Adopting Knowledge Management: How Managers Perceive its Intervention Affordances

Kostas Samiotis[a],
Angeliki Poulymenakou[b]

[a] Aston Business School / Operations & Information Management Group
Aston University, United Kingdom
k.samiotis@aston.ac.uk
[b] Department of Management Science & Technology / ELTRUN
Athens University of Economics and Business, Greece
akp@aueb.gr

Abstract

The study of knowledge processes and practices in organizations comprise probably the most common theme in Knowledge Management research agenda. Organizations still strive though to understand how this practice works. To this end, we offer an account for anticipating and assesing its mediation and organizational fit. The paper elaborates on insights gained from organizational efforts of having a Knowledge Management technological artefact and practice adopted (both constitute an IT-based innovation). The findings are concerned with the working out of an organizationally-grounded model of intervention for Knowledge Manageement along with a framework of enabling arrangements. Interpretations have been based on a longitutdinal interpretive case study.

Keywords: IT-based innovation, Intervention, Perception, Affordances

Suggested track: Please indicate the suggested track for your paper (choose one from the list below):
   A. *Managing organizational knowledge and competence*
   B. *Practice-based perspectives on knowledge and learning*

1   Introduction

After longstanding theorization endeavours, Knowledge Management (KM) managed to become widely acknowledged and in fact prevailed as a contemporary organizational and societal phenomenon. As such, it embraced several viewpoints with regards to its epistemology i.e. procession vs. practice (Nonaka and Takeuchi, 1995; Cook and Brown, 1999; Orlikowski, 2002) and its intervention strategies i.e. human- vs. technology-centred (Hansen, Nohria, and Tierney, 1999). Despite though the necessary "housekeeping" that has been made to the field (Alavi and Leidner, 2001),

KM is still being criticized for the lack of conceivable benefits and any attribution of organizational improvements. Uncertain economic conditions encountered by business organizations lately have been reinforcing scepticism about its applicability.

An appealing caveat for KM's shortcomings seems to be the lack of introspective accounts of perceptions made by organizational actors of how KM can be used in practise or what we call its *intervention affordances*. The notion of *affordance* is being utilised in this research to address the capacity of KM as an IT-based innovation to allow multiple interpretations and thus applications. Taking into consideration the reluctance of organizations to adopt any IT-based innovation as KM but also its undoubted contribution to the fostering of innovation as a source of sustainable development (Leonard-Barton, 1995), this paper aims to offer an empirically grounded perspective for perceiving its intervention capability and its underlying benefits driven by a set of managers being involved in a real KM project. We make a case for the need of enacted views on KM interventions, which stem from configurations made by purposeful organizational actors on perceived manifestations of knowledge support. The authors embark on a cognitive vehicle in order to understand and interpret actions and events enacted by organizational members.

Research is based on a single, longitudinal case study. The lack of breadth in our data collection has been substituted by a deep and processual observation of organizational actions (Pettigrew, 1997). This gave us the opportunity to witness the formation of the new organizational reality developed around KM. Not too many studies have been able to establish such a view. Additionally, the research and thus the paper are influenced by the philosophical underpinnings of interpretivism (Orlikowski & Baroudi, 1991). These methodological choices have been determinative for the nature of the findings as well as for their plausibility. Thus, the research findings comprise rich descriptions of the context and are subject to the predispositions of the main informants.

The paper's structure has been worked out to accommodate both the understanding of the lens applied on the empirical context and the contribution of the emerged interpretations to KM. To serve its purposes, the paper unfolds in four (4) major sections. The first section is devoted to the empirical context and in particular the processes and events observed in it. This section also establishes the methodological underpinnings of this research. The content of the second section comprises a cognitive-based conceptual framework for the adoption of IT-based innovations

stemming from the authors own interpretations on the empirical data. Anchored on this framework are the propositions made for KM, which come under the third section.

2 The Empirical Context

2.1 The Organization

Empirical observations reported in this paper were conducted during a longitudinal case study, which evolved in a Greek banking organization. The purpose of the case study has been the capture of the adoption decision dynamics of an IT-based innovation, which happened to be Knowledge Management (KM). The opportunity for investigating this theme has been given after a research collaboration of the bank with a European consortium in order to develop and implement a novel KM solution (EU Funded project – IST-1999-12181). Authors have been members of a participating Greek partner of this consortium.

The organization's involvement in this collaboration was driven by its intention to have KM incorporated in the e-Banking operation. The bank has just launched this new initiative and was looking for contemporary ways to support it. KM's central proposition of experience capturing, retention and transfer was, according to management's words, definitely fitting the bank's priorities of a dynamically and competitively operated e-banking environment. Besides e-banking, the organization has been undergoing a general restructuring aiming to align its existing operations with the strategic vision of a fully "virtual bank". This project comprised structural and organizational changes in the way traditional banking services have been offered to customers.

In brief, structural changes were introducing a new type of branch, where emphasis would be given to the substitution of the traditional way of conducting customer transactions with a fully automated environment where transactions would be fulfilled with the support of all different digital channels i.e. Internet, Phone, TV, Mobile. Complementary to this, the bank aimed at shifting its branch operations towards a fully customer-centric model where the branch would be dedicated to individual consultation related to financial investments. In structural terms, this entailed the creation of appropriate spaces. The bank was planning to introduce the new branch design first to a pilot volume and then to escalate it to its whole network. Most importantly though, the bank was undertaking a huge organizational endeavour to have new business processes and new competences implemented. Leader of the organizational changes has been the Human Resource Development unit.

The launch of e-banking was actually pointing to the advent of a new era for the organization, where new technologies would be dominant and work practices would be competence-driven. KM seemed to or at least be able to encompass many of these aspects. As a result of this, the bank engaged in the development of the KM solution as a way of conceptualizing but also actualizing its plans.

