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Knowledge Centers in Professional Services Firms: Design and Empirical Evidence

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ABSTRACT

Complementing knowledge management (KM) initiatives, specialized service units can support intra-organizational knowledge transfer by conducting research, offering edited contents, or participating in internal networks. This research concentrates specifically on the knowledge center (KC) model, thus following Hertlein et al., whose blueprint is evaluated and further developed by building on a multiple case study. In this design science research process, five KCs from the branch of professional services firms are studied, with particular emphasis on the process dimension. This allows new insights to be gained into the characteristics of KCs. Not only is the KC model largely confirmed, but new details are also added. Furthermore, directions for further research – specifically on the KC’s integration into KM initiatives– are provided.

Keywords

Knowledge transfer, knowledge management, shared service center, knowledge center

INTRODUCTION

Intra-organizational knowledge transfer, which can support the company’s performance and capability for innovation, is often supported by knowledge management (KM). This raises the question: Who conducts the various knowledge processes that ultimately support the business processes within the organization? Within KM research, there is no distinct separation between KM management roles inside and outside KM initiatives. Processes related to KM are often conducted by organizational units, which act as shared service centers (SSC) and are strategically aligned with KM. These organizational units answer inquiries, make contents available, as well as maintain and participate in networks by using staff expertise and codified organizational knowledge repositories.

This study concentrates on the knowledge center (KC) model developed from practical observation, thus following Hertlein et al. (Hertlein, Smolnik and Riempp, 2010). This primary KC model only exists as a blueprint in a design science research process; consequently, the model requires further evaluation and modification. This research seeks to evaluate the primary model by conducting multiple case studies concentrated on the KC’s process dimensions.

Our paper is structured as follows: The following section describes the basis of knowledge transfer and the associated SSCs focused on conducting KM processes. We then present the blueprint of a KC model as designed by Hertlein et al. In the subsequent section, we outline the applied research methodology and describe the research process. Thereafter, the results are presented, emphasizing the process dimension. The primary model is then evaluated in the light of the new results and modified. We also discuss the potential for further research, outline our research’s limitations, and summarize our results.

FOUNDATIONS

Knowledge Transfer

According to Van Wijk, *knowledge transfer* can be described as the process “through which organizational actors – teams, units, or organizations – exchange, receive, and are influenced by the experience and knowledge of others” (Van Wijk, Jansen and Lyles, 2008, p.832). Argote and Ingram describe the knowledge transfer process as a movement of knowledge reservoirs between two units, or as a modification of the recipient’s knowledge reservoir (Argote and Ingram, 2000). The actors in knowledge transfer are the senders and the recipients, and knowledge transfer is only complete when the recipient receives and implements the knowledge accordingly (Kumar and Ganesh, 2009).

In the scientific discussion, the terms *knowledge sharing* and *knowledge flow* are sometimes used to mean *knowledge transfer* (Darr and Kurtzberg, 2000; Gupta and Govindarajan, 2000; Majchrzak, Cooper and Neece, 2004; Renzl, 2008). According to Kumar and Ganesh, these three terms address the exchange of knowledge, with knowledge delivered by one or more units to another unit; in principle, these three terms have similar characteristics (Kumar and Ganesh, 2009). As the transfer of knowledge within an organization takes place regardless of whether or not this transfer is managed (Davenport, 1998), the concept of *knowledge transfer* is chosen and treated as separate from the broader *knowledge management* (KM). This provides an opportunity for empirical surveys – even in companies without an explicit KM organization or KM strategy.

The most frequently cited objectives of *knowledge transfer* are increases in performance and innovation capability (Van Wijk et al., 2008). New knowledge about customers or competitors leads to a better understanding of the market, as well as to a better adaptation of products and services (Day, 1994). Rhodes notes that the promotion of innovation capability can be supported through the transfer of information and knowledge, using structured channels such as IT systems and social networks (Rhodes, Hung, Lok, Lien and Wu, 2009).

The transfer of knowledge can be supported by organizational units. Consequently, such organizational units act as coordinators between the sender and recipient. In the following, we describe service units that support knowledge transfer.

