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Knowledge Management efforts in Teams

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Finding a balance between teams and communities of practice in knowledge management

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This thesis contains no material which has been accepted for the award of any other degree or diploma in any university. To the best of the author's knowledge, it contains no material previously published or written by another person, except where due reference is made in the text.

Ronald Tebogo Keikotlhaile
11 June 2012

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Preface

There are many people who directly or otherwise contributed to this work. I would like to take this opportunity to thank them for their guidance, assistance and moral support. First, I would like to thank Anandasivakumar Ekambaram, Ph.D. I couldn't have done this without his help and patience. I can only hope that the final work is a true testament of his invaluable guidance. I would like to thank the following people; without whose help this research would not have been possible. Professor Ole Johnny Klakegg, Steinar Gynnild, Vigdis Espnes Landheim, Professor Tim Kristian Andreas Torvatn and Professor Bjørn Otto Elvenes. I would like to thank the case company that I used for writing this thesis. Their input in the project was invaluable. The people of the republic of Botswana deserve a special mention. Their continued financial support during the last two years is very much appreciated. Pula!!! Le kamoso bagaetsho.

A special acknowledgement goes out to the various scholars whose work was used in this document. I tried to the best of my abilities to accurately reflect their work and at the same time respect academic ethos on plagiarism. If in trying to avoid plagiarism I distorted or misrepresented their ideas, I sincerely apologise.

Last, I would like to thank the reader for taking their time and reading my work. I can only hope that it will be time well spent.

Abstract

The purpose of this study was to find the balance between teams and communities of practice in knowledge management. Lopez-Nicolas and Meroño-Cerdán (2009) among others, state that knowledge management is source of sustainable competitive advantage for firms. However McDermott and Wenger argue that to leverage knowledge, organisations need both teams and communities of practice. Communities of practices are informal, self-organising sub-organisational units where employees meet like minded people to discuss and exchange knowledge. Scholars argue that to create knowledge, especially tacit knowledge, communities of practice are more effective than teams. Therefore teams should be used for implementing knowledge while communities are to be used for creating knowledge. A case study company was used to investigate these issues. The case company is a project management consultancy company; the largest of its kind in the Scandinavia. The investigative methods employed were semi-structured interviews of the company employees, documents and website analysis and observation of the company culture. The organisation had just recently formally recognised communities of practice that exist within the company. The company supports communities of practice through encouraging social gatherings of employees, weekly discursive meetings and providing enabling technology for collaboration among employees that a spatially separated. Team managers can also spend up to 10% of their time in team development activities. Using Wenger (1998)'s typology on communities of teams, it was the conclusion of this study that the case company's communities of practice have recently transitioned from bootlegged to legitimised. It was also concluded that the existence of both teams and communities of practice in the company places it in a good position to develop into what McDermott terms a double-knit organisation.

Key words:

Communities of practice, Teams, Knowledge management, Learning, Practice, Innovation, Double-knit organisation

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1 Introduction and Motivation

In Japan, there is a Shinto shrine called the 'Ise Grand Shrine'. According to (Museum of the city 2012), this is an intricately designed complex of a number shrines, with two main shrines (Naiku, built in the 3rd century and Geku built in the fourth (4th) century) and 123 other lesser shrines. The site is famous because of its beautiful architecture and connection to the Japanese imperial family. Every 20 years the shrines at Naiku, Geku and Uji bridge are burned down to the ground and new ones built in a nearby spot. These are built to exact specifications of the previous one. So, every 20 years the shrine alternates between the eastern and the western spot, in a process called *shikine sengu* ; where *shikinen* means ' numbers of years' and *sengu* means 'transferring the shrine' (Nanri 2005). According to (Nanri 2005), this practise of razing down and rebuilding the shrine has been ongoing since 690 AD, when the first sengu took place.

One might wonder why the priests of these shrines would do something so counterintuitive and burn perfectly built and designed structures, especially the kind that the envy of many architecture scholars. The reason for this seemingly 'crazy' idea is twofold. First, it serves a religious purpose. There is a Shinto belief that by rebuilding and transferring their deity to a new place, their deity gains strength and new spirit. These are important for the protection of the nation. A second and more practical reason is that younger generations get to learn through practice new skills to built these shrines, have respect for Japanese culture and nature (Nanri 2005).

From the above we see the importance of learning through practice, where the older generation passes knowledge to the new generation in the process equipping them with the capacity to rebuild should the need arise.

This practice could also have more practical purposes for businesses and organisations. They would be employing people, who have had the culture of knowledge sharing ingrained in them as part of their culture. This knowledge sharing is important to the companies' value chain activities as shown below.

In a bid to improve their competitiveness, most organisations have embarked on knowledge management initiatives. Informed by research by academics such as Nonaka, Senge and

Sense, these organisations have focused on creating learning organisations. Their focus was on knowledge being transferred from one individual to others. The rationale being that information that resides in one person can be lost instantaneously: as soon as that person is lost to the company. Information shared on the other hand means that the organisation has memory. It can retain the knowledge even when the creator of that knowledge is long gone. The other bonus of sharing information has to do with limited cognitive capacity. In economics, there is a concept called *bounded rationality*, which holds that individuals are not capable of having perfect information on a subject; neither can they act perfectly on such perfect information because of their limited functions. With organisational learning, individuals do not have to remember everything. Instead of being a *jack of all trades*, the individual can only focus on what interests them or what they use the most. When they need information outside their area of knowledge, they could ask fellow employees.

To achieve organisational learning, organisations create sub groups, usually teams which work together. They encourage and hope that members of these teams can share knowledge, over and above achieving their primary objectives. However, in most instances knowledge sharing is a secondary goal; teams are formed for other purpose or objectives. But if teams are formed for other (usually more economical) purposes than to create and share knowledge, does this not compromise their knowledge management abilities? If they do, are there any other means of managing knowledge in an organisation? Writers such as Richard McDermott, Jane Lave and Ettiene Wenger seem to think so. In various articles, these researchers and many more have extolled the virtues of communities of practice with regards to knowledge creation and sharing. While they concede the value of teams, they also see some limitations with them. They propose that these limitations could be overcome by a less formal sub-organisation, like a community.

That is the purpose of this paper. To investigate effective organisational structures which encourage learning. Specifically, the paper wishes to focus on and compare two sub-organisations and their performance in terms of learning and knowledge management. Therefore the research question for this paper is :

Finding a balance between Teams and Communities of Practice in knowledge management.

Before looking more into this topic, I would first like to explain the key terms in the above research question. Actual definition of the terms, using literature sources will follow in the second chapter. The explanations in this chapter are to help the reader have a proper framing of the research question. Therefore, most of the information given is what I know and would not be citing any reliable sources. That part is left for the second chapter.

Teams: In this paper, teams will be defined as any organisational structures made up of group of individuals put together by the organisation to achieve a specific purpose or objective. Usually, but not always they have a leader or coordinator who is responsible for them. Teams are seen as a legitimate extension of the organisation. They are expected to be organised and structured around a particular purpose for the benefit of the organisation.

Communities of Practice (CoP): For the purpose of this research, communities of practice would be any informal interaction by a group of individuals with similar interests or topics. The purpose of the interaction would be the exchange of knowledge with like-minded people. The exchange of information could be in the form of gossip, forums or one-on-one contact. While teams are limited to their organisation, CoPs can go beyond organisational boundaries. Like any other community, membership in this regard is voluntary.

Knowledge Management: Knowledge management spans a wide area. While there is no universal definition of the term, there are some popular themes within organisational science community. Usually when academics talk of knowledge management, they talk of processes involved from the creation of knowledge to the transfer of knowledge. There are a lot of processes in between, including legitimisation, preservation and reintegration. However, for the purpose of this study, the focus will be on knowledge creation, knowledge externalisation and knowledge transfer. Most focus will be on knowledge transfer. The term knowledge transfer will be used interchangeably with knowledge sharing in this study. This is not always the case with organisational science. Some scholars use the terms interchangeably while others do not.

1.1 Assumptions and Limitation of Scope

Before proceeding with the research, it's important to place its limitation of scope and assumptions made with regards to this study. As has been stated above, knowledge management covers a wide area, with no consensus on the definition of the term. For the most part of this research it is assumed that the case company's interest is in creating knowledge and sharing it. While knowledge preservation systems will be talked about with

regards to the case company, they will be regarded as means to an end. Knowledge preservation will be treated as a necessary step between creating knowledge and sharing it. However it will not be directly discussed as a part of the company's knowledge management. This is because the nature of the study is more focused on other aspects of knowledge management, primarily knowledge transfer. Even when the study discusses about knowledge creation and knowledge transfer, they will not be primary focus of the study. They will be discussed with regard as to how the company hopes to achieve knowledge creation or knowledge transfer. Therefore the primary study here would be on the interrelations of the sub organisation and how it creates knowledge.

1.2 Technical Issues

In order to keep better track of my reference list, I used MS Word 2007's references system. Unfortunately, this presents a problem when it comes to citations.

When citing work in indirect speech, the citation in Harvard referencing system is given as follows:

Name of author (year of publication)

Example:

Roberts (2000) wrote that tacit knowledge is imbedded in social and cultural context.

Alternatively, in the case the citation is after a direct speech or at the end of an in-text citation, then both the name of the author and the year are inside parentheses separated by comma :

i.e. (Author, year)

e.g.

'Knowledge involves awareness and understanding gained through experience, familiarity and learning' (Roberts, 2000).

However, when using Word 2007's referencing system, the (automated) citations are always presented with both the author name and year in parentheses without a comma to separate the two. While this is not the proper Harvard referencing citation, this is how the application software has been programmed. I could have manually cited my sources and ensured that they are all done properly. However, this would have compromised part of my research

protocol. Using the Word referencing system ensured that I had an automated database of all my sources. I felt that this was more important in contributing to the quality of the project than the 'correct' citation described above.

Also, in one of the figures (Figure 7), the label of the caption is written above the figure (contrary to standard practice on figures). Since this figure was too big and given in landscape orientation it was not possible to place the caption label below.

Chapter Summary

In this chapter, I introduced the project. I started by introducing the motivation of the entire project. Then I proceeded to formulate a research question and explaining keywords for the research question. I then stated the limitations of the scope of the project. In the next chapter I will present the literature based theory background for the project.

2 Theory and Background

Chapter Introduction

In chapter two, I will start by defining key background issues. In section 2.1 this will be knowledge management. I will define the terms ‘knowledge’ and ‘knowledge management’ using literature. Then I will introduce Teams, Communities of Practice and Double-Knit Organisations in sections 2.2, 2.3 and 2.4. In Sub-chapter 2.5, I will compare communities of practice and Teams before concluding by showing in 2.6 how organisations can support communities of practice. These are summarised in the table below.

Table 1: Mapping of theory to the research question

Chapter Section	Heading	Key areas related to Research question
2.1	Knowledge Management	Learning, Knowledge
2.2	Teams	Teams, Organisational units
2.3	Communities of practice (CoP)	Communities of practice, organisational units
2.4	Double-knit organisation	CoPs, Teams, Learning
2.5	CoPs vs Teams	Teams, CoPs, Knowledge management
2.6	Building and supporting CoPs	CoPs, Learning

The above table gives a map on how the topics in this chapter are arranged. The first column gives the section number, with the second column corresponding to that section’s title. The last column gives the key words from the research question, which are addressed in the said section.

2.1 Knowledge Management

2.1.1 Knowledge

When talking about knowledge management, it’s important to first understand what knowledge itself is.

(Roberts 2000) states that knowledge should be differentiated from information and data. She describes data as building blocks for information. Data is a code which is meaningless to the average person. To understand it, it has to be decoded. This is done by putting it into an understandable pattern. This pattern is information. However, although one can interpret the new form (information) , it’s still not enough. There is a higher level, knowledge. Knowledge is different from information in that it can be exploited. She describes knowledge as the *‘application and productive use of information’*. (Roberts 2000) further states that knowledge involves :

'awareness and understanding gained through experience, familiarity and learning'.

Therefore we can infer from the above that while data is the crudest form, knowledge is the highest form of learning. When people learn and become familiar through experience they gain knowledge.

A number of scholars have also realised that not all knowledge is the same. How knowledge can be stored and transmitted differs depending on its typology. Michael Polanyi differentiated between personal and external knowledge. Personal knowledge can be classified as *tacit* or *implicit knowledge*. Alternatively, external knowledge is classified as *explicit* or *codified knowledge*.

Stephen Gourlay (2002) was cited by (Irick 2007) as defining *tacit knowledge* to be

'...a form of knowledge that is highly personal and context specific and deeply rooted in individual experiences, ideas, values and emotions'

(Irick 2007) cites French philosopher Phillippe Baumard as having done the most extensive work on treatment of tacit work. Baumard, according to Irick noted that :

'tacit is important because expertise rests on it, and because it is the source of competitive advantage, as well as being critical to daily management activities'.

(Roberts 2000) argues that tacit is imbedded in social and cultural context. She furthers this argument by citing Antonelli (1999) when she states that knowledge is localised in tacit processes, with technological knowledge tending to be localised in well-defined technical, institutional, regional and industrial situations. She considers it to be:

'...specific to each industry, region, firm and individual or team of individuals and consequently costly to use elsewhere'.

Roberts' statement about tacit knowledge is consistent with what (Irick 2007) had stated above. If tacit knowledge can only work in specific environments and with specific *teams or organisations*, then it stands to reason that it provides competitive advantage. It cannot be simply copied by competitors and replicated on their environments. Whatever advantages it gives to an organisation through its peculiarities will be specific only to that environment.

What about explicit knowledge?

Codified knowledge is one which can be expressed, stored or transmitted in symbols or codes. It can also be embodied in tangible forms (like machinery or tools). As stated above, Polanyi classified external knowledge as *explicit knowledge*. It is intuitive from terms such as *explicit* and *codified* for the reader to realise that unlike its *tacit* counterpart, *explicit* knowledge is not specific to one locale, team or individual. It is the opposite of tacit knowledge. It can be thought of as ‘communal’ knowledge. Explicit knowledge can be easily transferred between individuals, hence the term ‘explicit’.

According to Cowan and Fray (1997) through (Roberts 2000) , codified knowledge is easier to diffuse by the recipients if they can read the transmitter’s codes. Roberts (2000) goes on to say that codified knowledge can be transmitted at minimal costs and can easily replicated across individuals and organisations.

From the above, therefore, organisations would like to keep the knowledge that gives them competitive edge in tacit form, specific to their organisational environment. On the other hand they would like any other knowledge to be in codified form. This interplay between explicit and tacit knowledge is a critical factor to organisational learning according to Irick (2007). He suggests that a key challenge in organisational science has been whether tacit knowledge can be managed and if so, how.

But it is not only tacit knowledge that needs to be managed. Even though, *prima facie*, explicit knowledge does not give a company competitive advantage, it is just as central to its value chain activities. Explicit knowledge is used to tell new employees how to conduct themselves, to communicate changes within the organisation and in general provide a supporting role to tacit knowledge.

Therefore, the major focus for this study is to look at issues concerned with knowledge management, encompassing both tacit and explicit knowledge.

Now that we have an idea of knowledge, we can talk about knowledge management.

2.1.2 Knowledge Management (KM)

(Lopez-Nicolas and Meroño-Cerdán 2009) citing Zack (1999) state that knowledge, especially tacit knowledge, is the fundamental basis of competition. This is because it is unique, imperfectly mobile, imperfectly imitable and non-substitutable.

But we have already heard this argument above. What makes theirs different? Because they write that the mere processing of information is not enough. It is not what gives an organisation the advantage. Instead they propose that strategic advantage can only be obtained through **management** of this knowledge. They suggest that:

‘In the current environment, firms that create new knowledge and apply it effectively and efficiently will be successful at creating competitive advantages’.

They further argue that the strategic choices addressing knowledge creation and knowledge exploitation define an organisation’s KM strategy. The reader should note that in the above line, Lopez-Nicolas and Meroño-Cerdán use processes found in knowledge management (in for example knowledge creation and knowledge transfer) as a definition of ‘knowledge management’ itself. This is a very common phenomenon in organisational science literature.

Since there is no universal definition on the term ‘knowledge management’, most ‘definitions’ are simply stating the processes which the author or researcher believe to be fundamental to knowledge management.

This structuring of knowledge management therefore could differ among researchers. For example, (Ferrán-Urdaneta 1999) compares different researcher’s knowledge management structures. He states that Myers(1996) divides the processes into *knowledge acquisition*, *knowledge codification* and *knowledge transfer*. Ruggles (1997) ,according to the same author, divides the structures into *knowledge generation*, *codification*, *transfer*, and *implementation*. Jordan and Jones (1997) on the other hand study the processes of acquiring (*creation*), retaining (*storing*) and *sharing* knowledge.

The SECI Method

The SECI model stands for Socialisation, Externalisation, Combination and internalisation. Below I describe the processes involved in this form of knowledge development.

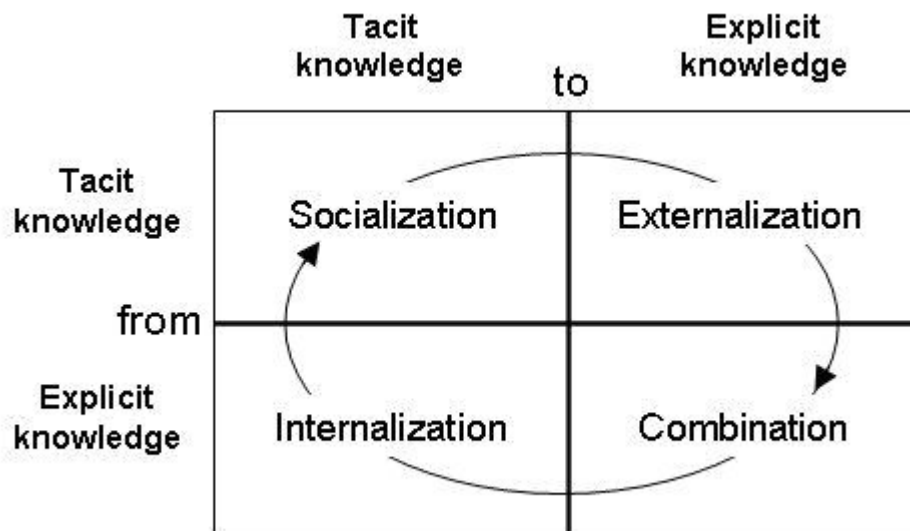


Figure 1 : SECI Model (Nonaka and Takeuchi 1995)

One of the most referenced researchers in the field of knowledge management is Nonaka. As (Ferrán-Urdaneta 1999) notes, over and above classifying information into tacit and explicit, Nonaka believes that :

‘knowledge is created in the continuous conversion, back and forth, between tacit and explicit’.

Nonaka’s SECI classification of knowledge processes is a commonly used method among scholars. The classification talks of knowledge being divided into four processes (Socialisation, Externalisation, Combination and Internalisation) happening in a completed circular fashion as shown in Figure 1 above. One process always leads to another, with information alternating between tacit and explicit steps.

Based on Nonaka’s view that knowledge exists only in people’s understanding, Ferrán-Urdaneta (1999) infers that Nonaka seems to conclude that

‘the more the individuals believe to have the same knowledge, the larger is the knowledge base of the group’.

An opinion that apparently is share by Quinn (1992).

The last paragraph on Nonaka and Quinn’s view on knowledge shows the importance of group setting to knowledge. Many organisations have understood this importance and tried to

organise in a manner that maximises group knowledge exploitation. Therefore, knowledge management in groups is the central theme of this thesis. Below we describe some of the characteristics of these sub-organisational units.

2.2 Teams

While the term 'team' has penetrated everyday use, there are many meanings for it. One of these meanings according to (Ferrán-Urdaneta 1999) is from Katzenbach and Smith (1993). They defined a team as :

'a small number of people with complementary skills who are committed to a common purpose, performance goals and approach for which they hold themselves mutually accountable'

Alternatively, Ferrán-Urdaneta gives Dryer's 1987 definition of teams as

'Collections of people who must rely on group collaboration if each member is to experience the optimum of success and goals achievement'

(Ferrán-Urdaneta 1999) himself defines a team as :

'a small group of perfectly identifiable individuals committed to a common, clear, measurable short-term goal that requires their interdependent effort for which they hold themselves mutually accountable and who get together for a finite amount of time'

From the definitions above we can see that teams are a limited number of people working together and that they are goal/objective focused. The common theme about teams, from these definitions is their insistence on members being goal-oriented. (Ferrán-Urdaneta 1999) also writes the following characteristics about teams:

- The goal must be clear, measurable and accomplishable. He states that general objectives should not be confused with goals, which by definition should be measurable and attainable. This thinking is consistent with project management theory on goals. In project management goals are expected to be SMART; based on Doran's 1981 paper in Management Review volume 70, issue 11. Goals are supposed to be *Specific, Measurable, Attainable, Relevant* and *Timely*. Lewis (1993) through (Ferrán-Urdaneta 1999) believes that a group of people without measurable and accomplishable goals are not a team.

