

Improving the feedback loop between the knowledge business and the core business¹

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Abstract

Knowledge management (KM) and process orientation (PO) constitute two important parts of developing an organisation, being the knowledge business part and the core process part. In order to stay competitive and to increase the customer value of their products, organisations must maintain close links between these two parts. This can be made by establishing a feedback loop, and this loop must be bi-directed. Knowledge and KM concepts must be introduced in organisations, but the way of working in organisations must also affect the knowledge residing in them. This paper analyses one approach taken to relate the core business and the knowledge business, and identifies where improvements can be made to ensure the bi-directional nature of the feedback loop. The use of data warehouse technology is suggested as an enabler of business process evolution, since the feedback loop between the business processes and the KM application data warehouse may be seen as a subset of activities in the feedback loop between the core business and the knowledge business.

1. Introduction

In order for organizations to survive in an ever-changing environment, it is important for them to be competitive and to develop routines for continuous improvement of their competitiveness. Different approaches have emerged during the years to support organizations in this strive (Carneiro, 2000), and one approach that is currently getting a lot of attention is knowledge management (KM). Purely introducing the KM concept in organizations will not increase the level of competitiveness in itself, but there is a need to apply the knowledge in an efficient and

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appropriate way to enable KM activities to be successful and to contribute to the competitiveness of the organization. The importance of this matter is illustrated by a quotation from Claycomb et al. (2001, p 266):

“Knowledge has no value if it is not applied in some way. It is only in the application that it becomes valuable”

The quotation says that the knowledge must be applied to be valuable, and the value concept is strongly related to the creation of products or services that serve to make the organization competitive. Without the creation of value, organizations would soon find themselves in a situation with higher costs than incomes and this more or less automatically leads to the ruin of the organization. Fortunately, much work has been devoted to knowledge applications, and there are numerous descriptions of it in literature pointing to different applications for KM (e.g. Meso and Smith, 2000; Binney, 2001). There is also much literature about how to design and implement systems to support these applications (e.g. Tiwana, 2000; Tiwana and Balasubramaniam, 2001). However, applying knowledge in business functions and routines is only one side of the “KM-coin”. The other side concerns input to the KM activities from the value-producing business processes and functions. Unfortunately, less KM literature seems to be devoted to this aspect. Still, as inspired by Braf (2000), the two sides of the KM-coin may be described as feedback loops between the core business and the knowledge business (Figure 1), in which the activities related to each side of the coin is depicted by the arrows relating the knowledge business with the core business and vice versa.



Figure 1: The feedback loop between the knowledge business and the core business

As can be seen in Figure 1, the arrows are given different formats. The reason is to show the present discrepancies in the amount of work devoted to the different sides of the KM-coin. As described above, the application of KM in the core business seems to attract more research than the inputs acquired from the core business and transferred into the knowledge business.

Therefore, this paper suggests a way of achieving a clear connection between the core business and the knowledge business, with a particular focus on linking business processes with related knowledge management activities. We do so by describing and analyzing one existing effort that describes how the knowledge business and the core business may be linked, and by identifying where complements to this approach are needed. Furthermore, we describe how the complements may be introduced through the use of data warehouse technology to support business process redesign, as a means to on a detailed level improve the feedback loop between the core business and the knowledge business.

2. Background

This chapter includes a brief description of the KM concept, along with a division of KM activities into distinct elements as influenced by Binney (2001). This separation is important for the ability to delimit the KM activities in focus in this work. Furthermore, the chapter includes a description of business processes process orientation in organizations, as well as a description of an approach describing the interrelationship the knowledge business and the core business is provided.