2.2 The Research Agenda

The initial research engagement could be ascribed to the interest of the authors to investigate the nature of contemporary IT interventions and specifically those enabling the KM practise. Besides this general statement of interest, investigation has not been led by any theoretical predisposition or attempted to be influenced towards specific outcomes. On the contrary, and as will be explained in the research approach section, inquiry has been living in the "reality", which the organizational actors involved in the adoption of the KM solution constructed. Research agenda has thus been enacted by actors' behaviours and their arrangements in order to have the KM solution adopted. In this context, the research inquiry was led by the need to understand how adoption decisions for IT-based innovations are made. Despite though the central role of this theme in our research, we knew that due to the nature of the IT-based innovation being studied (Knowledge Management in our case) we would be revealing substantial evidence for the understanding of its proposed intervention as well.

Among the breadth of topics raised by our longitudinal engagement in the bank, we will only address those related to KM in this paper. Of particular importance have been the issues related to the nature of preparation, involvement, and application of KM in the organization. These themes constitute what we call *intervention* in this paper. Empirical data have been sufficient to allow for interpretations to be made for all three themes. The only exception is application, which even though only occurred experimentally, however its scenaria have already been thought out and formulated by the appropriate actors. Findings related to application of KM have thus been based on the interpretations made by the organizational actors themselves and how they actually perceived its exploitation in the organization. To the extent they have been true manifestation of the actors' intentions, we consider them as realistic and purposeful.

However, the organization of our findings does not adhere to the aforementioned categorization of preparation, involvement, and application but implicitly only. The reason is that the organization of our case study was actually engaged in an adoption and not in an implementation process. The longitudinal character of this engagement

enabled the organization to act as in an implementation situation but only as a means of making sense of the innovation (Weick, 1995). Readers therefore should not be surprised if they feel at some point that the discussion unfolds in another context (implementation) from the one expected (adoption). In fact, the opportunity of immersing in an adoption situation where organizational actions are being "enlarged" due to the time provisions is what make this inquiry interesting.

2.3   The Research Approach

The opportunity offered to the authors to immerse in a situation, where they could study a contemporary phenomenon has shaped the main methodological assumptions of this research. These have also been influenced by the authors' intentions to have an organizational and social lens applied on the understanding of the interplay between information technology and organization.

Research inquiry was led and inspired by the intellectual underpinnings of the interpretive paradigm within Information Systems research (Walsham, 1995). Emphasis was given to the understanding of the inter-subjective and symbolic meanings of the organizational actors involved in the study. Complementary to this was the understanding of the *context* of the information systems and the *process* by which the information systems are affected by the context and vice-versa (Walsham, 1993). To tackle with the issue of *context* and *process*, the authors adopted Pettigrew's theory of contextualism (1990) and his method of processual analysis (1997). Pettigrew's theory and method have been utilised to substantiate the organizational actions observed over a long period of time with regards to features of human behaviours and organizational life. To comply with this assertion, the description of the phenomenon has been enriched with the principles of *embeddedness*, *temporal interconnectedness*, *context and action*, and *causation* (Pettigrew, 1990; 1997).

Packaging of empirical data was done using the Case Study technique (Yin, 1994). This method allows phenomena to be studied in their own physical context, questions of *how* and *why* to be answered, but most importantly to have new theories emerge from practise (Benbasat et al., 1987). Despite the received critiques, the case study method manages to tackle with the problem of generalizability and rigorousness by offering unique and rich descriptions of empirical situations (Lee and Baskerville, 2003). Moreover, the fact that the phenomenon was only studied within a single case study amplifies the uniqueness of the findings as they comprise in depth and longitudinal interpretations (Eisenhardt, 1989).

We finalise our reference to the research approach with the role of the authors within the empirical context. Authors have been continuously part of the social reality being studied in the organization. Participant observation was the method of research behaviour that authors have adopted to appropriate their presence in the empirical context. This method dictates the conscious and systemic sharing of the activities, interests and even the concerns of the members of a particular context (Nandhakumar and Jones, 2002). In terms of applying it, is considered very demanding as it takes time before the researcher becomes a trusted and accepted member of the context and its cultural specificities, being a carrier of which will allow him to ground any valid observations and interpretations. The method also requires that the researcher is cautious with the boundaries of his access and the ethical dilemmas that may emerge through the research process (Labaree, 2002).

3   The Conceptual Framework of KM Interpretations

At the basis of our KM interpretations lies an organizationally reality, which was constructed to address the challenge of adopting an IT-based innovation for KM. To understand the KM propositions made by this paper it is essential that we explain the underlying logic of this reality. Two were the main constituents: the *innovation adoption decision process* and the *sense-making process*. Each of these processes was unfolding within and along each other. The sense-making process has been interpreted as a complex of *negotiations* and *affordances*. The following discussion comprises thus the conceptual framework on which our interpretations for KM originated from.

3.1   The innovation adoption decision process

The research engagement of the authors with the specific empirical context is substantiated through the efforts of the organization to have a KM solution adopted. KM was regarded as an innovation for the organization, as it exhibited elements of novelty and uncertainty (Damanpour et al., 1989). The IT solution itself has just been developed to address some unexplored aspects of KM and thus never been adopted or used before. The enabling practice was as well new to the organization. The issue then for the organization was to take the appropriate actions in order to have the innovation adopted. The organizational fermentations that took place in the view of that endeavour have been therefore mapped according to innovation adoption process (Rogers, 1995).

On the basis of our discussion for the adoption process lies the acknowledgement of the role of perception for understanding on the one hand the capabilities of the IT-

innovation and its possible consequences on the organizational practises, and on the other hand the organizational circumstances that will enable its embracement from the intervention context. Perception development is thus crucial for the adoption decision of any innovation. According to Rogers (1995), the organization is offered with opportunities to perceive the capacity of the innovation to fit with the organization context during the adoption process. However and despite the acknowledgement of the perceptive nature of this process, Rogers only attributes it to a causal relation that links features of the innovation with features of the organization i.e. relative advantage, compatibility, complexity, trialability, and observability. To the authors view, organizational actions for adoption couldn't be accommodated within any causal explanation imposed by organizational determinisms. Instead, current research offers a more situated and enacted account of how organizational actors perceive the interplay between IT and organization during the adoption process.

