Knowledge Management Paradoxes

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Abstract: Knowledge management, as an academic area, is maturing; however, there are still problems connected with both the diversity of the theoretical base and the gap between theory and its practical application. In this paper we tackle these problems by reviewing a number of basic knowledge management theories with the intention of formulating a more integrated and at the same time practical planning framework. The focus guiding the literature selection is on basic theories about the nature of knowledge management, theories that expose the complex nature of knowledge in organizations. We examine these theories and try to understand what could be perceived as the paradoxical nature of these theories. Here we understand a paradox as something seemingly self-contradictory though perhaps actually well-founded statement. We focus on four areas or themes: 1) knowledge as the key resource of a business, 2) knowledge as a competitive force and source of growth, 3) the nature of the management of a knowledge resource, and 4) the management of knowledge workers. From a practical point of view, the conflicting arguments of these theories can be seen as possible strategic options. Based on these discussions we then formulate a framework, or what might be called a strategic option generator. As a concluding discussion we focus on the contribution of IS/IT to the realization of the different possible strategic options. This is done on a rather general level, where we examine the possibilities of IS/IT in relation to the paradoxes.

Keywords: knowledge management, theoretical paradoxes, planning framework

1. Introduction

Knowledge management, as an academic area, is maturing; however, there are still problems connected with both the diversity of the theoretical base and the gap between theory and its practical application. In this paper we tackle these problems by reviewing a number of basic knowledge management theories with the intention of formulating a more integrated and at the same time practical planning framework. Knowledge management projects that do not bring full satisfaction are reported frequently (Rigby, 2001; Rigby and Bilodeau, 2005). The main reason seems to be connected with the personal and situated nature of knowledge (for example, Blackler, 1995; Swan et al., 1999), which makes it hard to use IT support for KM (Mcdermott, 1999).

There seems to be a general idea that if we incorporate the human dimension into our KM projects, things will get better. In this paper we investigate this idea more closely by following the basic assumption of the human-oriented KM track.

2. Background theory and research approach

2.1 Background theory

Different views in an organisation on knowledge management can be a source of problems and failed knowledge management projects (De Long and Seemann, 2000). It can be a question of deliberate political strategies in the organisation or in actual problems connected to the nature of knowledge as a resource and to the management techniques that are used. However, what is central to failed knowledge management projects are that there are both a great many ways of conducting knowledge management and even more ways of describing them.

The KM area contains numerous contradictions, Schultze (1998). In this article it is argued that the tacit/explicit dimension of knowledge is central to understanding problems built into the KM area. The paradox explored by Schultze could be summarized as "the attempt to manage knowledge could destroy an organisation's knowledge advantage" (Schultze 1998, p 155). Some approaches to knowledge management focus more on how knowledge work can be controlled while others focus more on how individual people or groups of interest can be creative and solve problems. The study shows that most approaches have built-in contradictions that must be handled if applied.

There have been several attempts to bring some order into the different possibilities. In Earl (2001) three general types of strategic approaches to knowledge management are examined. These include technocratic, economic and behavioural approaches, which are in turn subdivided further. This framework aims at helping managers to understand the broad span of possibilities offered by knowledge management. In Truch and

Bridger (2002) we find arguments for a need of a strategic fit between the company's business strategy and the approach to knowledge management. A knowledge management strategy should be defined on the basis of the business environment, knowledge resources and business strategy

Efforts to integrate the area have also been made, for example by Holsapple and Joshi (2003) who present an architecture for knowledge management. The central idea is expressed as follows: a knowledge resource is manipulated by knowledge activities under the government of knowledge management influences in a process initiated by the recognition of a knowledge need that ends in learning. The model does capture the complexity of knowledge management, and also includes a number of different aspects of knowledge management. However, the different parts are not really examined as to how they are interconnected or interdependent. To illustrate this, two examples can be examined from the "knowledge episode framework". First the view of "knowledge resources", where six distinct types of resources are defined. Each of them is detailed with definitions and examples. However, these resources are also interrelated or might refer to different ways of understanding the same phenomena. The second example comes from the "knowledge management influences" aspect. Here three major influences are interconnected in a triangular model. The main part of this aspect of the managerial component is defined as leadership, control, coordination and measurement. However, when it comes to relations to the other two components the discussion becomes much vaguer.