2.1. Knowledge Management

Knowledge management is difficult to describe, since there exists many different descriptions and definitions thereof (e.g. Nonaka and Takeushi, 1995; Davenport and Prusak, 1998; and Wiig, 1993). The fluid mix of concepts, technologies and approaches in knowledge management also contributes in making the whole area almost indefinable. Instead of attempting to define KM, we will describe the different elements constituting KM and how they, in different ways, contribute to improve the value-creating work in organizations. The motivation for this approach is that the aim of the paper is not to define KM, but to describe different approaches on how to relate KM applications to the core business, i.e. to take the knowledge into action and thereby increase the competitiveness of organizations. The description will be based on the work conducted by Binney (2001), since his separation of the knowledge management spectrum into different elements is considered a necessity for being able to comprehend the area and the activities involved. Binney (2001) claims that the KM concept includes six distinct elements, each having a particular aim to fulfil, in order to allow organisations to cover the whole KM-spectrum. Along with the distinct elements, Binney (2001) exemplifies on different applications that may be included to support the activities in each element (Figure 2).

| | Transactional | Analytical | Asset Management | Process | Developmental | Innovation and Creation |
|-----------------------------------|--|--|---|--|--|---|
| Knowledge Management Applications | <ul style="list-style-type: none"> * Case Base Reasoning * Help Desk Applications * Customer Service Applications * Order Entry Applications * Service Agent Support Applications | <ul style="list-style-type: none"> * Data Warehousing * Data Mining * Business Intelligence * Management Information Systems * Decision Support Systems * Customer Relationship Management (CRM) * Competitive Intelligence | <ul style="list-style-type: none"> * Intellectual Property * Document Management * Knowledge Valuation * Knowledge Repositories * Content Management | <ul style="list-style-type: none"> * TQM * Benchmarking * Best practices * Quality Management * Business Process (Re)Engineering * Process Improvement * Process Automation * Lessons Learned * Methodology | <ul style="list-style-type: none"> * Skills Development * Staff Competencies * Learning * Teaching * Training | <ul style="list-style-type: none"> * Communities * Collaboration * Discussion Forums * Networking * Virtual Teams * Research and Development * Multi-disciplined Teams |

Figure 2. KM applications mapped to the elements of the KM spectrum (From Binney, 2001, p. 35)

However, Figure 2 only exemplifies on suitable applications for a particular element, and does not describe the core of the included elements. Therefore, the six elements (the column headings in Figure 2) will be briefly described below with respect to their aim and role, as described by Binney (2001).

Transactional KM is focused on supporting the user in day-to-day tasks, such as completing a transaction or handling a customer query, by reusing already existing knowledge. Often, the application supports the user by supplying the user, which is confronted with a problem, with the solution of a similar problem. Through this support, the user is able to solve regular problems in less time and may therefore be able to handle more transactions or to increase the quality of the transactions handled.

Analytical KM is focused on the creation of new knowledge. The core of analytical KM is the integration of large amounts of data and information, from both internal and external sources, which is then used to derive trends and patterns. Those trends and patterns are previously not known, due to the complexity of the sources and the diversity of data and information. Without the use of data integrating applications, the user should be forced to manually acquire and integrate the data, which is a time-consuming activity. In fact, the ability to automatically integrate data from various types of sources serves as one of the main motivations for data warehouses, since the users may perform more value-added work, instead of performing costly and time-consuming integration work (Connolly et al., 1999).

Asset management KM concerns the processes associated with the management of knowledge assets. Asset management involves one of the following:

1. The management of codified explicit knowledge.
2. The management of intellectual property.

When these assets have been captured, they are made available to the users in the organization. Binney (2001) uses the analogy of a library, since the knowledge assets, just as the books in a library, are catalogued and made available to users. These knowledge assets are often bi-products to the ordinary business. This is an example of a KM activity type that is strongly related to the knowledge business, since it is a bi-product of the ordinary business. Still, by organizing the assets of the organization, it strongly contributes to decrease the time spent by users trying to find relevant documents or key competencies distributed throughout the organization.

Process-based KM covers, as the name implies, business processes. More specifically, this element is focused on the codification and improvement of processes and procedures and methodology. Furthermore, process-based KM activities often origin from total quality management (TQM) and process reengineering activities, since such activities are creating the base line for improving the effectiveness of the business processes.