Under the assumption that organizations operate mainly perceptively during the adoption decision process, research applies a cognitive perspective to interpret this process. According to this perspective, the understanding of the relationship between IT and organization during adoption can only be achieved if we consider the influence that the cognition of certain actors could inflict (Lowstedt, 1985). The central activity during the adoption process is capturing knowledge for the nature and the content of the innovation, its capacity to support certain business operations, and the resources required to have it implemented and sustained. Gaining this kind of knowledge will help the organization to advance its understanding of the innovation and its intervention.

During the empirical study, we witnessed the organization trying to create associations between the inscribed enabling intentions of the innovation and situations, which could be subject of its support. In some cases, the organization had also the opportunity to assess these associations by actually having the innovation experimentally used. The aim of those actions was at the end of the adoption decision process the organization to be in a position to recognize both the potential benefits and problems of the specific IT-based innovation intervention. The perception that the organization would develop will eventually lead to the adoption decision. Perception is shaped by the quantity of information available, the level of psychological participation in and the level of control of the specific endeavour, and finally the level of trust between the actors involved in the particular process (Lippitt, 1973). What though ensures the good working of perception is the perceptive capacity of the person. Even though perception itself does not adhere to personal influences, the capacity to perceive is vulnerable to personal

mental structures and models, which could affect the type of the generated perception (Gibson, 1979; Walsh, 1995). In the current research, perceptions are valued to the extent they determine the interpretations that organizational would make in order to take the adoption decision.

3.2 Negotiations: A cognitive mechanism for perceiving

As described in the previous discussion, the process of innovation sense-making commences from the moment the organization is faced with the adoption decision. This moment is usually neglected as in most cases the emphasis is placed on the evaluation of the financial feasibility of such endeavours. Our empirical inquiry revealed that this phase is equally sensitive to other organizational arrangements as any financial consideration. The adoption decision for an IT-based innovation is a complex strategic issue (Dutton and Duncan, 1987), which understanding is amplified by both the impact of the innovation on the existing market but also the significance of it for the particular organizational reality (Ginsberg and Venkatraman, 1992).

According to our findings, the organizational members involved in the innovation adoption decision process develop numerous interaction occasions with the innovation and its introducers aiming at diagnosing the potential organizational necessity for such an innovation, but also its capability to generate any improvement (Dutton and Duncan, 1987). We call these occasions for interacting/discussing with the IT-based innovation "negotiations". Negotiations take place at the interface of managers' perceptions, technological intentions and organizational realities. Their evolution is escalating as the organization gains more knowledge of the innovation, and thus mature as the adoption processes unfolds. Three different types of negotiations have been identified as crucial of making sense of IT-based innovations (Weick, 1990):
- the negotiation for technological awareness,
- the negotiation for organizational reception, and
- the negotiation for technological enablement.

Briefly we will go through each negotiation type. They have a sequential character, which is more evident in the beginning of the adoption process, but as knowledge accumulates actors tend to act iteratively. The *negotiation for technological awareness* refers to organizational efforts to perceive the content and the way the IT-based innovation (the artefact basically, as organizational aspects of the innovation are still non-existent at the time this negotiation occurs) operates. This is the point where initial perception is created. Usually, such perceptions are attributed to what is called as

family resemblance (Wittgenstein, 1953) and by that implying any similarities of the particular innovation with the class of innovations it originates from. In our case, KM was devising its intellectual merits to the IT-artefact. However, the occurrence of the negotiation mechanism objected to the de-facto creation of such a perception and thus allowed the actors to discover the innovations' true intentions. Perception has been continuously negotiated through several organizational acts. As such, we identified the involvement of the organization in the process of developing and customizing the artefact but also in the discussions initiated by the implementers and finally in the interaction opportunities with it.

The *negotiation for organizational reception* refers to the organizational efforts to create a perception with regards to the possibilities of the IT-based innovation to be embraced by the organizational reality. Of main concern during this negotiation is the organization to establish a valid perception of the innovation that is anchored on existing and realistic needs, and also to confirm that the claimed benefits are well recognized and acknowledged by the main stakeholders i.e. management, end users. Manifestations of this type of negotiation were apparent in the organizational efforts to create consensus for the innovation necessity, and to approximate its intervention through the appropriation of the artefact according to the envisaged intervention.

Finally, the *negotiation for technological enablement* refers to the creation of a perception for the ways by which the innovation could empower organizational practices. Through this negotiation, organizational actors try to envisage potential technological structurations anticipated by the end users of the innovations. Information technology has the capacity of allowing multiple interpretations, in some cases following artefacts inscribed features and in others being product of social processes (DeSanctis & Poole, 1994). The actors of the organization in our study engaged in this negotiation by attempting perceptions of actual application scenaria of KM in specific business situations i.e. e-Banking. These perceptions would not have been feasible without sufficient knowledge of both the specificities of the organizational context and the innovation.

The notion of negotiation implies a continuous discussion about the current perception of the innovation. The actors who engage in these negotiations enact a set of beliefs and representations in order to establish some kind of understanding of the innovation (Ramiller, 2001). Negotiations as cognitive processes are both individual and social constructs (Gardner, 1994). Individual due to the confrontation of the actors with the

stimuli caused by the innovation, in which they participated with perceptions anchored on similar experiences but with new perceptions as well emerging while they gained more knowledge of the nature and the intentions of the innovation. The social character of negotiations refers to the need of reassurance of the individual perceptions and their convergence so that any adoption decision taken enjoys the agreement of all participating members (Susman et al., 2003).

Negotiations comprise an intermediating cognitive mechanism for developing perceptions of the IT-based innovation. During their occurrences, organizational actors try to capture and process as many information as possible in order to come up with meaningful interpretations (Kuvaas, 2002; Simon, 1955). Part of the negotiations involves acts of reflection, either verbal or real, in which actors externalize their current level of understanding. In our case study, this has happened through the experimentation of designated employees with the IT artefact itself, recommendations made for the improvement of the artefact, or even the preparation of appropriate content to suit the data requirements of it.