Hansen et al. (1999) argue that the company must make a choice between a codification and a personalization strategy. The first is focused on coding knowledge into databases, supporting the re-use of knowledge and growth. The codification strategy, based on an objective knowledge view, is a way of using a database system to save the knowledge of the organization, for example that of the employees. The knowledge of the organization's operations will then, it is hoped, not disappear when employees disappear, which thus help new employees to take on will work faster. Standard products could be supported by cognitive processes and a codification knowledge management strategy.

The personalization strategy focuses on the communication of knowledge on a personal level, supporting creativity and the customization of products. An example of this is found in Nonaka and Takeuchi (1995) with the theory of organizational knowledge creation (OKC). Here knowledge is seen as something basically human, and it is by the presence and actions of individuals that knowledge is created and distributed. Unique products developed for individual customers are associated with social knowledge processes and a personalization strategy towards knowledge management. The contribution of the OKC theory is concerned with how a personal skill is transformed into customer value and a profit for the company.

Snowden (2002) argues that to resolve these difficulties we must work with both approaches simultaneously. Snowden sees knowledge as something paradoxical and suggests that it should be seen as both a thing and a flow of actions, and that these need different management approaches.

2.2 Research approach

The aim of the paper is to investigate the foundations of this either-or approach to knowledge management. We choose to focus on the personalization approach, mostly because of its role as an alternative and because of what is lacking in the traditional (codification) approach. The focus guiding the literature selection is on basic theories about the nature of knowledge management, theories that expose the complex nature of knowledge in organizations. We examine these theories and try to understand what could be perceived as the paradoxical nature of these theories. Here we understand a paradox as something seemingly self-contradictory though perhaps actually well-founded statement. We focus on four areas or themes: 1) knowledge as the key resource of a business, 2) knowledge as a competitive force and source of growth, 3) the nature of the management of a knowledge resource, and 4) the management of knowledge workers. From a practical point of view the conflicting or double-edged arguments of these theories can be seen as possible strategic options. Based on these discussions we then formulate a framework, or what might be called a strategic option generator.

3. Knowledge as the key business resource

There are many reasons why a business is successful, and it is safe to assume that it is always due to a combination of the factors involved. Nevertheless, the idea of one factor being the decisive one, such as knowledge, might be true in the individual case. So here we are looking at potential factors for success, the knowledge resource being an obvious candidate.

3.1 What firms do

The first investigation is based on the theories presented in the paper "What firms do" (Kogut & Zander 1996).

The argument of the paper starts from a "traditional" view which concludes that firms exist because they are better information processors than markets. If this were not true, all transactions would take place on a market. When coordination and communication are cheaper within a firm than transactions on a market, the firm will have a reason of existence. While this is of course a very simplified and much debated explanation, it is a good starting-point. It is a good backdrop to the discussion of one alternative, i.e. the knowledge resource view. One of the problems of the traditional theory, as pointed out by Kogut and Zander (1996), is its view of ownership and self-interest as driving forces. These are the motivations for action for everyone on the market and within the company. Kogut and Zander describe this "market view" as an unsocial society view of the company.

In contrast to this view, Kogut and Zander (1996) claim that there are three reasons why a company is successful:

- The way the company coordinates its activities
- The way the company facilitates communication
- The way the company supports learning, learning here implying knowledge creation or the combination into new knowledge.

All these items might be seen to fall within the information view of the firm. However, the key difference lies in the driving-forces behind all these three, as argued by Kogut and Zander. Coordination, communication and learning work because people have a need of belonging to a society. When it comes to the knowledge/learning part, these processes depend on the existence of social knowledge. Knowledge and learning are situated, both in location and in identity.

3.2 Identities, moral order and the division of labour

Identities contain moral systems and rules of exclusion, that is rules for what to do or not to do. A company coordinates various kinds of expertise, using different principles of division of labour. Each person specializes in performing a small part of the value creation of a product. This division of labour is the basis of the formation of personal identities, social knowledge and the creation of shared identities. Kogut and Zander (1996) argue that in order for the division of labour to work effectively a moral order is required. The moral order is based on organic solidarity in which the individual identifies with society, i.e. the need of belonging. Shared identities create a set of preconditions (established rules for communication and coordination) that make co-ordination and communication cheaper and thus enable learning.