Developmental KM focuses on increasing the competencies and capabilities of organizations knowledge workers. The KM element concerns both the transfer of explicit knowledge and the development of tacit knowledge. The explicit knowledge is transferred via training interventions whereas the tacit knowledge is developed through developmental interventions such as experimental assignments or membership in a certain community of interest. This KM element is becoming more and more important, especially since the investments spent on developing the knowledge and capabilities of a company's personnel, is a measure of the value of the organization. Further, according to Binney (2001), such investments also help to attract personnel in a highly competitive market. Examples of developmental KM applications are given in Figure 2 and include; skills development, training and learning.

Innovation/Creation KM applications focus on the creation of a "learning" environment, in which the personnel of an organization or from different organizations can come together and exchange knowledge or create new knowledge. This KM element is the most popular in the whole KM spectrum and much literature is devoted to how to create this learning environment.

2.2. Business Processes

Traditional organisations with clear boundaries, strictly coupled structures, and fixed hierarchies, are being super-seeded by new organisational types. In general, these new organisational types are small, fluid, flexible, and social networks (Franke, 1999; Paetau, 1999). One of the most mentioned concepts in literature to denote this phenomenon is the virtual organisation, which is characterised by being a network of organisations, having a strong customer focus, cross-

boundary work groups and a sharing of resources. The organisational change occurred as a consequence of e.g. new competitors, globalisation and Internet technology. Organisations, particularly smaller ones, cannot afford to fall behind competitors, and must therefore adapt to become faster, leaner, more customer-oriented and more conscious about costs. In the old – traditional – organisation, focus was directed towards separate functions or departments in organisations, where activities have been clearly defined. In such business functions, there is a risk of losing focus on how the work performed in that function contributes to the result of the whole organisation. Instead, everyone in the function do the best they can from that point of view, thus directing their attention inward instead of outward. The main goal becomes satisfying the department head's wishes instead of the customer needs. This fact has been recognised, and today attention is directed towards the process, or cross-functional process flows (Figure 3).

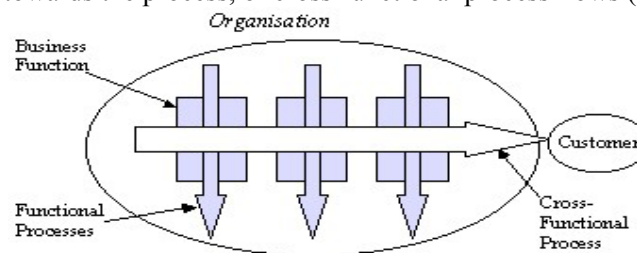


Figure 3: Process orientation in organisations

Whether being traditional or novel, organisations view business processes, of different types, as contributing to fulfilling organisational goals (Lind, 2001). Business process types can be e.g. core business processes that contribute to creating customer value, support processes that contribute more indirectly to customer value, and individual processes performed by single individuals. The core processes are viewed as the most essential ones because of their value-creating characteristics, and should therefore be paid close attention to. Ineffective processes cost organisations enormous amounts of money each year, and a well-functioning contact with a supplier is vital if the customer is to remain faithful to the organisation. By concentrating on the process as a whole, employees are given the chance of being focused on creating customer-value, and how their role in the company contributes to the results of the whole. One consequence is a reduced sub-optimisation in the organisation, in which functions compete for resources instead of jointly making sure that resources end up where they best can enhance the customer value.