Supporting Service Units for Knowledge Transfer

Knowledge transfer's service processes are often supported by KM departments, and there are numerous role descriptions (Applehans and Globe, 1999; Davenport and Prusak, 1998; Kalmring, 2004). Applehans et al. distinguish between assigned knowledge workers, a KM organization with a chief knowledge officer (CKO) and project managers, as well as a group of workers dealing with the content-related processing of knowledge who are not consistently assigned to structures.

KM research does not classify KM organizational responsibilities precisely. There is also a differentiation in practice (Riempp, 2004). Davenport and Prusak argue for individual adjustments of structures due to the frequent changes in business environments (Davenport and Prusak, 1998). Thus, organizations that implement KM should be prepared to adjust their structures to current conditions. It should be noted that there are additional roles outside organizational KM structures; these roles are concerned with analyzing and evaluating knowledge and thus deal with the transfer of knowledge. Whether these roles are organizationally assigned to KM depends on the organization's structure. Existing organizational forms can be investigated regarding the ways in which they implement knowledge transfer. In practice, organizations implement knowledge-related SSCs (Schulz, Hochstein, Ubernickel and Brenner, 2009), which we describe in the following.

Help desks or service desks answer service inquiries, serving as an interface between clients and service providers (CER, 2009). Prevalent help desk applications include technical customer services such as IT services. Any topic-related inquiries can also be addressed. Inquiries can be answered by phone (call center) as well as via Web forms and e-mail. From the knowledge transfer perspective, addressing inquiries through help desks offers advantages and disadvantages. On the one hand, employees have quick and quality-secured access to codified knowledge. The depth of the knowledge depends on the quality of the information prepared and supplied by other departments, as help desk staff have methodological competencies, rather than deep expertise. On the other hand, exclusive use of help desks can be a disadvantage if they replace personal knowledge transfer processes, because the standardization and consolidation of knowledge can lead to the loss of personal and subjective experiences. Nevertheless, help desks and service desks can complement the organization of knowledge transfer. In combination with other knowledge transfer processes, a help desk can be the interface to the knowledge transfer customer.

Help desks and other existing centers like business intelligence competency centers (Friedman, Buytendijk and Biscotti, 2003), research and development service centers (Argyres and Silverman, 2004), and competency centers (Moore and Birkinshaw, 1999) support isolated knowledge transfer processes. Consolidating these processes in a single organizational unit to utilize synergistic effects may be more efficient. In the following, we describe a KC model that promotes synergies between KM organizations and SSCs.

Design Blueprint for a Knowledge Center

After an intensive literature study, we found that the KC model seems the most comprehensive service unit model with which to support knowledge transfer. Furthermore, in practice, we observed service units that offered a range of KM-related services and could not be assigned to any of the established models.

A KC blueprint was developed within the framework of a first design science process. We conducted expert interviews with the CKO of a development organization on the need for knowledge services and forms of knowledge organization. The

results were verified by further interviews with the organization's employees. We then designed a blueprint for an organizational unit, which we describe next.

A KC spans the four levels: strategy, processes, systems, and the surrounding culture (Hertlein et al., 2010) (see figure 1). A KC is considered part of the KM strategy, which aligns with the business strategy. The achieving of strategic and KM objectives depends on critical success factors, which are operationalized and made measurable through key performance indicators (KPI) and target values (Riempp, 2004). Consequently, the KC's objectives and the KM strategy must be aligned.