3.3 Paradox 1: Identities as a key to company success?

The basic argument is that the success of the three driving-forces for enterprized can be sought in well working shared identities. Shared identity in particular is the key to effective organizational learning. However, this picture has its reverse side. There are problems connected with strong identities. Kogut and Zander argue further that a strong moral order and rules of exclusion, controlling learning, might be a hinder for innovation.

We can formulate a paradox based on this: "Identity creates lower costs for learning but makes it harder to innovate".

One might argue here that the business lifecycle consists of different parts, i.e. that the company starts out as a diverse organization that creates new ideas and changes frequently and then matures into a productive company with a strong identity. It is the double-edged nature of the common identity and the shared social knowledge that carries the paradox. The problem is: Where would the new ideas (that are to be shared and used) come from, if everyone sees the world in the same way, thinks the same or comes from the same background? Do we buy new knowledge on the market, hire new people, or hope that someone shows signs of rebellion, or what would the driving force be? If we do any of these things, how do they become part of the shared identities of the company that makes it work well? In a stable and unchanging world this might be less of a problem; however, today's business reality is far from stable.

To expand on this aspect, one might think in terms of the phrase "diversity is a companion of creativity". Some work has been done on this theme, as reported by Florida (2005). The book *Cities and the Creative Class* (Florida, 2005) presents a number of studies which focus on the relationship between diversity and the success of regions or cities. One study presented in Florida (2005) tracks the relationship between "Bohemia" and creativity. The Bohemian concept implies that there exist in the city a number of subcultures that have a clear place in the broad schema of the city. The basic outcome of this study shows that the higher the Bohemian index for a city, the higher the number of high technology companies in that city.

4. Knowledge and the growth of firms

In Kogut and Zander (1992) the problem of how a company grows in size is discussed. The source of the problem is connected with learning processes and the way knowledge is spread throughout the organization. The basis for growth is assumed to be that of more people in the organization learning and making practical use of the core knowledge of the organization.

4.1 Knowledge as information or know-how

The key to the discussion is based on distinguishing how to understand the concept of knowledge. The first perspective is "knowledge as information", i.e. knowledge as a declarative statement/description of a current state, a fact. The alternative view, "knowledge as know-how", focuses on the procedural nature of knowledge, i.e. knowledge that describes a process of how to perform actions. "Two further dimensions of knowledge are discussed: codifiability and complexity. The first is about the possibility of expressing knowledge as a number of instructions that stand by themselves without the help of the source, whereas the latter concerns the number of components that knowledge consists of. There is also a question of where there exists knowledge, on a personal or on an organizational level.

4.2 Replication and imitation

Kogut and Zander argue that there is a connection between the nature of knowledge and the way a company can grow. From a knowledge perspective it will grow when the same knowledge can be used over and over again. In practice this means knowledge transfer between people in the organization. That is, knowledge can be replicated again and again by new people. The problem is that knowledge which is easy to replicate within the company is also easy for other companies to replicate; however, when another company does this, it is imitation, according to Kogut and Zander.

Here we find a difference in the nature of knowledge as discussed above. In short: knowledge as information is easier to replicate than knowledge as know-how. The argument is that know-how is personal, complex and hard to codify; this could be labelled "the inertia of knowledge". It is the inertia or stability of social relationships, the social knowledge of the organization that makes the organization successful.

4.3 Paradox 2: The inertia of know-how

The second paradox builds on this insight: the easier a piece of knowledge is to replicate, the easier it is for competitors to imitate that knowledge. This entails some consequences for the organization, for example: the more codifiable knowledge, the less strategic advantage it holds, i.e. any other company can get hold of it. It is the uncodifiable, personal, situated and complex knowledge which is hard to imitate that is of high strategic value. At the same time we have a fast-changing business reality, where staying the same is no option.

We might therefore extend the paradox into: "The inertia of know-how makes it hard for a company to use their most valuable resource when the company tries to become larger".

Scrutinizing the strategies suggested above, the general direction is to look outside the organization when it comes to change or renewal. It seems that strategies that focus on the personal, tacit and social aspects of knowledge-based competition also encounter problems in creation or growth, as the first two paradoxes indicate.