The rapid developments in IT have created new possibilities and new mental models for how to conduct business. Three examples are (Rentzhog, 1998):

- Telecommunications networks enable the industry to make use of both centralisation and decentralisation instead of having to select either or
- Portable computer communication devices enable personnel out in the field to send and receive information wherever they are
- Shared databases enable information to be stored in many separate places at once, such as in a data warehouse

One way of improving processes is to make sure that there is a constant feedback loop between the core business processes and the knowledge processes in an organisation. Experiences, information and knowledge in and from business processes need to be stored and maintained in the knowledge processes. In return, knowledge from the knowledge processes need to be feed back to the core processes in order to evolve them and make them more effective. Feedback as such in process evolvment is important, e.g. concerning feedback from the customer. Lind (2001) and Rentzhog (1998) both mention how feedback constitutes the basis for continuous improvement of business processes as a means for creating quality in both processes and their

results. Furthermore, feedback is necessary to keep the business processes aligned with organisational goals.

2.3. Interrelating the knowledge business and the core business – an approach

This chapter presents an approach on how to describe the relationship between the core business and the knowledge business. The approach is taken from Braf (2000), and the reason for applying it is two-folded: First of all, we have not found any other approach that formalizes the interaction between the two businesses as thoroughly as Braf’s approach. This applies in particular when considering the detailed descriptions of the prerequisites and results of the two businesses and the knowledge processes performed in this context. Secondly, the approach is based upon an extensive literature study of the KM concept combined with empirical studies, making it both scientifically and empirically applicable and interesting. Other approaches exist, but were considered as either lacking completeness in covering the interaction between the two businesses, or by being built on literature only. One example of related research is the socio-technical perspective of organizational knowledge management systems given by Meso and Smith (2000), in which the importance of relating knowledge management to the core business activities is discussed. However, the Meso and Smith perspective is not very detailed, and has hardly any focus on business processes. Therefore, it was rejected.

As mentioned above, the approach given by Braf (2000) at its core describes the prerequisites and results of the both businesses and five knowledge processes related to the knowledge business. The knowledge processes will be described in the following sections before including them in the analysis. As an overview, Braf (2000) gives the following figure describing the relation between the core business and the knowledge business:

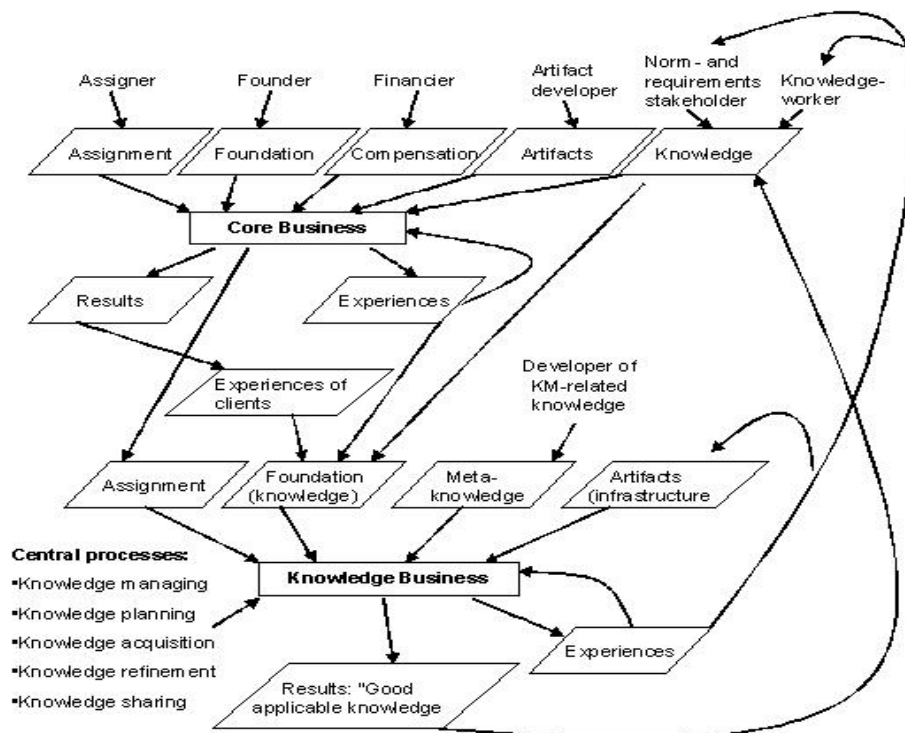


Figure 4: A model for perceiving an organization’s knowledge businesses and its relation to the core business (From Braf, 2000, p.156)