3.3   The Adoption *Affordances* of IT-based innovations

All the way up to here, we have been making the case that the innovation adoption decision is shaped after the perceptions of the organizational actors for the innovation and its underlying intervention (Rogers, 1995; Swan and Clark, 1992). The perceptions and the actors creating them live in an organizational reality, where current internal and external circumstances frame the rationale of organizational thinking and sense-making. In the bank, this is translated as the pursuit of the strategic priority of becoming a virtual bank and the need to have the e-banking experience improved. Perception of innovation was driven by these circumstances. Their manifestation was done through situated and emerging symbolisms of the possible limitations and enablements of the innovation intervention. We attribute the interpretation of this phenomenon to the existence of "affordances".

The notion of "affordances" (Gibson, 1979; Chemero, 2003) determines the relationship between artefacts and their environment by encompassing information about the various possibilities of use. Affordances have thus been used to interpret the actions of the organizational actors during the adoption decision process. Another crucial feature of "affordances" is that they exist in the environment regardless of the capacity of the humans to perceive them (McGrenere and Ho, 2000). It's actually the human perceptive capability which determines the level of understanding of the possible uses

10

of an artefact. Similarly, the actors in the bank were trying to build their sense making for the innovation on the perception of the "affordances" defining the relationship between the particular innovation and the particular context. We called them "adoption affordances".

The perception efforts that the members of the organization that we studied exerted revealed a number of concerns, which could be used as a basis for making sense of an innovation during its adoption phase. These concerns refer to an ongoing anxiety of the organization to make sure that the adopted innovation would be able to align with:

- organization's strategic aims,
- current ongoing initiatives,
- human support capability, and
- working organizational context maturity.

During the adoption decision process, the aforementioned concerns have been taking the form of "affordances" and in particular "adoption affordances". Four types of these affordances have been identified:

- the strategic match affordances,
- the learning match affordances,
- the organizational constituency affordances, and
- the use affordances.

We will describe briefly again the different types of "adoption affordances" and their effects towards the adoption decision in our organization. The *strategic match affordances* refer to the capability of the innovation to address the strategic priorities of the organization. In our organization, these affordances were dictating the alignment of the innovation with the organization's aims of establishing best practices i.e. e-banking utilising the organizational memory (Walsh and Ungson, 1991). According to our empirical findings, these affordances have been sufficiently perceived by the actors involved and thus adoption was favoured.

The *learning match affordances* refer to the capacity of the organization to incorporate the innovation within the existing organizational evolution path. The perception of these affordances is two-fold. First, the organization has to check whether the knowledge created by the innovation can be absorbed. This is a function of the context maturity and experience with similar practices. Secondly, the organization has to make sure that the proposed by the innovation intervention can actually enhance and advance its

learning trajectory and thus its improvement potential. The organization in study was definitely in line with the innovations' propositions and vice versa, as this has been reflected through its recent initiatives for human resource development. Therefore, these affordances too were pointing towards a positive adoption decision of the innovation.

The *organizational constituency affordances* refer to the capacity of the organization to support the upcoming intervention with the appropriate staff. It proved that IT-based innovations should get the attention of several organizational members and not necesserily the IS specialists alone. In our organization, this has been an evolving process and followed actors' knowledge accumulation levels about the innovation. Certain organizational structures ((Huber and McDaniel, 1986)) could be considered as facilitative for the perception of these affordances but most importantly their deployment. Again, the bank in our case study perceived sufficiently these affordances and made the involvement of the right persons in the KM initiative a reality.

Finally, the *use affordances* are used to inform about the possible fit between the innovation and working context which is used to support. The work context (workplace) comprises a complex of individual and organizational factors in which the innovation has to find a purposeful reason to exist. To allow this, the work context has to have the maturity of accepting any changes imposed by the innovation. However, the workplace comprises a deliberation of human activities. As such it cannot be predicted and any anticipation of technological use can be easily doomed. The bank dealt with the uncertainty of perceiving these affordances by letting potential end users experiment with the artefact. To this direction helped also the fact that people involved in the adoption decision had adequate knowledge and grasp of the organizational workplace (HR people). Still though, the perception of the use affordances by the actors of the bank cannot claim adequacy of informing and supporting a right adoption decision.

4   Knowledge Management: Making sense of its Intervention by perceiving its Adoption Affordances

Our contribution to the understanding of KM is two-fold. First, we present an organizationally-grounded interpretation of KM as a construction of three elements: *work practices*, *competences*, and *roles*. This interpretation reflects a conceptualization of how KM could be associated with the workplace and its inner workings. Secondly, interpretations concentrate on the different meanings that we could attribute to KM

intervention. Both levels of interpretations stem from the sense-making context we described in the previous section.

4.1   KM Support: An organizationally enacted approach

In the organization of our case study actors went through the negotiations we previously described for developing their perception about an IT-based innovation for KM. By being involved in this process, they managed to create an organizational interpretation for KM based on both the innovation's inscribed intentions and individual enactments. Actors have been continuously building their perception and thus their interpretations throughout the process of adoption by interacting with the innovation and its possibilities for offering the support they were looking for. They were aware from the first day of this initiative that KM had to address more fundamental elements of their organizational reality than the management of tacit and explicit knowledge (Nonaka & Takeuchi, 1995). They knew that knowledge should reflect the intentions of the humans who create and use it (Laudon and Starbuck, 1996) and these can only be the people in the workplace.

