Moving Beyond Traditional Knowledge Management: A Demand-Based Approach

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ABSTRACT:

Large numbers of organizations invested heavily in Knowledge Management (KM) projects with the aim of increasing responsiveness and innovation, saving costs, supporting decision making, facilitating collaboration, and enhancing overall competitive position. However studies show that a large proportion of KM initiatives fail. Yet little detailed attention has been paid to why those initiatives run into difficulties, and how the failure of the often costly KM project could be avoided. The present study showed through a comparative study of two case studies of KM implementation, the need for a new approach to knowledge management where both the supply side and demand side of knowledge are addressed i.e. individuals' needs will work in an integrated way.

Keywords: *Knowledge management, Supply-driven approach, Demand-driven approach, Activity theory*

1. Introduction

Recently it has been observed a proliferation of knowledge management (KM) projects in many organisations. This phenomenon was driven by the increasing popularity of the knowledge-based view of the firm; which regards knowledge as a key competitive resource. As a result, organisations are implementing various KM initiatives to identify, share and exploit their knowledge assets. Some of those KM initiatives were reported as success stories; whereas others were seen as exerting no significant impact on the adopting organisations (Lucier and Torsiliera, 1997). For instance in his attack on the "nonsense of knowledge management", Wilson (2002) reported a 2001 survey carried out by Bain & Company showing that only 35 percent of a worldwide sample of 451 companies reported satisfaction rating about 3.5 on a five-point scale, when it comes to their KM initiatives. Other authors observed that the knowledge management literature focuses on the bright side of KM; it barely mentions failure stories of KM projects Alter (2006). Moreover some researchers found that there is a systematic lack of evidence for the claims put forth about the alleged knowledge management success stories (Ekbia and Hara, 2008). Given the mixed finding regarding the potential added-value of KM, a number of authors have called for the need to revisit the current approach of KM (see for example Keen, and Tan, 2007; Storey, J. and Barnett, 2000., Jennex, M.E, 2009). Davenport and Glaser (2002; 6) sum up the problem best *"...Knowledge management, which was all the rage in the mid-to late 1990s, is still a good idea, but it needs a new approach… ".*

BenMoussa's (2009) formulated a framework on the impediments to knowledge management. According to such a framework, the barriers hindering the success of KM are linked to the supply-driven approach characterising knowledge management projects. Such an approach assumes that knowledge is as an organizational asset which is independent of the individual; and the mission of knowledge management is to make such an asset more widely available to organizations' members (Keen, and Tan, 2007). Therefore it suffices to make knowledge available using cutting-edge information technology and people will come to use and share available knowledge. Driven by such an approach, a number of companies implementing KM

projects pay little attention to the planning of their KM endeavours, e.g. articulating useful KM goals, involving end-users, selecting useful contents and so on. They also regard KM technology as the main if not the only enabler of their KM programmes. Consequently they do not initiate motivational programmes that would stimulate individuals to participate in KM activities. Those organizational impediments give rise to personal impediments where end-users feel that KM initiatives implemented by their companies are not useful. Additionally they feel that they lack incentives in terms of both giving away their knowledge and investing portion of their time in KM activities. Therefore BenMoussa (2009) underlined the need to adjust the current IT-supply driven objective/mission of KM in such way to integrate both the supply side and demand side of knowledge, i.e. individuals' needs. These would involve moving from the mantra of "Possessing knowledge is power" to "possessing *and using* knowledge is power"!

The present paper projects BenMoussa's (2009) proposition onto the specific question of "*Could the integration of both the supply side and the demand side of knowledge be a success factor in KM projects?"* The paper attempts to address this question with the aid of a comparative study of two well-documented case studies. The first case study documented a failure story of a KM initiative and involved a multinational pharmaceutical company (Braganza and Möllenkrame, 2002). The second case study involved a telecommunication infrastructure company (Siemens), and reported a success story in implementing a high impact KM initiative (Davenport and Probst, 2002).

The paper is organized in three sections: the next section introduced the research approach; the third section describes and analyses the two cases; the fourth section discusses the findings of case analysis and link it to the framework suggested by BenMoussa (2009).

