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Efficiency Unleashed: Examining the Influence of Knowledge Management on Company Processes

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Abstract
Our goal is to shed light on the consequences of knowledge management on a company's business processes. Organizations are not aware of the real implications that KM may have. Our conclusions, based on an empirical study consisting of 156 Spanish organizations and structural equations modeling with LISREL 8.7, can help academics and managers in designing KM strategic programs to achieve higher efficiency, effectiveness and profitability.

Keywords:
Goal, knowledge management, business processes, Firms.

Introduction

The key production factor in a world shaped by information technology (IT) is knowledge [Klot00d, p. 1]. As IT spreads, an economy is emerging that is more based on the production of ideas than its predecessor, which was geared towards the production of objects at the lowest possible cost. Another characteristic of this economy is the gradual move away from the functional form of organization that is still predominant today towards a process-oriented form of organization. This form of organization is more capable of learning because communication does not have to overcome so many barriers, departmental boundaries and hierarchical levels. More and more managers are recognizing that IT can be used to completely restructure operational processes if the computer is no longer viewed as just a programmable machine,

In this context, the added value of companies is no longer exclusively related to the invested working time of the staff, but depends on the skill, originality and speed of people to identify new problems, to solve them creatively and to communicate them convincingly [Klot00b, p. 5]. It is the knowledge in the minds of the members of the organization that becomes the decisive means of production. From the company's point of view, the targeted management of knowledge as a resource is becoming a decisive competitive factor.

As with any substantial organizational achievement, it is advisable to think in terms of coherent processes when it comes to knowledge management [Will98, p. 77]. On the one hand , companies have to understand *knowledge management* itself as a process that can be designed and that radiates to all other internal processes, on the other hand, the processing of knowledge takes place in the operational processes [AlSc98, p. 42]. The integrated presentation and consideration of all aspects related to business processes is therefore essential for systematic and successful knowledge management.

1.2 Aim and structure of the work

The aim of this work is to systematize and describe the *effects of knowledge management on business processes*. The results are then compared with the findings of an empirical study and any discrepancies that arise are discussed.

The systematization and description of the effects of knowledge management on business processes takes place on three different levels:

On the first level, knowledge management methods are presented that show the extent to which knowledge management causes a redesign or redesign of business processes.

The second level of systematization describes the effects knowledge management has on an organization's business process model. The third level of systematization shows the effects of knowledge management on individual business processes.

With regard to the problem solution to be developed, terminological delimitations on the subject of knowledge and knowledge management are made at the beginning in Chapter 2. The results support the subsequent development of a holistic knowledge management approach on which this work is based, which is based on the knowledge management model of the Fraunhofer Institute for Production Systems and Design Technology (IPK).

In Chapter 3, the connection between knowledge management and business processes is established and the necessary delimitations of the process concept are made. Which processes or business processes knowledge management must focus on in order to achieve improvements will then be worked out and the findings integrated into the holistic knowledge management approach presented.

Chapter 4 provides information on the extent to which the knowledge management methods " *framework of process* knowledge " and " *business intelligence* " can bring about possible process changes or optimisations

Chapter 5 then shows what impact the implementation of knowledge management has on business processes. There is also a comprehensive description of the extension of the business process model. After that, essential instruments of knowledge management are presented, with their integration into business processes being the focus of consideration.

Chapter 6 provides an anonymous summary of the empirical study of two business areas of a large consulting firm. The company surveyed requested that the results be treated as strictly confidential, as they contain internal and competitively critical

information that is unknown to the public. A detailed explanation of the test results can therefore be found separately in the appendix, which is under lock and key.

The findings of the empirical investigation of the consulting company based on two business areas show their knowledge management approach and its implicit effects on the business processes, which are then compared to the theoretical findings worked out in the previous chapters. The work ends with chapter 7 with a summary of the results and an outlook, in which the existing discrepancy between theory and practice is worked out.

Knowledge management as a holistic approach

In order to describe the effects of knowledge management on business processes, a basic understanding of knowledge management must be achieved. The following explanations focus on the development of essential components of a holistic knowledge management approach. The presentation of a holistic knowledge management model concludes this chapter.