- Teams can pursue new goals if they have terminated or discarded one set of goals before they start on new goals. Ferrán-Urdaneta (1999) argues that while teams can go on to pursue new goals, they should first resolve current goals. Team members should all come together and agree on whether a goal was accomplished or not, before it is relinquished.
- Common goals. While each team member might have their own reason for joining the team, it is argued that the goal of the team should be same and properly understood by all. Such understanding is stated to help in building team trust, which in turn has effect on coordination effectiveness.
- Team membership is fairly stable. While team members come and go, especially as new members are added or old ones leave, Ferrán-Urdaneta (1999) writes that in general team membership is fairly stable. He goes on to argue that frequent change in team membership composition negatively affects coordination and trust within the team.
- Teams have the right priorities. While the purpose of the team is to achieve goals and members should be able to keep working together in new teams once old ones are disbanded, Ferrán-Urdaneta (1999) writes that :

‘ the accomplishment of the goal should not be subordinated to the survival of the team as form of association among those individuals ’.

To continue with the definitions, I present one of the primary sources for this paper (McDermott)’s own definitions of teams.

Teams are regarded as the building blocks of the organisation for many companies (McDermott 1999). According to McDermott, instead of functional departments, companies are using team-based structures for key organisational outputs (which become the responsibility of teams). This approach is bound to enhance the dependence of team members on each other, complimenting one another’s abilities. Citing Katzenbach and Smith (1993) he states that

‘they can even be sub-products or elements of the organisation’s ‘value-chain’’.

Teams take on different forms depending on the organisation's value chain activities. While in manufacturing, teams of multi-skilled operators build whole products or major components of major product they approach is slightly different in the service industry (McDermott 1999). Here, a team is made up of individuals with multi-faceted background whose purpose is to provide a full range of services to clients.

McDermott defines a team as

'a group of people with a common goal, interdependent work, and joint accountability for results'.

In team-based organisations, it is important that teams represent all the knowledge and skills necessary to produce the company's goods or services, in which they trade. McDermott believes that their business directives, common goals and joint accountability bind them into a cohesive unit. This view is shared by (Hellriegel, Slocum Jr and Woodman 1998) who state that

'work team and individual goals need not conflict, and, in fact, usually are compatible'.

They define team goals as those goals desirable for the team or group as whole and not just individuals. They further suggest that teams can be bound together through the use of *super ordinate* goals. These are idealistic goals that might not be easily achieved without interaction and cooperation. They are made for the purpose of encouraging collaboration among team members.

2.2.1.1 Advantages of Team

Hand-off Reduction: Other than increasing cohesiveness, (McDermott 1999) believes that teams reduce hand-offs. He believes that *colocation* of team members and having shared common goals makes it easier for team members to share information and thinking. Previously, in old functional departments some of this information would fall into what he termed *white space*.

In the old functional department organisation, each function conducted activities within their hierarchy. Then the finished components or systems are passed on to the next department to perform their own part. This encouraged tunnel vision among the employees. Very rarely was there communication between the members of different departments. Instead communication

is hierarchical and only heads of department communicated. Hence, a lot of *white space* existed.

The above argument has support in modern organisational science literature. For example, (Ferrán-Urdaneta 1999) citing Dyer (1987) and Hackman (1990) writes that '*synergy is an important reason for creating a team*'. He continues to write that where extra manpower is needed, any group of individuals can undertake the job. He emphasises that teams, are differentiated in the sense that they are groups that '*have synergy*'. Ferrán-Urdaneta also cites Katzenbach and Smith(1993) who state that only effective groups are teams. Here '*complementarity*' and smooth function are emphasised.

Vehicles for learning: McDermott (1999) advises that teams are good vehicles for learning. As he argues, '*to learn people need both time to reflect and safe environment*'. A safe environment is created when people are with those people that they feel they have rapport with and trust. This fosters an environment where they can share their ideas. As he goes on to write,

'When they take time to collectively reflect on their experience, they can build on each other's ideas, deepen the richness of their thinking and insights.'

The thinking that teams may aid in learning is consistent with literature. Most scholars argue that learning is a social process (Wenger, 1998; Brown and Duguid, 1991; Roberts, 2000). Therefore, if as has already been stated team members spend a lot of time together and work on common goals (hence forcing them to interact with each other more than other work colleagues), then they are bound to learn more from each other.

Also, as Brown and Duguid (1991) stated, team members (or at least work colleagues) can create new knowledge when they talk to each other and find newer interpretation of the existing information. This is consistent with Nonaka's SECI model where colleagues socialise, leading to externalisation of information from one to the other. The recipient of knowledge can also combine this information with their pre-existing knowledge to create new knowledge (internalised) which can later be communicated (externalised) to others.

2.2.1.2 Limitations of Teams

While appreciating the value of teams, McDermott (1999) has also cautioned that there are drawbacks associated with teams.

Teams as silos: The first problem associated with teams is that of their becoming silos. The general complaint from team based companies, according to (McDermott 1999) is that it is difficult to maintain inter-team relationships. Members of one team find it hard to access information from other teams. They find out too late about work done by their peers from other teams. This leads to a lot of unnecessary reinvention of the wheel, with members doing the work that has already been done before by other people in their discipline but assigned to different teams. (McDermott 1999) suggests that the very things that make teams successful (common goals and shared focus) may lead to learning disabilities : isolation and team myopia.

Team Isolation: Jacobean metaphysical poet, John Donne, wrote that '*No man is an island, entire of itself; He is a part...of the main*'. Teams, particularly cross-functional ones seem to ignore this piece of wisdom. (McDermott 1999) gives an example of PepsiCo international expansion, where teams were created and charged with building business in Eastern Europe, Russia, the Middle East and the Pacific Rim. These teams did not share experiences, ideas and insights with teams in other regions. The end result was that teams tended to repeat the mistakes made by their colleagues elsewhere. They effectively wasted resources doing what had already been done, trying out methods that had been proven not to work elsewhere. Had there been a means to communicate and transfer of gained knowledge, the process might have been faster and easier. McDermott attributes this isolation to the nature of team structures. The workers, even if they know that keeping in contact with colleagues and exchanging ideas is useful are often focused on team goals. This pulls them away from cross-team learning practices. As he notes, '*they simply cannot find the time to do so*'.

Team Myopia: As a result of team isolation, the team can develop myopia. McDermott states that when teams are isolated for extended periods of time, they can get into the habit of rejecting ideas from outside. Leonard-Barton (1997) and deBono (1973) through (McDermott 1999) state that new ideas come about through intersection of disciplines, perspectives and ways of thinking. An effective team would eventually find a rhythm that works for it. Different members will tend to identify and defer to each other on certain areas of expertise. But if the 'expert' is never challenged, then how can he create new ideas? This is likely to lead to path dependence approach to all problems. McDermott goes on to state that:

'Teams' most creative ideas often come when they see how people in other companies or industries perform similar processes'.

(Porter 1998) supports this idea. In his argument as to why clusters work as means of providing competitive advantage he writes that :

'Reinforcing the other advantages for innovation is the sheer pressure- competitive pressure, peer pressure, constant comparison- that occurs in a cluster'.

If teams do not get to compare themselves with others, feel that pressure, then it stands to reason that they are less likely to be innovative. In other words, learning might be reduced in this environment.

Also, losing touch with colleagues from their own disciplines means that team members do not keep abreast with developments in the industry (McDermott 1999). They miss on the opportunity to do things in better, improved and effective ways; simply because they are not aware of the new developments.

Limited Long-term Capacity Building: As has been noted from above, teams are formed for a purpose. Even their effectiveness is measured through their cohesion in performance for this goal. The most common of such measure of effectiveness or development of the team is Tuckman's four (later five) stages of development. The penultimate stage is what (Tuckman 1965) calls the performing stage. He describes that when teams reach this stage:

'...interpersonal structure becomes the tool of task activities. Roles become flexible and functional, and group energy is channelled into the task. Structural issues have been resolved, and structure can now become supportive of task performance'.

From the above, the reader might notice the emphasis of task or goal attainment as the measure of an effective team. While this almost singular focus on task has its benefits, its major fault is that it does not leave much room for visionary thinking beyond the current team setup.

(McDermott 1999) advises that organisations need to find the balance between short-term production goals and long-term capacity building. This is a sound advice. It wouldn't do for an organisation to be operationally and tactically capable and yet in the end lose the strategic advantage by not developing their employees' capacity. If individual performance is

measured on the basis of their meeting set goals (as part of a team), and less on how much knowledge they have shared and gained in a given period, then they are less likely to learn.

It is hard to imagine an employee giving up their time to learn or share with others when they haven't completed their team tasks. The very setup that encourages team members to be responsible for each other means that such a team member wouldn't want to let down their colleagues by not completing their set activities; even if the reason for that is something equally as important as learning. Therefore in any conflict between current projects and learning, current projects are likely to be favoured by the individual. To drive this point home, let us consider the state below by McDermott (1999):

‘On an individual level, it is the tension between focusing on current projects and taking time to develop and share knowledge....Because teams are typically tasked with output goals...they tend to pull people toward production side of the tension. They tend not to see the value of building capacity beyond their team’.

(Cameron and Quinn 1999) built upon the earlier work by Quinn & Rohrbaugh (1983) to develop the Competing Values Framework (CVF) for Organisational Culture (OC). The framework classified organisational behaviour into: **Clan**, **Adhocracy**, **Hierarchy** and **Market** oriented organisations.

It is not the purpose of this paper to discuss the above framework. However, lessons could be learned from it, particularly the *Clan* culture. Team based organisations develop, among the different teams, behaviour that mimics a clan culture. In this behaviour, members of the different teams owe a form of loyalty and familial relationship to one another. They act in the interest of the group. We have already seen this characteristic when defining the term *team*. We talked of ‘*mutual accountability*’, as a key element of a team. It can manifest itself as a clan culture.

This clan culture emphasises collaboration (and teamwork). (Hendriks 2004) writes that the value systems here are allegiance, socialisation and solidarity among others. He classifies it as closed, people-oriented culture. And therein lies the problem. As he states, while people are encouraged to share with their team members they can be hostile towards what they deem as ‘outsider’. This is the Achilles’ heel of team based organisation. Information created becomes institutionalised. They are ready to share with one another. But if teams are allowed

to stay together for extended period, they tend to be inward looking. It will be hard for them to share their knowledge with 'outsiders'. This will effectively create islands of information, which will be far less effective than if they formed one flowing stream of knowledge among teams.

There is an English adage taken from the bible that '*no one can serve two masters at the same time*'.

Team members cannot be expected to give adequate attention to the two masters that are: (short term) team goals and (long term) capacity building objectives. This is especially so when one of the masters (team goals) appears to the individual to be stronger than the other. As long as teams do not consider it in their best interest to develop its members and as long as those members are evaluated, individually, on the achievements of teams, innovation and learning will not be prioritised nor occur at desirable rate.

One other problem with team based companies is that of communication. As already stated most communication in functional teams occurs in a vertical (hierarchical) manner. Therefore '*request for information*' initiated at operations (shop floor) level from one team to another will result in distorted communication.

There is children's game where participants sit next to each other, forming either a circle or a straight line. One person from the end of the line whispers something to the person next to them. The recipient of this information has to relay it to the person next to them (usually from left to right). Then when the last person has received the information they have to say it out loud to the group. The result is usually distortion of what was originally said by the first person. This demonstrates that as information is passed through different relaying points, it is likely to deviate from what was originally said. In the process the intended message and integrity of communication is lost. While this is the point of the children's game: a comical way of showing how fallible humans are at receiving and transmitting information, the results can be catastrophic for a business organisation.

Setting up a team based organisation where the people who have to work with information from other departments (i.e shop floor workers) have to communicate through an intermediary (functional heads/ team leaders) is akin to the *Chinese whisper* game described above. Only the stakes are higher. Like the *Chinese whisper*, information that is passed in

hierarchical manner from one functional manager to another, before being passed off to floor staff is liable to be distorted.

In their paper, (Zárraga and García-Falcón 2003) ask the question ‘*Is organising the company around work teams enough to achieve organisational knowledge?*’. Their answer is that ‘*evidently not*’. Based on the previous sections on teams, I am inclined to agree.

But if teams are not sufficient (regardless of their benefits stated above) then what can an organisation do to achieve knowledge without losing the benefits of a team set up?

(Brown and Duguid 1991) believe that the answer to the preceding question lies in understanding the interplay among *working*, *learning* and *innovation*. They state that generally work practice is ‘*viewed as conservative and resistant to change*’. Learning on the other hand is generally viewed as ‘*distinct from working and problematic in the face of change*’. Last, innovation is generally seen as ‘*disruptive but necessary imposition of change on the other two*’. They argue that it would require a conceptual shift to see and regard the three as interrelated. This is because of the gulf that lies between precepts and practice. This gulf is essentially responsible for the oppositions perceived about the three : work, learning and innovation.

This gulf is caused by the abstraction of work and learning from practice. Formal procedure and descriptions of work and learning are short on details. They argue that unfortunately such abstractions from practice ‘*distort or obscure intricacies of that practice*’. It seems from their standpoint that consequences for such distortions are dire. As they put it,

‘*Without a clear understanding of those intricacies and the role they play, the practice itself cannot be well understood, engendered (through training), or enhanced (through innovation).*’

This distortion seems to be caused by the gap that exists between what they call *canonical practice* (one that is formal and espoused by the organisation and found in its manuals and work procedures) and *noncanonical practice* (the one that the employees actually do in the field). Usually *noncanonical practice* involves workarounds and improvisation by the workers to close the gap between what they have learnt formally and the problems as they appear in practice.

(Wenger 1998) agrees with the sentiments expressed by Brown and Duguid (1999) above. He writes that while knowledge is recognised as a source of competitive advantage in the business world, there is still little understanding on how to leverage or create it in practise. He argues that while traditionally knowledge management practice has focused on the use of formal systems to capture knowledge, such as databases, these are inadequate. He argues that:

‘...systematically addressing the kind of dynamic ‘knowing’ that makes a difference in practice requires the participation of people who are fully engaged in the process of creating, refining, communicating, and using knowledge’.

He points out that while it is always argued that people are an organisation’s most important resource, seldom is this statement understood *‘in terms of the communities through which the individuals develop and share the capacity to create and use knowledge’.*

And that is the proposed solution by both Wenger and the pair of Brown and Duguid. They believe that the communities through which individuals carry out their duties and interact on a more regular basis provide the solution to the problems enunciated above; to wit, learning in teams and the gap that exists between formal systems knowledge and that reside in people. To buttress this point, (Wenger 1998) points out that even people who work in large organisations learn more from people with whom they have regular interaction, in specific environments.

This solution to learning problems is *‘Communities of Practice’*, a term coined by Wenger himself.

2.3 Communities of Practice (CoP)

In all probability the reader already knows what a community is. Almost every human being belongs to one form of community. These communities range from something as basic as belonging to an organisation promoting the African culture, Norwegian students group or even being a member of an engineers’ society, a member of a football team fan base. In most cases, people belong to various communities concurrently with varying degrees of commitment to these communities. However, to ensure that we are in the same page, a formal definition will be given. Then this will be expanded to defining communities of practice.

Based on Hilman (1990) and Schnore (1973), (Ferrán-Urdaneta 1999) defines community as

‘...generally... a large group of people who are collocated and that satisfy the safety, welfare, and social needs of its members’.

But with advances in technology and transportation systems, the above definition excludes a large part of groups that would qualify as communities, had it not been for the restrictive requirement on collocation. Which is why Markus (1990) via (Ferrán-Urdaneta 1999) defines a community as :

‘... a group of individuals who communicate more within than across the boundaries of the group and share common interest’.

But even this definition would not be adequate. What about minorities in any society? They are generally recognised as a community. In Norway, for example, there is a community of homosexuals, deaf people have their own community, and most immigrants form their own communities. Does that mean an individual who belongs to any of these (or indeed any other community) necessarily communicates more with people in their own community? The writer would beg to differ with this suggestion. Therefore I propose that we should define a community as:

a group of people with a shared and distinct identity and generally derive social needs and welfare from active participation in the group.

This definition recognises that some people might be identified as belonging to a community, even though they do not do anything on their part to claim that membership or benefit from it.

Such communities also exist as part of organisations, where people with similar interests interact and engage each other in areas of mutual interests. Etienne Wenger and Jane Lave term these particular communities as *‘Communities of Practice’*.

In this context, the definition used would be taken from (Ferrán-Urdaneta 1999) when he states that an organisation’s *community of practice* is:

‘A long-lasting group, composed of a large number of people with common recognised objectives that satisfy some of their individual needs, with low coordination but with many weak ties among members, where no member is critical for the survival of the group or the accomplishment of the common objective’.

Wenger (1998) also writes that

‘...members of community are informally bound by what they do together...and by what they have learned through their mutual engagement in these activities’.

He states that a *community of practice* is therefore differentiated from a community of interest or a geographical community. In a *community of practice* he identifies three dimensions that define it. These are:

Joint Enterprise: That is what the community is all about. It is what is understood and continually negotiated by the members.

Mutual Engagement: The way that a community functions binds its members together into a community or social entity.

Shared repertoire: These are the capabilities the community has produced and the resources that it shares among members. Example of the communal resources could be routines, sensibilities, artefacts and style. These are developed over time by the members.

Not unlike teams, communities of practice also undergo stages of development as shown below:

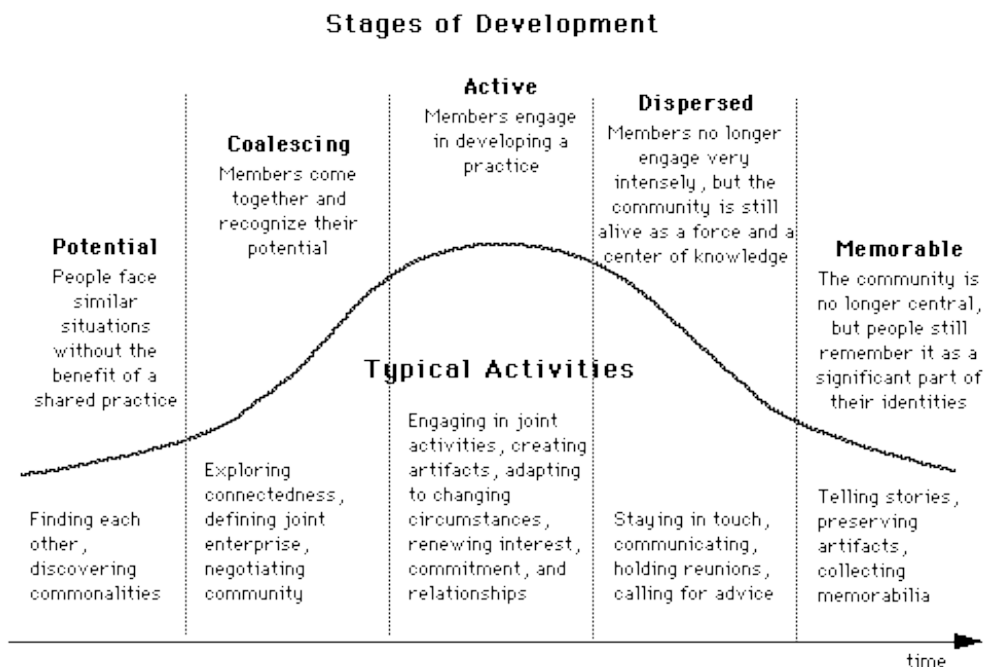


Figure 2 : Communities of Practice development stages (Wenger, 1998)

The above figure shows the ‘curve’ of communities’ development. First communities start with nothing more than potential and shared common interest. Then they come together, before peaking at a point when they are most active as a community. Gradually members stop participating as much before finally entering the memorable stage when the community no longer occupies the central point of its members’ life. Yet even at this stage, the knowledge and experience gained from the community stays with them.

Communities of practice are driven by their members’ value of belonging to such a group. As Wenger (1998) notes communities ‘*develop around things that matter to people*’. As such they reflect what is considered important by the members. Sometimes communities have to act at the behest or influence of external parties or mandate. Wenger argues that even when it does this, it is the community not the mandate that produces the practice. This is yet another demonstration that communities of practice are self-organising systems (Wenger, 1998).

Ferrán-Urdaneta (1999) supports Wenger’s assertion that communities of practice are self-organising. He states that they are emergent organisations. He writes that ‘*In the management literature, communities are described as emergent and thus could not be created*’. But he also concedes that managers can create conditions conducive for communities to be formed. He continues by stating that a community will only appear if members feel some attachment or need for it. This resonates with Wenger’s proposition that communities are based on the value that members place on the topics of interest that are pursued by the community.

But how does a manager or a parent organisation create conducive conditions?

Ferrán-Urdaneta believes that in order to build for example, an urban community not only should one build the living quarters but also promote conditions that will encourage people to move there. On the other hand if it is the electronic community that one needs to build, then one has to ‘*facilitate the infrastructure and provide agglutinating theme to a critical mass of prospective members*’. For large corporations he suggests that managers can encourage communities of practice emergence by ‘*facilitating and even promoting interactions among its potential members*’.

