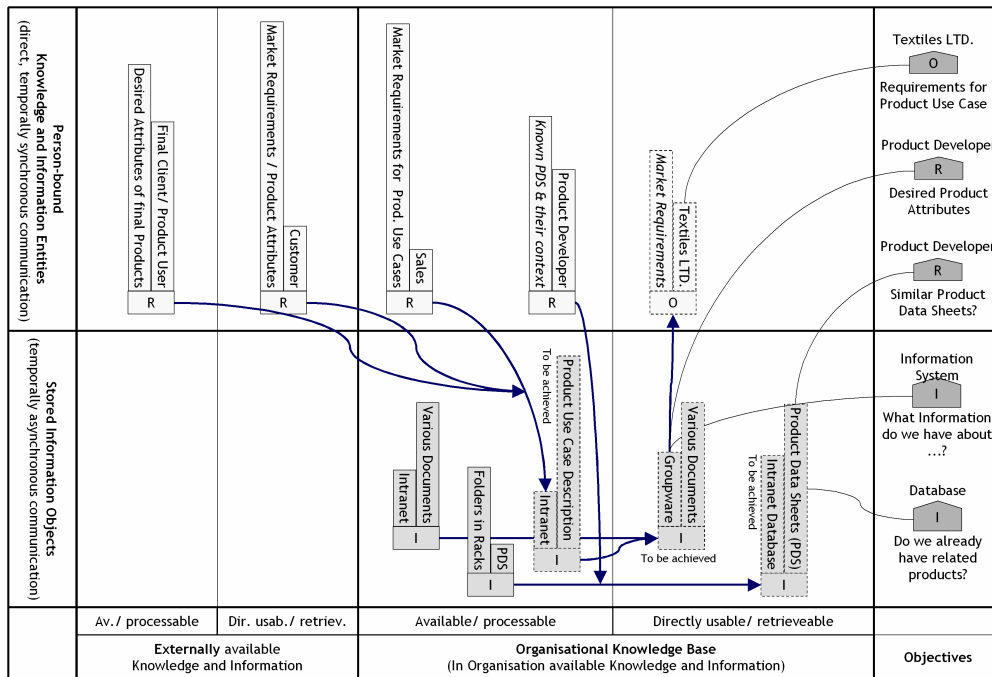
Fig. 2. Anonymised example scenario: innovation process improvement at Textiles Ltd. information from customers and product users shall be compiled in product use case descriptions on the intranet.

The organisation's objective is to know the requirements for product use cases; the product developer needs to know the product attributes that are relevant for the customer and to retrieve quickly data sheets of products whose attributes correspond to the ones the customer needs. Codification Strategy Objectives are:- to set up and put in to practice an information system covering gathered market information and other topics and a special database with product data.

Up to now, there exist various documents on the intranet and paper-based product data sheets that are kept in folders in racks. There is a certain effort necessary to access these documents. Although the product developer knows some product data sheets, he is certain that some products were already developed twice because of the enormous retrieval effort. The sales team has very detailed knowledge about market requirements for product use cases, but is not always available when the product developer needs them. Customers and end-users are a valuable knowledge source, too.

The example scenario comprises to compile product use cases by the sales department, to make all intranet documents available in a groupware system with an index-based search engine and to establish an intranet database to perform attribute-based searches on the product data sheets. It can be seen that there is the need to establish processes with the customers in order to get and actualise information about market developments and products attributes, i.e. like product development meetings on a regular basis. There is as well the need to establish processes to get information about attributes that are important for the product user.

4   Summary and Conclusions

The presented method allows to develop together with decision makers a conceptual framework for organisational and collaborative process re-engineering projects. The method's result is a description of the necessary transformation processes. The method allows to focus on the personification strategy likewise as on the codification strategy. Hence, it forms an instrument that allows to develop scenarios to improve (cross-) organisational learning without overvaluing neither of both strategies.

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