First of all, Braf points to the importance of considering the core business and the knowledge business as at least closely related, but sometimes also as integrated. The main difference between these two types of businesses is that the core business is the part of the organization that creates the organizational value, whereas the knowledge business is focused on acquiring, developing and assuring knowledge. The core business is built up on value creating processes (as described in section 2.2) whereas the knowledge business is built up around the following five supportive knowledge processes: managing, planning, acquisition, refinement, and sharing:

Managing processes. Define the knowledge vision of the organization, the aim and the guidelines for the knowledge business, KM related business norms, as well as leaving traces and creating incentives for the knowledge business.

Planning processes. Concern knowledge mapping, knowledge profiling, planning and creating prerequisites for needed knowledge development, and making the employees' knowledge profiles available throughout the organization.

Acquiring processes. Focus on creating prerequisites to realize knowledge acquiring activities via e.g. external cooperation.

Refinement processes. Articulation of individual and collective knowledge, reflection upon individual and collective knowledge, and conceptualization of knowledge.

Sharing processes. Creating a suitable infrastructure to make knowledge available, and making externalized knowledge available via media such as intranets, databases and mail groups.

Braf's (2000) framework also includes actors, prerequisites and results, as illustrated in Figure 3. These are used as inputs to the two business or connectors between the knowledge business and the core business and vice versa. The results and prerequisites will not be described in detail since they are considered as rather straightforward.

3. Improving the feedback loop

In this chapter, Braf's (2000) approach is analyzed, and possible complements are identified. Furthermore, a suggestion is made on how to implement the complements, in order to create an even closer relation between the core business and the knowledge business.

3.1 Deficiencies in Braf's framework

In this section, our analysis will pay specific attention to the prerequisites and results feeding data and information back from the core business to the knowledge business in Braf's (2000) framework. The motivation for this was described in chapter 1 above.

The basis of the analysis is on comparing the framework to literature findings and to results from a research project that focused on improving the design process of electronic circuit boards (described in Backlund and Strand, 2002 and in Strand, 2002). The aim of the project was mainly to improve the feedback from manufacturing companies back to electronic circuit board designers. In the context of this paper, the feedback may be described like in Figure 5.

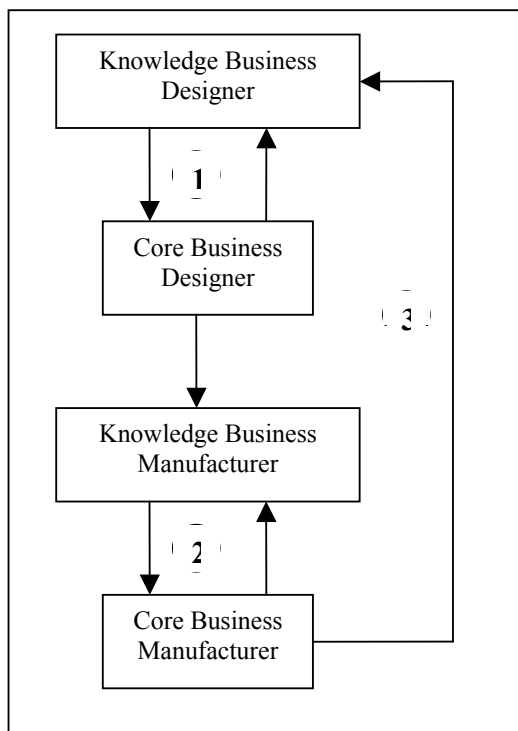


Figure 5, The feedback loops in and between designing and manufacturing companies.