We conclude this section by taking a look at one of the recommendations of (Wenger 2004) , showing how communities of practice can be helpful to an organisation’s learning.

(Wenger 2004) writes that in order to integrate communities of practice into knowledge strategy, three fundamental elements must be understood:

Domain: the area of knowledge that brings the community together, gives it its identity, and defines the key issues that members need to address. A community of practice is not just a personal network: it is about something. Its identity is defined not just by a task, as it would be for a team, but by an "area" of knowledge that needs to be explored and developed.

Community: the group of people for whom the domain is relevant, the quality of the relationships among members, and the definition of the boundary between the inside and the outside. A community of practice is not just a Web site or a library; it involves people who interact and who develop relationships that enable them to address problems and share knowledge.

Practice: the body of knowledge, methods, tools, stories, cases, documents, which members share and develop together. A community of practice is not merely a community of interest. It brings together practitioners who are involved in doing something. Over time, they accumulate practical knowledge in their domain, which makes a difference to their ability to act individually and collectively.



Figure 3 : Knowledge Management as a Doughnut (Wenger, 2004)

From Figure 3 above, (Wenger 2004) demonstrates how an organisation could use communities of practice to shape its knowledge strategy. A well developed strategy based on an organisation's practices leads to more learning within the organisation. This learning, once shared can help steward the organisation to higher performance. As the organisation's members get to use knowledge, they develop areas with which they identify and define issues they need to address (domains). This leads to communities which are defined by domains, and finally practice.

2.3.1 The value and benefits of Communities of Practice

2.3.1.1 Learning

(McDermott 1999) writes that a community of practice ‘...*shares knowledge, learns together, and creates common practices*’. He proceeds to state that community members frequently help each other to solve problems, giving advice and developing new approaches or tools for their field.

Therefore members of a community can foster knowledge transfer within the group. This also helps in new knowledge creation. As we have already talked about Nonaka’s SECI method, knowledge creation is a circular process. People use knowledge learned (inevitably from others) to create new knowledge.

(Brown and Duguid 1991) talk about another important element of learning in communities of practice. This is *antiphonal recitation*. As we have already seen, based on Brown and Duguid’s work, there exists a gap between *canonical* practice and *noncanonical* practice. More often than not, formal systems which contain information on how carry out a job (*canonical*) are inadequate compared to the problems as they exist in the real world. Therefore, the practitioners (in this example, service technicians) have to make up for the difference. They have to improvise.

Now and then the practitioners come across a problem they have never encountered before. Their improvisation and knowledge base prove not enough. Then they have to contact their colleagues and ask for help. If the colleagues have encountered the problems before, then they would talk them through the steps of resolving the problem.

But sometimes this problem is so unique that even the other colleagues have never come across it before. Instead of just giving up, usually the two (or more) colleagues get together and start from the beginning. They tell stories of how they (or someone they knew) once encountered a similar problem. Then they start telling each other how they went about solving *that particular* problem. As the story unfolds others add their bits, on how they remember the events (usually contradicting, clarifying or just reminding the speaker). In essence, they take turns to tell different versions of the same story. Orr (1987) through (Brown and Duguid 1991) writes :

‘They are talking about personal encounters with the same problem, but the two versions are significantly different’.

What comes from this story-telling is new knowledge. The practitioners feel each other's memory gaps and white space. In the end this leads to finding new ways (by means of combining individual solutions) of solving the problem that initially was 'unsolvable' to them.

This practice of story-telling, taking turns to tell different versions of the same story is what Orr calls *antiphonal recitation*. Brown and Duguid recognise it as one of the ways communities of practice add to learning and knowledge management.

As they conclude,

'Such stories are passed around, becoming part of the repertoire available to all...'

2.3.1.2 *Mentorship*

Communities of practice are characterised by knowledgeable members who contribute to the growth and knowledge of the organisation. While all members are free and often encouraged to contribute, there are those members who by virtue of their knowledge and interest form what McDermott (1999) calls a '*core group of high contributors*'.

On the other end of the scale, there are those members who contribute very little. Most of the time they consume knowledge and information created and exchanged by the *high contributors*. These free riders are common and expected in communities. They are commonly called '*lurkers*', based on Wenger's definition in his seminal work on communities of practice. In fact, unlike in teams where members might be asked to '*pull their own weight*', as long as *lurkers* do not act against the collective they are not considered detrimental to the group (Ferrán-Urdaneta 1999).

(McDermott 1999) discovered in his research that there is pattern or reason to lurking. In his study he discovered that a majority of them had less than two years of experience. In fact they were using the community to learn about their fields, by means of '*listening to world-class experts discuss leading-edge problems*'.

Therefore, from the above we can see that new members use their formative years to learn from the feet of the masters. This is an informal and yet effective form of mentorship.

(Ferrán-Urdaneta 1999) himself writes that there is a need (within the community) to '*take care of their young*' and '*socialise the new members*' '. He continues to state that many

members work on finding a replacement for when they leave or die, essentially identifying protégés among the younger members.

Therefore, I posit that mentorship remains one of the major benefits of communities of practice. Because of its need for existence beyond the current members, the set up is best placed to provide continuity within an organisation. As old members pass their community's practice to new members, they also pass knowledge and ensure that any knowledge learnt or created in the past is carried into the future generations.

2.3.1.3 Organisational Memory

As has already been stated in the first chapter, human beings have limited cognitive capacity to store and process information (bounded rationality). Therefore, it is not in the best interest of any organisation to have all their knowledge reside in one person, even if that person created the knowledge. This is why communities of practice are important in the organisational learning. Instead of one individual knowing everything, knowledge is shared. Members of the community know that if they need a part of knowledge which they do not possess, they can access it in the community, from other members. This also ensures that the community has organisational memory. As has been stated above, in communities members ensure that there is always some sort of 'succession plan'. They groom newer members to take from them. So, even when they leave the community retains the knowledge.

2.3.2 Relationship of the community to the official organisation

Wenger developed a framework of nomenclature that classifies communities according to their relationship to the official organisation. In Table 2 below, I reproduce the framework. Then I will give a brief explanation of some of these communities:

Table 2 : Nomenclature of Communities of Practice (Wenger 1998)

Relationship	Definition	Challenges typical of the relationship
<i>Unrecognised</i>	Invisible to the organisation and sometimes even to members themselves	Lack of reflexivity, awareness of value and limitations
<i>Bootlegged</i>	Only visible informally to a circle of people in the know	Getting resources, having an impact, keeping hidden
<i>Legitimised</i>	Officially sanctioned as a valuable entity	Scrutiny, over-management, new demands
<i>Strategic</i>	Widely recognised as central to the organisation's success	Short-term pressures, blindness of success, smugness, elitism, exclusion
<i>Transformative</i>	Capable of redefining its environment and the direction of the organisation	Relating to the rest of the organisation, acceptance, managing boundaries

Unrecognised CoPs: Here, the community cannot benefit from exposure to different ideas. Such ideas would help it develop and create new knowledge. It can only happen when they can reflect on each other's ideas. But if it is unknown to a majority of people even its members, how will they identify the high contributors among themselves? How will the lurkers (who for all intents and purposes are diamonds in the rough) get to know about the ideas from the high contributors? A failure to have this interaction will not only affect the community's growth in numbers, but also fail to develop potential members in the mentorship manner already described in page 27. It is not easy for the community to properly define that for which it stands. If it is unchecked, it is my opinion that an unrecognised organisation can end up developing into an '*institutionalised*' group where ideas from outsiders are rejected.

Legitimised: While these organisations might enjoy the endorsement of their parent organisation, they have to be wary of interference from the same organisation. Management is unlikely to be content with just recognising them. As Wenger states, they are likely to experience interference from management. This could have several consequences. First, we

have to remember that membership to community is voluntary and based on the value that the members feel they can get from joining or participating. If management gets too involved, most members might stop participating. Or worse still, management might turn the community into a *pseudo team*, where they set goals and objectives for the community and try to control the direction of their discussions and interactions. This should be avoided at all cost. The management should resist the urge to control what knowledge the community produces. Instead, they should try to exploit any and all knowledge that the community (independent of any interference) produce. However, acknowledging the community is also an important step. It means that when the community needs help from the parent organisation, management will be approachable. It also means the community will be known throughout the organisation, increasing its exposure to new (and therefore potential) members. An organisation-wide community increases organisational memory as mentioned in page 28.

Strategic: Finally, a savvy management could use a community of practice for strategic purposes. While this will make this type of CoP more susceptible to interference from management than others (for example *legitimised*), putting it under pressure to perform and creating elitist attitude, it also has its benefits. An organisation could adopt Mintzberg's attitude towards strategy and consider it *emergent* or *realised* as it happens (rather than planned). This might bring some discomfort from those who subscribe to Porter that a strategy should be planned and play to an organisation's strength in value chain activities. However, upon closer examination one realises that it actually involves the best of both worlds. Mintzberg's attitude is that since you can't be aware of the future you can't plan for every eventuality. Therefore, an organisation has to be able to adapt to changing circumstances. But this is best done by playing to the organisation's value chain activities using resources that are unique to it and not easily replicated (as Porter would argue). What resource best suits this than the people and culture in the company? The organisation could have a deliberate strategy that they will develop along the lines of the knowledge produced in-house through CoPs. They would provide an environment conducive for these communities (as mentioned earlier) but without interfering with the communities. This will have the added bonus that the members of organisation wouldn't have to 're-learn' the knowledge. They would have just have to practise that knowledge which they had already acquired in community settings as outlined in page 26.

2.4 The Double-Knit Organisation

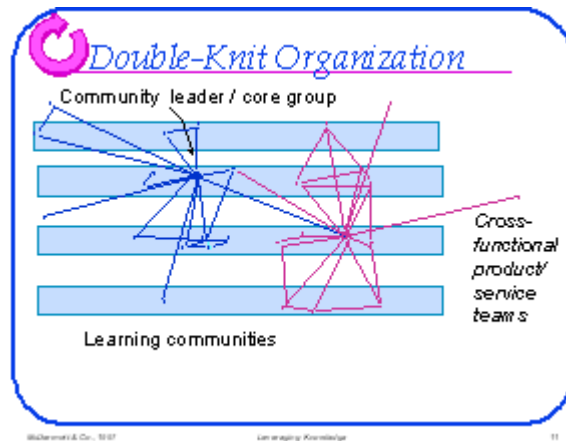


Figure 4: Double-knit organisation (McDermott, 1999)

In the preceding sections, we have been talking about teams and communities of practice as different entities. This might have left the reader with the impression that the two are mutually exclusive entities within an organisation. Such conclusion on the part of the reader was not intention of this paper. The two can and should co-exist as we will demonstrate by way of using (McDermott 1999)’s work in this area. In this paper, McDermott talks about a double-knit organisation as one that combines *teams* with *communities of practice*.

In those areas where teams are well suited, such as accomplishment of stated objectives within SMART framework for example, then a double-knit organisation would rely upon established teams. But when it comes to knowledge management and learning through practice, then communities of practice could be trusted to do the job. As McDermott argues:

‘Instead of sharing learning through team leaders, they are creating organisational structures that weave teams together through communities of practice’.

As I have already pointed out, learning through team leaders is like the children’s game of *Chinese whispers*. Learning ought to be diffused through members themselves, interacting and engaging in dialogue.

When talking about how communities of practice foster learning in a double-knit organisation, McDermott writes that :

‘Communities of practice focus on learning within functions or disciplines, sharing information and insight, collaborating on common problems, stimulating new ideas’.

He concludes by saying that while communities of practice *‘weave the organisation’* together in one direction, teams weave it together in the other.

2.5 Community of Practice versus Team

But having established above that the most effective way to manage knowledge within an organisation is through the use of both teams and communities of practice, a question arises on how to differentiate the two. A failure to differentiate the two might result in duplication of the functions of either one of them, leading to ineffectiveness.

Below we reproduce the differences as presented by (McDermott 1999) :

Table 3 : Differences between Teams and Communities of Practice (McDermott 1999)

Teams	Communities of Practice
Driven by deliverables <ul style="list-style-type: none"> • Shared goals and results • Value defined by charter • Value in result delivered 	Driven by value <ul style="list-style-type: none"> • Shared interest or practice • Value discovered/ evolves • Value in ongoing process
Defined by task <ul style="list-style-type: none"> • Interdependent tasks • Clear boundaries 	Defined by knowledge <ul style="list-style-type: none"> • Interdependent knowledge • Permeable boundaries
Develops through a workplan <ul style="list-style-type: none"> • Everyone contributes • Managed through objectives and workplan 	Develops organically <ul style="list-style-type: none"> • Variable contributions • Managed by connections
Bound by commitment <ul style="list-style-type: none"> • Joint accountability • Based on explicit agreement • Team leader or manager 	Bound by identity <ul style="list-style-type: none"> • Reciprocal contributions • Based on trust • Core group/coordinator

Before explaining Table 3 above, I would like to add a few points that I feel are an extension to the original table. These are based on literature regarding the subject. Examples of these literature sources include (Ferrán-Urdaneta, 1999 and Wenger,1998).

Table 4 : Extension of Table 3

Teams	Communities of Practice
<p>Knowledge Management Efforts</p> <ul style="list-style-type: none"> • Engages in knowledge exploitation • Effective at using (especially explicit) knowledge to produce final products • Knowledge sharing culture is dependent upon the individual teams- while some might share, the goal oriented measure of success could also foster a culture of distrust and less sharing • Knowledge is only retained as long as the team exists, when it is disbanded (as is likely to happen under this scenario) then knowledge is dispersed among the individual members 	<p>Knowledge Management Efforts</p> <ul style="list-style-type: none"> • Engages more in knowledge exploration (primarily creation and development) • Effective at sharing knowledge (particularly tacit knowledge) • Sharing is a pre-existing attribute for these. Since there is no performance measuring and the community is dependent upon contributions by members, sharing becomes a culture. • Since this is not a temporary group and knowledge is passed to new members, the community has knowledge preservation mechanism in the form of its members.
<p>Politics</p> <ul style="list-style-type: none"> • Since this is directly linked to the formal organisation, there is possibilities of political jostling and conflicts • Competition and rivalry between teams very much likely • Using resources owned by respective functional departments for leverage and/or manoeuvring – involves a lot of negotiations between teams 	<p>Politics</p> <ul style="list-style-type: none"> • Lack of a formal setup and the fact that it’s driven by individual value means politics are less likely • Members might still engage in competition or rivalry, <i>especially High contributors</i> or for any coordination positions if these are formalised- in most CoPs where these evolve organically, this is less likely

Driven by value: Since they do not have a goal to be delivered, communities are driven only by the satisfaction that the members derive from participating. Therefore, those activities which they pursue have to be aligned to their members’ interest.

Develop organically: Communities are started informally. Usually it is a group of individuals with mutual interest coming together to share their interest. They might not even be aware that they are in fact a community of practice. They might see themselves as ‘friends hanging out and talking shop’. McDermott (1999) contrasts communities of practice from teams by stating that ‘ *Managing a team is coordinating interdependent tasks. Managing a community is making connections between members and keeping the topics of the community fresh and valuable*’.

Bound by identity: Communities of practice are formed around topics of interest. Most members would have spent considerable time on these subjects and have developed in these areas. Therefore as they engage other members who have similar interest, strong bonds form among them. This then becomes their identity as a group. McDermott writes that *high contributors* say they contribute because they ‘owe’ other *high contributors* their insights. He further writes that :

‘ *In team based organisations, communities of practice are often the only place members can get feedback from knowledgeable peers*’.

Further, members value the input of their community peers than that of team leaders, who usually do not have detailed knowledge of their work. This therefore means most members’ professional identities are tied to their communities (McDermott 1999).

A contrast must be made between building trust in teams and trust as a cornerstone of communities. As the phrase ‘building trust’ implies, teams can exist without trust. They might not perform well but they will still exist. Communities on the other hand, are built on trust. Members join and participate only in those communities that they can trust; where they feel safe and accepted.

2.6 Building and Supporting Communities of Practice

Earlier on when discussing Communities of Practice nomenclature (Table 2) , I mentioned that organisations can acknowledge CoPs and even reap benefits from having a formal relationship with them. Below I outline how organisations can encourage communities.

To start with, (McDermott 1999) proposes the following actions by the management of an organisation to encourage communities of practice in their company.

Creation of intentional communities of practice

While he concedes that communities of practice are natural phenomena, that develop organically, he realises that a corporation might want to establish a community of practice if one does not already exist. McDermott terms this as *intentional communities of practice*. He asserts that such communities are in their focus, '*start-up activities and support*'. But he cautions that in order to develop the trust, connection and sharing that natural communities have, they should be allowed to develop following the natural processes.

While the organisation or management may have conceived of the idea to found these intentional communities, they should be mindful that communities' stock in trade is their members' view of it. If the members feel that this is yet another management initiative rammed down their throats, then they wouldn't participate. In team based organisation, members can be guided by set objectives and therefore have the incentive to participate despite their personal reservation. This option is not available to communities, hence the imperative to create and promote value among members. This can only happen naturally, when members are not forced into participation.

While McDermott does not discuss how intentional CoPs can be created and supported, I propose that using enthusiastic and charismatic people is the way to do it. If the individuals around whom the intentional communities are originally built are already enthusiastic about the project they are likely to work at making it succeed. If these people have charisma and respect of their colleagues, then they are likely to develop a more natural following from which the community can grow. After the initial members (the 'seeds') then other members can be recruited by the members themselves. Since a community is a network, connections unravel as it grows. New members might not be in the sphere of interaction with the founder or original *high contributors* but would likely to be recruited by the peripheral members (lurkers).

While the temptation for the management is to set up a reward system for original members (founders) as an incentive to encourage their participation, I would urge against it. While it would be appropriate to provide or facilitate resources for the benefit of the group (including financial and time resources), a reward for the sake of reward, meant for the personal benefit of the recipient should be avoided. Doing so would result in creating a link between performance (or in this case participation) with reward in the mind of the members. This

creates a scheme much like the *Market culture* as presented in Cameron and Quinn 's 1999 CVF mentioned earlier.

While not everybody agrees with the assertion that a market culture negatively affects knowledge sharing culture (for example Lopez-Nicolas and Meroño-Cerdán in their 2009 study found no evidence to support this assertion) , there is evidence from some scholars such as (Hendriks 2004) and (Harper and Utley 2001) that where employees linked performance with reward, they are likely to engage only in those activities that enhance their rewards.

Also, this will develop a culture of competition which is associated with *market* culture. This would not be conducive for the community environment. Especially with regards to new members, who are most likely to be 'free riders' in the group. While we have already seen reason why they adopt such an approach of free riding and why they should be accepted in spite of it, in the market culture they might be confronted with a 'shape up or ship out' attitude. Here they might be expected to contribute to a degree that they consume. Such onerous expectations might discourage new members to join and in turn kill prospects for the growth of the community.

Build communities around a few topics

While organisations might be tempted to pursue a 'diversified' range of topics when starting communities of practice, McDermott advises against it. He states that they might end up '*building stockpiles of underutilised information- information junkyards*'. Instead, he suggests that the effective leveraging of knowledge revolves around starting with few communities of practice pursuing strategically important topics.

Using the above approach also means that instead of being *jacks of all trades and masters of none*, the organisation through its communities could get in-depth knowledge of the few areas on which they concentrate. They could develop competencies that are not easily replicated. Concentrating on fewer issues will also avoid 'burnout' issues, where the organisation might stretch itself too thin and in the process run out of steam to keep up with all of its commitments.

Find and Build on natural networks

McDermott advises that the organisation should not try to reinvent the wheel. As he points out, communities of practice arise naturally in most organisations. Therefore, there is no need for an organisation to create new communities. Instead, they should build upon the existing ones. He writes that once a topic of organisational strategic interest has been identified, the

organisation should then identify those communities which have already been working on similar areas and try to work with them.

Develop community coordinators and core groups

While communities are self-organising, like any human group they need someone to coordinate, guide and take responsibilities for organising them. McDermott suggest that the management or organisation should have coordinators for *intentional communities of practice*. This is not a leadership or management position. The coordinator invites people to participate and provide links between members. His or her responsibilities are more on the mundane organisational issues of acting as a node between networks. The coordinator works with a core group of community members.

Create a community support team

Since communities are not the same as teams, and therefore function and use different set of tools, McDermott suggests that they should have a support team. This would be a team that will take their explored knowledge and exploit it (see Table 4 on different knowledge management efforts for the two).

McDermott also suggest that other initiatives that the organisation could engage in are :

- Supporting the communities
- Initiating some simple knowledge sharing activities
- Being patient- understanding that community development takes time.

Other scholars such as (Brown and Duguid 1991) add to this by suggesting that organisations should link work/practice and learning. They state that communities thrive in an environment where co-workers exchange knowledge through social engagements such as storytelling (narration), collaboration and developing a social construct for solving their problems.

(Wenger 1998) on the other hand proposes the following as a means for developing and nurturing Communities of Practice.