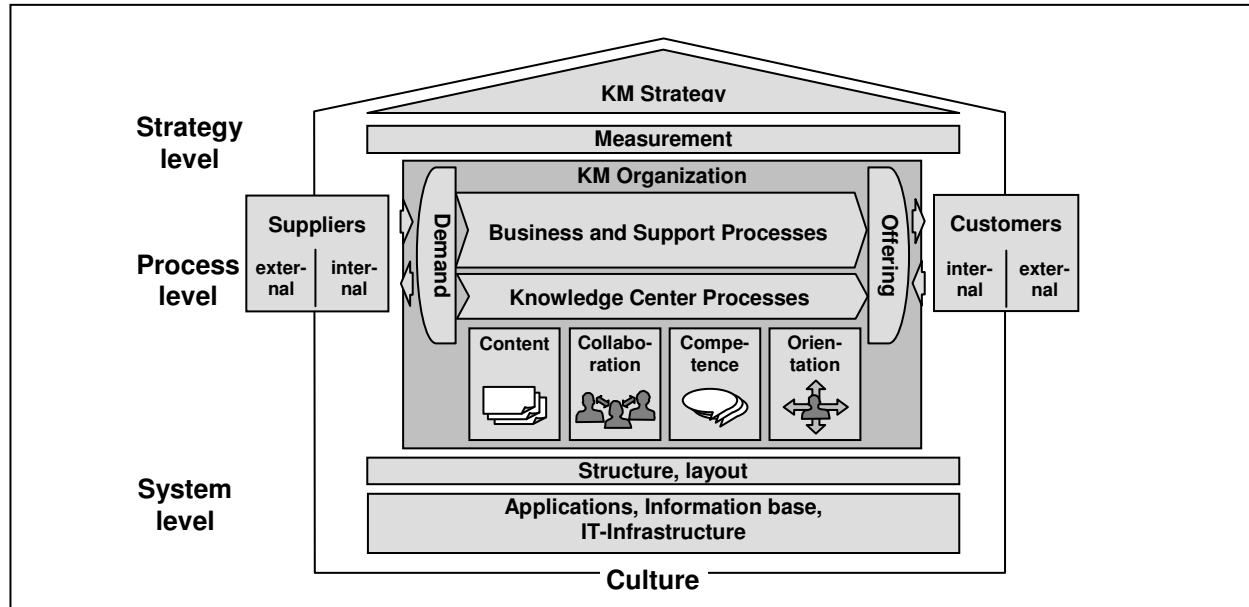


Figure 1. Blueprint for Designing Knowledge Centers (Hertlein, Smolnik and Riempp 2010)

On the next level, the KC processes support the organization's business and support processes. In a decentralized environment, both external and internal suppliers deliver the required input. KM instruments, such as lessons learned or practice sharing maintained by either the KC or other business units, collect this input. The business and support process tasks initiate KC processes, which produce a KC service. KC services could be a web-based self-search in databases/catalogues, research services, and proactive information. More potential processes can be identified, which can be added as extended KC services. Examples of such services are the creation and maintenance of contacts and networks, as well as the support of learning and innovation, which can include supplying teaching and learning formats, as well as the briefing and training of consultants. KC processes consist of tasks that employees with specific KC roles conduct and contribute to the realization of the KM objectives.

The results of the processes are either internal or external offerings, or both. A KC can therefore be a service unit for internal knowledge markets as well as for other organizations.

On the third level, systems – in terms of applications, information bases, and IT infrastructure – support process execution in the KC. These KC-specific systems need interfaces to other existing information systems to enable the exchange and integration of information gathered by suppliers. Information must be structured according to a taxonomy used in the organization. This allows the model's various pillars underpinning the different levels to be structured and integrated.

These functional pillars are divided into four categories, which make up the KM process background: content, collaboration, competence, and orientation. The *content* pillar describes knowledge artifacts such as documents or media files that can be structured into different kinds of knowledge. The next pillar describes the *collaboration* between employees, networks, or communities, all of which exchange knowledge according to their specific competences. One further KC task can be the creation and maintenance of networks and communities. By means of expert files or yellow pages, *competence management* can be part of a KC. This not only allows a KC's employees to provide information, but also provides people and networks with contacts. Furthermore, the KC itself can build certain expertise, for example, in the form of search competence or topic-related know-how. The *orientation* pillar contains functions like search, navigation, and administration, which all the other pillars also require. The search function mainly supports the technical side of queries, while navigation supports the orientation within the internal content.