The project involved more than one organization, but the results are considered as applicable for the following reasons: Firstly, the results of the project are rather generic, making most of them applicable even if the scope of this paper is narrowed to concern only one organization. Secondly, the prerequisites and the results of the processes are also rather generic, either the processes only cover business functions of one organization or if it spans business functions of several organizations. Finally, as can be seen in Figure 5, there was also an amount of feedback within the participating companies (loops 1 and 2), even though the focus of the project was on the feedback loop (loop 3) from the manufacturing companies to the designing companies. However, the identification of the loops 1 and 2 also gave some interesting inputs.

When comparing Braf's approach with existing literature, the impression is that Braf covers most of the important knowledge processes, actors, results and prerequisites, even if it is on a high level. Firstly, the knowledge management processes given cover most of the KM activities mentioned in often cited definitions, e.g. Alavi and Haley (1999, p.2), who define KM as follows:

“Knowledge management is a systematic process for acquiring, organizing and communicating knowledge of employees so that other employees may make use of it to be more effective and productive in their work.”

This statement shows that Braf's framework covers most of the process activities. When looking at the prerequisites of the knowledge business, which in turn are results of the core business, Braf provides the following; the core businesses own experiences and the experiences of the clients/customers, using the service or the product. This may be compared to the ideas of the research project mentioned above. Backlund and Strand (2002) describe how client experiences were identified as very important and due to the design of the projects, relating experiences from the manufacturers back to the designers (Figure 5, loop 3). Therefore, one may claim that Braf (2000) covers this result. However, Braf does not provide many details on how the workers in the knowledge business are to make use of these experiences. This needs to be complemented, since

it is not only important to make use of the knowledge from the knowledge business into the core business, but also to make use of experiences or knowledge from the core business in the knowledge business. The importance of this idea is illustrated the following quotation by Carneiro (2000, p. 89):

“Considering their missions and strategic objectives, organizations have to define what kind of knowledge will be more important to take care of”

When considering the businesses own experiences, Braf (2000) covers the importance of this on a general level, while details are missing here as well. Since business processes often are complex and involves many actors and resources, it is important to be aware of what knowledge to pay attention to and what knowledge to ignore. This is especially important when core processes change quickly, in which case it is important to have knowledge on various aspects. Claycomb et al. (2001) claim that knowledge on process performance is important if dealing with high change rates, in order to be able to adjust the processes to new requirements. This lack of details also needs to be complemented, since one of the finding from the research project showed that most organizations do already have some feedback on how the work is conducted, but the problem is that they do not know if it is the most relevant feedback. Another issue that needs to be complemented is how to relate the core business directly to the artifacts supporting the knowledge business. Much literature has declared information technology as an enabler (Alavi and Leidner, 1999; Binney, 2001), but Bhatt (2001) also pinpoints the importance of interaction between people and information technology when acquiring knowledge from the core business. This is something that Braf’s (2000) approach does not cover. Finally, Braf states the importance of externally externalized knowledge into the knowledge processes; examples given are external courses and external mentorship. However, also external data is important for organizations to survive, but Braf does not describe important external data or external knowledge domains. Still, the importance of including these external data and domains into the knowledge business is crucial if considering the organizations ability to sustain their competitive edge (e.g. Alavi and Leidner, 1999; Hackathorn, 1999).

To summarize, Braf’s (2000) approach covers most of the important topics given in literature. However, the approach is general and important details are therefore missing. Our analysis has shown that the following four issues need to be complemented:

1. More details on how knowledge business workers can make use of experiences from the core business.
2. More details on how to identify the most relevant feedback, i.e. how to know what knowledge to pay attention to and what knowledge to ignore.
3. A suggestion on how to directly relate the core business and the artifacts supporting the knowledge business.
4. The description of important external data and important external knowledge.

It is particularly important for the practitioner view to consider the suggested complements on knowledge management in organizations and its relations to the core business. In the next section, a specific application for improving the integration between the knowledge business and the core business will be provided.