2. Approach

To address the above question, we designed an Activity Theory-based methodology. Activity Theory provides a model for describing and analysing activities. The model depicts the process through which tools, e.g. technology mediates the relationship between a worker (subject) and his or her object of activity (Boer et al. 2002).

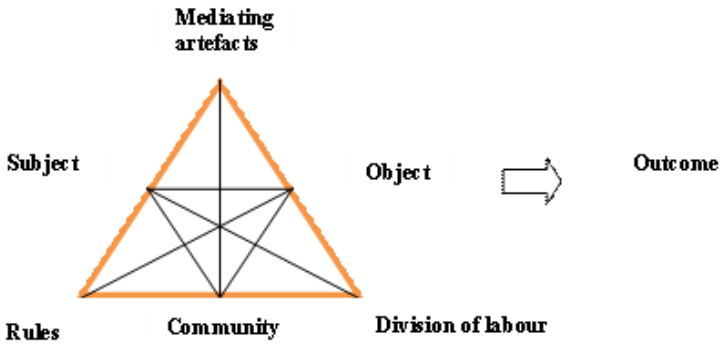


Figure 1: Activity Triangle Model (Engeström, 1987)

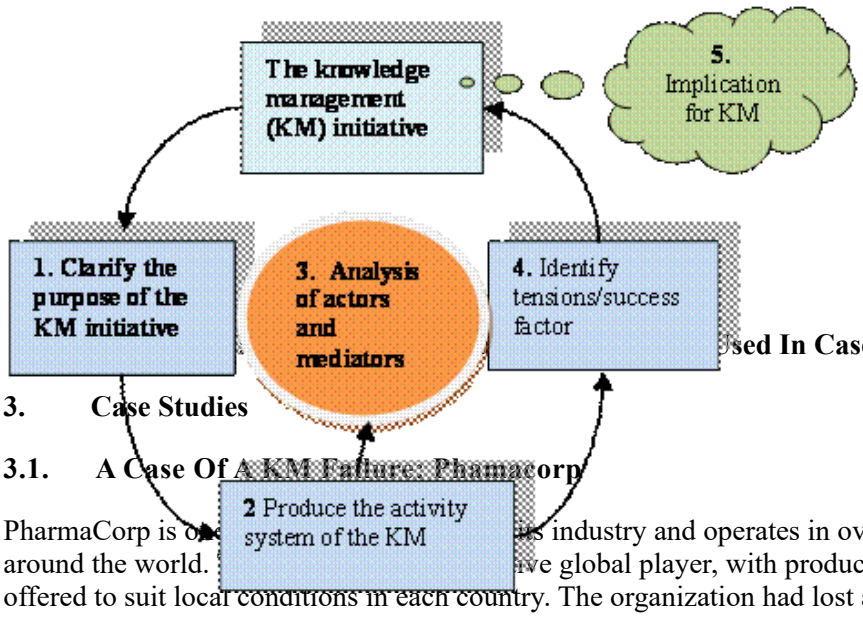
Activity Theory incorporates the following components: subjects, objects, community, tools, rules and the division of labour. The *object* refers to the "raw material" or the problem to which the activity is directed and which is transformed to give an outcome with the help of mediating tools. The *subject* component of the model refers to both the individual and collective nature of

human activity through the use of tools in a social context so as to fulfil the object of the activity. The *tool* component reflects both the mediating physical and psychological tools which are used to transform the object. They can take different forms including tools, machines, computer applications, language, visual representations and procedural tools (Boer et al. 2002). The *community* component represents stakeholders in a particular activity or those who share the same overall objectives. The rules component reflects the explicit and implicit norms and regulations that affect the means by which an activity is carried out. The *division of labour* is the allocation of responsibilities and power among subjects involved in carrying out a particular activity within a community.

According to Engeström's (1987) activity system, the relationship between subject and object is mediated by tools, the relationship between subject and community by rules, and that between object and community by the division of labour (cf. Figure 1).