On the fourth level of the KC blueprint, the *surrounding culture* aspect is essential to a KC's design and scope. Culture can either be considered self-created and open to influence, or given and not open to influence (Meyerson and Martin, 1987). According to Schein's three-level model (Schein, 1995), culture consists of basic assumptions regarding ambience. On the second level, collective values that represent the way things should be, influence employee behavior. On the surface level, there are visible behavioral patterns and other physical artifacts. The culture is a key determinant of employees' willingness to transfer knowledge, therefore influencing the KC's possible processes. Consequently, the KC or the responsible KM initiative must take cultural elements into consideration as they are critical success factors.

A KC's structural organization is strongly linked to the KM organization. While a KM organization mainly manages the general knowledge exchange framework, the KC maintains several supporting knowledge transfer processes like research. Within the organization, roles (e.g., those of researchers) are required by the KC as well as by KM.

The potential benefit of creating a KC is improved knowledge transfer, which could be measured by means of response times and the quality of research services. Furthermore, communities' results could increase due to a better KC-supported network. The system-based monitoring and analysis of communities' networking activities could yield metadata on the strength of the relationships and the nature of the expertise. On the whole, employees can better acquire appropriate knowledge or contacts. This would allow employees to improve their work quality.

RESEARCH PROCESS

The research follows the notion of design science research (Van Aken, 2005), which is adapted for organizational artifacts. A design is a solution to a field problem; this solution supports the realization of an improved reality (Hevner, March, Park and Ram, 2004). The design process consists of two major areas: building and evaluation (March and Smith, 1995). Furthermore, it produces an artifact, which can be tested in a sequence of expert activities that improves the primary artifact (Hevner et al., 2004). The iteration of the build-and-evaluate steps provides "a better understanding of the problem in order to improve both the quality of the product and the design process" (Hevner et al., 2004, p.78).

In this research design, the design blueprint for a KC can be considered the first artifact emerging from the building process. This artifact will be evaluated using multiple case studies, an accepted method for testing and modifying design models (Hevner et al., 2004). The development of the KC model can then be continued.

Through the analysis of case studies, it is possible to study artifacts in a business environment in depth (Hevner et al., 2004). The case study approach was chosen, as case research is useful when a phenomenon is broad and complex, when the current body of knowledge is not sufficient to permit the formulation of causal questions, when a holistic, in-depth investigation is required, and when it is impossible to study a phenomenon outside the context in which it occurs (Benbasat, Goldstein and Mead, 1987; Bonoma, 1985; Feagin, Orum and Sjoberg, 1991). These conditions apply to the study of knowledge transfer processes. Furthermore, the purpose traditionally pursued by case studies is the generation of theories or models for later testing (Lee, 1989), which is in line with our research aim.

The case study data were collected in a KM benchmarking forum for professional services firms (KMBF-PSF). The five companies under observation are in consulting, auditing, and/or business consulting. The companies were compared longitudinally and panel-internally, using a questionnaire encompassing approximately 300 questions. Respondents were the CKOs respectively the persons in charge of KM. This questionnaire was based on an integrated, holistic KM model (Riempp, 2004). Within the category "KM organization," KC issues were particularly addressed by 35 questions. In addition to the analysis of the questionnaire, five interviews were conducted with the heads of the relevant KCs, which allowed further insights into the KCs' organization and history.

RESULTS

Company One (C1) runs a KC, which had been a research center and now also offers a competence center functions. All basic processes – for example, research services, web-based search, proactive communication of new knowledge, and project participation – are offered. Nevertheless, the KC does not participate in communities of practice due to the KC being separated from the KM strategy. Inquiries made via online tool, e-mail, personal contact, or the central telephone service are answered by seven employees or forwarded to KM centers abroad if native speakers of Asian or East European languages are required, or if special regional knowledge is required. The services are charged to the user accounts to keep the service expectation high, to ensure value for money, and to guarantee that the KC's specific competence is used properly. Although cost is a barrier to the use of the KC, acceptance is relatively high. While some – especially young – professionals tend to see the KC as a bottleneck to be consulted when conducting research and wishing to gain access to external sources, more senior employees tend to value the KC.