5. Management of knowledge resources

A great deal of the discussion in the two first paradoxes trails back to the nature of the resource. What is important about these discussions is that they bring out the basic assumptions. For example: "learning based

on social interaction is the key to a company's success". This leads to the question: How can this resource be managed?

5.1 Is knowledge manageable?

Management implies a control over something. If this "something" is hard to describe or measure, it becomes harder to manage. As argued above, knowledge represented as information could be managed. However, if we follow the know-how track, the situation becomes more complicated. Tsoukas (1996) discusses the management of knowledge in terms of social and situated phenomena. His basic argument is that there is no single person or agent that controls or has a complete view of the company's knowledge resource and how it is to be used. A company's knowledge system is distributed among a group of agents. Tsoukas pins down the nature of this distributed knowledge system to three characteristics: role-related normative expectations, dispositions as the result of past socializations, and local circumstances of time and place. A company might be able to have some influence on norms, but it is hard to control or even know about the particulars of socializing and the where and when of people using knowledge. In this view, knowledge in an organization is an emergent phenomenon. This means that the knowledge system does not exist but evolves over time as a result of the actions of individuals. To make detailed instructions in advance is thus impossible, since knowledge does not exist in advance.

5.2 Paradox 3

Based on the discussion we can conclude a third paradox:

Paradox 3: The more personal knowledge is, the harder it is to manage. The more manageable, i.e. the more like information it is made, the less valuable it becomes.

Following the arguments above, we can again conclude that the more manageable we make knowledge the less strategic value it will have. The management of knowledge (of strategic importance) is a paradox. Instead, Tsoukas argues, we should see knowledge management as the management of a number of distributed knowledge processes. We manage the environment of the knowledge workers, not knowledge as such. The central instrument for this is forming organizational norms and facilitating the interaction of individuals. In the end the concern is how individuals exercise their judgment about how to use norms or rules. In practice this means to hire the right people and to construct work routines and incentive structures. And, as Tsoukas mentions, to develop organization norms that lead these knowledge activities in the right direction. However, these solutions have been studied closely, as is investigated in the next section.

6. Management in knowledge- intensive firms

6.1 The nature of a knowledge-intensive firm

A number of articles (Alvesson, 2000; Alvesson, 2001; Alvesson and Kärreman, 2001; Kärreman and Alvesson, 2004) examine how knowledge-intensive firms handle their central resources, i.e. their knowledge. Knowledge-intensive firms include, for example, consultancies /the business service industry, and they all have their knowledge resource embodied in their consultants. However, there is no clear criterion of when a company begins or stops being "knowledge-intensive" (Alvesson, 2000; Alvesson, 1993). Most firms have their share of these problems.

Knowledge management in firms of this type tends to become a way of management, that is a way of controlling members of the organization rather than supporting knowledge processes (Alvesson and Kärreman, 2001). The knowledge processes are far from any administrative of managerial control whatsoever, as argued by Alvesson and Kärreman (2001). Knowledge management becomes an oxymoron if it tries to manage the unmanageable. On the other hand, if it is a management strategy, it should be more candid about that or it will be conceptually misleading.

Here we are refocusing on the managing part of knowledge management. There are a number of issues when it comes to managing knowledge workers. The central issue that these firms are confronted with is if a consultant leaves the organization (Alvesson and Kärreman 2001). Consultants may defect, taking tacit knowledge and clients with them. To manage a situation like this is complicated. Alvesson (2001) points out three types of problems or problem areas:

- The consultant/client bond is strong, the consultant identifying with the client

- It is hard to monitor consultant work
- Consultants have a strong professional identity

To deal with these problems, a number of approaches are possible (Alvesson 2001), including:

- The legal employment contract could be used, stating, for example, that no competing employment for 6 months or working with old clients will be allowed.
- Suing old employees if they break the contract.
- Using defection stories to scare the consultant.
- Managers creating myths and a negative aura around quitting.

This is an amalgamation of different classes of responses, to which the consultant might respond in an emotional or rational way. It might be rational to avoid these outcomes. However, the greater emotional response might be to find the company to be a hostile and unpleasant place to work in, which in turn might hasten a departure from the company.