Through this process of negotiation as a means of perceiving the innovation's nature, organizational actors came up with three (3) constructs that reflected their understanding of KM support. These were:
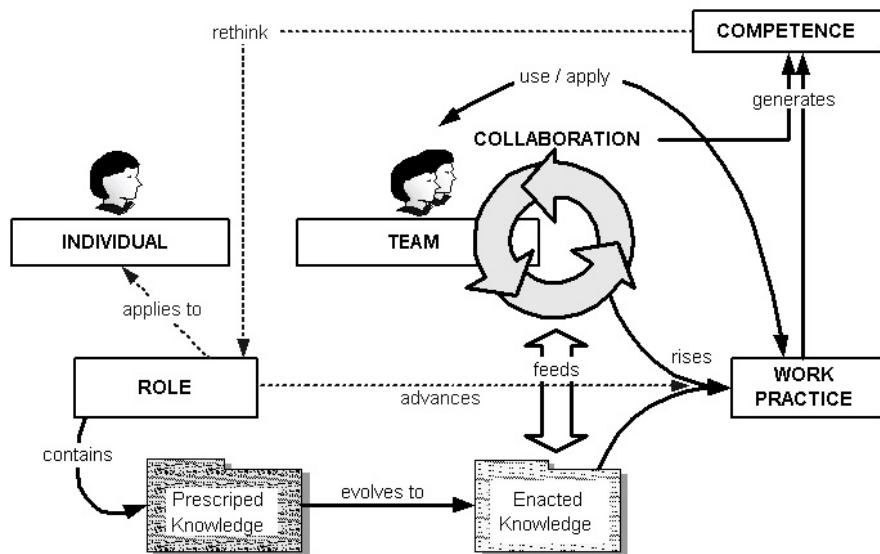- work practices
- competences, and
- roles.

Fig. 1. KM Support Model

The figure above represents the full picture of the interpretation that the organizational actors made regarding the functioning of KM and this was in fact the model they have been actualising as evidenced through their actions. This proposition addresses the notion of *work practices* as the fundamental assumption that should drive any effort of mediation in the knowledge processes of the workplace (Brown and Duguid, 2001). Work practices refer to the actors' interpretations of their work, meaning how they actually do their job (Schön, 1983; Schultze and Boland, 2000). They emerge through the daily inventions that actors have to come up during the evolution of the working situations (Bourdieu, 1973, 1990). In that sense, work practices manifest tacit and explicit forms of knowledge residing within the workplace. The main carriers of that knowledge are humans and the different forms of organizing i.e. team, communities. Through collaborative acts (Communities-of-Practice) work practices are becoming stronger while fostering the appropriate organizational and individual competences required for the execution of work activities (Brown and Duguid, 1991; Brown and Duguid, 1998; Lave and Wenger, 1991). In this knowledge chain, competences comprise a form of advancement for the work practices as they reflect high institutional influence and thus being able to diffuse among the organizational landscape (Andreu and Ciborra, 1996, Sanchez and Heene, 1996; Samiotis and Poulymenakou, 2003).

Work practices are also interwoven with the roles in the organization. As static descriptions of the daily responsibilities of the people acting within a particular

organizational context, they comprise carriers of explicit knowledge which is then used to inform certain forms of work (prescribed knowledge). Knowledge encompassed in roles comprises codified descriptions of tasks and the resources needed to perform them. Through the execution of the role, the daily inventions and the acts of collaboration, which take the working experience from the individual to the social level, new tacit ways of describing work emerge (enacted knowledge), which constitute the content of the work practices. It's the work practices then that lead to the redefinition of the behaviours dictated by the roles and thus to their improvement.

4.2   Implications of the "adoption affordances" for KM

Following our assertions about how innovation sense-making occurs during the adoption decision phase, we have managed to elicit and de-codify the implications of the identified adoption affordances for KM intervention. The meaning ascribed by the organizational actors to the perceived affordances is in tandem with features of the innovation's artefact and the nature of their actions as guided by their organizational role. The perception of each affordance seems to have played its own role in the shaping of the ascribed meaning.

Starting from the *affordances of strategic match*, their perception defined meanings referring to the strategic empowerments of KM. Through their ability to describe the possible match of the innovation with the strategic aims of an organization, these affordances to the extent they we perceived allowed the organizational actors to make sense of that match. Meanings created after the perception of these affordances address the *retention of business association between strategy and workplace*, *best practices development*, and *enabling strategic vision*. These meanings have been manifested by actors interested mainly in the business exploitation of KM.

The perception of the *learning match affordances* defined meanings which refer to the embracement of KM by the operational core of the organization. Such meaning comprise the *creation of explicit abstractions of work practices*, capturing *individual and collective arrangements in the workplace*, and *enabling the development of human resources*. Carriers of those meaning have been organizational actors interested in the organizational adaptation of KM.

The perception of the *organizational constituency affordances* has been defining the evolution of the adoption process since its commencement as it allowed the involvement of certain groups of organizational actors in the KM project. Meanings

created with regards to these affordances are therefore related to the identification of purposeful groups:

- **Business support actors:** Within this group we consider actors and teams whose job is to establish the organizational necessity of KM. Perceptions of the intervention that KM constitutes are determinative of any statement of necessity. In our case study, this group was formed by mangers of e-banking.

- **Organizational adaptation actors:** This group comprises organizational actors assigned the translation of the business imperatives of KM to adaptation practices for the organizational context. This is usually the role of people from the human resources development department (if any). These people are capable of knowing the constitution and functioning of work and knowledge processes of the workplace and thus being able to perceive the consequences of KM on them.

- **Knowledge actors:** As members of this group we identify the users of any technological or organizational enablement by KM. We refer to the people of the workplace, which are required following KM's intervention to function in a knowledge enhanced and enabled context. The practice of KM lies on their ability to perceive its intentions and also the need for essential work adaptations in order to be accommodated.

The perception of the *use affordances* defined meanings with regards to the introduction in and exploitation of KM by the organizational workplace. The main carriers of those meanings have been people living in the actual workplace. The meanings were thus addressing the *provision of work guidance*, *enabling knowledge processes*, and *capturing work improvement requirements.*

4.3 Interpretations of KM intervention

The meanings assigned by the organizational actors to the envisaged KM intervention comprise the last part of our claims about KM (Table 1). As they originate in the perceived affordances, which determine the possible uses of an artefact by an actor, similarly these meanings are grounded on and refer to the interface between actors and the main constitutive elements of KM innovation. These meanings encapsulate the evolution and maturity of the thinking process that the organization underwent in order to make an adoption decision for the IT-based innovation. As organizations still strive to understand KM both in terms of its nature and intervention, our propositions could

provide an alternative account of how KM could be thought of and thus applied. We now refer to the created meanings individually.