Company Two (C2) runs a so-called *business intelligence center*; 90% of this center's work consists of research services. Only 10% of the work is done proactively and mainly consists of watching markets and competitors. The KC is set up as a central desk that collects all inquiries. These are primarily distributed by industry, with every KC member covering an industry sector. While the service itself is gratis, service level agreements (SLA) have been set up to determine the internal clients' expectations of the KC. The KC usually replies to an inquiry within four to eight hours. Inquiries are then categorized according to urgency. The required information can usually be delivered within a week. No web-based search function is offered, as the external content changes quickly. The KC does not make the documents it creates available to the public. Documentation with metadata is entered into the internal knowledge base. The KC participates in projects and communities to a certain extent.

The international KC of Company Three (C3) developed from a library into an information research center. At present, it covers the whole research value chain spectrum. A Web-based search function, proactive communication of new knowledge, and participation in projects and communities are also offered. In terms of research services, employees can post inquiries via a central Internet tool. There is no central help desk that collects and distributes these inquiries. Nevertheless, inquiries are distributed to geographical or industrial teams, and a proposal – containing a work plan, needed resources, needed KC members, and the service fee to be charged – is developed. The KC does not use SLAs, as its service offering is extensive, and SLAs tend to be too bureaucratic for a swift, effective service offering. Instead, every relevant aspect is outlined in the proposal. Clients are charged service fees, which are only supposed to address the KC's costs.

Company Four's KC (C4) is tasked with research and providing external knowledge. Owing to historical reasons, this KC is located in the strategic management area, as strategic management consultants – the KC's primary clients – need mostly external information. While the KC was started as an experiment, it has developed and built its own market. It is now highly accepted and respected throughout the organization and offers a whole range of services. Typically, an inquiry is made via direct personal contact or a Lotus Notes tool that includes a content inquiry questionnaire. Since external content is researched, the focus is on market data, company information, and industry information. Internal clients can use of the KC free of charge. The KC's costs are allocated as overheads. There are no SLAs due to the broad spectrum of inquiries handled. Internal quality standards are maintained, and are also the basis for the measurement of the KC's success. Qualitative measures are mainly used, as it is believed that quantitative measures would not sufficiently reflect the KC's quality.

Company Five's KC (C5) was integrated into the KM effort from the outset and used as a service component to ensure acceptance within the company. The primary goals in introducing the KC were, among others, to increase the quality, speed, and productivity of the consultants' propositions. The KC is therefore very process-oriented: consultants are supported with innovation, the creation of proposals, sales, delivery, and project debriefing. The KC does not just conduct research, but also obtains the consultants' knowledge of their completed projects and adds this to the database. The KC's success has been documented: as consultants are able to create proposals up to 50% quicker, the number of proposals has risen. Moreover, internal clients' feedback is very positive. This KC also participates in internal and external communities.

	C1	C2	C3	C4	C5
Employees (regular, temporary (FTE))	6.8 (5.3/1.8)	9.4 (5/4.4)	120	7(3/4)	10.5 (6/4.5)
Main qualification of employees: specialized knowledge (“s”) / research competence (“r”)	s	r	s/r	s/r	s/r
Availability	Mon-Fri	Mon-Sun	Mon-Fri	Mon-Fri	Mon-Fri
Inquiry management					
Number of inquiries per annum	Approx. 4,000	1,741	n/a	n/a	2,386
Time spent on inquiries (hours)	Up to 8	As required	Varies (depends on request)	Up to 8	Up to 24
Tracking and reporting of reaction times	Yes (partially)	Yes	No	Yes	Yes
Negotiated deadlines between users and KC	Yes	Yes	Yes	Yes	Yes
Degree to which the deadlines are kept (%)	Approx. 90	Approx. 100	100	100	Approx. 100
Utilization of the center (%)	80-85	Approx. 100	Varies	70	110-120
Charging of services to user accounts	Yes, 100 Euro, allocated to department cost center/ development budget	No	Yes, variable amount, allocated to individual projects	No	No
SLAs	Yes (to foster the good reputation)	Yes	No (too bureaucratic)	No (inquiry spectrum too broad)	No