There are a number of advantages of applying activity theory for analysing the success and failures of KM projects. Firstly, activity theory provides a framework for understanding collective human activities as embedded within a social practice, e.g. organization, and mediated by artefacts, including technological artefacts (Bardram, 1998). This is important when it comes to knowledge-related studies. A number of authors stressed the need to include the whole relevant context within which knowledge is shared and accessed, including social, organizational and technical issues. Secondly, activity theory involves taking the perspective of different actors of an activity system, where a social, i.e. community view is complemented by a subject's view (Boer et al. 2002). Thirdly, activity theory uses the term contradiction to indicate misfits, disturbances, problems or breakdowns that occur in the activity system of human practices being examined Kuutti (1996). According to Engeström (1987), "contradictions" reflect a source of development and represent the presence of unfamiliar elements whose study is necessary to establish the kind of new developments that are taking place within an activity system. Breakdowns happen when the work process is interrupted by something, perhaps the tool behaved differently from what was anticipated, thus causing the triggering of inappropriate operations or not triggering any at all (Bodker, 1996). Identifying the tensions and interactions between the elements of an activity system, make it is possible to reconstruct the system in its concrete diversity and richness, and therefore explain and foresee its development Engeström (1987). These would help our analysis in terms of identifying the problematic areas whose investigations are necessary for the purpose of understanding what happened to the activity system, i.e. the knowledge management initiative.

We applied the activity theory-based methodology to the two cases, with the objective to identify similarities and differences. The essence of this structured approach is captured in Figure 2.



sed In Cases Analysis

3. Case Studies

3.1. A Case Of A KM Failure: Phamacorp

PharmaCorp is o s industry and operates in over 70 countries around the world. ive global player, with products and services being offered to suit local conditions in each country. The organization had lost a number of order handling deals because of its inability to offer an integrated solution in the order handling system function (Braganza and Möllenkrame, 2002). In response, the management initiated a KM project known as Alpha with the objective of becoming one of the top order handling services firms globally.

3.1.2. Purpose Of The Knowledge Management Initiative

An integral part of Alpha's Business Case was the development of an IT solution known as the 'Knowledge Enabled Worktable'. The Alpha Worktable Project Initiation Document described the concept as computer systems that allow users to access add and use knowledge. The main Alpha Worktable was designed to integrate 'seamlessly and through an easy-to-use interface', with other Worktables. These 'other Worktables' were scoped and designed to support each business function. Hence, the Sales Worktable targeted sales people, the Product Implementation worktable supported people in that function, and the Operations Worktable supported back-office people and so on for each function. The Worktables would be easy to use and would store relevant information automatically, simplify user tasks, support decision making and allow users to quickly and easily enter feedback, comments and informal insights. This would, in turn, help content owners to identify new needs, and/or out of date or inaccurate content. Underpinning the 'seamless' interface was the Alpha 'Knowledge Base' — or the 'Library'. The Library was a large data repository of documents, information, and other knowledge from internal and external sources, exemplified by competitor intelligence reports. Organising access to the Library would be a dynamic document management system (Braganza and Möllenkrame, 2002).

3.1.3. Dimension Of KM Failure

Owing to a number of problems, e.g. failure to integrate end-users requirements, use of new technology, defects in the quality of the information being stored in the system; conflicts among the KeW development team emerged and the viability of the KeW was became questionable by Phama Corp's senior management. Given the escalating IT expenditure, and low usage of the system by intended users, the KeW's development teams were perceived as losing control over the Alpha project. As a result the management decided to curtail the KeW project and disband the whole Alpha project (Braganza and Möllenkrame, 2002).

3.1.4 Modelling Pharma Corp's Knowledge Enabled Worktable Activity

In order to obtain basic understanding the practices Pharma Corp used in order to carry out the knowledge enabled worktable (KeW) activity, components of the expanded triangle model (cf. Fig 1) were translated in terms of the Pharma Corp's activity system for developing the knowledge management initiative.