Table 1. KM Intervention Meanings

		ORGANIZATIONAL ACTORS		
		Business support actors	Organizational adaptation actors	Organizational actors
INNOVATION	*Roles*	retention of business association between strategy and workplace	creation of explicit abstractions of work practices	provision of work guidance
	Work Practices	best practices development	capturing individual and collective arrangements in the workplace	enabling knowledge processes
	Competences	enabling strategic vision	enabling the development of human resources	capturing work improvement requirements

The *retention of business association between strategy and workplace* comprised one of the most important requirements for KM in the organization of our case study. This requirement refers to the possibilities of interaction between the business functions of the organization with its operations through the KM artefact and practices. In our case study, e-banking was continuously looking for ways to utilize KM as a communication channel between the people who were responsible to "sell" the e-banking products and services to the final customers, and the people responsible for their design and management. That way the daily evolution of work situations in the workplace could be monitored and problems to be resolved instantly. For e-banking management, it was important the communication to be bi-directional, so that knowledge could be fed from the management to the employees and vice-versa.

The *best practices development* comprises a major organizational action which aims at the nomination of successful working tactics and methods. Organizations strongly support the improvements of their performance through the development and diffusion of best practices (Dooley et al., 2002). From KM viewpoint, development and diffusion of best practices comprise a knowledge process (Newell et al., 2003). In the organization of our case study, best practices were not utilized only as performance improvement driver but as carrier of created knowledge and expertise to be used in the implementation of forthcoming strategic plans.

The *enabling strategic vision* refers to the efforts of the organization to establish its strategic orientations through the development and diffusion of appropriate

competences. Knowledge Management could be exploited to foster a dynamic account of the organization (Spender, 1996) which will be grounded on knowledge-designated competences and capabilities (Prahalad and Hammel, 1990). Our organization was aiming at the diffusion of the e-banking competences so that the transition to its envisaged business model of virtual bank could be achieved smoothly and gradually.

The *creation of explicit abstractions of work practices* comprises the basis for the effective and efficient execution of work activities. This has actually been the focus of most office automation endeavours. Knowledge Management offers several possibilities of empowering the workplace, all of which rely on its ability to capture knowledge (tacit and explicit) related to the performed tasks, the people who perform them, and the resources need to do that. In our organization the representation of the work and its underlying practices encapsulated the content of the new e-banking roles as described in terms of business processes.

The *capturing of individual and collective arrangements in the workplace* as well as the meanings assigned by the organizational actors themselves to their interactions is fundamental for the analysis of the workplace (Engeström, 1998; Bourdieu, 1990). Knowledge Management is interested in the occasions of engagement of the organizational actors with the daily workplace processes of knowledge creation and exploitation (Brown et al., 1989). For the organization, comprehension of the workplace and its practices implies better design of the work activities and the roles actualising them in order to increase the likelihood of learning occurrence (Billet, 2001). In our case study, this was responsibility of the Human Resource Development department, which was continuously seeking for ways to monitor the workplace activities, in order to personalise the organizational roles and to address more efficiently the learning needs of it.

The *enabling the development of human resources* is highly related with any strategic shift an organization wishes to undertake. The view of organizations as a complex of resources and competences, which are rare, valuable, imperfectly imitable, and non-substitutable (Barney, 1991) is echoed on the human resource development practices for developing competences which are firm specific, generate social relationships, ground on the history and the culture of the organization and generate tacit knowledge (Wright and McMahan, 1992). Knowledge Management offered the opportunity to the Human Resource Development department of our organization to link the desired competences with the work processes and allow their capture through them.

The *provision of work guidance* is a concern of the workplace actors and refers to the need of these actors to have their activities reassured according to organizationally instituted guidelines. The issue is especially important for the newcomers in the workplace (Lave and Wenger, 1991), however it concerns almost everyone in any working context. Its aim is to address the necessity of developing knowledge representations and have them stored in technological repositories, where they can be easily accessed from and also kept updated. The technical endowments of KM are promising the possibility if rich representations (Sutton, 2001). In our organization, this feature would be offered to the employees incarnating the new e-banking roles.

The *enabling knowledge processes* constitutes the basic and most common intervention of Knowledge Management in the workplace and refers to the creation, storage/retrieval, and transfer of knowledge from the organizational actors (Alavi and Leidner, 2001). The practice of KM enables these processes by promoting occasions for socialization where knowledge springs out from the occurrence of the communities-of-practice (Brown and Duguid, 1991) and externalization of the explicit knowledge in designated forms of representation (Nonaka and Takeuchi, 1995). The technological artefact for KM offered to the organization of our case study aimed at enabling this practice through its features of tacit knowledge capture i.e. annotations, and collaboration and communication between employees of the same role.

The *capturing work improvement requirements* refer to the association of a number of competences with the actual work processes. This function determines the required level of understanding of the activities (know-that), the processes (know-how) and the principles (know-why) which govern the engagement of the organizational actors in their workplace (Garud, 1997). In our case study, the new e-banking role was associated with characteristics of the necessary competences, which would be communicated to the actors through descriptive representations hosted in the KM technological artefact. KM can support more dynamic versions of this issue as well. The accumulation of experiences anchored on the work processes within the technological artefact offers the possibility to the people responsible for regulating the workplace i.e. HRD to redefine the prerequisite competences based on actual information on the needs of best practices.

5   Conclusions

Knowledge Management (KM) (as a theme for this paper) has been found in the centre of an Information Systems (IS) interpretive study reporting on the cognitive-based perception processes which organizational actors (managers in our case) engage in when encountered with adoption decisions for IT-based innovations. KM comprised that IT-based innovation. Although the management of knowledge was not the core of the research study, the enacted organizational actions observed have been of great informative significance for understanding the kind of intervention that KM constitutes (Samiotis et al., 2003b).