3.2 Using data warehouses to improve the feedback loop

In previous sections, a general focus has been given to the necessity of feedback between the knowledge business and the core business, in order to increase the competitiveness of organizations. In addition, the approach given by Braf (2000), on how to describe the relationship between the knowledge business and the core business has been analyzed to identify deficiencies

and room for improvements. Based on this material, we suggest an outline for a solution that may improve the feedback loop between the knowledge business and the core business. The solution is a complementation of the ideas given by Braf, and suggests the use of data warehouse technology as a knowledge management application (artifact in Braf's approach), in order to enable linkage between certain KM elements and business processes. The solution also includes a discussion on the support offered by data warehouses, as KM applications, for redesigning the business processes. This particular data warehouse application area was included, in order to give some practical insights on how to apply data warehouses as a link between KM and business process redesign. After all, one bottom-line for KM activities concerning business processes is to redesign the processes, in order to stay competitive and efficient (Binney, 2001).

As stated above, our approach suggests the use of data warehouse technology as an enabler for the feedback loop. There are two main reasons for this: Firstly, information technology in general, and data warehouse technology in particular, are considered as important prerequisites for supporting KM activities (e.g. Alavi and Haley, 1999; Meso and Smith, 2000; Binney, 2001). However, as described above, KM is a rather wide concept including many different activities and applications and its relation to data warehousing has been indicated above. Still, there is a need to delimit the KM elements (section 2.1) supported by data warehouses. If studying the ideas of Kelly (1996) who relates the data warehouses with business process redesign, one may claim that one of the KM elements important for this work is *process-based KM*. According to Binney (2001), process redesign is one of the main applications in this particular KM element. The second KM element we consider relevant for this work is *analytical KM*, especially since Binney (2001) gives data warehousing as an example application for this KM element. The suitability of using data warehouses in KM with its support in analysis and knowledge creation is also presented by e.g. Gray and Watson (1998). Secondly, data warehouse technology is also considered as suitable for supporting both the decision-making processes within organizations (Humphries et al, 1999), but more importantly, in business process redesign (Watson and Haley, 1997; Kelly, 1996).

Now that the relation between KM and data warehouses, and business process redesign and data warehouses is theoretically established, the following section will be devoted to suggesting data warehouse supported complements to Braf's approach. The needed complements identified in section 3.1 will be discussed one by one, with a particular focus on how to support business process redesign.

The first complement concerns the need for more details on how knowledge business workers can make use of experiences from the core business, and ideas from Kelly (1996) will be given in order to explain the data warehouse support. Kelly claims that analysis of data during the use of the data warehouse may reveal that there is a need for redesign of the business processes. Binney (2001) also mentions this idea, and states that the ability to create new knowledge by integrating data from various operational sources is a key in finding patterns and needs for changes. This is also a way to more automatically make use of data from the core business in the knowledge business. Finally, Humphries et al. (1999) claim that since data warehouses are supposed to support the knowledge processes of organizations, the mechanics of understanding the needs of the knowledge processes is already built in the data warehouse system.

The second complement relates to the problem of how to identify the most relevant feedback, i.e. how to know what knowledge to pay attention to and what knowledge to ignore. Here as well, ideas from Kelly (1996) will be presented. According to Kelly, data warehouses contribute to organizations also in the planning and analysis stages of the data warehouse project, in planning in particular when the data requirements are investigated. Since data warehouse projects are

supported by methods aimed at e.g. identifying relevant data in the processes, these formalized tasks may support the organizations in deciding which data that is relevant and which data that is not. The selected data is then forming the baseline for what knowledge it is possible to create using the analysis tools. In addition, Kelly (1996) states that it may also be relevant to make changes to the business processes during planning, in order to be able to acquire and store some particular data. One may also consider this as a feedback loop on a lower level, including the exchange of knowledge between the consultants building the data warehouse and the personnel responsible for redesigning the business processes. The need for aligning the data warehouse and the business processes during the data warehouse development project is also described by Agosta (2000), who claims that system integration, and business process redesign costs at five times the cost of the hardware and the software.