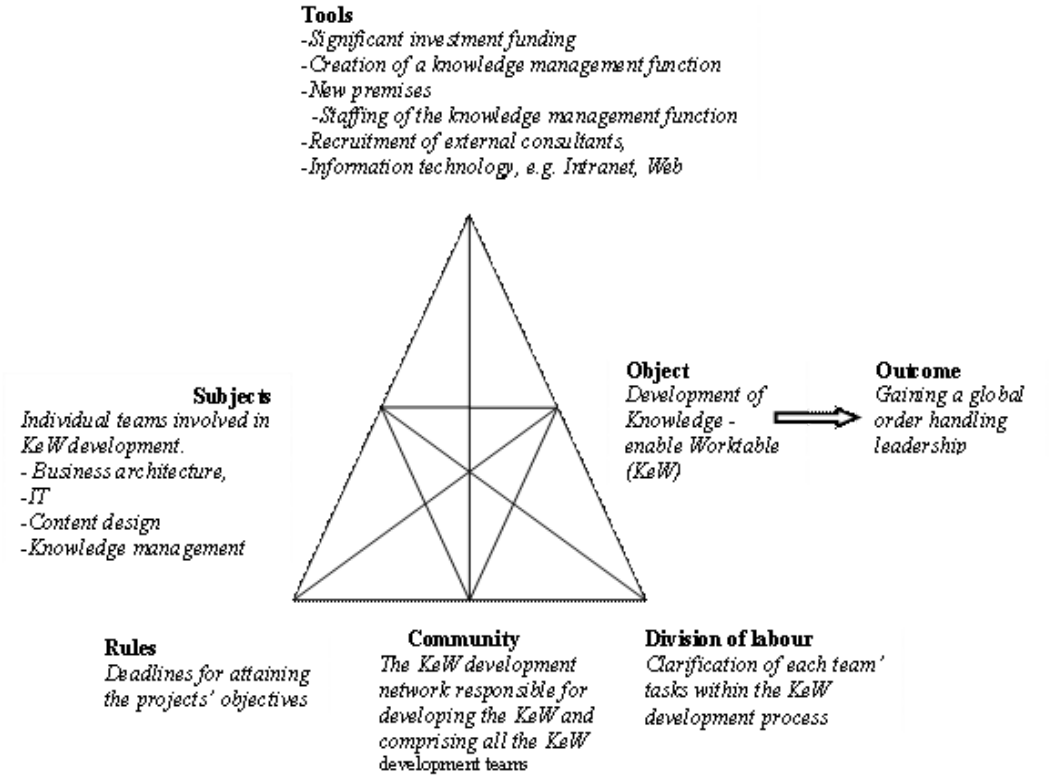


Figure 3: Knowledge Enabled Worktable Activity System

3.1.5. Tensions Analysis

The purpose of this section is to identify tensions within the KeW activity system that caused the failure of Pharma Corp's knowledge management initiative. The key tensions identified are secondary tension, i.e. between the constituents' nodes of the activity triangle. Figure 4 summarizes the key tensions identified.

<Subjects-tools-object tensions >

Those tensions included:

Inappropriate technology platform to enable the development of the KeW

This tension stems from unrealistic expectations the subjects, i.e. development team had with regard to the capabilities of KM technology in implementing the object, i.e. building the worktable. Overestimating KM technology's role made the development team rush to technology implementation without any appropriate planning, which led to a number of problems. For instance, the development team rushed to design an Intranet-based tool, Knowledge Across the Net (KAN), to publish the content they were developing. However, while piloting KAN, it turned out that many of PharmaCorp's country locations did not have Internet access and/or the minimum required hardware to do so. This helped explain why KAN was not as widely accepted as initially hoped. The same applied to the Library application; which was a large data repository of documents, information, and other knowledge from internal and external sources exemplified by competitor intelligence reports. After an extensive study; PharmaCorp's KM team with the help of consultant, concluded that the Library content was growing, but the functionality of the application did not meet the necessary requirements. This resulted in considerable internal debate. The executive decided that the Library application itself would be temporarily shelved (Braganza and Möllenkrame, 2002).