According to Wenger (1998), first there is a need for internal leadership within the community. There should be different leaders offering different types of leaderships; among these leaderships being inspirational, day-to-day (organising) and cutting-edge (‘out-of the box’ initiatives).

Legitimising participation

Organisations can support communities by officially recognising them, according to Wenger (1998). This includes giving members time to participate in activities. The organisation should also create an environment where the value that the community contributes is acknowledged and recognised. In fact Wenger is positive that even merely introducing the term '*communities of practice*' into the organisation's vocabulary might positively influence people to have a discourse on how their contributions into these communities can benefit the organisation at large.

Negotiating their strategic context

Wenger concurs with McDermott's approach of double-knit organisation. He states that in this arrangement '*people work in teams for projects but belong to longer-lived communities of practice for maintaining their expertise*'. Therefore he urges organisations to develop a clear sense of linking knowledge and its strategic value. An organisation should know what '*knowledge- and therefore what practices- a given strategy requires*'. He also states that attention must be paid with regards to emergent communities of practice and the directions they might indicate with regards to strategy development.

Being attuned to real practices

Wenger suggests that organisations should build upon the practices that obtain in the organisation. While this would make implementation easier, owing to the pre-existence of the practices it also provides learning opportunities while being intuitive to the employers. He gave an example of a large corporation whose customer service function decided to combine service, sales, and repairs under the same 800 number. Researchers from the *Institute for Research on Learning* discovered that people were already learning from each other on the job while answering phone calls.

This brings to the fore two issues that have been talked about by other researchers. The first is the point by McDermott (1998) that communities should be built around natural networks (see above on McDermott's points on building communities). The other issue is that touched on by (Brown and Duguid 1991) that learning and practice go hand-in-hand. That people who work together exchange knowledge and create new ones through *antiphonal recitation* and other social interaction elements. They argue that to maximise effectiveness in an organisation there should be a link among *learning, practice* and ultimately *innovation*.

Therefore, Wenger's proposal finds support in two independent works on communities of practice.

Fine-tuning the organisation

The success or otherwise of communities of practice can be influenced by organisational elements. Some practices might foster while others inhibit CoPs. Examples of these include management interest, reward systems, work processes, corporate culture and company policies (Wenger, 1998). Wenger further states that while these factors rarely determine the formation or otherwise of the communities of practice, they can facilitate or hinder participation. Wenger uses the example of reward systems. While he states that it might be 'tricky' for organisations to use reward systems to manipulate behaviour or micro-manage the community (mainly because communities are self-organised and intrinsically motivated), he also cautions that organisations shouldn't ignore the issue of the reward and recognition altogether. Rather he states that rewards should be adapted to support learning activities. He gives as example inclusion of community activities and leadership in performance review discussions.

While I agree that people should be recognised for their efforts in communities, the reader might recall that in preceding paragraphs I had cautioned against linking communities to individual reward. Wenger's suggestion notwithstanding, I still stand by my earlier recommendation.

Wenger argues that rewarding members for their participation in communities (even if it is by means of performance review in quarterly reports) might encourage them to participate more on communities. I argue that this would do little to increase the quality of participation and contribution. The moment that members make a logical link between performance review and asking questions or posting research (regardless of quality) in a community forum/ board for example, their survival instincts will kick in. The community will be flooded with a lot of information that is of poor quality and not properly selected. This will be because now members will compete for the '*most contributor*' honours, instead of contributing for the good of the group and sharing pertinent information. This will lead to what McDermott had cautioned against- *information junkyards*. This is more so that this being a community it is not likely that there will be a 'minimum quality requirements'.

Still on the reward system, how would an organisation measure performance of members? Peripheral membership after all, is still as important as core and active participation

membership. For example, *lurkers* are depositories for knowledge from *high contributors*. While on face value they seem to be at best useless free riders, especially when one uses participation as understood in the context of teams, they aid in organisational memory. More importantly, they are future *high contributors*. But only if they are allowed to grow and nurture without the pressure to contribute, which is what the reward system would require of them, even if management tries to assuage their fears.

Unlike teams, communities are voluntary and therefore intrinsically motivated groups. Members derive pleasure from knowing that they have contributed to its activities. As McDermott wrote, core contributors feel they ‘owe’ other contributors to share their knowledge. Organisations should not try to replace *satisfaction* and *value* as the ultimate reason for membership. Otherwise, they would duplicate duties of teams.

The Art of Balancing Design and Emergence

Wenger writes that while they do not require ‘*heavy institutional infrastructures*’, the community members need time and space to collaborate. He further says while they might not need management they require leadership. While on one hand they are self-organising, they flourish if they can find a fit within the formal organisation.

Therefore it is important for the organisation to find that balance between interfering with their communities and being negligent of them.

Wenger also states that organisations should provide support to the communities of practice. This could be through guidance and resources needed, linking communities’ agenda to strategies, and helping to create links with other communities.

In conclusion, organisations should use (Brown and Duguid 1991) framework and understand that they too are a community. They are communities of communities. Therefore I would propose that they should be working on linking up all the communities that fall under their organisational interest. In doing so, they should use the knowledge created by these communities to guide their organisational strategies.

Chapter Summary

In this chapter, I presented theories on knowledge management, teams and communities of practices. Through literature, I showed that communities are a good way for organisational learning. Having established the link between learning and communities, I then presented different ways that management can develop or support communities in their organisations.

In the next chapter, I will be looking at issues regarding the quality of the research and methods used for the research.

3 Research Methodology

Chapter Introduction

Chapter 3 focuses on how the research was conducted. I start with the research model for the thesis. In 3.2 I discuss different research approaches, culminating in stating which of those approaches was used for the study. In 3.3 I talk about research quality. In this section I discuss validity and reliability issues, among others. In Chapter 3.4 I focus on case study research as a method of scientific investigation. 3.5 is about justification of case study research for this thesis. Last, in section 3.6 I focus on semi-structured interviews; their advantages and limitations.

3.1 Research Model

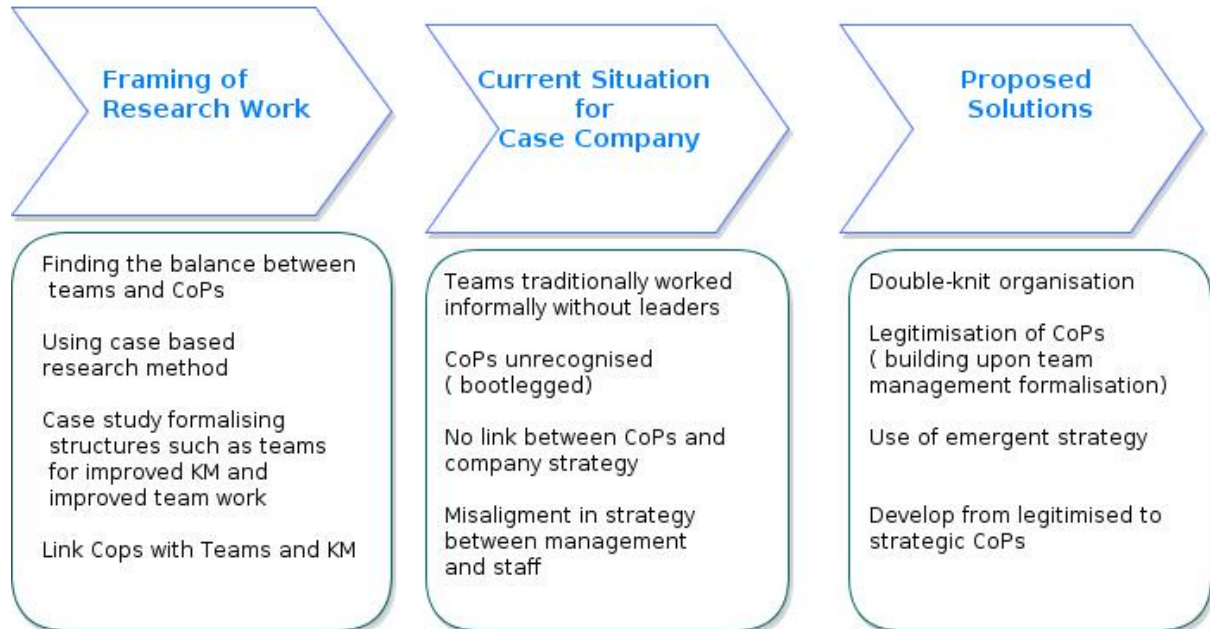


Figure 5 : Research Model

Figure 5 above is a research model that was followed for this study. The writer might notice that in the current situation, some of the points have since been overtaken by events (for example, teams now have managers, CoPs are in the process of being recognised). For the sake of historical accuracy, I chose to keep the situation as it was before the changes were introduced. It also provides greater relevance to the project. In the absence of these historical situations, the reader might feel there is information missing.

3.2 Research Approaches

In conducting a scientific research, there are a number of approaches that one can take. A complex organisation can be understood from two dimensions: *Ontological* and *Epistemological* dimensions (Schapper, Cieri and Cox 2005).

3.2.1 Ontological Perspective

According to (McKelvey 2002), using definitions by Hunt (1991) and Audi (1995), *ontology* is :

“ the study of beingness—whether anything actually exists as an entity in the real world having properties of some kind. Scientific realists take an ontologically strong view that entities and relationships do exist in the world “out there” and serve as criteria against which models are to be tested for representation (Aronson, Harré and Way 1994)”.

Therefore in ontological dimension, an organisation can be understood from its reality. That is those things which are conceived outside one’s mind and therefore can be investigated through human senses. As (Schapper, Cieri and Cox 2005) put it, it ‘...*reality that can be identified, researched and measured*’.

Ontology is concerned with subjective versus objective elements of an object studied. It deals with questions of whether something is real in the ‘outside world’ or in the individual’s perception (mind).

Nominalism vs Realism

In Ontological debate, Burrell and Morgan (1979), through (Purao 2006) and (Babson College n.d.) talk about the difference between Realism and Nominalism.

In Realism, the assumption is that the world has intangible objects that exist whether we give them names or not. Reality is made up of ‘*hard, tangible and relatively immutable structures*’.

In *nominalism*, the world is artificial. It exists through ‘*names, concepts, and labels*’ that we give structures. Reality is relative.

3.2.2 Epistemological Dimension

Epistemology is defined as :

‘the study of kinds of knowledge, how we come to know, by what right we can believe some statement to be true, which is to say, by what rules of JUSTIFICATION LOGIC have we come to a particular belief about the real world’.

- (McKelvey 2002)

From the above, we can see that the focus of epistemological dimension is less on reality but how we came upon such a reality.

As (Schapper, Cieri and Cox 2005) state:

‘For it is in the attempts to study, know, make sense of and understand organisations that the complexity of the organisations is apparent’.

Positivism vs Anti-Positivism

Epistemology, being concerned with knowledge, is divided into two :

- *Positivism* and
- *Anti-Positivism*.

In *positivism*, the world is seen as a well regulated set of linked objects that causally affect each other. *Positivists* see the world as being connected by a ‘thread’ which can be unravelled to understand the world. Their view is that the object being studied is well regulated by some physical laws. It’s the way it’s and needs only to be understood. This view is common in natural science.

The *Anti-Positivists* on the other hand, see the world as changing. Reality is seen as being reflected by the observer’s own personal experiences. This is an interpretive paradigm, focused on how we interpret what we see. Because of its interpretive nature, the *anti-positivism* is mainly found in social sciences. According to (Dash 2005), this paradigm is made of three schools (*phenomenology*, *ethnomethodology* and *symbolicinteractionism*).

We would not discuss these schools. Instead we will look at the last school which has relevance to the study.

The school of thought for *Symbolic Interaction* is sometimes called the interpretive school. This school emphasises observation, understanding and interpretation of interactions between humans in their interactions.

Burrell and Morgan (1979), came up with a classification model for four different research paradigms as they are influenced by both ontological and epistemological dimensions.

Four Paradigms in organisation theory

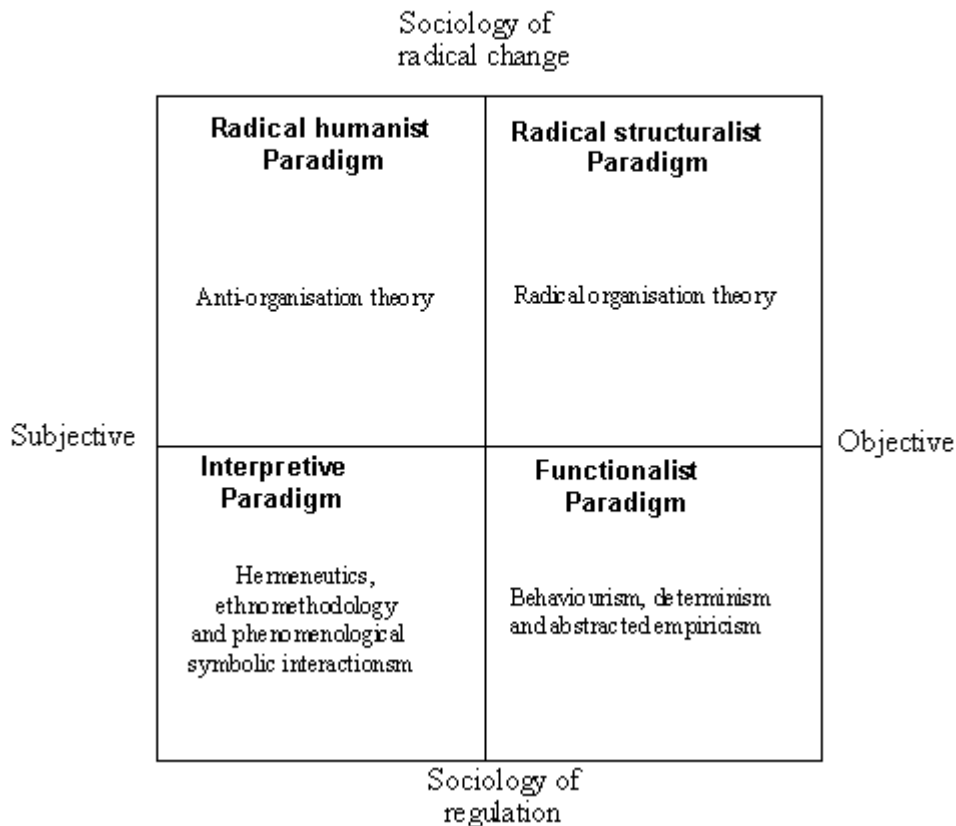


Figure 6 : Burrell and Morgan's Matrix

From the figure above, *interpretive* and *functionalist* paradigms are more interested in understanding how things work, from an epistemological point. But they differ on ontological perspective. The interpretive paradigm takes the subjective approach while the functionalist approach believes in deterministic (objective) elements. Its followers believe that anything can be understood from empirical evidence.

The *radical paradigms* (the fourth and first quadrants) on the other hand are for studies that are driven by the need to change the status quo, from an epistemological point. However, the *humanist* is subjective while the *structuralist* is objective, ontologically.

This study was conducted following the *interpretive paradigm*, mainly the *symbolic interactionism* school. I conducted face to face interviews, document analysis and observed employees of the organisation as they went about their daily job. The study was about interpreting interactions among humans and how these have influence on knowledge management, employee performance and innovation.

3.3 Research Quality

It is not enough that an investigation has been carried out. The author or investigator has to assure the reader of the quality of such a report, that it is '*reliable*' and '*valid*'. (Yin 2009) proposes four tests common in social sciences for evaluating a report's quality:

- ❖ *Construct validity* : identifying correct operational measures for the concepts being studied
- ❖ *Internal validity*: seeking to establish a causal relationship, whereby certain conditions are believed to lead to other conditions, as distinguished from spurious relationships
- ❖ *External validity* : (for explanatory or causal studies only and not for descriptive or exploratory studies) defining the domain to which a study’s findings can be generalised
- ❖ *Reliability* : demonstrating that the operations of a study – such as the data collection procedures- can be repeated, with the same results

Yin (2009) advises that when dealing with case study research, the following tactics should be followed to establish validity and reliability :

Table 5: Case Study Tactics for Four Design Tests (Yin, 2009)

TESTS	Case Study Tactic	Phase of research in which tactic occurs
Construct validity	<ul style="list-style-type: none"> ○ Use multiple sources of evidence ○ Establish chain of evidence ○ Have key informants review draft case study report 	Data collection Data collection Composition
Internal validity	Not applicable for this study	Not applicable for this study
External validity	<ul style="list-style-type: none"> ○ Use theory in single-case studies 	Research design
Reliability	<ul style="list-style-type: none"> ○ Use case study protocol ○ Develop case study database 	Data collection Data collection

Below I demonstrate how I used the above tactics to improve the quality of my investigation.

3.3.1 Methodological Triangulation

In order to address construct validity I carried out methodological triangulation. Triangulation is when a researcher multiple sources of evidence for their research. While my primary source was interviews, I also used observation and document analysis (although this was limited- I mainly used the company website, its brochures and some documents sent by CSII).

With regards, to chain of evidence, I recorded all interviews with the informants. This helped to ensure that not only do I get to understand their general ideas, but I can also quote them verbatim when they make significant statements that I feel is of importance to the study. That

way, the reader can hear the statement the same way as I did and make up their own minds about it.

Given the shortage of time on both my part and theirs, I could not ask the primary informants to read the document before the final version was made. I did however review it several times (and made necessary changes) after the first draft was finished. I will also give a copy of the final report to one of the respondents.

To ensure external validity, chapter 4, dealing with the case company also includes analysis sections. In this section I extensively use theory from chapter 2 to analyse the case study. I compare the reality as presented by respondents for the case company with the theory.

Last, on reliability, I had a protocol for carrying out interviews. I always wrote the questions down in advance, to ensure that all elements of the research question were covered. I also ensured that the responses were captured in an audio storage.

3.4 Case Study Research

As explained above, this study is a case-based research study. It is based on a single case company. It would also be exploratory. Instead of presenting propositions or hypotheses, I used explorative study on how communities of practice and teams affect knowledge management in a knowledge-based business organisation. The reason for choosing not to go with the hypothesis and proposition method is because of two points:

Black swan theory: Making propositions and hypothesis would require conducting studies to prove the hypotheses. However, it is not always possible to create an investigation that proves the hypothesis holds true for all situations. There is a phenomenon in research science known as black swan theory, where researchers state or believe in a false position based on inaccurate data. Until the late 17th black swans were thought by Europeans not to exist. Therefore when they were sighted in Australia and reported in a letter by Mr. Witsen to Dr. M. Lister (Morris 1898), they falsified the previously held belief that 'There are no black swans' or alternatively 'All swans are white'. This story (and therefore theory) shows the folly of positive propositions.

Confirmation bias: If a hypothesis is used, there is a likelihood that the researcher might subconsciously look at the results selectively to validate their study. This is more pronounced in case studies. As (Yin 2009) warns, the very characteristics that are required for a good case study investigation could also prove to be susceptible to bias from the investigator.

‘All of the preceding conditions will be negated if an investigator seeks only to use a case study to substantiate a preconceived position’

- (Yin 2009).

He states that case study researchers are prone to this because they have to have read and understand issues pertaining to their study. This means that in the process they develop a line of thinking or assume a position that might compromise their study.

3.5 Why case study research?

The reader might ask ‘if case studies are susceptible to bias, why use them then?’. The bias of the case studies while possible can be overcome, especially if the researcher is aware of their potential existence. With regards as to why case study investigation is favoured as method of research, below I outline the advantages of the method. I also look at potential pitfalls of the method.

Reliability: A single case study involves working with one organisation. This provides an opportunity for a more detailed understanding of the company. While alternative methods could be used, such as surveys and questionnaires, these are usually done at ‘arm’s-length’ while a case study allows closer scrutiny of the company.

Also this study is about answering questions which are concerned with ‘how’ and ‘why’ things were done the way they were. It is not about actively influencing or changing the behaviour of the observed entity (at least not during the study). The study is conducted on on-going issues (i.e contemporary events). Therefore, as (Yin 2009) stated, case studies are an appropriate method for this study.

Realistic: Linking a research with an organisation, and what it is actually doing gives the research a realistic view. In this form of research, the investigator deals with real world problems with which the client organisation grapples. As an example of this, the case company was in the middle of implementing formal recognition of communities of practice in the company. Therefore, my research had a realistic angle to it. I could for example compare how the organisation went about this formalisation of communities with what Wenger (or even McDermott) proposed companies should do to set up or recognise communities of practice.

Objectivity: The organisation that agrees to be a subject of a study is committing resources (time, people, and sometimes even money) to the project. These are done over an extended period that could last anywhere from 6 months to a number of years. Such resource commitment is done on the hope that the investigation will help the organisation understand the way it does things. Therefore, logically the organisation would want the study undertaken to be as objective as possible, to increase their likely benefit from it. At the end of our first interview, Case Study Interviewee 1 (CSI1), wanted as part of my study to make recommendations on some of their initiatives.