The third complement concerns the lack of a direct relation between the core business and the artifacts supporting the knowledge business. In its core, this is handled by data warehouses, since they are designed to automatically extract data from the systems supporting and monitoring the business processes and from that allow knowledge workers to perform trend analysis and forecasting (Connolly et al., 1999). For example, process measurements may be directly integrated from the processes into the data warehouse, allowing for identification of the need for changes in the core processes. The importance of relating the technology and personnel is also high lightened by Bhatt (2001), claiming that in order to allow for organizations to manage its knowledge effectively, technology and personnel must be interacting.

Finally, the description of important external data and external knowledge domains is rather brief and lacks some of the most important domains. When the need for knowledge on important domains is related to the Alavi and Leidner (1999) study, it becomes apparent that customers, business partners, and competition are of utmost importance in addition to the domain given by Braf (2000). Data warehouses can contribute here as well with their ability to integrate data from various internal sources, as well as sources external to the organization (Chaudhuri and Dayal, 1997). Furthermore, another contribution of data warehouses' ability to integrate internal and external data is stated by Inmon (1996). According to Inmon (1996) data warehouses render support to have insights that are not possible to acquire without contrasting the business performance with external performance measures. Singh (1998) exemplifies on external data such as economic forecasts, consumer demographics, and competing and purchasing trends. This data may be bough from e.g. external media suppliers, specialized on integrating, working up, and selling data (Asbrand, 1998). Such data may also be used as a base for decision support when redesigning the business processes.

4. Widening the perspective

So far, the feedback loop between the knowledge business and the core business has been described, complements to an existing approach have been suggested, and an example on how data warehouse technology can be used to achieve these complements has been provided. This chapter summarizes and further motivates the suggested feedback loop from both a data warehouse and a business process perspective. The importance of business processes and continuous refinement thereof has been stressed several times already. Business processes are important since they constitute the core of most organizations (Davenport, 1993; Hammer and Champy, 1995) and therefore are important to be kept in focus. Business processes are at the core of both the value creating work of organizations and the works conducted to support these value-creating activities, and are thereby present in both the core business and the knowledge business. Secondly, the focus on this paper is on improving the feedback between the knowledge business

and the core business and the idea of feedback is also very present in business processes. Lind (2001) and Rentzhog (1998) both mention how feedback constitutes the basis for continuous improvement of business processes as a means for creating quality in both processes and their results. Furthermore, feedback is necessary to keep the business processes aligned with organizational goals.

What are the contributions of the approach suggested in this paper? Firstly, the paper evaluates and complements the approach given by Braf (2000). This is done via extensive literature grounding along with empirical influences. It is important to continuously improve existing research approaches, in order to adjust them to current standings. Secondly, the paper exemplifies on established techniques highly suitable for improving the feedback loop between the core business and the knowledge business. In literature, it is strongly argued that data warehouses are important in both knowledge management initiatives and in business process redesign initiatives. The focus placed on considering data warehouses as one important link between businesses processes initiatives and knowledge management initiatives is also considered as a contribution, especially since the two areas; data warehouse – process redesign and data warehouse – knowledge management are managed rather separately in literature.

The use of data warehouse technology in business process evolution has been clearly motivated. Furthermore, the feedback loop between the business processes and the data warehouse (Strand, 2000) may be seen as a subset of activities in the feedback loop between the knowledge business and the core business. As with the other identified research areas and many of their specific research problems, an empirical study should be conducted as future work to clarify how the interplay between the data warehouse and the business processes should be handled. Advisably, organizations that have started to work in this way should be studied, but also organizations that have not yet adopted this approach are of interest. In those organizations, ideas from the literature and the outcome of the study of the organizations that have the above-mentioned integration could be tested. From that, a framework could be developed, suggesting how to integrate a data warehouse and related business processes. Finally, that framework could work as a starting point for the development of a method to use, when performing this type of integration.

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