Ineffective use of external consultants

To support the KM development team implementing the KeW, PhamaCorp made use of external consultants. The company had three different consulting firms involved at different times. Each firm supplied its own people, who brought with them different (and often conflicting) methods, techniques, and language. The input from these firms overlapped at times, and at other times they operated independently. Although there were fewer consultants than Pharma staff working on the KM initiative, the external consultants held key roles. They often positioned themselves between senior managers and project team members. This placed team members at a disadvantage when the consultants left. Moreover it seemed that whenever a challenging development problem emerges, the KM team response was to recruit external consultants [3]. For instance the content and design team initiated the creation of an Intranet site — the

PharmaWeb. An external consulting firm was hired to deliver PharmaWeb. Similarly, the knowledge content and design sub-stream also concluded that a directory tool that listed employee competencies, skills, order handling experience, and contact information would be useful for Pharma employees. Hence, a Notesbased, web-enabled "Person Locator" directory was built. An external consultant was hired to build the Person Locator and he was subsequently partnered with a Knowledge Analyst. A managing partner of the contracted consulting firm promised that his 'best programmer would deliver the tool in three weeks'. Yet after four months of effort, the consultant was unable to deliver the envisioned Person Locator and was replaced by a different 'expert' from the same firm. Concurrently, the development team decided to forego the web-enabled functionality and to proceed with a Lotus Notes only tool (Braganza and Möllenkrame, 2002).