Knowledge and Knowledge Management

Knowledge management is a management concept with which a company consciously tries to actively and systematically shape its knowledge base. In this continuous process, it develops its organizational knowledge base from individual and organizational knowledge in such a way that it contributes to achieving corporate goals in the long term. In order to better understand this process, it is necessary to understand the importance of knowledge for companies and to understand the term "knowledge".

Importance Of Knowledge

Due to the structural change in the economy and society, knowledge as a resource has become increasingly important in theory and practice [KrVe95, p.

417ff] [1]. While the soil factor played a central role in pre-industrial agricultural society for both production and social status, work and capital replaced it in the course of industrialization [NeFe98, p. 194]. The increasing importance of non-industrial and non-agricultural goods led to a significant expansion of the tertiary sector in the late 1970s. In addition to labour, land and capital, information advanced to become the fourth production factor [Capp98, p. 346ff.]. This service or information society seems to be replaced by an entrepreneurial knowledge society. These shifts are based on macroeconomic dynamics, which are fed in particular by the revolution in communication technology [PrRa99, p. 20].

Value creation in which added value is not created through volume differs in key aspects from material production, in which the production factors labour, raw materials and capital are consumed in the process. In contrast, knowledge is a resource that is not exhausted, but rather increases through its use [PrRa99, p. 17].

The automation of routine activities increases the intellectual content of the remaining work. This increasingly requires understanding information, acting on it, managing it and creating value with it. Intangible components and the handling of knowledge are therefore becoming an increasingly important part of value creation. These trends are having an ever clearer effect on the economic success of companies, which is causing a growing number of people to recognize knowledge as a fundamental factor [PrRa99, p. 20].

More and more company managers and consultants therefore describe knowledge as the most important asset in organizations and as the key to a long-term competitive advantage [DaPr98b, p. 21]. Authors such as Alvin TOFFLER [2] or Brian QUINN [3] regard knowledge as the most important value-generating source in the modern organization [KrVe95, p. 417]. NONAKA also describes the importance of knowledge as follows: “ *In an economy where the only certainty is*

uncertainty, the one sure source of lasting competitive advantage is knowledge .” [Nona91, p. 96]

Businesses have traditionally been measured by their balance sheets and by their inventory of commodities and capital. In fact, markets are now behaving more and more like financial markets, where value is based on perceived potential for future returns. Especially in the area of the *New Economy* , the market values of successful companies such as Microsoft and SAP often exceed their book values many times over. A decisive factor for this valuation difference is the z. B. in patents or databases existing knowledge of the company either explicitly or hidden in the heads of employees [HeVo98, p. 5]. Stock exchanges as a sensitive instrument for trends and competitive factors thus provide another indication of the eminent importance of knowledge in value creation [Klot00a, p. 2].

Characters, Data, Information And Knowledge

Further understanding of the concept of knowledge requires a delimitation of the conceptual content of signs, data, information and knowledge (see Fig. 1). The success or failure of companies may depend on knowing whether you need data, information or knowledge, what is available and what can be done with it [DaPr98b, p. 25f.].

The characters are arranged on the lowest level of the concept hierarchy. A character is the "smallest data element that can be accessed during program execution" [Hans92, p. 111]. Characters can consist of letters, digits or special characters [ReKr96, p. 3]. The set of all available characters is defined as the character set.

Signs become data through syntax rules and consist of an almost unlimited amount of available facts, statistics, texts and images that can be observed, measured,

ordered and structured [PrRa99, p. 36]. At this level of the hierarchy of terms, however, no statement is made about the intended use.

Data become information when they are placed in the context of a problem and used to achieve a goal [ReKr96, p. 4]. According to NONAKA and TAKEUCHI, information can be explained with the term " *message* " [NoTa95, p. 58]. Like all messages, information always has a sender and a recipient [DaPr98b, p. 29]. Information is intended to change the recipient's perception of an issue and affect their judgment and behavior. Information is therefore data with meaning and purpose that has an effect on the recipient: " *Think of information as data that makes a difference.* " [DaPr98a, p. 3]

Illustration not included in this extract

Organizational Knowledge Base

The term organizational knowledge base (organizational memory [6]) should be used to describe the entirety of relevant knowledge in companies . The organizational knowledge base consists of individual and organizational knowledge that an organization can use to solve its tasks. It also includes the data and information stocks on which individual and organizational knowledge is based [PrRa99, p. 46ff.]. Both individual and organizational knowledge can be *implicit* or *explicit* [Giss99, p. 9].