Readily available data: A case study means that there is readily available material to be studied and analysed. This could take any of the following forms: interviews, company data and statistics, surveys of the employees and company partners like suppliers and buyers. This makes it easier to conduct the study. Instead of valuable time being spent on making calls and writing letters of introduction, seeking information from various sources, in a case study these would already have been arranged. For example, in the first meeting I had with Case Study Interviewee 1 (CSI1), he offered me access to the company's records and publications. I would have benefited from this data, had it not been for the fact that the majority was written in Norwegian (a language at which I have only basic skills). But even then, I still had access to the company and its employees who were at least bilingual in both Norwegian and English. This provided a roundabout way to these documents that I had been offered. The employees had access to them, and if there was a need to consult one, they could have done so. Then they would have given me the main ideas of the said document in English. An example is when I asked CSI2 about including learning objectives on employee performance reviews, so that these learning objectives could be implemented by Case Company Academy. I had seen the document on this and the presentation about it, but since I am not fluent in Norwegian (and since it is an internal document available to employees), I asked him about it; to clarify some issues. I had already asked another employee (a Human Resources /Administration employee) about this. CSI2 was simply acting as confirmation if my understanding from this lady was correct.

3.6 Semi-Structured Interviews

In this research, semi-structured interviews were used to gather data from the case study organisation's employees. In semi-structured interviews, questions were prepared in advance on topics where information was sought. Then these were sent to the interviewees to give them time to reflect on them. It also provided them the opportunity to consult their company

records or data for any question on the agreed date that I met the interviewee and asked questions. However, unlike structured interview, in this instance there was free flow of information between the respondent and me. I allowed them to respond in their own words, elaborating where necessary.

3.6.1 Advantages of this method

Suitable for exploratory studies.

Because of the nature of semi-structured questions in allowing the interviewer to adapt their questions and elicit more information based on what the respondent has given, this method is well suited to exploratory studies which is what I was conducting. In semi-structured interviews the interviewer guides the interviewee, through the questions asked, to talk about a topic of interest to the investigator. But the respondent answers in their own words and elaborate when they fill it is necessary. The interviewee, being experienced in the area for which they are being interviewed, can illustrate points through anecdotes. This will employ mixing their personal experience and professional judgement. Such stories can bring to the fore points that cannot be easily communicated in a formal, structured interview. In fact such ‘antiphonal recitation’ between the interviewee and interviewer is consistent with theory. As (Brown and Duguid 1991) wrote, storytelling is an integral part of learning. Since exploratory study is about learning from people in the field, then this research method is well suited to task.

Control

This method gives the interviewer control. If he or she feels that the interviewee digresses from the main points, they can bring them back to the topic. This also happens when the subject misunderstood the questions. From the answer it is easy to pick up on the mistake and rectify it. The interviewee could also seek clarification more easily in this manner. Also, the interviewer could skip some of the questions if they feel that they have already been addressed in another part of the interview.

For example, while interviewing Case Study Interviewee 1 (CSII), he asked for clarification on what I meant and understood by the terms of Cross-Functional Teams (CFTs) and Communities of Practice (CoP). Once I had clarified these, I could easily adjust my questions and he responded based on the new information he had.

Non-verbal communication

Since this was face to face communication, it afforded the opportunity to pick up on any nuance that cannot be communicated explicitly. In the absence of the ability to read such verbal cues, part of the message might be lost. For example, CSI1 gave a diagrammatic representation of the company. While he had already expressed this verbally, it was the diagrammatic picture that best expressed the way the company works.

Efficient

Since most of the knowledge for which I search resides in the organisation, through its members, it is the fastest way of getting to this knowledge. I could have pored over the company documents or observed its members as they go about their daily routines, but these methods wouldn't be as efficient. In the first place, as I already stated there is a language barrier when it comes to codified information in the company's systems. I would have had to spend a lot of time doing one of the following: improving upon my Norwegian language to carry out the study, find a translator who is conversant not only in both English and Norwegian, but also the field on which I work, or last restricted myself only to those few documents that are written in English. None of these options are optimal when one is working on a 6 months deadline. .

3.6.2 Disadvantages of the semi-structured interviews

Objectivity Issues:

As (Keikotlhaile and Li 2011) write regarding objectivity of semi-structured interview,

'It is hard to decouple personal feelings from professional opinion or conclusion. More often than not the interviewee is influenced by their personal experience...'

Therefore, this method is susceptible to the interviewee's subjectivity on the matter. This is less likely to be a problem with experienced professionals who over the years have gained objectivity by making decisions on similar lines as the questions being asked. However, it is likely to happen more with young professionals. Therefore, the interviewer should check to make sure that there is correlation between the information they receive and what other sources say on the matter.

The researcher must be careful not to guide the interview. It can happen that because of preconceived notions (discussed above under case study limitations) , the researcher might

steer the topic towards what they want to hear. This is more likely especially when interviewing someone who is inexperienced or unsure of themselves.

Semi-structured interviews can also get out of hand, if not properly handled. Since the respondent is allowed a 'free-role' to answer questions, they could engage in topics that are of interest to them but off topic from what the interviewer needs. Therefore, a good interviewer should always make sure he or she has control of the situation. They should be able to steer the topic back when it gets out of hand. But they should be cautious not to interrupt the interview too much and unnecessarily. There is a need to allow for the free flow of the interview, because that provides opportunity for gaining more information when respondents are allowed to talk freely.

Chapter Summary

First I presented the research model used in this research. Then I looked at different the paradigms that can be used in a scientific study. I concluded this section by showing that I used interpretive paradigm. In terms of research quality, I talked about among others methodological triangulation and case study protocols. Section 3.4 discussed the pros and cons of the case study research method. I continued this in 3.5 when I presented reasons on why it was used for this study. Then I wrapped up by discussing semi-structured interviews as an investigation technique.

4 Case Study Analysis

Chapter Introduction

Normally when writing thesis, most scholars treat analysis and discussion under the same chapter. I however will not be doing that. I wish to devote chapter 4 to analysing the case study based on theory presented in chapter 2. This way, I can use chapter 5 (Discussion) to give my personal opinions (formed by theories I have read of course) unencumbered by the need substantiate them with theory. I feel this also helps the reader to differentiate between what I believe from what is written in literature. Therefore, in this chapter, I will mostly present a factual account of the case company backed by verbatim quotes of the interviews I had with the company employees. I will of course, now and then make a personal observation, but most of my opinions will be reserved for chapter 5.

4.1 Case Company Background

The case company in this study is what can be regarded as a knowledge organisation. Their core business is selling expertise in project management and related services. They are the largest Scandinavian Project Management company, with nine offices spread throughout Norway and Sweden. They had about 350 employees and turnover of NOK 456 million in 2010.

The company was formed in January 2010 as Norwegian holding company through a merger of a Norwegian and a Swedish company. They have a vision to :

' provide world class project management'.

In achieving this, they are guided by three values:

- Generosity
- Professionalism
- Co-operation.

As a company, it is owned by its employees. When employees join the organisation, they have the option to buy stock in the company and therefore be part-owners. When they leave they can sell the shares back to the company.

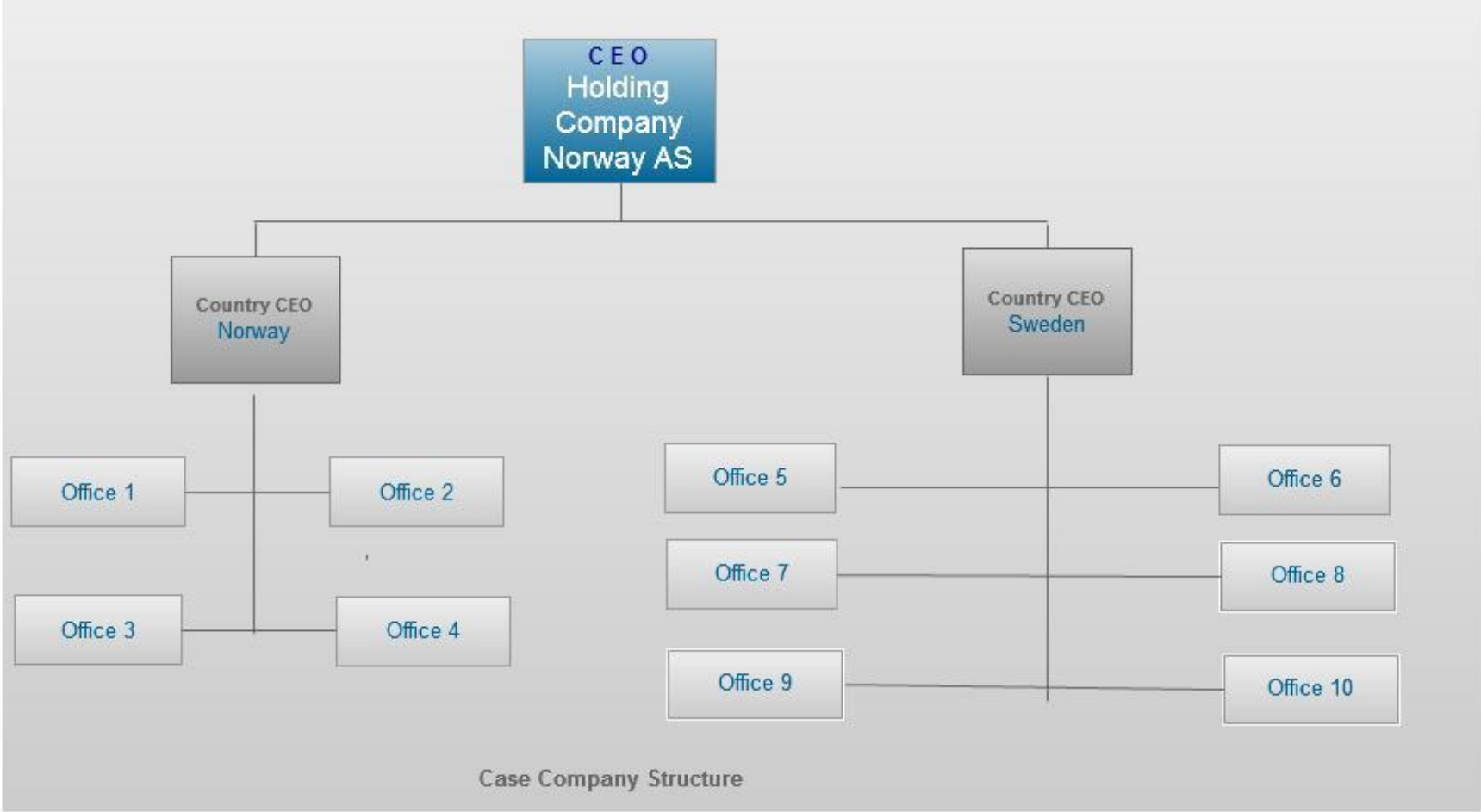
The organisation's businesses include: Project management, Project Development and Specialist Services. Some of the services, as found in the company website, are shown in Table 6 below:

Table 6 : Summary of Case Company services

Construction Management	Integrated Project Controlling	Fire and personal safety
Cost Management	Planning	Environmental services
Design Management	Procurement	Technical Systems
Quality Management	Project Start-up	Work Environment
Risk Management	Readiness Review	

The case company structure, showing the relationship between the head office and regional offices is shown below in Figure 7.

Figure 7 : Case Company Structure



Company academy

In order to encourage continuous professional development of its members, the company has an academy. In this institution, they develop professional and soft skills courses. Then they provide training to the staff. These courses are open to their clients and even their competitors. As the research director of the company put it, the academy is like a miniature university, with the Research Director as its head.

The responsibility of the RD with regards to the academy is to ensure that the academy delivers courses to company employees, considering the market needs. It is the aim of the academy to link the company employees and company values. Particularly the academy is tasked with asking and answering the following questions for the company:

- What is the world class level?
- What is the trend of project management today?
- What do people want?

The company academy is the means through which the organisation can develop a culture of providing world class project management.

Some of the courses offered by the academy include:

Uncertainty Management	Cost Control
Leadership	Time Planning
Excel (using spreadsheet)	PowerPoint
English	

According to the head of the school, the rationale of courses such as Microsoft Office courses and the English language courses is that '*people need those skills and they don't have time to go to the university*'. Therefore, the academy brings the university to them.

4.2 Company Interviews

4.2.1 Case Study Interviewee I (CSII)

The first interviewee is the research director of the organisation and the head of its academy. CSII has over 20 years experience. He has experience both in management and in academic setting. He has alternated working in the private sector (industry) and in public sector (academia) for several years. He has had three (3) periods in the university and four (4) in the private sector.

He was a founding member of the predecessor to the case company, but left to go back to academics. Then he came back to the case company as the research director (RD).

CSII was educated in Building and Construction engineering. But he never used the education for that purpose. Instead, he has worked mainly in economics and management. He obtained his PhD in 2010 and became a professor in 2011. He is published in a lot of management journals.

He was interviewed in his capacity as the organisation's research director. In this role, it is his responsibility to ensure that there is organisational learning within the case company. He does this in two ways: the Company Academy and Knowledge Management Projects.

He is the head of the company academy, even going so far as to regard himself as the equivalent of the academy's 'rector'.

With regards to knowledge management projects, he has overseen a knowledge mapping system. Currently he is spearheading a project on legitimising communities of practice within the organisation. This is run concurrently with another that will try to clean up the company's intranet, tidying up the 'information junkyard' that exists within the platform. He has setup a team of gatekeepers known as the 'Advisory Board', which will ensure that for the future the official organisational platform will only hold valid information. These projects will be further elaborated later.

4.2.2 The interview

Since the investigator was familiar with the interviewee and his role in the company, the first interview focused on the organisation's structure and functions. To get started, the RD (CSII) thought that he should give a brief introduction of the company's hierarchical and functional structure.

Below is the figure showing the different functional departments of the case study company as presented to me by CSI1

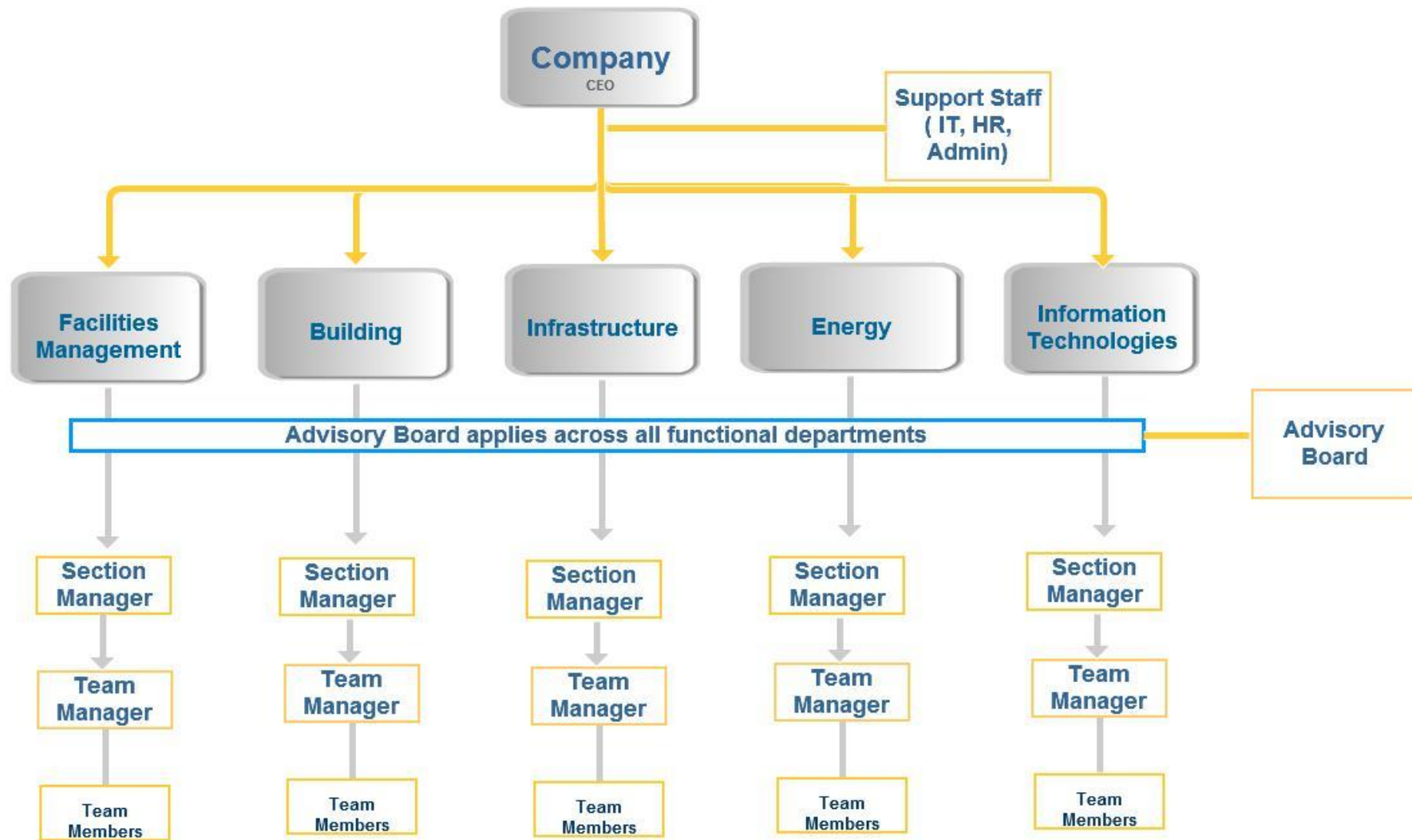


Figure 8 : Organisational Chart

While not every office has all the departments shown above this is representative of the company functions in its various offices. Big offices in places such as Oslo and Stockholm are likely to have most, if not all these departments. Others, while they are big, might only have those functions that are central to the economy in which they operate. Whatever the case might be, the governance of the employees and their collaboration on different projects and tasks follows the schematic above and the description below.

4.2.3 Case Study Interviewee II (CSI2)

The second interviewee is an educationist by training. But he has never worked as a teacher. Instead, upon graduation he worked for a number of years for a public organisation, eventually becoming a leader within the organisation. His responsibilities included ‘*Development and Quality Development*’. He worked for seven (7) years as a leader and internal supervisor. As he notes, this was a very big organisation.

He started working for the predecessor of the case company in 2002. He worked as a consultant in:

- Leadership Development
- Organisational Development
- Team Communication.

In total, he has worked in related areas for more than 25 years.

When the company merged with another in Sweden, to form the current company (Case Company), he continued his work in this area. Among his major clients are the Norwegian University of Science and Technology (NTNU). When asked whom he provides his services to, within the university, he replies ‘*...leaders; faculty and administration staff*’.

While NTNU are his largest clients, he states that he also works as a consultant for the case company’s other clients, both big and small. His work is closely related with the organisation’s Business Development division.

In terms of internal work, he is usually consulted by the Human Resources and Administration department when they are considering an applicant for a position within the company.

He conducts tests for the prospective employees and offers recommendations on how best to deploy the applicant. He is also usually asked for help by section leaders to provide mentorship to employees or to supervise others who act as mentors. In this supervisory role, he provides guidance on how the mentorship programme can best benefit the two parties. He is also actively involved in the academy, conducting courses and transferring knowledge. These elements will be touched on later.

He was recently appointed as an expert on Leadership and Communication to the case company's Advisory Board (AB). In this capacity, he will be expected to be the gatekeeper on what qualifies as world class practices in the areas of leadership and communication for the whole organisation (including all the offices outside Trondheim/Norway). While this formal appointment was less than two (2) months at the time the report was written, it is a role that he has performed in an informal capacity before. He had been one of the leading consultants on this area. Therefore, he has contributed to the area and provided guidance to other team members.

He was interviewed in his capacity as member of the company's Advisory Board (AB). But his experience in leadership, team communication and organisational development were also of interest.

4.2.4 Case Study Interviewee III (CSI3)

The next interviewee has a Bachelor of Engineering (1986) and is a class of 2011 graduate of MSc (Geography) from the *Norwegian University of Science and Technology* (NTNU), Trondheim.

From graduation in 1986 she has worked for different companies, mostly for Jernbaneverket (JBV), the Norwegian Railway company (where she worked for 17 years). She started as an engineer and later worked as a leader in JBV's *Regional Development Department*. She started working for the case company's predecessor five (5) years ago.

She works on projects in Infrastructure, Roads, Railways and Buildings section of the case company. As a project manager, most of her work involves early phases of project management using the Norwegian *National Transport Plan* (NTP) guidelines. But she has also worked in concept development and as a project leader in some projects.

As of January, 2012, she was appointed a team leader in Infrastructure division of Trondheim office. This is a recently established position, as explained later in this chapter.

She was interviewed in her capacity as the Team Leader within the organisation. However, she also provided a lot of information based on her previous work as an ordinary team member and as project leader in past projects. She has worked extensively in different team settings and has a good network in the industry extending beyond the case company.

4.2.5 Company Structures

Below I will briefly look at the company structure and how it operates. For the rest of this chapter, I will be presenting the perspectives of the the three interviewees when analysing a part of the company.