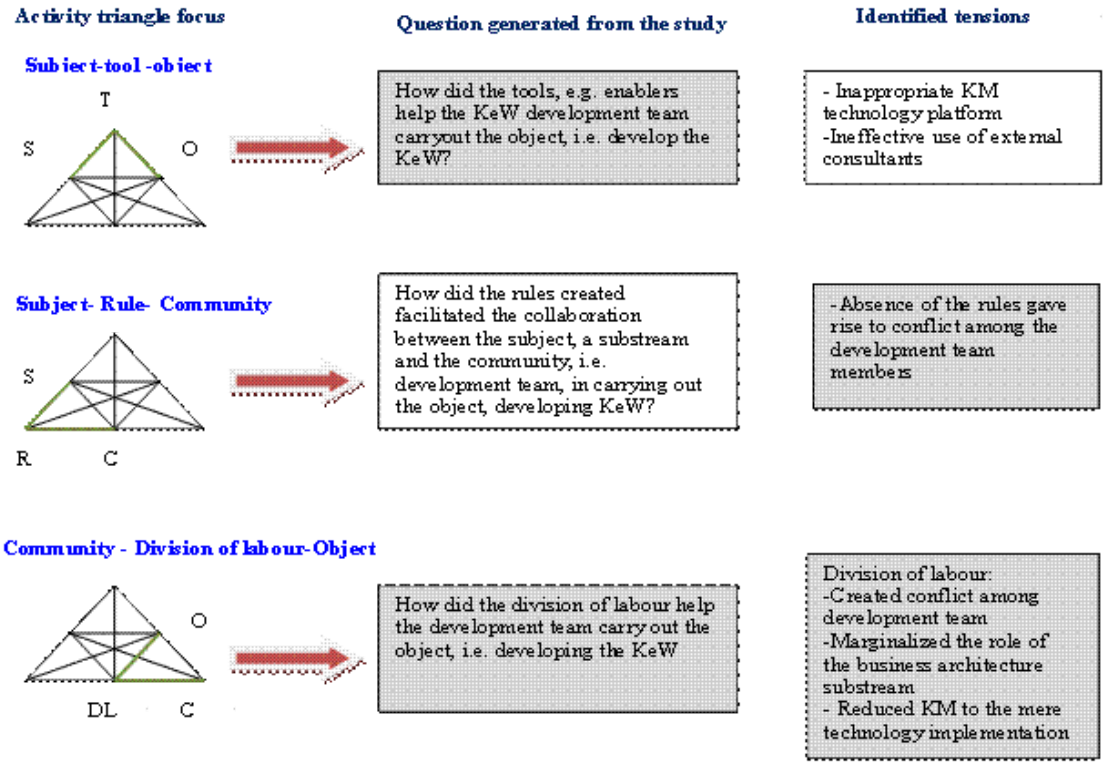
<Subjects- Rules-community tensions>

The KeW development team lacked project management process that would make it possible to monitor the various specified actions and objectives. As a result the KeW delivery was delayed by the IT sub-stream. This gave rise to another problem. As the content substream developed a considerable amount of content, they want to publish it as soon as possible. They regarded the delays by the IT substream as a serious threat to the KM initiative as it would lead to people in the organization losing interest in Knowledge Management generally, and the Library Content, in particular. Therefore the content substream decided to implement an intranet application in order to store the content being developed, but without any coordination with the IT substream. However the intranet failed to attract any users. The content substream, probably due to its lack of technical expertise, did not plan for the fact that some countries would lack the minimum required technology, e.g. Internet access and/or hardware (Braganza and Möllenkrame, 2002).

<Community-Division of labour- Object tensions>

The actors involved in the development process included the knowledge management team in addition to three other teams collectively known within the organization as the Kappa Stream and they include (i) business architecture, (ii) IT, and (iii) knowledge content and design.

PhamaCorp divided the tasks among the KeW team in such a way that a business architecture team set out to design Alpha's processes. An IT team were responsible for developing KeW technology and systems; and a knowledge content and design team which took responsibility for content development. However division of labour among the KeW was ineffective as it gave rise to conflict among team members. For instance the division of labour put in place by PhamaCorp placed the business architecture substream under the control of the IT function. KM initiative very quickly became associated with IT developments rather than enabling business processes or supporting strategy, e.g. building an order handling capability. As a result, no attention was paid to designing a KM strategy that identifies critical knowledge, where it is, how it is to be stored, and how it is to be made available. In the absence of such a KM strategy, the development team lacked a clear context for specifying which specific knowledge-elements, e.g. data, competitor intelligence, personal informal insights, or data about sales personnel in the Person Locator, were business-critical. Hence, each knowledge-element was assigned implicitly equal weighting. The pitfall is that without a clear context knowledge is defined in general terms, and specific elements that are business critical get insufficient attention (Braganza and Möllenkrame, 2002).



T: tools; S: subjects, O: objects, DL: division of labor; R: rules, C: community

Figure 4: Identifying Tensions In The Kew's Activity System Based On Mwanza's (2001)

3.2. Case Of KM Success: Siemens ICN

Induced by significant shifts within the international telecommunication business, Siemens faced a shift in competitive forces that stresses the necessity for knowledge based competition. This implies identifying best practices quickly, sharing them on a global scale, and ensuring that they were reused for profit in similar setting. For Siemens a prerequisite for this global reuse of local innovation was the ability to transfer the explicit elements of knowledge that could be easily transferred, or stored in databases, as well as the more tacit elements of knowledge that arise from joint business development. To this end Siemens designed a KM initiative called Share Net (Davenport, T.H., and Probst, 2002).

3.2.1. KM Initiative (ShareNet)

ShareNet is an interactive knowledge management system implemented to provide salespeople worldwide with relevant knowledge about solutions and applications, sales processes and projects. It covers both explicit and tacit knowledge of the sales value-creation process, including project know-how, technical and functional-solutions components, and knowledge