Table 1. Overview of the Studied KCs

Regarding the process level, the cross-case analysis (see table 1) reveals that all of the primary KC model’s processes are offered, with one exception. Web-based search functions are offered by four of the five companies’ KCs. Each KCs offers proactive knowledge communication, as well as participation in communities and projects. Since the KCs mainly offer research services, the research tends to be focused on each company’s specific research area. The KC employees are specialized in specific knowledge domains as well as in research processes. Inquiries can be made via various interfaces. Since the professionals and the KC employees may be geographically dispersed, the KCs act as a hub for information services. Only three of the five KCs act as a central unit. The employees of two KCs are spatially distributed. It is considered important that requests go to the right researchers through the use of specific tools. All the KC’s negotiate their deadlines to make the research services more transparent. Since all the KCs indicate that deadlines tend to be kept (close to 100%), it is likely that specific deadlines are realistically negotiated. Nevertheless, only two companies use SLAs. The other three companies indicate that their KC services are too varied and cannot be standardized. The customer groups of KCs that offer SLAs are significantly more homogeneous. The companies do partially make efforts to measure their services’ performance. Thus, in some cases, the utilization, tracking, and reporting of reaction times are recorded, which allows benefits to be demonstrated. However, since the services cannot be fully standardized due to the diversity of requests, measurement comparison is not always possible.

CONCLUSION AND DISCUSSION

The multiple case studies deliver important results. The primary KC model was proven in practice. The range of services described in the primary model is confirmed in our case study research. However, it is becoming apparent that the KCs primarily focus on research and web-based services using edited content. Hence, this research concentrates on the research services. More detailed information can be added to this part of the KC model. The employees conducting the research have special research competence or specialist knowledge. Nevertheless, these employees can develop the needed expertise over time, and they have the appropriate contacts and networks to identify suitable contact partners. In this way, the role of KCs in the internal knowledge network is clarified. In the empirical study, an average of one service staff member per 100 consultants emerges. The KCs under observation employ between 0.1 and 1.9 service staff members per 100 consultants.

Service agreements between the users and the KC can be found in negotiated deadlines for research activities; such service agreements enable therefore also a measurement of a KC's performance. As all the companies stated that their KC keeps its deadlines, the service quality seems sufficient. Nevertheless, service-level agreements are in place at only two KCs. SLA use depends on the scope of the knowledge handled. In addition, homogeneous inquiries are better answered by means of standardized criteria.

Furthermore, the case studies revealed new insights. Thus, the high integration of the KC and the KM initiative at Company Five can be described as exemplary. Synergies are possible between the organizational units through sound organizational coordination. However, in Company One, the KC and the KM initiative are strictly separated, preventing coordination, which could avert duplication of work. Evidence can be found that the other companies are on the right track in their synergy use, although there is an organizational separation between KC and KM. The analysis showed that the integrative aspect is particularly important.

The primary KC model has been evaluated, modified, and partially specified. Nevertheless, several aspects can be researched further. On the one hand, further evaluation iterations should be done to prove, refine, and adjust the primary KC model. This allows the design science research process to be rigorously continued. On the other hand, the interaction between the model and its environment in organizations should be researched to explain differences between KCs. Important influencing factors can be the link between KM organizations and/or KM strategy and the KC, the branch, and the KC organization's competitive environment, historical and structural influences in KCs' implementation development phases, and/or interactions with other SSCs within the organization. The measurement of performance and benefits remains a crucial aspect. By conducting further interviews and collecting data, the impact of KCs on business processes could be evaluated, and the relevance of the KC model could be enhanced.

This point also highlights a limitation in our approach. Our interviews covered the present state of the KC. The KC managers' experience of the implementation phase could provide further insights into the reasons for structural differences between KCs.

The evaluation and modification of the primary KC model through multiple case studies yield important results within the design science research process. This research can be regarded as one of several iterations of evaluations required to modify the primary model. The KCs under observation act as SSCs and offer important services, which support both the KM activities and organizational knowledge transfer. The answering of inquiries is one of the most important services. Thus, the KCs are important hubs within the internal knowledge network and fulfill a moderating role. We would welcome further research into the performance and value measurement, as well as the specificities and implementation strategies of KCs.

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