Team Organisation

Every functional department in each office has a team (s) which work/s together. Each functional team works as a unit on projects for the company's clients. In the absence of such projects, they also work internally on work related to the case company. We will call these functionally organised teams as '*internal teams*'.

Traditionally, *internal teams* did not have formal team leaders or managers. They reported to section managers (see figure 8) who assembled the team and assigned tasks for different contracts. Any leadership within the team (other than project managers where appointed) was purely informal, and as sign of respect and deference of other team members to an individual who has earned their respect and loyalty.

In this setup, internal teams are '*Specialist Teams*', where team members work mainly with people from their 'home' team or department. The grouping is dependent on the employee's line of work, with regards to the projects. As CSI1 stated, '*You don't belong in the IT team unless if you work on IT projects*'.

Therefore team members get to know each other very well over extended periods, and are interested or trained in similar professional functions. The organisation itself encourages people to work in areas in which they are interested. The Research Director states that:

'We would like people to develop in directions that they feel strongly for. We would like to support that'.

This point might prove crucial when we later look at communities of practice in the organisation. As theory has already shown, communities of practice need shared interest.

When asked about the lifetime of such teams, he responded by saying:

‘These are as permanent as this sort of organisation can be. I mean we hire new people all the time. But we also lose people all the time. People come and go’.

He then concluded by saying *‘As a concept, it is permanent’.*

However, sometimes though not that frequently, the company gets a contract that requires *‘Cross Functional Teams’* (CFTs). Here, member of internal teams have to work with people from other functional departments who possess different skills. We will call these *external teams*.

These *‘external teams’*, function just like traditional project teams. They come together for a specific purpose and are disbanded after the goal is achieved (most likely never to work together again). Their skills complement each other in the way that specialist team skills couldn’t. They may or may not have a project manager, depending on the nature of the project.

CSI2 has also engaged in CFTs. He estimates that in the ten (10) years that he has worked in the Case Company (and its predecessor), he has participated in 60-70 CFTs for the case company. Since his work is related to Business Development functions (which involves different functions) , it is possible for him to engage in more CFT projects.

CSI3 estimates that she has engaged in a little more than ten (10) CFTs in the case company. While she is not involved in a lot of CFTs, she does work a lot in projects with people from outside the company. As part of her work, she is usually imbedded in her clients’ project teams. The infrastructure team also works closely with their Oslo counterparts, working on projects together. Since Oslo is a big office, they need help from time to time from smaller (relatively speaking) offices like Trondheim. At the time of the interview (in May 2012) she was working on a project with a team of colleagues based in Oslo. She was the only one working from Trondheim office. She kept in touch with them through video conference, SharePoint, telephone and occasionally flying to Oslo for face to face meetings.

She was also working on a project proposal which, if successful, would involve people from other companies. This was a joint venture that required project management expertise from the case company and technical competence from the other two companies.

I asked CSI1 for his opinion regarding the performance of the two team styles (*Specialist* and *CFTs*). I felt that as a Research Director, with responsibility on learning, and systems

improvement for the delivery of world class project management, his professional opinion on the difference between the two styles was valid. His response was that *CFTs* are more effective while their *Specialist* counterparts are more efficient. Then he added that:

‘Effectiveness is more important than efficiency’.

This answer is consistent with what (McDermott 1999) had written. In his example, using the oil and gas industry, he stated that using CFTs resulted in better performance. Information flowed better between the different specialities, leading to better solution. The protagonist of his example, Mary, could for example share information immediately which previously she would have had to wait for team meetings to do.

As a follow-up, I asked the RD how he thinks the difference in the styles might affect learning. While he was not sure (i.e did not have empirical evidence for his answer), he felt that it could be that CFT (being effective) could be more suited to tacit learning than specialist learning.

When asked the same question, on performance of CFT and Specialist teams, CSI2 responded that CFTs are effective for solving complex problems. He stated that CFT *‘utilises learning in a good way since you experience other ways of thinking, working’*. He concluded by saying that CFTs encourage open-mindedness to other areas than the ones where one traditionally works.

On the other hand, he suggests that if team members have the same knowledge, and the objective is to gain deeper understanding of common knowledge then specialist teams are best suited for this.

He cautions that while in-depth knowledge is necessary from time to time, caution must be taken not to develop *‘sectionalism’*. This view is consistent with McDermott (1998)‘s analysis on the shortcomings of specialist teams. Literature also cautions that teams should guard against developing institutionalised thinking within a team, leading to path-dependency. New knowledge can only be created if a new approach to a problem can be identified, rather than depending on the thinking that *‘This is the way things have always been done’*.

CSI3 also supports her colleagues' views on effectiveness of teams by stating that team effectiveness is situation dependent. In '*in-depth problem solving*', she recommends that specialist teams should be used.

However, when you '*just want to get information or share competence*', she suggests CFT. She states that one has to think about the project as well. Some projects are well suited to CFT and others for specialist teams. Therefore, before assembling teams, one should look at this aspect.

From the above, one can conclude that where the project is well defined and known to everybody, then specialist teams are a good means of operation. However, in the event that the project is exploratory and vaguely defined then CFTs are the best approach.

While specialist teams will equip team members with more skills related to their professions (i.e. the latest practice or new technology developments related to their profession), CFTs result in learning of new skills, outside their functional areas.

While some literature (Mohrman et.al 1998) back up the above conclusion by the three interviewees, a number of them seem to be of the view that communities of practice are best placed for tacit learning (Irick 2007; Brown and Duguid ,1991; McDermott, 1999). This is not to say that they feel that CFTs are not best suited for tacit learning. Rather, it seems the rationale is that CFTs have to also organise themselves into CoPs to best leverage their knowledge management abilities.

For example, in the article in support of CFTs for tacit learning (Mohrman, Tenkasi and Mohrman Jr 1998), there are three conditions that must exist for New Product Development CFTs to effectively learn. These are :

- Collective identity and collective learning
- Heedful interrelating and collective emergent knowledge
- Surfacing and integrating tacit knowledge for collective learning

A careful analysis of these will show that they share similar characteristics as communities of practices; where individuals have to have collective identity, interrelations that result in emergent knowledge and integrating the knowledge (which is more often tacit when it first emerges) for common learning by members of the community. The most important is the

continuous use of the term ‘collective’, which resonates with what we have already seen about CoPs.

Therefore, in combining the conclusions made by CSI1, CSI2, CSI3 and literature, I would state that CFTs that are organised into communities of practice offer the optimum means for sharing tacit knowledge.

Going back to the company structure, below I will briefly explain two formal organisational positions that are meant to enhance internal team performance for the organisation.

Section Managers

These are the functional heads of the different divisions found within the company. They are responsible for ‘Results and Markets’. Therefore, it is up to these sectional leaders to ensure that their divisions remain economically sound. They have to market the company (in their area of expertise) and ensure that the subordinates do enough ‘paid work’, as opposed to ‘non-paid’ internal work. As CSI1 put it, the Section Managers ‘create economic results and are responsible for selling the company’. Therefore, their regard with respect to team members is on how they can leverage their skills into a profitable venture, while respecting company values and human resources policies on workplace environment.

But as CSI3 points out, section managers depend on team managers to guide them on whether jobs the section managers are considering to bid on are appropriate for the teams. In other words, it is team leaders who know what capabilities they possess, and for what they can bid. She also added that they, team leaders, are the ones who prepare the bids. Which is practical considering how technical bidding information can be.

Team Leader / Managers

This is recent function. In fact in Trondheim, it started in the first quarter of the year 2012. Other offices like Oslo have had an earlier start. These positions have always existed informally. However, the organisation took the decision to formalise them and give them legitimacy. Their responsibilities are professional development of team members. This would be achieved through: Learning, Systems and Tools (which would be implemented differently and specifically for each functional department projects).

The team managers are tasked with learning and experience transfer, ‘*working with knowledge and systems in-house*’ according to CSI1.

They are also expected to convert the organisational-wide generic systems/procedure/templates to fit their departments (e.g IT, Building). CSI1 commented that:

‘the reason why we do this (have each team manager focus on tools, systems etc in his section) is that these projects are different. So they need different things. They need different tools...And there is different experiences and knowledge involved’.

As a team leader, CSI3 divides her responsibilities into three main areas:

- Occupation (jobs)
- Market
- Team development

She states that while she has always had the responsibility to get jobs for herself, now this is formalised and she is also expected to get the jobs for others as well. She has to make sure that her team members are always occupied. As she states *‘we need the jobs to make money’*. She has to use her contacts and networks to get these jobs. Of course the other team members also use their contacts to get jobs, but these are not as formalised responsibilities as it is with her.

Since most of their jobs are with governmental or quasi governmental organisation, WTO requires that such jobs should be publicised and subject to competitive bidding. Therefore, once she, a team member or section manager has identified such a job, she has to work with the section manager and decide on whether to bid for it or not and how to go about it. Then when this is done, it is her job as team manager to prepare the bid and write the proposal.

In terms of *team development*, she states that she is responsible for *‘performance enhancement and mobilisation through new ways of doing things’*. She is responsible for making sure that her team members learn from each other. She organises weekly meetings where they meet to discuss as a team.

Last, she is responsible for results or the market, together with the section manager. She has to get feedback from the market and learn about new practices in her industry as well. Then she has to communicate this back to her team.

She is not responsible for administrative issues related to her team members. In her words *‘ I don’t have personal responsibility (for her team members) because we are a flat structure’*

The motivation of formalising these positions (Team Managers) was to legitimise Communities of Practices (CoPs) that existed in the company, and in the process foster learning among employees.

4.3 Knowledge Management in the Case Company

The case company, as a knowledge organisation is engaged in constant knowledge management. While this takes various forms, I will look at some of these knowledge management efforts in terms of Technology, Corporate Culture and Corporate Structure.

4.3.1 Technology for Knowledge Management

SharePoint and Knowledge Management Systems

The case company has organisation-wide intranet platform that is accessible to its employees from anywhere in the world. This system, *SharePoint*, allows employees to access tools, systems and templates that they can use for project management. It also allows employees to upload those systems and templates which they feel might be useful to other members of the company.

In the event employees feel overwhelmed by a task and need guidance from people more knowledgeable (expert), they can use the system to identify the relevant person to help them within the company. The Research Director supervised the deployment of this *knowledge mapping system* in 2011. He first conducted what he termed ‘knowledge survey’, where he asked staff members about their knowledge capabilities and those of their colleagues. Then he built a database for this knowledge and incorporated it into SharePoint, to create Knowledge Mapping System. Therefore, company employees are available as knowledge resource to each other

When asked about the advantages of SharePoint to teamwork, CSI3 for example states that with the system:

‘I can have communication with others in my team, more smoothly than before (SharePoint)’.

She says that it is easy to have information available to or from others. The other advantage is that it helps give the organisation a professional outlook, as explained by the example below.

As an example, Infrastructure department will be holding a seminar (May 2012) for their industry. They invited external participants (NTNU, JBV etc...). Most of the people invited are their clients, as well as others in their professional circle. Therefore, it is important to keep good impressions with them.

Using SharePoint she was able to send them all invitation to the seminar using SharePoint. Then the people could just click to respond to the invitation, instead of sending her an email. She says of this system:

‘That was a very nice experience; because I can do it more professionally’.

Video conferencing

The organisation has several meeting rooms in most of their offices in both Norway and Sweden. These are equipped with video conference technology. On the walls of each of these video conference rooms, there are two big screens and a revolving camera. The camera captures the room (and can be rotated through an angle of approximately 160 degrees to capture any part of the room). Then the images from the camera are uploaded on one of the TV screens, so that members can see each other while they talk. The other screen can be used for uploading PowerPoint presentations. Therefore, members can see both the presenter and the PowerPoint itself. Likewise, the presenter can see not only their presentation but also the participants from other offices. Let’s take an example. If someone from Trondheim presents on ‘Knowledge Management’, they will be able to see their presentation and participants from other offices. Let’s say the other participants are from Trondheim, Tromsø, Oslo and Stockholm. The screen on the left would have quadrants representing an image for each of Trondheim, Oslo, Stockholm and Tromsø. While this is not quite the same as face to face communication, this mimics it as well as it can be possible.

In fact, CSI3 stated that she and her team use the technology regularly to communicate with Oslo office. As she states,

‘The main person with responsibility for the infrastructure (department), he is sitting in Oslo’.

Therefore, the technology helps them to communicate with the Oslo office.

Personal Blogs

The SharePoint system also allows employees to upload their personal blogs for viewing by others in the company. While the company is considering restricting these personal blogs to teams instead of individuals, it is still a means for the members to share knowledge. Members can upload or write about topics of interest to them and other members of the company. The use of social media can be a means of communication and social interaction. As has been stated before, socialisation is a good means of learning.

MicrosoftLync

When asked about methods she used to share knowledge, CSI3 talked about *SharePoint* and the knowledge management system.

However, she felt that there is a drawback to *SharePoint*, as currently deployed in the company, especially on collaboration between colleagues in different offices. SharePoint limits collaboration among colleagues since it does not allow real-time collaboration. Members have to wait for one another to finish with the document before they can make changes. She said the company plans to get *MicrosoftLync*. She was hopeful that it might happen after the summer of 2012. The system will help resolve the collaboration problems. As she commented, regarding the reasons for getting Lync :

‘In the SharePoint solution you can’t share documents. You can share them but you can’t share them in real time’.

I asked her if she means that in Lync collaboration will be in real-time and she replied in the affirmative.

Upon looking up on MicrosoftLync , I confirmed what she said. According to a Lync demonstration video, Lync is a *‘virtual connection between you and the people you work with; that lets you talk, share your desktop and applications and work together in real time’.*

Lync functions just like a social network, allowing the user to share their status, appear both online or offline and communicate via video conference using the computer webcam. Lync can also forward calls to a pre-set number, if the user is away from the office. This feature was confirmed by my supervisor who works in an organisation that has installed Lync.

The video further demonstrates that Lync can be used to conduct a team meeting by inviting more people to the conversation. Then documents and application software can be shared, even with people who do not have Lync.

Should the organisation install this system, this will go further in encouraging collaboration and socialising among its employees. This is in line with knowledge management practices as encouraged by different scholars who believe that social interaction is an important component of knowledge sharing ((Brown and Duguid 1991;McDermott 1999; Hendriks 2004; Roberts, 2000; Nonaka and Takeuchi, 1995)

While the interviewees were enthusiastic about the system, they also are cautious not to be over reliant on it.

CSI2, for example states that while he is good with technology, he rarely uses it to transfer knowledge or communicate. He doesn't use SharePoint that much, for example. His reasoning being that he believes in communicating face-to-face.

This view is shared by CSI3, who also believes in human contact and that people should meet face to face, for effective communication. A part of our conversation regarding this is reproduced below :

'As a team we should talk to each other know each other...'

- CSI3

4.3.2 Corporate Culture and Corporate Structure

Various scholars, among them Hendriks, Roberts and (Lopez-Nicolas and Meroño-Cerdán 2009) believe that there is link between how willing an organisation is to sharing knowledge and its corporate culture. While they may not agree as to whether or not cultures such as *Market-oriented* organisations inhibit knowledge sharing, they all feel that an environment where people socialise and are encouraged to share such as the clan culture encourages sharing.

Corporate Culture

When I started the research, I had not planned on engaging in observation of the case company as a core part of my research. My reasons for not wanting to do an observation-based study were:

- i. *Interference*- I felt that if the members of the case company were aware that I was there to observe them, they might change their behaviour in response to my participating in/observing their daily routines. In this event, I would have interfered

with my own research and the results would not be reflective of what actually happens on a normal day

- ii. *Limited Language skills*- Even if I could overcome the reason above, I felt that I could not fully understand the interactions because of my limited language skills. If I could not understand them, then I couldn't make concrete conclusions on the company.

The above misgivings notwithstanding, I did end up including observation in my research method. This was spontaneous; taking advantage of an opportune moment that had arisen. During my research I visited company offices regularly. While waiting for people with whom I had appointments, I got an opportunity to observe office behaviour that forms part of the corporate culture. Below I outline these and how they affect knowledge management (and tie in with Teams and Communities of Practice).

Of course some of the corporate culture that I write about below is based on the interviews and document analysis that I did as part of my research.

Collaboration

As I have already stated, the organisation has a number of meeting rooms (with all about one equipped with video conference technology). On a regular basis I observed employees gathering in these meeting rooms for presentations or to discuss with other team members using video conference.

I asked CSI1 about this. He told me that it is normal for teams of employees to hold meetings, sometimes with their colleagues in other offices. This was confirmed by CSI2 and CSI3. In fact, CSI3 in a separate interview regarding her role as a team manager (Infrastructure) stated that she has meeting with just her team at least once a week. She reasons that since most of them work outside the company with their clients, they need these meetings for team development.

On these meetings, she said they are a good way for the team to measure its capabilities, keep abreast with the needs of the team members and what they think is important:

'Trying to feel what capacity we have, what competence we have. What we can do together to get better...How can we get knowledge into our company from others'.

-CSI3

Development Discourses

When talking about knowledge sharing, CSII mentioned that there is a concept within the organisation known as developments discourses. While he couldn't remember the Swedish name used for this concept within the company, he stated that developments discourses are '*probably a little bit more important*'.

They are an informal set ups where people get together and discuss. According to the interviewee, they are not so much professional but '*between the people themselves*'. They get together one afternoon and they sit together :

'Someone presents a problem or project; sometimes experiences...Then we discuss how we can kind of learn from this; what we can take with us to the next project. Or they might present a problem...The team comes together and discusses...'

-CSII

We can see from the above that not only are these *developments discourses* used for learning, they can also be a means for solution generations by discussing problems and experiences. Once again, we are brought back to learning and innovation being tied to practice. We see *antiphonal recitation* already mentioned by (Brown and Duguid 1991) being practised by the company.

I had an opportunity to take part in one of the inter-office collaborations. My contact in the company, CSII, told me that they had planned a meeting for May 8th from 1500hrs-1900hrs. As stated above, these are regular meetings where they come up with a topic (in this instance '*learning*') and discuss about it. I had seen the meetings from afar before. Usually they discuss more 'practical' issues relating to their company but since this was a topic within my research area I decided to join in and see how these meetings actually work (more so that they involved people from Oslo and Stockholm, via video conference, as well).

Collaboration is not just limited to video conferencing. As I have already stated, teams from different offices usually work together on similar projects (an example being CSI3 and how she works with Oslo office, as described previously).

Flat Structure and Collaboration

One of the observations I made during my company visits were that instead of having individual/private offices the organisation uses *team-oriented bullpen* open plan architecture. I asked the interviewees about this.

CSI1 told me that only the CEO of Norwegian part of the firm has a private office in the Trondheim office. Even he, CSI1, as a director does not have an office. He believed that this is good for communication and exchanging of ideas. As a professional who has worked in organisational development areas (which is his current responsibility in the firm), he felt that this encourages a culture of openness. One can walk up to a colleague or talk across their desk and discuss a problem.

I asked if the office desks were arranged in any sort of order or randomly allocated. He showed me around the office. The office was divided into sections, where workstations were grouped together according to the departments in the company. There were Project Execution, Infrastructure department and the Business Development departments.

During this tour I was able to observe two colleagues (in the Project Execution department) working on their respective computers while at the same time conferring with each other. The proximity of their desks (being next to each other) made it easier from my point of view for them to exchange ideas while at the same time working on their individual tasks. Since this was during working hours, I did not get ask the observed employees if this was a common occurrence.

It (discussing with one's neighbour) seems however, to be common, based on CSI2's interview. When talking about the organisation and its culture he noted that in the beginning when he first joined the company (about 10 years ago) people had what he termed the '*Lutheran work ethic*'. Employees came early in the morning, got a cup of coffee and went straight to their desks and started working from their stations until it was lunchtime. Then they took a 30 minutes lunch break before going back to their desks again until it was time to knock off.

He felt that this culture was not well suited to learning within the organisation. That it was not a good culture for more informal communication and spontaneity.

However, he feels that over the years the culture has since changed (or 'developed' as he put it). People interact more. He says about the company's architectural office layout:

'..Has great and positive impact on learning and also communication...It has been an open culture to help each other'.

He states that it is easy to ask and easy to get a good answer. He concludes by saying:

‘...helping is a vital part of this culture’

I asked what he feels has been the reason behind this change in attitude, where people are now freer to ask each other and communicate informally while before they had a more Protestant attitude towards work.

He attributed the change to three reasons:

People coming into the organisation- He felt that as new people came in they changed the culture of the company for the better. People started interacting more.

People leaving- He felt that some people leaving the organisation also affected this culture. Some of the people more inclined to holding onto the Protestant ways of working left the company.

Young people- While he concedes that young people might still feel that some of the older people are not that ‘approachable’ for informal social talk, their presence in the company has made the culture more open. He gives the impression that the Protestant culture which is identified traditionally with Scandinavian countries is not as strong among younger generations, hence the change.

He also feels that the way the company arranges its offices (lack of individual offices) contributes to this openness.