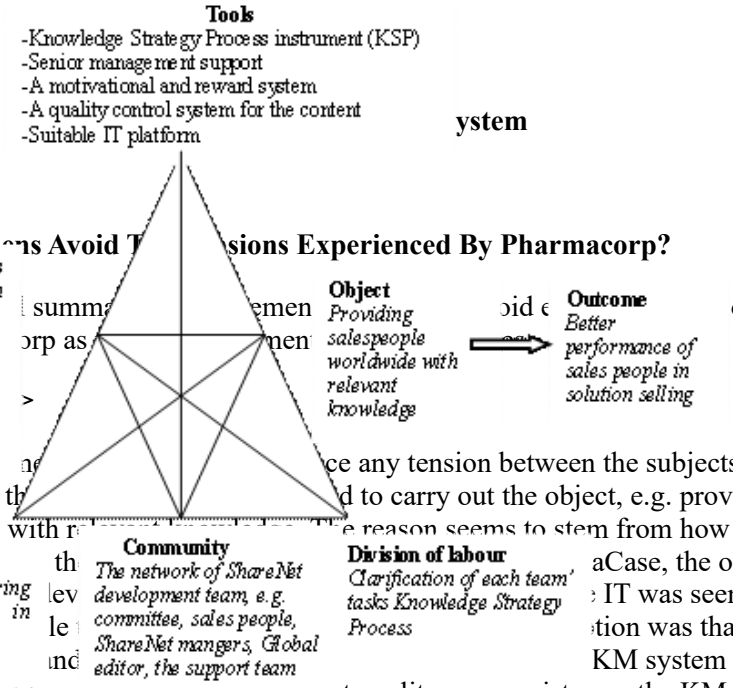
about business environment, e.g. customer, competitor, market, technology, etc. ShaeNet also involves tacit knowledge such as the field experience of sales people and real-life tested pros and cons of a solution. Additionally ShareNet provides spaces for less structured interaction such as chat rooms, community news, discussion groups on special issues, and so called urgent requests. Urgent requests are basically forums for asking all kinds of urgent questions such as, "My customer needs a business case for implementing a new technology X by next Monday", who can help me?"; Does anybody have a list of recent network projects by competitor Y". In many cases the right answers are "harvested" and made available for later use in FAQ (Frequently Asked Questions) section (Davenport and Probst, 2002).

3.2.2. Dimension Of Success

SharenNet has become an integral part of the strategy of Siemens. Within its first year of existence, it has developed into a tool of practical knowledge management, enabling sales and marketing processes, faster action in marketplace, and knowledge-enabled competition. Since its first year of implementation, ShareNet attracted a community of 7000 users. According to the vice president of Siemens ICN, Share Net has an even greater potential to realize a measurable business impact through the creation of new business opportunities. As a next step the company is envisaging expanding the Share Net to other processes (Davenport and Probst, 2002).

3.2.3. Modelling Siemens's ShareNet's Activity

The components of the ShareNet's activity system are summarized in Figure 5.



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3.2.4 How Did Siemens Avoid T sions Experienced By Pharmacorp?

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U ce any tension between the subjects, e.g. development team and th d to carry out the object, e.g. providing salespeople worldwide with r e reason seems to stem from how each of the two th aCase, the object of the KM lev IT was seen as the major t le tion was that it suffices nd KM system encountered serious problems, e.g. defects in content quality, user resistance, the KM team did not consider rethinking the object of the KM initiative. Instead they responded by investing in more technology, e.g. intranet, Phamaweb, Lotus Notes and recruiting external consultants to solve the problems. PhamaCorp stayed in such a vicious cycle until senior management decided to abandon the whole KM initiative.

Siemens ICN on the other hand defined the object of its KM initiative as providing salespeople worldwide with relevant knowledge. As such Siemens ICN was focusing on the end, e.g. supporting and not the means, e.g. building ShareNet. Therefore the tools put in place by Siemens were synchronized with the requirement of the object, i.e. supporting salespeople; including a Knowledge Strategy Process (KSP) instrument which guaranteed that the business objective will be fulfilled. The KMS instrument help project owners identify which knowledge areas have an impact on the business, how strong this impact is, which deficits there are in each of the knowledge areas in terms of proficiency, codification, and diffusion and determines what the management feels it can do in response of these issues. As such KMS guides people in order to define the relationship between business development, key business indicators and the necessary knowledge areas (Davenport and Probst, 2002). Additionally, Siemens implemented motivational practices to ensure that users will use the ShareNet system; whereas PhamaCorp seemed to assume that it suffices to build the KeW and users will come and use it.