This paper addressed the capacity of KM to allow multiple interpretations. We have also offered the appropriate organizational and technical resorts in order to have these interpretations realised. These interpretations seek to stimulate the research in KM field towards its de-confinement from non applicable attributions of knowledge. Without diminishing their value for deciphering the KM phenomenon, we propose a shift to a different level of theorization, where "implementable" attributions could be of significance. Organizational KM necessitates a viewpoint where multiple affordances could be accommodated. The theoretical developments in KM are in tandem with such a demand, but most importantly it seems as the only way organizations could see through the intervention suggested by KM and thus be convinced to embrace it.

References

Alavi, M. and Leidner, D. E., "Review: Knowledge Management and Knowledge Management Systems: Conceptual Foundations and Research Issues," *MIS Quarterly*, Vol. 25, No. 1, 2001, pp. 107-136.

Andreu, R. and Ciborra, C., Organisational learning and core capabilities development: The role of IT, *Journal of Strategic Information Systems*, Vol. 5, No. 2, 1996, pp. 111-127.

Barney, J., "Firm Resources and Competitive Advantage," *Journal of Management*, Vol. 17, No. 1, 1991, pp. 99-120.

Benbasat, I., Goldstein, D and Mead, M., "The Case Research Strategy in Studies of Information Systems," *MIS Quarterly*, Vol. 11, No. 3, September 1987, pp. 369-388.

Billet, S., "Learning through Work: Workplace Affordances and Individual Engagement," *Journal of Workplace Learning*, Vol. 13, No. 5, 2001, pp. 209-214.

Bourdieu, P., *The Logic of Practice*, Cambridge: Polity Press, 1990.

Bourdieu, P., Cultural reproduction and social reproduction, In *Knowledge, Education and Social Change*, ed. R. Brown. London: Tavistock, 1973.

Brown J. and Duguid P., "Organizational learning and communities-of-practice: toward a unified view of working, learning, and innovation," *Organization Science*, Vol. 2, No. 1, 1991, pp. 40-57.

Brown, J. S., Collins, A. and Duguid, P. "Situated Cognition and the Culture of Learning," *Educational Researcher*, Vol. 18, No. 1, 1989, pp. 32-4.

Chemero, A., An Outline of a Theory of Affordances. *Ecological Psychology,* Vol. 15, No. 2, 2003, pp. 181-195.

Cook, S. D. N. and Brown, J. S., "Bridging Epistemologies: The Generative Dance Between Organizational Knowledge and Organizational Knowing," *Organization Science*, Vo. 10, No. 4, July-August 1999, pp. 381-400.

Damanpour, F., Szabat, K. A. and Evan, W. M., "The Relationship between Types of Innovation and Organizational Performance," *Journal of Management Studies*, vol. 26, No. 6, November 1989, pp.587-601.

DeSanctis, G. and Poole, M. S., "Capturing the Complexity in Advanced Technology Use: Adaptive Structuration Theory," *Organization Science*, Vol. 5, No. 2, May 1994, pp. 121-147.

Dooley, K. J., Subra, A. and Anderson, J., "Adoption Rates and Patterns of Best Practices in New Product Development," *International Journal of Innovation Management*, Vol. 6, No. 1, 2002, pp. 85-103.

Dutton, J. E. and Duncan, R. B., "The Creation of Momentum for Change through the Process of Strategic Issue Diagnosis," *Strategic Management Journal*, Vol. 8, No. 3, May – Jun. 1987, pp. 279-295.

Eisenhardt, K.M. (1989) "Building theories from case study research" *Academy of Management Review*, Vol. 14 No. 4, pp. 532-550.

Engeström, Y., "Activity Theory and Individual and Social Transformation". In Engeström, Miettinen and Punamäki [eds.], *Perspectives on Activity Theory*. New York: Cambridge University Press, 1998.

Gardner, H., *Frames of Mind*, Fontana, London, 1994.

Garud, R., "On the distinction between know-how, know-why and know-what in technological systems" in J. Walsh and A. Huff (eds.) *Advances in Strategic Management*, JAI Press, 1997, pp. 81-101.

Gibson, J. J., *The Ecological Approach to Visual Perception*, Lawrence Erlbaum Associates, Inc., 1986 (originally published in 1979).

Ginsberg, A. and Venkatraman, N., "Investing in New Information Technology: The Role of Competitive Posture and Issue Diagnosis," *Strategic Management Journal*, Vol. 13, Special Issue: Strategy Process: Managing Self-Renewal, Summer 1992, pp. 37-53.

Hansen, M.T., Nohria, N. and Tierney, T., "What's Your Strategy for Managing Knowledge?", *Harvard Business Review*, March-April 1999.

Huber, G. P. and McDaniel, R. R., "The decision-making paradigm of organizational design," *Management Science*, Vol. 32, No. 5, 1986, pp. 572-589.

Kuvaas, B., "An Exploration of two Competing Perspectives on Informational Contexts in Top Management Strategic Issue Interpretation," *Journal of Management Studies*, Vol. 37, No. 7, November 2002, pp. 977-1001.

Labaree, R. V., "The risk of 'going observationalist': negotiating the hidden dilemmas of being an insider participant observer," *Qualitative Research*, Vol. 2, 2002, pp. 97-122.

Laudon, K. and Starbuck H. S., "Organizational Information and Knowledge," in M. Warner (eds.), *International Encyclopedia of Business and Management*, London: Routledge/Thompson Business Press, Vol. 4, 1996, pp.3923-3933.

Lave, J., and Wenger, E., *Situated Learning – Legitimate Peripheral Participation*, Cambridge University Press, Cambridge, 1993.

Lee, A.S. and Baskerville, R.L., "Generalizing Generalizability in Information Systems Research," *Information Systems Research*, Vol. 14, No. 3, 2003, pp. 221–243.