‘Single offices...would have been very different situation’

- CSI2

CSI3 is also enthusiastic about the open office plan. She feels that it ‘*equalises everyone*’. She feels that this is important since Case Company is a flat organisation.

‘It is a flat organisation and we want to be a flat organisation’

She also feels that it aids in communication:

‘It is easier to talk to each other when you are sitting so closely...We can discuss with the other person from the other side. We can go to another person and say “what do you think about this?”’

But she agrees with CSI2 that not everyone is open, that some people (though a minority) are not easy to approach within the organisation.

According to the interviewees this office arrangement is a deliberate plan by the company and it is arranged in this manner in all of Norway. However, in Sweden some people (other than the CEO) have private offices. I was able to observe during the video conference discussion in which I participated that while the people in Trondheim and Oslo were in meeting rooms, the gentleman in Stockholm was in a private office in front of a computer.

The desire to have a flat structure and 'equalise' everybody as one of the interviewees put it, is consistent with Norwegian culture. Like other Scandinavian cultures, Norwegians believe in egalitarianism. There is a principle in Scandinavian cultures called the *Janteloven* (*Jantelagen* in Swedish) which translates to 'Jante's law'. The principle could be summed up to mean 'Don't think you are better than your neighbours'. While this can have negative connotations, it can also be used as means to encourage Scandinavians to treat each other with respect and close the power distance. In fact Scandinavian countries score low on the power distance scale of Hofstede's culture dimensions.

But if Scandinavians are used to equal treatment of each other and are classless societies, then why do the Swedes (unlike Norwegians) have private offices?

The companies merged in January 2010. Therefore Sweden already had its own space, including the private offices. But the answer as to why they have them in the first place could be found in EI1's interview in (Keikotlhaile and Li 2011). The interview in contrasting the way the Swedish part of the company works from the Norwegian. He talked about Swedes being comparatively more industrialised than their Norwegian colleagues. They are more hierarchical in structure, whereas Norwegians are not. He asserts that this is because Sweden has a more industrialised economy compared to Norway.

This of course, does not mean that Sweden has high power distance or that the Swedish part of the company is not a flat structure. Rather, the developments of the two national cultures over the years have created a degree of difference between their egalitarianism. Necessity has forced the Swedish culture, which is more industrialised, to adopt more hierarchical structures that are necessary for managing industrial economies. But it does of course still maintain some of the egalitarianism elements.

Company Meals and Kitchen

During my first visit to the company, I noticed that they had a well-equipped kitchen with all the modern conveniences including dishwasher, coffee maker, fridge and microwave oven. They also have crockery. Beyond the kitchen is a long serving table and what can only be described as a 'dining' place. The dining place had tables and chairs to sit about four people. Some of the tables were put together to increase the number of people who could sit there.

By chance, the following day I had arranged to interview CSI2 and CSI3 on the same day. My first interview ended at lunchtime. CSI2 invited me to have lunch with him and his colleagues since I had to be there anyway. That is when it occurred to me that there always seem to be people using the kitchen. I asked if it's normal for him and others to have lunch from the kitchen. He replied in the affirmative.

Company employees get to make sandwiches and have fruits and fruit juices for their lunch. The company provides the bread, assorted meats, bread spreads, everything. In return the employees pay 20 Norwegian kroner for the lunch. According to CSI1 :

'...for us it is part of our company culture, so even the smallest Faveo offices have this - both in Norway and Sweden'.

This is an unusual scenario. Most Norwegian employees pack their own lunches, mainly open sandwiches (commonly known as 'matpakke', a Norwegian word for packed food). At NOK20, these lunches were considerably cheaper and subsidised relative to their actual costs.

When I asked CSI1 why this (kitchen and eating together was done) in the first place, he replied that :

'Some of our employees stick to matpakke, but most people find that this makes the lunch into a far more enjoyable social event. That is also the reason for the arrangement. It is one of the specific things we do to make our employees feel at home and appreciated'.

The (positive) side effect of this is that company employees gather in one place and have lunch at the same time. They get to socialise in an informal setting, developing their own social groups. Eating together is a global custom that symbolises friendship. In fact in modern parlance, it has become common for people to talk about 'breaking bread' when they sit together to talk, usually to find a peaceful resolution to their disputes.

In the case company, this eating together has helped foster relationships among colleagues as shown by CSI1's statement :

'...a typical tendency for the same people to end up together at the same table. This is only natural. Even if we are all colleagues, some people are closer friends than others'.

Therefore this routine of eating together fosters relationships that go beyond work colleagues. Individuals develop friendships. During the lunch in which I partook I noticed that there were different groupings, most of which were engaged in various topics. Some of them were more jovial and personable, others more measured and sombre. Yet from what I could observe everyone found a group that fit with their personality.

CSI2 for example was sitting in a table with two of his colleagues (and me). As an introvert, it is not surprising that he chose a small table with few people. Across from us on the other hand was CSI3 who was sitting on a table made up of mainly ladies from the office. They had joined together two tables and were about eight (8) of them. Their conversation was more animated, fitting with her rather extroverted personality.

This 'kitchen' is so popular in fact, that others also use it :

'In Trondheim we also have the people in the office next door come over for lunch in our canteen. This has been a popular thing in the neighbour office - but I have not observed that people from the two offices mix during lunch. I expect the neighbour office pays their fair share of the total cost'

-CSI1

While as yet the two companies do not interact, this is a good step. The neighbouring company is involved in the same industry as the case company. This represents a good opportunity for expanding the communities of practice for the two companies.

4.4 Formalising of CoPs in the Case Company

In any organisation with large enough members, communities of practice will grow spontaneously. This is the case with Case Company (CC). They have a number of communities of practice. Most of these were originally bootlegged. However, with the merger between the Swedish and Norwegian companies, the Research Director who had been one of the founding members of the Norwegian company was brought back into the new entity, the CC. His mandate included organisational learning. As part of this, the organisation

has introduced a raft of changes which have led to Communities of Practices being legitimised.

Advisory Board

One of the earliest problems facing CC's research director was creating a system acceptable to members of the organisation in both Sweden and Norway, for the purpose of knowledge sharing. While knowledge sharing cannot be induced by technology, (Hendriks 1999) writes that wrong technology can be impediment for sharing knowledge.

The problem that faced the organisation was that it was saddled with two incompatible systems (legacies of the previous companies), with neither part of the organisation (Swedish or Norwegian) in a position to give up their own for the other. So a new platform was installed. This represented an opportunity to carry out knowledge mapping system.

Upon completion of the knowledge mapping system, the Research Director came to the conclusion that most of the knowledge contribution by employees was haphazard. Since any employee could upload any information that they felt was relevant, most employees (with the best of intentions) uploaded a lot of information, most of which was redundant. This made it harder for employees to find the relevant information amid all this chaos. It was essentially '*knowledge junkyard*' that we had already talked about. Frustrations with these systems could have negative impact in knowledge management, which does not bode well for a knowledge organisation such as CC. To solve this problem, the organisation decided to create 'gatekeepers' who will ensure that the company only kept information that was useful and in the process was easily identifiable. That is when they came up with the idea of Advisory Board (AB).

The way it's envisioned, AB will be made up of 14 members from across both Norway and Sweden. These would be the research director (in his capacity as the RD and rector of the case company academy) and 13 experts from the organisation. Seven (7) of these experts are from Sweden while the balance are from Norway. As the RD pointed out, it is mere coincidence that these experts are geographically divided in this manner (evenly between Sweden and Norway). Equitable distribution of these positions between Norway and Sweden was not a factor in appointment of members of the advisory board.

The responsibility of the Advisory Board will encompass systems, tools and learning just like team managers. However, unlike team managers, they are not functionally involved. They act

across sections. AB members could be considered in organisational science in the same manner as support staff who have to work with functional staff on matrix projects. Their expertise is general. The team managers are tasked with taking this generic knowledge and adapting it for their particular situation. CSII describes Advisory Board members duties as follows:

'They are trying to create world class project management'

They create generic knowledge and models and determine what constitutes world class standards in their respective fields of expertise.

'It's too early yet to say whether this advisory board will actually work as a team or whether they each have their own responsible area'

What is however clear is that the 13 specialists will have their own area of expertise. They will have

'The mandate to create their own, if they like, network or team around them'

This network can be viewed as a community of practice. Since these people were chosen based on their previous work in their professions and the respect they have already commanded, one can view them as *coordinators* who double as *core contributors* in their community.

The advisory board (as noted in earlier chapters) will have the responsibility to filter *'what is useful to the company from what is not'*, as CSII put it. He feels that currently information is just stockpiled without any order or system and that *'it is too much'* to be useful to the company. CSII attributes this to the fact that they haven't had proper control mechanisms to control the quality of workers' contributions. Too many mediocre contributions have apparently mixed with the good ones, making it hard to distinguish the two.

Under the AB,

'good systems should be handed to AB who will decide what is right or not'

- CSII

The advisory board is appointed by the organisation's research director on behalf of the corporation. He stated that they will be taken from members of sectional teams, but that once

they are appointed they would not be allowed to hold both positions; *'That will be too much'* he said, regarding AB members being sectional team members simultaneously.

As to the selection criteria, CSII, as the appointing authority said that they will be taken from each section, office and country. His stated objective is to try and find balance. However the overriding objective was to find the right person for the job. Such person should possess:

Theoretical Knowledge- Members of the advisory board are expected to be well versed on theories of project management and the systems, tools and models being used. They should have natural interest in their areas and keep up to date with the latest industrial practices.

Experienced- Since they are expected to develop models and tools for the use by the entire company, it is not enough for the members of the board to have theoretical knowledge. They are equally expected to have used it and *'continuously, regularly'* too.

Convincing- Members of AB are expected to command respect and be able to convince other members of the organisation, *'even sceptics'*. Since they will be bringing about changes, they will be meeting a lot of resistance from people who naturally like this fine *'just the way they are'*.

Energy- Members of this part of the organisation are expected to exhibit energy to do their job. They should have the enthusiasm to work in this area and help others.

Among the challenges of setting up the advisory board, CSII feels that selecting a member of the board is not as easy (comparatively) as that of team manager. Not to suggest that selecting team managers is easy, but the requirements are not the same:

'There is very often in an office where you have one speciality like say Building projects. If you look at the people that work with building projects you will very often find that there is one that seems to be the one that sticks out; The one that is more powerful, energetic, more convincing. Maybe accepted to know more than the others. So in most cases I don't think they have to look very far...'

CSII

This is not so easy to establish in AB. One has to consider the different sections, the talent involved, experience and enthusiasm. Some people might also not want to leave their everyday jobs (sectional positions) to work in AB.

While members of the advisory board were new in their jobs (appointed between April and May, 2012) they were expected to look at all the information or knowledge contribution by their colleagues in the company platform. Then they were to select those contributions (in the form of models, tools and systems) that they feel are ‘world class’ or contribute to the company attaining world class project management. Then these will become company standards.

Going forward, ordinary members would not be able to upload models, systems and tools directly on the company platform. This will be the preserve of the AB. If a member for example has found a model that they think could be of benefit to others in the organisation, they will propose it to the board. Then the responsible member of the board (with the help of their team/network) will evaluate it. If the system meets their criteria, they will adapt it into a generic system and make it available to the rest of the company via SharePoint. Of course individual team managers/members are free to download the generic model and adapt it to suit their own specialist areas.

The board members will also benchmark against the industry and will always be on the lookout for ways to improve the way they do things in the the company.

Team Management

Team managers were selected on very much the same basis as advisory board members: experienced, convincing people who are natural leaders in their field. Their major difference from AB members is that there is no need for geographical balancing. They will be appointed in their respective offices and work from there.

Commenting on the criteria for team mangers, CS11 talked about them being:

‘...more powerful, more convincing; maybe accepted to know more than the others’.

Being powerful in this context is about having earned the respect from others. We see that characteristics talked about here match those of *coordinators* and *core contributors* in communities of practice.

These positions were formalising positions that people already held in the informal setting within their respective communities. An example is that of the team manager in Infrastructure in Oslo. On different occasions, both CSII and CSI3 mentioned him as having been involved in infrastructure department development. He has always been viewed as the ‘Go-to guy’. The only difference is now his position has been formalised and he can legitimately devote more time towards learning and development of infrastructure department during working hours.

The organisation has a concept called *debiteringsgrad*. This is a Scandinavian word which roughly translates into ‘degree of chargeability’ or ‘billable hours’. It is about how much time the employee is expected to use for company related work. Team managers, like their advisory board colleagues, will be able to spend 10% of their work time (*debiteringsgrad*) on duties related to team managers. Such duties could be knowledge management, team development and sourcing jobs in the market for their teams. While *debiteringsgrad* is not new to the company, the allocation of 10% of the total *debiteringsgrad* to team management is new. This means that team managers (who can also be seen as CoP coordinators and contributors) have less stringent requirement regarding billable hours. The hope by the organisation is that now that they have fewer hours to work for clients, they can use these to develop their respective communities.

Collaboration and cooperation

The developments discourses encourage team members to collaborate not just with people within their own department or in their office. They get to interact with others from other offices and departments. This leads to them developing new networks for interactions. This widens the individual’s network; not only will they have access to their colleagues’ competencies, they will also have access to most people in the colleagues’ networks (through these colleagues as well).

Encouraging cooperation and creating social interaction outside formal office hours is also a means by which the company (unwittingly or otherwise), formalises communities of practice. Instead of leaving it to chance that team members might find a way to get along and be more than work colleagues, the eating together of meals creates an opportunity for friendships (within and without the company).

Collaboration and cooperation are the central points of communities of practice. That is where members get to form their social interactions, establish values and identities. As

Wenger and McDermott have illustrated, communities of practice need domains and identity under which they will work.

Mentorship

When talking about communities of practice, scholars talked about the need for mentoring by senior members towards junior ones. (Ferrán-Urdaneta 1999), for example wrote that:

‘Many members work on ensuring that someone will replace them when they leave or die’.

The case company strongly believes in mentoring. CSI1 considers one of the critical challenges of the organisation to *‘get a mentor willing to give his time to his protégé’*. He talked about the need to find the right combination of people. Apart from technical skills, they spend time trying to find someone who is not only willing but able to do the job. They devote time into mentorship programme, which the company organises formally. The organisation as shown above wants to match the right mentor with the right junior.

CSI1 feels that *‘being a mentor is not for everyone, unfortunately’*. And that they still haven’t found the right way to implement it, they are still looking at ways to do it. The desire to improve upon this shows the organisation’s understanding of the importance of transferring knowledge to new employees in a more social based setting.

As part of his job, as an expert on leadership and organisational development, CSI2 was also involved in mentoring. Not only did he mentor other employees, but he was also responsible for arranging mentorships for others and supervising such mentorships. He used his knowledge to try and match new employees with those seniors who can best provide them with mentorship. He states that as part of his contribution to career development of the new employees, he tested them through interviews and used the results to place them appropriately:

‘Some prefer the broad picture of the organisation...others prefer working with details.’

He says part of his job is *‘get people jobs they find interesting’*. He has in the part acted as supervisors for some people, at the request of their leaders.

4.5 Interviewees Thoughts on Communities of Practice and Teams

While I had noticed the existence of communities of practice in the organisation, I realised that none of the interviewees had actually used the term '*communities of practice*'. They had discussed about the importance of socialisation, openness and even referred to 'networks', but not directly 'CoPs'. Therefore at the end of my interviews I asked them what they understood about the term and if they think these were practised within the organisation. The motivation was not so much to establish if CoPs existed or not (I had already established that in my investigation). Instead, it was to see if CoPs are something the organisation's employees think about or whether it just happens because it feels 'natural' to them. Below I give a brief response of each of the interviewees in this area.

4.5.1 CSII's Views on Communities of Practice

As the first interviewee, I was aware that CSII was well versed on knowledge management, having worked in the area (especially research) for a long time. Therefore, I expected him to know at the very least, the meaning of the term.

He feels that there are some communities of practice within the Case Company. He further elaborated by saying that until recently teams were informal but that now they have approved status in the organisation. While he feels that there won't be a huge difference in practical terms, he considers important that they are now formally acknowledged by the company.

He feels that before it was unclear with roles, since there were no team leaders. But there were still people with informal authority within the organisation. He gives an example of production managers in building. He said they have had their own community for a long time, with the leading figure based in Oslo.

He also talked about personal relations that exist among members in the same functional divisions but different offices. That they keep in touch and talk to each others. The technology makes this possible; video conference systems, telephones and internet/platform.

When I asked if there is no control over such communications (from the company) he answered in the negative:

'There is absolutely no control over this (communication among colleagues using company systems). And we don't want it to be controlled. We want this to be dynamic hands-on, real-time'

He did however say there are some ‘unwritten’ rules on what you can or cannot do, driven by common sense, company policies, and values. One cannot for example expect a colleague to answer when they are in a meeting or in the middle of something.

Other than these and ethical guidelines, the organisation does not have regulations on how people communicate within the organisation. Company personnel can also communicate with people on their networks who are not employees of the company. The organisation encourages such collaborations.

On the challenges faced by the company regarding communities of practice, he talked about two main issues: matching personnel and strategy alignment.

Personnel Matching: He felt that it is difficult to find the right people and put them together. That some specialists have too much on their plate. *‘If you are really good, a lot of people would compete for your services’*. And he feels that is a problem. *‘...we don’t find a way to make sure that the right people are put together in the right way all the time ...’*

While the company does try in this area, there are some criteria that make this difficult. It’s not possible for anyone, project or team to have the best resources all the time. The organisation has to balance the distribution of resources. This therefore means that a sacrifice has to be made; sometimes meaning people who would work best together don’t get that chance.

Strategy Alignment: He also talked about a mismatch between the strategy as conceived or viewed from the top and its consequences at the bottom. He talked about how *‘what people do down there, tend to do things different from what is aligned with strategy’*. He feels the challenge is to keep people aware and on the same direction as strategy.

The second problem could also be the company’s misunderstanding or view of strategy. Some scholars in organisational strategy (including Henry Mintzberg) caution against a ‘top-down’ approach towards strategy, where the CEO is seen as the designer and the workers just ‘implementers’, without a say in it. It could be that the employees by ‘going against’ the organisation’s strategy wishes are forced by circumstances. Maybe the strategy is out of touch with reality. (Brown and Duguid 1991) in their seminal work, regarding issues on *canonical and noncanonical practices*, talk about misalignment of reality with theory. They state that when organisations write instructions and standard operating procedures (SOPs),

they write them in such a manner that is devoid of reality. This forces the practitioners to adapt their practice and in the process veer away from theory.

Therefore, I would advise that before talking the staff into adapting to the organisational strategy, the organisation should try to find out why they are doing things the way they are right now. They should work on adapting the workers' practice into the new strategy. This is what Mintzberg calls the '*emergent strategy*', one founded on what obtains in the ground (and therefore more responsive to the environment in which the organisation operates) not what is designed at top-level.

4.5.2 CSI2

Talking about his communities of practice, makes a point of showing that it is not always necessary to be connected to a lot of people for you to have an effective community.

'I have a network of colleagues and people that I trust...I won't say it is very large but it is a very good network for me'.

He continues by pointing out that while most of the literature and people in general think '*communicating all the time with a lot of people in different areas*' is very important for knowledge sharing and knowledge development, other people are different.

One such difference is between introverts and extroverts. Introverts have few people that they trust and with whom they communicate. This does not mean that because their networks have fewer connections they are any less effective. As an introvert himself, he noted that delivering his knowledge within the company's system is done in a manner that adapts to his personality. He is less inclined to chitchat or small talk. Instead he takes advantage of formal structures such as the company's academy, one-on-one mentoring and small groups.

While he would like to engage in more 'extroverted' activities he concedes that this is easier said than done. That one can't overcome being an introvert with the snap of their fingers.

He feels that there are different CoPs. Some like his are not very large. But he is not worried about their size since '*it is quality that is important*' to him. He also says that the communities exist outside the organisation.

'...Also outside Case Company. It is not limited...even my business area, NTNU, former colleagues'

-CSI2 (on Communities of Practice and their presence within and without the company).

He concludes by stating that in his experience and knowledge, he feels that a team can also be a community of practice. '*I think while teams are rooted on work, the communities of practice are more rooted on knowledge*'.

He elaborated this by saying that teams have developed into organisational units; that they are an organisation's answer to leadership, coordination and goal setting :

'The administrative role is not so very interesting to me. I am looking for the people to work with; and have these trust and support and learning possibility'

This last quote above clearly shows his understanding of the difference between teams (as administrative mechanisms) and communities (as networks for learning).

4.5.3 CS13

Even though she had already talked about them, in particular her 'networks' and those of her colleagues, when I first asked her about communities of practice she was unsure and hesitant at first. This was not because she felt that they didn't have but rather she was not sure if her understanding of the term was what I had in mind.

She said she has her networks which she uses for sharing knowledge.

'I think we have that kind of community in Case Company...We try to develop our knowledge...and informally, yes I think that as well'

She also added that it varies from person to person. According to her, some individuals have hunger for knowledge; to know more about things and develop further. But she also said there are those who are comfortable with what they know. These people feel that *'I have done this, this way for so many years. This works'*.