Based on NONAKA [7] , a distinction can be made between individual and organizational knowledge according to the form of knowledge binding and between implicit and explicit knowledge according to the form in which the knowledge is available [8] (see Fig. 3) [ZeWi99, p. 26]:

Illustration not included in this extract

Table 1: Classification of knowledge according to starting points for knowledge management [9]

f- Individual knowledge refers to the knowledge of a knowledge carrier. Individual knowledge can only be converted into organizational knowledge through the exchange of knowledge between knowledge carriers.

f- Organizational knowledge describes the knowledge of a specific community or group at the same time, but also the abilities of an institution to generate new knowledge. [Schn96, p. 13ff.]

f- Implicit knowledge (*tacit knowledge*) represents the personal knowledge of a of the individual based on the ideals, values and feelings of each person [Nort99, p. 49]. Subjective insight and intuition embody tacit knowledge deeply embedded in the actions and experiences of the individual. This form of knowledge is very difficult to formulate and pass on because it is hidden in the heads of individuals (*embodied knowledge*) [ReKr96, p. 6]. In order to be able to process, transfer and store implicit knowledge in an organization, it has to be converted into explicit knowledge [NoTa95, p. 9].

f- Explicit *knowledge*) is methodical, systematic and available in a standardized form [Giss99, p. 9]. It is stored in media outside the heads of individuals and can be recorded, transmitted and stored using information and communication technology, among other things [Nort99, p. 49 f.].

Knowledge management must face the task of designing the organizational knowledge base optimally and appropriately [PrRa99, p. 35ff.]. The organizational knowledge base is increasingly proving to be a competitive factor which, like the production factors of labour, land and capital, must be managed in a targeted manner in order to efficiently exploit growth and cost reduction potential [BuOh00, p. 200].

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Knowledge Management

Numerous authors [10] have dealt intensively with the topic of knowledge management in recent years. Likewise, a growing number of articles and studies [11] are dedicating their attention to the issue of knowledge management. The central questions are whether and how companies deal with knowledge as a resource and how this knowledge is managed and developed in practice. The improvement of organizational skills at all levels of the organization through better handling of knowledge as a resource is the focus of interest in knowledge management [PrRa99, p. 61].

Knowledge management therefore strives to *show managers starting points for targeted interventions in the organizational knowledge base* and *to develop concepts and methods for this purpose* [PrRa99, p. 47]. Since every company is unique, every organization that seriously wants to practice knowledge management must search for the appropriate definitions of knowledge management as a holistic approach 10 "knowledge management" [Mitt99]. Most definitions of knowledge management can therefore only be used as a guide be, but nothing more.

The term "knowledge management" itself already contains a problem. Managing knowledge is an abstract object and the intention that knowledge can be managed gives the impression of an oxymoron according to SVEIBY [Svei98]. PRUSAK also states that knowledge cannot be managed enough, but only the conditions can be shaped in which knowledge can optimally thrive [Merx99, p. K1]. Because of the increasing economic importance of the knowledge factor as a decisive production factor, it is nevertheless increasingly understood as a variable that can be shaped. Building on this, various scientists and consultants have developed knowledge management models [12] [Tuch00, p. 178]. The basis of most models is a learning cycle that depends on framework conditions or learning barriers [13]is

inhibited, which sometimes do not allow a uniform, universal definition of knowledge management or a uniform knowledge management model [PrRo97, p. 132]. The different systematization attempts are always the result of different insights and perspectives [Giss99, p. 22].

Successful strategic action is rarely the result of in-depth reflection and one-off creative acts by top management. Rather, the generation, distribution and utilization of knowledge take place as a result of continuous learning and organizational processes [Deis96, p. 49ff.]. As with any substantial service provided by an organization, it is advisable to think in terms of processes [14] when it comes to knowledge management [Will98, p. 77].