<Community-Division of labour- Object>

Here again the difference between PhamaCorp and Siemens seems to be associated with object that each company assigned to its KM initiative. PhamaCorp assigned to the IT function the major role in terms of the development of KeW. This seems to be compatible with the object of the KM initiative, i.e. developing the KeW. In the Siemens case the object of the KM initiative was providing salespeople with relevant knowledge. Therefore, the focus was more on managerial processes than the technical platform. These managerial processes have been managed carefully form the first emergence of ShareNet. Technology was regarded as one enabler among others. Indeed Siemens recognized that it is erroneous to believe that high volume; quantitative data repositories can significantly improve organizational knowledge

assets. Since knowledge is not static, but subject to continuous modification it cannot be frozen into depositories. In recognition of this, ShareNet had to ensure adequate levels of interactivity in order to conserve the dynamic nature of knowledge.

<Subjects- Rules-community>

PhamaCorp lacked any KM management process that would make it possible to monitor the various specified actions and objectives. As a result, in many cases the initiatives taken by the development sub-streams were overlapping and conflicting. Whereas in the Simens case all the different stages in the development process, including the tasks of the many stakeholders were detailed in KSP instrument; and every KM team owner had to follow the roadmap described by the KSP. As a result, the ShareNet development process runs smoothly without any tensions among the members of the development team.

4. Conclusions And Implications For Knowledge Management

The two cases studied had a number of common features including availability of financial and human resources to implement the KM initiative, senior management support, and a sound business case for the KM initiative. So why did Siemens KM initiative succeed but PhamCorp's fail?

The answer to this question seems to be linked to the KM approach each company adopted. PharmaCorp followed an IT supply- driven approach. Such approach considers knowledge independent from the individual and regarded KM's mission as to make knowledge available in the organization. With such an approach, PhamaCorp did not see the need to include end-users in the development process, nor to design motivational practices to stimulate them to use the implemented KM system. Rather, the company directed its effort and resources to the technical platform. For instance in putting in place the development team, PhamaCorp's management assigned a leading role to the IT function. For instance the business architecture substream reported to the IT function rather than to knowledge management function. As a result, the objective of the KM initiatives start drifting away from enabling the order handling capability, to IT developments exemplified by KeW, library, Person Locator and so on. PhamaCorp' s attempt to manage knowledge became associated with building repository and storing available information, e.g. customer names and address, names and contact phone, sales data in it. The assumption was that once people had the information they could then decide an appropriate course of action. With such a supply-driven approach the development team did not pay attention to building a KM strategy that could help identify the critical processes to support and the type of content to retain. Hence each knowledge object was assigned implicitly equal weighting without any differentiation between business critical-knowledge, and less valuable knowledge. The only concern was to collect knowledge and to make it available in the repository. This led to another problem. Users complained about the serious defects in the quality of the information being stored in the system. In the absence of a filtering mechanism, only 10-15% of the content was being maintained systematically. In addition users were minimising their use of the implemented KM system. The development team responded to those problems by investing in more technology and seeking the help from external consultant. KM costs start escalating. Consequently senior management began to raise serious concerns regarding the "value-added" of the KM initiative. The feeling was that the development team failed to link the KM initiative with the actual job carried out in business. The team also lost control over the costs and engaged in micro-political conflicts. Therefore senior management made the decision to abandon the KM initiatives and dissolve the KM function (Braganza and Möllenkrame, 2002).

Unlike PharmaCorp and many other companies implementing KM initiatives, Siemens ICN adopted a different approach. Siemens ICN followed a demand-based approach to KM. Such an approach assumed that the mission of any knowledge related initiative is to enable users' action. Driven by such an approach, Siemens placed end-users, i.e. salespeople at the centre of the development process. Representatives of end-users were actively involved in all the development process, their needs were well studies, motivational initiatives were implemented to reward participation, and content was systematically maintained. These sorts of issues certainly find resonance in BenMoussa's (2009) framework; which underlined the need to adjust the current IT-supply driven approach of KM in such way that both the supply side and demand side of knowledge, i.e. individuals' needs will work in a synchronized way. In other words moving from "Possessing knowledge is power" to "using knowledge is power"! PharmaCorp's KM experience indeed demonstrate that knowledge management initiatives are prone to fail even when they are reasonably well resourced, if the approach, i.e. IT supply-driven adopted is not appropriate. On the other hand Simens case demonstrated that when both supply and demand of knowledge are synchronized, the outcome of the KM endeavours is likely to be positive.

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