All these approaches are connected with a problem: they are at odds with the consultant's loyalty to the firm. The problem is that the firm's goal should be to prevent the problem from occurring, not to punish anyone after the fact. The aim should be to build mutual loyalty between the manager and consultant. None of these rather harsh measures will build any confidence or trust between management and consultant. Kärreman and Alvesson (2004) use the concept of "structural iron-cage" to illustrate the repressive approach. The iron-cage is seen as problematic and possibly counter-productive for relation-building, which makes Kärreman and Alvesson (2004) draw the conclusion that loyalty management should be central to handling the relationship with the consultant.

6.2 Loyalty as an approach to management

In this way we can see the management of group-building as the central approach to managing the knowledge resource of the firm. For working with and handling group-building Alvesson (2000) argues for the use of concepts like social identification and loyalty.

The central process is how to create communities within the company that retain the consultants' loyalty to the firm's management. A number of approaches are possible (Alvesson, 2001), including:

- Creating a shared language.
- Rhetoric: Creating a clear message that is convincing, especially if the situation is confusing.
- Giving the right impression through tacit communication (clothing).
- Social interaction: getting along, clarifying expectations, obtaining acceptance, relationship management.
- Image production, positive ways of understanding the company and the relationship with the company.

However, there is a drawback to these approaches. Knowledge work is ambiguous; the processes are hard to describe and to measure. This leaves room for identity-building outside the formalized division of labour structures. These local groups of experts form their own identity, often in close relationship with their customers. These constellations might become autonomous, which may make the consultants migrate, taking customers and tacit knowledge with them whenever they wish (Alvesson, 2000).

6.3 Paradox 4: Loyalty and community-building, but with whom?

A fourth paradox involves the way in which firms based on highly skilled knowledge workers can be managed. The theory as presented in Section 5 suggests norm-building. This community-building effort is investigated in the studies cited above. What is revealed is the double edge of this management strategy, which we can formulate as a fourth paradox.

Paradox 4: The stronger the community of professionals and customers that a knowledge worker builds, the better the product of the firm; however, the stronger these relationships get, the less possible it is for managers to manage these resources by means of loyalty and the management/worker community.

In contrast to this, we can see that if the management tries to pry into these communities, the unhappier the consultants may become (i.e. the iron-cage argument), and the product (based on cooperation with customer) might become of less value to the customer.

In this paradox we can see connections with the previous ones, but here the focus is more on the solution aspect. The main argument stands fast: the greater the strategic importance, the harder it is to manage. Even more: the more manageable, the less value, even if we try to manage indirectly, focusing on the processes surrounding the knowledge process and resources.

7. Synthesizing a strategic analysis framework

In this research we have followed the know-how-based knowledge management approach. The conclusion of it is that it is riddled with contradictions. The long and short of these paradoxes of the know-how-based strategy is that the cure for its shortcomings resides in an information-base approach. This distinction falls well in line with the KM strategies presented by Hansen et al. (1999), i.e. the codification and personalization strategies. Mainstream KM has more or less openly advocated a codification or "information" approach, using computers to facilitate collection, storage distribution or the use of knowledge. Knowledge as a socially constructed and local situation has trailed behind as a somewhat more academic side-track. The Hanson et al. (1999) contingency approach advocates that both ways might be successful, but that the company should choose one before the other. Hansen et al. indicate that there is a relationship between the two strategies in arguing that one approach should be an 80%/20% relationship. This investigation points more to the interdependency existing between the know-how and informational aspects of knowledge resource management.

We can summarize these double-edged phenomena more succinctly in a list of pros and cons based on some of the central aspects of the know-how-based approach. We have fit the four main points of our investigation into Hansen et al's (1999) personalization strategy.

Table 1: Option generation: Know-how/personalization approach - pros and cons

Aspect of KM	Pros	Cons	Hansen et al. Personalization
View of organization: Contracts vs. identities	Strong identities create an effective learning environment	Strong identities make the organization more rigid and inflexible	Develop networks for linking people so that tacit knowledge can be shared. Invest moderately in IT, focus on conversation support
Nature of knowledge resource: codification vs. tacit	Tacit knowledge is hard to copy keeping the strategic value high	Tacit knowledge is hard to replicate, making growth harder	Expert economy, high fees for unique solutions
Management of know-how: direct or indirect	Personal knowledge is situated in a history of social relation and in time and space – which makes it hard or impossible to manage	Personal knowledge is hard to manage. The more manageable, i.e. the more like information it is made, the less unique and easier to imitate it becomes (and potentially less valuable).	Do not suggest any direct management of knowledge
Management of knowledge workers: loyalty or rules	Knowledge workers should be managed using loyalty programmes and community-building.	Customer relationship-building is essential for the value of products but these weaken the connection with company management.	Hire skilled personnel, who like problem-solving and tolerate ambiguity Train people by mentoring Reward knowledge-sharing