Based on PROBST, RAUB and ROMHARDT, knowledge management can be described as a process. The approach they developed *Building blocks of knowledge management*shows topics of knowledge management, illustrates the flow of knowledge within the organization, structures the knowledge management process in logical phases, offers approaches for interventions and clarifies the mutual dependencies of measures in knowledge management [PrRa99, p. 49ff.]. This process model provides what is probably the most extensive and generally applicable approach [Giss99, p. 22]. The model, which is guided by a practice-oriented interest in knowledge, was created in close dialogue with practitioners [PrRa99, p. 131]. Today it serves as the basis for numerous publications, especially in Europe, and has established itself as a standard work in this field of research. Based heavily on this process model, the Fraunhofer IPK developed the *core process of knowledge management*. This core process of knowledge management differs from PROBST, RAUB and ROMHARDT's approach in the limitation of basic activities. This simplification makes the concept of knowledge management even more communicable, understandable and applicable for all

members of an organization, from the CEO to the craftsman, without having to accept deficits in content [MeHe97, p. 218].

Especially with regard to the process and practical orientation of this work, it makes sense to explain the *core process of knowledge management* in more detail and to use this as a basis for further explanations.

Core process of knowledge management

According to Fraunhofer IPK, knowledge management can be divided into six core process activities (see Fig. 4) [HeVo98, p. 6]. The arrangement of the core process activities of knowledge management follows two principles: The core process activities of *identifying knowledge* and *formulating knowledge goals* trigger the actual process and control its dynamics. The inner cycle shows the process of implementing knowledge management with the core process activities of *generating knowledge*, *storing knowledge*, *distributing* knowledge and *applying knowledge* , which continuously reproduces itself [HeVo98, p. 28].

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Figure 3: Core process of knowledge management [15]

Many knowledge problems arise because the organization pays too little attention to one or more of these core process activities, thus disrupting the knowledge cycle. The individual activities are interdependent and must therefore not be viewed in isolation [PrRo97, p. 131]. Below is a description of the content of the six core process activities of knowledge management.

Management/Governance

The design field of management or leadership is represented with 25 percent by the categories "Support from top management" and "Clear definition of goals". Aspects of leadership style are strongly linked to aspects of corporate

culture and human resource management. Managers are able to build up a climate of trust and acceptance with open communication and the example of behavior that is useful for knowledge management in order to promote a positive attitude of the employees towards the knowledge-oriented organization [Heis99a, p. 46]. At the individual level, management should support the willingness to continuously question existing processes in order to avoid the *not-invented-here syndrome*to prevent At the organizational level, management must promote the understanding of knowledge as a competitive resource that must be used for the common benefit of the organization, regardless of its origin [PrRa99, p. 276]. If knowledge is viewed as a strategic resource in a company, then this creates an important prerequisite for successfully mastering knowledge management [Mitt99].

The alignment of the essential processes of the company through the formulation of goals represents one of the core tasks of the management [PrRa99, p. 65]. Clear formulation of goals is an essential prerequisite for making the success or failure of knowledge management activities verifiable [QuLe97, p. 385ff.].

Processes

Almost 24 percent of all companies surveyed named "structures and processes" as critical success factors, which means the adequate integration of knowledge processes into business processes.

The alignment and optimization of business processes are the necessary prerequisites for a knowledge-oriented company. A knowledge-oriented business process management requires the structuring of business processes in order to create continuous, low-interface process chains that improve the flow of knowledge in the company. [HeVo98, p. 20]

Technology

Many knowledge management concepts exclusively follow a technology-centric approach, which focuses on the use of information and communication technologies to support communication, cooperation, coordination and needs-based access to information and knowledge stocks [BuOh00, p.202]. However, pure technology solutions are unlikely to create the necessary knowledge transparency within organizations, since they always have to be supplemented by the human factor, which can demonstrate its expertise in a personal conversation other organization members [PrRo97, p. 134]. However, the establishment of a modern information structure is a necessary prerequisite for accelerating the core process of knowledge management [HeVo98, p. 25]. It facilitates the exchange of information throughout the company (e.g. e-mail), creates the basis for work in work groups that are independent of time and place (e.g. *groupware* applications), offers storage and retrieval options in internal and global networks (e.g. intranet/internet) and provides tools for certain knowledge management tasks.

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