Since most of the employees have been working before joining the organisation, she states that they have developed their networks outside the companies. She says these networks work both in informal and formal capacity.

'We also use our contacts to get jobs. Then it is formal. But we also use other people to get knowledge. So it's both (formal and informal)'

She finds that the office architecture helps in informal discussions too. When they have to have formal discussions then they have meeting rooms that they can use.

'For me it's more open...I feel like both information and knowledge flow much better when you are open'

Some offices are good in some areas and others in other areas. So when staff members have a problem they can call each other or use SharePoint. While she feels that there is knowledge sharing among colleagues, she feels that there is room for improvement:

'We are trying hard (to share knowledge) but we should be better'

She also likes that there is freedom on how workers carry out their duties and that there are no obstacles.

Chapter Summary

Chapter 4 presented the case company. The company's corporate structure and culture were analysed using theory from the background chapter. I also used direct quotes from the interviewees for reliability purposes. Through these quotes, the reader can form a picture of the company that is independent of my subjective reporting or judgments.

5 Discussion

Chapter Introduction

In the previous chapter, I had talked about how I differentiated analysis from discussion. This chapter will be focused on discussion. The focus of this chapter will be to present my arguments and observation of the company. Of course these will be guided by opinion formed from reading theory. While now and then I reference theory or one of the interviewees, this is mainly my opinions. In section 5.1 I will classify the company's CoP using the typology from Table 2. Then in 5.2 I will look at the company culture and how its communities of practice. This will be followed by a section on how CoPs and Teams affect knowledge management. The last section will look at the implementation of the double-knit organisation in the company.

5.1 Company CoP classification

In the theory background, I had presented a framework on how communities of practice can be classified.

Until recently the case company has had bootlegged communities. Now the management has taken the decision to legitimise them. The organisation has to be careful on how it handles this step. Legitimised communities of practice should not be confused with teams. As one interviewee pointed out, teams serve administrative purposes while communities are about knowledge.

Management should resist the urge to hijack the agenda of these communities and instruct them on how to practise. If members stop seeing the value of these communities, they might lose their appeal. In the process employees will stop participating in them (as is their prerogative when it comes to communities of practice). As Brown and Duguid have warned, without practice there is no learning. Without learning there is no innovation. CSII pointed out that when they compete for jobs they have to rely on their capabilities and competence. Their product differentiation is made possible by having employees who are capable and willing to improve upon their share knowledge. This might be lost if the employees lose faith in what is currently effective communities of practice.

An example of how legitimisation of communities of practice might lead to conflicts is in one of the challenges that had been raised by CSII on alignment of strategy. He had lamented that what management had setup at the top is not always what is implemented at the bottom. This is a legitimate concern. Management's instinct is to manage costs, engage in activities that increase performance and results. They work with measurable and objective concepts. Communities on the other hand do 'what feels right'. There is very little guiding them except 'values' which are subjective.

But this could also represent an opportunity. The company would do well to investigate whether its past achievements were made 'in spite of' or 'because of' the employees' disregard for their strategy. It could be that the professionals (being highly trained and leaders in their respective fields) made a judgement call that following the strategy faithfully is not in

the interest of the company. The company could then have a chance to change its strategy to suit the communities of practice. This will be emergent strategy that Mintzberg talks about.

Continuing on the point made in the last paragraph, we should remember Wenger's knowledge doughnut illustration. The employees' practices should lead to strategy not the other way round.

5.2 Company Culture and CoP

The success of the company's communities of practice as described in the preceding chapters can be attributed in part to their company culture. The organisation as a whole seems to be made up of self-driven individuals. This should not be surprising though. The individuals are high skilled professionals. (Hitt, Middlemist and Mathis 1989) advise that where a company deals with highly skilled and trained personnel, whose tasks are varied (i.e not routine), then they should be given as much autonomy and flexibility as possible. They suggest that designing their jobs with high job depth and high job scope will lead to better motivation and performance in their tasks. As stated, this is what obtains in the case company.

Such highly skilled self-directing personnel can be both a blessing and curse to the management. As CSI3 pointed out, she leads people who are managers themselves, which makes her job easier.

'It's easy to share jobs. They are autonomous'

She doesn't have to tell them how to do the tasks. They have great initiative and carry out their duties with little or no supervision. This frees up her time to pursue other projects. She also stated that they use their own networks (communities) to get jobs for the company. This is another demonstration of how a good personal network can work for the good of the company.

But as she pointed out, leading experts can be challenging too. Because as she said:

'You are managing people that have strong egos and do best on their own'

So she has to carry out a balancing act. She has to be available when needed but withdraw when the team members want to work on their own. Sometimes team members need the input of the team manager. In this case she has to be available for them. But having given them tasks, instead of micromanaging how they go about accomplishing those tasks she should trust them to find the best way to do it. Even if that way is not way she would have done it, she should be able to trust and accept her colleagues' new solution, provided they are of acceptable quality and do not pose integration and coordination problems for other team members. She has to see her goal as high-level integration of the different team members' parts.

Because of their inherent knowledge professional's instincts, they are likely to share more. This explains the feeling and attitude by most members that there is a lot of sharing in the organisation. In fact the company's major complaint when it comes to sharing is not that it

doesn't happen. It is that it happens to the point that it needs to be regulated (!) by the advisory board. The organisation feels that there is no order on how information (or knowledge) is shared through technology systems. They feel that because in the past there were no gatekeepers to decide what is useful or not, they ended up with a lot of junk.

Stockpiled information junkyard information is ineffective. It can act as a deterrent to people sharing knowledge. If people are frustrated every time they have to search for knowledge, eventually they are going to stop using the system. This will have a negative impact on the company's communities (which rely on technology to close spatial distances). It will also mean that there will be little learning through technologies. While they are not a condition for learning or communities, technologies play a central role to these two (learning and CoPs), especially for a company with offices in two countries and nine cities.

In agency theory, one of the grappling issues is how to ensure that the agent (sometimes employee) can act in the interest of the principal (the company). The theory has established that it is difficult for a principal (company) to select the right person (agent) who will act in the best interest of the company without shirking on their responsibilities. One solution to this, which they suggest is what is called '*residual claimancy*', in economics. This means that the agent has a vested interest in the success of the principal that they stand to lose in the event that the business fails. This is usually achieved by asking the agent (employee) to invest in the principal's venture. This is what seems to have happened with the case company. The employees' motivation for sharing could possibly be because they do not see the company as 'faceless' source for their salary. Because they have shares in the company, they will lose their investments (as well as their jobs) should it go bankrupt.

Therefore, they are intrinsically motivated to take those steps that will ensure its survival. To wit, they are prepared to share knowledge, if that could give advantage to the company over its competitors, since they have a lot riding on the success of the company. It also means that people who join the company are likely to be the ones who share the same values of the company. The need to invest in the company acts as self-selection mechanism. Those who believe in the company and would want to invest in it, would work harder to get the job with the company, while those who can't be bothered wouldn't put as much effort in trying to get the job. They might even be put off by the prospect of having to buy company shares (even if it's voluntary). This is good for communities of practice. It is easier to form a community when people are properly motivated and share common values, which *residual claimancy* ensures.

This does not mean that all employees have bought shares or that only those with shares are properly motivated, but as a self-selection mechanism it increases the chances of the 'right' candidates going through.

The organisation's flat structure and office plan also proves to be a successful feat. The employees talk about how it makes them share more. Putting up physical barriers between colleagues could lead to psychological barriers. It requires more effort to walk across the hallway and knock on a closed door than to lean over and ask another employee for help. The

flat structure is also good for communities of practice in the sense that over time social relationships might grow among people who sit together. Since they are already interested in the same professional areas (the workstations are grouped according to departments), it's easy for them to find a common ground upon which to build friendship. Given that each of these workstations sits at least four people, there can be easy flow of information among all four.

In chapter four (4), I also talked about social gatherings among employees. Management's decision to provide the staff with subsidised meals has had positive impact on their communities of practice. As I have noted before, eating together is central to most cultures' social activities. This also means that the organisation provides a platform for people to meet and discuss any topics that are of interest to them, without the pressure or guilt that such a topic is not related to their work (and therefore waste of company time). As employees get to discover more about each other, they form stronger bonds needed for communities of practice. In fact these social gatherings could be a means of expanding their networks.

Let's take for example an employee called Tom. Tom has a problem with his work. Maybe Tom is interested in learning more about a topic in which no one else in the company is an expert. During lunch he discusses this problem with Dave. While Dave himself cannot help, Dave has a sister who has worked with this problem before. He introduces Tom to his family member, who manages to help Tom. Seeing Tom's interest in the topic, Dave's sister might even introduce Tom to some of her own colleagues or friends, who are also interested in this. Hence, Tom's network would be increased. Tom might even go on to establish a community of practice in this area within the organisation. His network (established through Dave's sister) might even help him and others in the company to form the CoP in their organisation.

The organisation has a society that organises social gatherings for the employees. These events include theatre, concerts and trips. Management should extend their formalisation to this society. They should have a liaison officer linking the company with the society. This should not be done to control the society, but so that the society and the employees are aware that the company is ready to help where there is need. The society should be able to know for example, which of the company's resources they can use for organising events (and therefore which ones are off limits). If the organisation can also assist (subsidise) in some of these events, it might also be helpful. The company can claim some of these expenses as part of the company expenses, and therefore get tax breaks from the tax office (provided no tax laws are broken nor any misrepresentation made to the tax office). The society should be encouraged to engage in inter-office activities, to encourage cooperation that goes beyond geographic locations.

Trips and informal meetings (such as company say a volleyball or table tennis game every second Friday) are useful at establishing common ground. During trips people are more relaxed; this provides an opportunity to learn more about each other. This is good for building team spirit and even communities. It is also good for passive and spontaneous learning. Since people will be socialising with each other and moving from topic to topic, they might come upon a topic that is of interest to all the parties involved. Then they can

discuss and in the process trade knowledge. They might even get to know through this process, who (outside their close circle of colleagues) knows what and therefore can be contacted in the future.

5.3 CoP, Teams and Knowledge Management

In most organisations, the distinction between communities of practice and teams is clear. In the case company, this line has been blurred especially recently. This has an impact on knowledge management.

While before communities of practice activities could be carried out without the interference of the management, legitimisation of these communities has changed that. Most people appointed into the advisory board and team leadership roles were appointed because of their performances with communities of practice. Therefore, they have shifted roles and added responsibilities. It now stands to be seen how this affects knowledge management. It would be hard for their colleagues to distinguish between team managers as formal authority and team managers as CoP coordinators and contributors (informal authority). If they are seen as representing the wishes of management, other team members might treat them as part of management. This means when they make suggestions (just like they would have done before as core-contributors or coordinators), these might be taken to be 'orders' from management. Therefore, people would perform the tasks just as they would any team task: within the set parameters and without challenging them. This will drastically affect the communities' part of the practice.

People are less likely to contradict what they see as management position, even in an egalitarian society. The assumption might be that if the 'management' took this decision, then there must be a strategic reason behind it. This will lead to lack of diversity in ideas, which in turn will mean less new knowledge generated.

Team managers themselves might have problems with distinguishing their roles. When they make suggestions to their community members and these are ignored or contradicted, they are likely to take it as an affront to their new positions. While before they were aware that they do not have the backing of the organisation, now they do. It will require strong personality for them to be able to see the two roles as being different, and that differing with them at community level is not insubordination.

Alternatively, new coordinators and contributors might come up in response to the formalisation of the team managers' positions. This could be a problem itself. If the new coordinators gain the respect of other employees that equals or surpasses that given to team managers, this could create an alternative power centre. While one could argue that such a 'centre' had always existed with the current team managers, it should be noted that before they didn't have to compete with any other power. The authority of section managers has always been established and it was not in any way displaced by that of CoP coordinators; because section managers' responsibilities are about market and employees' performance. This complimented very well, the duties of communities which are more about development of the teams and creation of knowledge. One was concerned with administration and the

other with knowledge. This boundary is not so clear with team managers, as we have seen. It will be even more difficult to see when there is alternative communities' authority (new coordinators).

Having raised these concerns, I still feel that the best way forward will be for the management to allow (and therefore not stifle) the rise of any new coordinators of the communities. However, team managers must be encouraged to maintain their roles of core contributors within these communities. Such role will give them a blend of formal and informal authority. This will ensure that the communities are able to carry their duties just as before while at the same time management through team leaders are able to provide administrative functions where needed.

One problem that could rise is that when team managers participate in communities of practices as ordinary members, their team members might not be free to express any views contrary to theirs (even though they can see the difference between communities and teams). This is more likely to happen in ascription-oriented societies with high power distances such as Africa, Middle East and Asia.

In the Scandinavia this is unlikely to happen because of lower power distance. Once again we are brought back to the concept of *Janteloven*. Norwegians and Swedes would not ascribe to their managers the 'right' to always be correct or right even in communities' work. Therefore, I don't think this presents much of a challenge in the company at the moment.

CFT vs Specialist Teams

Theory suggests that CFTs are suited to communities of practice, while specialist teams work on narrow scopes. Yet in the case company, most of the time people work in specialist. Not only that, they still managed to establish successful communities. One might ask how this happened.

The case company is arranged in specialist teams because of 'environmental pressures'. Most of their market requires specialist services from them. Therefore, the company has to be able to have a group of specialists who can go to the clients and offer their expertise. In this respect, they can't organise along cross-functional teams. But they have still managed to form successful communities. This is because they have the defined knowledge, identity and values necessary to form a community. While they belong to the same functional department, the organisation's employees have varied qualifications, skills and experiences. Therefore in a way they have the characteristics of a cross-functional team; their skills and experiences are distinguished enough to introduce new fields to others within their team.

Now that we have established the existence of teams and communities simultaneously in the organisation, we should look at how this impacts the company.

5.4 Double-Knit Organisation Implementation

Above we looked at the coexistence of teams and communities of practice. I talked about how they can affect knowledge management. McDermott encourages companies to follow

this model. He calls it the double-knit organisation, where each of teams and CoPs have their role in the organisation.

Luckily for the case company, they already have the two. What remains important is how to build upon this. The first step would be to know when to use what.

The functional teams that we have looked at should continue to be used for projects from clients. Where necessary cross-functional teams should be used. These should continue to have their regular meeting and discussion discourses to exchange knowledge. They should implement new knowledge in the organisation, especially that recommended by the advisory board. As a structure, a team has the discipline necessary to convert fuzzy aspirations from the advisory board into measurable objectives.

On the other hand, communities of practice should be encouraged to continue to work on topics that are of interest to the organisation in general. The communities of practice should be seen as a source of tacit knowledge. The company management, working in tandem with the advisory board, should work on transforming communities of practice from *legitimate* to *strategic* part of the organisation. Their input should drive the company's strategy.

Most of the company employees are highly intelligent individuals. They will always act independently. Instead of seeing this as weakness the organisation should use it as its strength. Communities should be encouraged to contribute their ideas to the advisory board. The advisory board could then forward those ideas which they view as 'world-class' to the management, which will develop their strategies based on them. Since these ideas are reflective of the team members and what they see on the ground, they will make the company more responsive to changes in the environment as and when they happen. More than that, it could help solve the problems of strategy alignment between the management and the employees.

Chapter Summary

This chapter was about presenting the situation as I see it in the case company. I discussed what I felt to be key issues for the organisation. In the next chapter, I will conclude the study and look at possible future work for the company.

6 Conclusions and Recommendations

Chapter Introduction

This will be the last chapter of the thesis. Here I will give a summary of the main points and conclude the study by linking the research question with the case company and the background theory presented in chapter 2. I will also present recommendations and future research areas that could not be undertaken in this study.

6.1 Conclusions

I started the project by giving an anecdote which served to show the importance of learning through practice. Then I linked this practice-based learning to knowledge management, which I showed to be a source of sustained competitive advantage for organisations. This was a central theme, albeit indirectly presented for my research question which was:

Finding a balance between Teams and Communities of Practice in Knowledge Management.

I will briefly talk about the research question in the next sub-section

6.1.1 Research Question

In the study, I have managed to show through both theory and empirical evidence (in the form of the case company) that organisations can find the balance between the two sub-organisational units for knowledge management purposes. Below I summarise some of the main points to take away from this study.

Based on theory and my research, communities of practice and teams are both necessary for the growth of a knowledge organisation. With communities being the source of and the most effective means of transferring tacit knowledge. Communities of practice are also useful when the task is not clear. They are a means for generating new knowledge.

Teams on the other hand, are useful for building upon pre-existing knowledge. They are focused on in-depth information. Therefore, teams are also good at transferring codified or partially codified information. Teams should be used to put into practice that knowledge which had been generated at communities of practice level.

A company that can create knowledge, especially tacit knowledge has sustainable competitive advantage, since this is an advantage that cannot be easily replicated by competitors. Wenger has also shown in his knowledge doughnut that knowledge leads to high performance for teams.

The case company has to a great extent been implementing the above philosophies. For a long time they have had teams (albeit without leaders or managers). These teams usually work with result-oriented tasks such as working with clients. They visit client sites, implement those systems, models and tools which are considered world class for their clients.

However, these world class tools and models were not created by the 'teams' themselves. They were created in different environments ('communities'). Individuals discussed with those people they felt were knowledgeable about such matters. These informal authorities of

knowledge played the role of core contributors for these communities. In some instances they also acted as coordinators. Once again, we come back to the example of the gentleman in Oslo responsible for *Infrastructure and Building* department. His duties until recently did not formally include being a knowledge resource for others in the company. Yet he did because he believed in what he was doing, even when it was not formally acknowledged.

Upon seeing the value of these communities and their contributors to the company, the organisation took a step to formalise these activities. They have recognised communities of practice as part of the organisation. This has led to the initial steps of establishment of the double knit organisation. For this to be fully successful, each element (CoP and Team) has to have its duties and perform accordingly. CoPs have to create ‘*encultured knowledge*’ for the new members to adopt. They have to be a source of raw knowledge. Teams then have to refine this knowledge into a product that can be sold in the market.

6.2 Recommendations and future work

While the company is in the right track, there are some areas that it should do to improve as a knowledge organisation.

The first point is about letting the communities lead in strategy. I have already raised this point in the discussion section. The company’s strategy, far from a being a rigid designed set of steps to be followed to the letter should be more emergent. The organisation should realise that people implement more effectively what they understand. People should be encouraged to understand the company values and use them as a guide on what they do on behalf of the company. This will make them more responsive to market changes. Instead of waiting for instructions from the management on how to act in a changing environment, they can take their own initiatives to respond accordingly. Then this can be reported back to the management. The management, should it feel that it is the proper response for people in similar situations can communicate it to the rest of the company.

The fear with the above strategy could be that everyone will do what they want and create chaos. Therefore it is important that all members of the organisation know and understand their company values. For new employees they can be paired off with older employees who understand these values. This can go on until the new employees are ready to work on their own. This is known in management science as ‘*managing by values*’. Companies that practise this realise that management cannot anticipate or be available to solve every situation that arises. Therefore they strive to get their employees to act in such a manner that if they (management) were in a similar position would have done the same. Employees can do this because they are guided by the organisation values; they act in a manner that ensures they uphold company values. This allows the company to be locally responsive while retaining organisational integration. The Case Company can always provide its clients a service that is anchored on ‘*world class project management*’, regardless of where they are in the world, while at the same time customising the service to the needs of the client.

It is encouraging that the company engages in collaboration with their clients and sometimes others in the industry. This should become institutionalised within the organisation. One way

of doing this is to host annual or biennial events where they can meet and discuss issues in their industry. This will also offer new opportunities for new networks for their employees. It will also act as a reminder to their clients as to what it is they do and why they (as a company) should always be chosen ahead of their competitors.

With regards to personal blogs, the company should create team webpages. Then allow a form of ranking system. A blog that is highly ranked within its sectional department page will automatically become public for the rest of the organisation. This way, individual blogs are kept while at the same time the company ensures only good quality makes it into their *SharePoint* system.

Due to time constraints, I have not been able to test further Wenger's assertion that knowledgeable employees have higher performance. This is an interesting area that can be taken up for further research: linking knowledge management and work performance.

Chapter Summary

In the beginning we looked at whether there are those sub organisational units that are well suited to knowledge management. This was done in chapter 1. From theory we established that two such units exist: Teams and Communities of Practice. Teams were shown to be good at exploiting knowledge, gaining codified or specialist knowledge that builds upon pre-existing knowledge. Communities were shown to be good at generating and exploring knowledge, especially in tacit and fuzzy situations. Chapter 3 established that this research is both valid and reliable. In chapter four (4) we introduced the case company. We presented how they have handled the issue of transforming their bootlegged communities into legitimised CoPs. We also analysed the company based on theory. Then in chapter five (5) we built on the analysis in chapter four and focused more on discussing the company's situation. Then we concluded in chapter six (6) by going back to the beginning and answering the research question, based on chapters 2 to 5. Chapter six (6) also included recommendations for the company as well as future work that might be undertaken as an extension of this study.

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