What this table shows is that the Hansen et al. strategy fits into the theoretical model of the know-how approach. It is of course good news that the advice of Hansen et al. can be supported, as can be argued for on a very fundamental level.

However, the double-edged nature of these fundamental principles of the know-how approach should be just as problematic in the Hansen et al. model. Thus, the reverse side should be incorporated into the strategic model.

The problems of the know-how strategy seem to be related to the lack of ability of codification (turning into information) of knowledge. This is the very problem we try to tackle by following the know-how approach. So, basically we cannot escape from the information approach, the two approaches being interdependent. We can illustrate this in Table 2.

Table 2: Option generation: The Information/codification approach – pros and cons

KM aspect	The paradoxes of know-how approach	Codification approach Pros	Codification approach Cons
View of organization: Contracts vs. identities	Effective learning environment or hard climate for innovation	Short formalized contracts make it easier to switch to new competences when needed	The "self-interest" motivation creates higher transaction costs within the organization
Nature of knowledge resource: codification vs. tacit	Tacit knowledge is valuable but is harder to use when growing	A formalized view of knowledge makes it replicable	Risk of imitation, and loss of value of the resource
Management of know-how: direct vs. indirect	Knowledge management is an oxymoron, the indirect management being right for knowledge work, but creates little or no control of the processes	Knowledge as information is accessible for direct management, even by the use of computers	Highly formalized knowledge work might be a hinder for creativity
Management of knowledge workers: loyalty vs. rules	Strong communities with customers make a better product and at the same time make it easier to leave the company	Communities and loyalty are not part of management, leaving people to use these instruments for better products and customer satisfaction.	Self-interest and short contracts might make loyalty and long-term communities less important

To better understand these paradoxes the basic ideas of tacit/explicit knowledge as discussed by Polanyi (1958, 1966) should be reviewed. Polanyi (1958, 1966) outlines the concept of personal knowledge. It includes two types of awareness, focal and subsidiary awareness. From these two types Polanyi shows that two kinds of knowing are possible, subsidiary/tacit and focal/explicit (Polanyi, 1966, p. 17). Focal/explicit knowledge is knowledge that we can express explicitly in some form and subsequently transfer to other people. Explicit knowledge is only part of the total knowledge of a person. Subsidiary knowledge is everything we know but cannot really express; this is the tacit dimension of knowledge. The problem is that explicit knowledge is created as a whole when we focus on a number of subsidiary pieces of knowledge. The tacit dimension is all the knowledge that is in our mind, and the explicit knowledge is just timely construction based on the tacit knowledge. Explicit knowledge is what is in focus of our current attention. What we attend to is directed from our current interest or problem. The tacit dimension of human knowledge is a complex web of memories that we use in order to produce explicit knowledge. Explicit knowledge is nothing more than the existing subsidiary/tacit knowledge, just a configuration of the tacit dimension of knowing.

This from-to structure of tacit and explicit knowledge indicates the complexity of the problem area. It also gives a good background to the troubles of the information vs. know-how approach to knowledge management. If the basic idea of knowledge cannot be divided into separate entities, how then could the strategies be separated? Even without easy answers, it may at least be hoped that the models presented above will create a higher awareness, which might help out in the strategy-making processes.

8. Summary of results

Knowledge management is a broad church of schools. There have been arguments for choosing a best fit approach for the company, either by selecting one distinct strategy or by combining complementary approaches. What this paper has tried to lay out is a planning approach that recognizes the "other side" of a strategy and argues that these should be an interdependent part in the planning process.

This paper took a starting-point in the contradictory nature of knowledge management. Through a close examination of some of the central points of the area it has been investigated what seems as paradoxes of KM in order to gain a strategic planning framework for it. The outcome is a framework that highlights the interdependencies of KM perspectives.

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