Leonard-Barton, D., *Wellsprings of Knowledge: Building and Sustaining the Sources of Innovation*, *Harvard Business School Press*, Boston, MA, 1995.

Lippitt, G., *Visualizing change: Model building and the Change Process*, La Jolla, CA: University Associates, 1973.

Lowstedt, J., "Contingencies or Cognitions? Two Paths for Research on Organization and Technology," *Scandinavian Journal of Management Studies*, Vol. 1, 1985, pp. 207-225.

McGrenere, J. and Ho, W., "Affordances: Clarifying and evolving a concept," In Proceedings of GI (Graphics Interface) 2000, 2000, pp. 179-186.

Nandhakumar, J. and Jones, R. M., "Development gain? Participant observation in interpretive management information systems research," *Qualitative Research*, Vol. 2, No. 3, 2002, pp. 323-341.

Newell, S., Edelman, L., Scarbrough, H., Swan, J. and Bresnen, M., "'Best practice' development and transfer in the NHS: the importance of process as well as product knowledge," *Health Services Management Research*, Vol. 16, No. 1, 2003, pp. 1-12.

Nonaka, I. and Takeuchi, H. *The Knowledge Creating Company*, Oxford University Press, 1995.

Orlikowski, W., "Knowing in Practice: Enacting a Collective Capability in Distributed Organising, " *Organization Science*, Vol. 13, No. 3, 2002, pp. 249-273.

Orlikowski, W. J. and Baroudi, J. J., "Studying Information Technology in Organizations: Research Approaches and Assumptions," *Information Systems Research*, Vol. 2, No. 1, 1991, pp. 1-28.

Pettigrew, A. M., 'What Is a Processual Analysis?'" *Scandinavian Journal of Management*, Vol. 13, 1997, pp. 337–348.

Pettigrew, A. M., "Longitudinal field research on change: Theory and practice," *Organization Science*, Vol. 1, No. 3, 1990, pp. 267-292.

Prahalad, C. K. and Hamel, G. K., "The Core Competence of the Corporation," *Harvard Business Review*, Vol. 68, No. 3, 1990, pp. 79-91.

Ramiller, C. N., "The 'Textual Attitude' and New Technology," *Information and Organisation*, Vol. 11, 2001, pp. 129-156.

Rogers, E. M., *Diffusion of Innovations*, New York: The Free Press, 4th Edition, 1995.

Samiotis, K. and Poulymenakou, A., "The Learning Enactment of Process Knowledge: An Approach anchored on Work Practices," In Hlupic V. (Eds.), *Knowledge and Business Process Management*, Idea Group Publishing, London UK, 2003a, pp. 99-117.

Samiotis, K., Poulymenakou, A., and Doukidis, G., "Understanding Knowledge Management Interventions: Evidence from Supporting (E-)Banking Activities," *Knowledge and Process Management: Journal of Corporate Transformation* - Special Issue: Knowledge Management Systems: Technological and Organizational Issues, vol. 10, No. 3, July/September 2003b, pp. 175-182.

Sanchez, R. and Heene, A. *Strategic Learning and Knowledge Management*, West Sussex, England, John Wiley & Sons Ltd, 1996.

Schön, D. A., *The Reflective Practitioner: How Professionals Think in Action*, Basic Books, New York, 1983.

Schultze, U. and Boland, J. R. "Knowledge Management Technology and the Reproduction of Knowledge Work Practices," *Journal of Strategic Information Systems*, Vol. 9, No. 2, 2000, pp. 193-212.

Simon, H. A., "A Behavioral Model of Rational Choice," *Quarterly Journal of Economics*, Vol. 69, 1955, pp. 99-118.

Spender, J. C., "Making Knowledge the Basis of a Dynamic Theory of the Firm," *Strategic Management Journal*, Vol. 17, Winter Special Issue, 1996, pp. 45-62.

Susman, I. G., Gray, L. B., Perry, J. and Blair, E. C., "Recognition and Reconciliation of Differences in Interpretation of Misalignments when Collaborative Technologies are introduced into new Product Development Teams," Journal *of Engineering and Technology Management*, Vol. 20, 2003, pp. 141-159.

Sutton, D. C., "What is knowledge and can it be managed," *European Journal of Information Systems*, Vol. 10, No. 2, 2001, pp. 80-88.

Swan, J. A. and Clark, P., "Organizational Decision Making in the Diffusion and Appropriation of Technological Innovation: Cognitive and Political Dimensions," *European Work and Organizational Psychologists*, Vol. 2, No. 2, 1992, pp. 103-127.

Walsh, J. P., "Managerial and Organizational Cognition: Notes from a Trip Down Memory Lane," *Organization Science*, Vol. 6, No. 3, May-June 1995, pp. 280-321.

Walsh, J. P., Ungson, G. R., "Organizational Memory," *Academy of Management Review*, Vol. 16, No. 1:, 1991, pp. 57-91

Walsham, G. "Interpretive Case Studies in IS Research: Nature and Method," *European Journal of Information Systems*, Vol. 4, 1995, pp. 74-81.

Walsham, G. *Interpreting Information Systems in Organizations*, Wiley, Chichester, 1993.

Weick, K .E., *Sensemaking in Organizations*, Thousand Oaks, CA: Sage Publications, 1995.

Weick, K. E., "Technology as Equivoque: Sensemaking in New Technologies," In P. S. Goodman and L. Sproull (Eds.) *Technology and organizations*, San Francisco, Jossey-Bass: xxi, 1990, pp. 281.

Wittgenstein, L., Philosophical Investigations, G.E.M. Anscombe and R. Rhees (eds.), G.E.M. Anscombe (trans.), Oxford: Blackwell, 1953.

Wright, P. M., and McMahan, G. C., "Theoretical Perspectives for Strategic Human Resources Management," *Journal of Management*, Vol. 18, No. 2, 1992, pp. 295-320.

Yin, R.K. *Case Study Research, Design and Methods*, 2nd ed. Newbury Park, Sage Publications, 1994.