Key Success Factors For Knowledge Management

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ABSTRACT

The purpose of this thesis is to gain a better understanding of how some factors are critical for the successful application of Knowledge Management (KM). KM covers a wide range of functionalities and support different sets of activities. Therefore, to achieve the research objective, this work limits the field of investigation to that KM, devoted to the formalization and the sharing of best practices and experiences within the organization. The study assumes that to evaluate the success of a KM, are the Key Success Factors (KSFs) on the quality and quantity of the contributions to the system from the employees. Then a Learning and Adaptation Support System that has been applied elsewhere are described in examples provided. Based on the existing literature regarding IT adoption, acceptance and Key Success Factors (KSFs), a research hypothesis has been developed and tested through a qualitative and a quantitative study in one of the international mid-sized automotive profile systems companies. The outcome of this empirical research provides indications on the leverages for the effective development and management of KM through Key Success Factors (KSFs). The evaluation confirms the critical success factors, as dependent on both internal and external knowledge sharing and interaction.
Declaration Form

“I hereby declare that:

I have sincerely endeavoured to produce a paper of outstanding academic quality.

I have produced this paper myself without any outside assistance except from the people and documents I quote.

I have not copied this paper from other papers or documents available, except where I have explicitly stated so.

I have not used this paper for examination purposes in any other course or institute.”

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Kavindra Mathi, Lindau, Germany, December, 2004
Acknowledgement

The thesis covers an area that has had very little attention from researchers. I have put efforts in blending two key areas from modern workplace to one extensive topic. To accomplish this mixture I have had important support from various people. Therefore, I would like to express my sincere thanks to some of the individuals. The following individuals assisted me during the process of compiling this thesis.

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6. Mr. Sri Karan, IT-Euro member and Mr. Calum Grigor of Metzeler

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Lindau/ B, Germany, December 2004

Kavindra Mathi
Abbreviations -

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>IHL</td>
<td>Internationales Hochschulinstitut Lindau</td>
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<td>FH</td>
<td>Fach Hochschule</td>
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<td>KM</td>
<td>Knowledge Management</td>
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<td>KMS</td>
<td>Knowledge Management Systems</td>
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<td>KSF</td>
<td>Key Success Factors</td>
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<td>ICTs</td>
<td>Information and Communication Technologies</td>
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<td>TM</td>
<td>Top Management</td>
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<td>EED</td>
<td>European Expert Data base</td>
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<td>EET</td>
<td>European Expert Tool</td>
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<td>KP</td>
<td>Knowledge Process</td>
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1 Theoretical Part

1.1 Introduction

Drucker (1993) described knowledge, rather than capital or labour as the only meaningful resource in the knowledge society, and Senge (1990) has warned that many organizations are unable to function as knowledge based organizations, because they suffer from learning disabilities. Although, there is recognition that the knowledge society and the knowledge economy have arrived, and that knowledge is a key business asset, organizations are still in the early stages of understanding the implications of knowledge management. Rowley (1999) and Bhatt (2000) determined by organizational capabilities and core-competencies. Prahlad and Hamel (1990) continue by stating that the increased realization of knowledge as the core competence is becoming a crucial survival factor.

The recent advances in the merging field of computing and high-speed communications have increased the organizations interest in the topic of KM. This growing field is categorised with the Information and Communication Technologies (ICTs). With increasing capabilities of ICTs, an understanding of different knowledge strategies has become much more important (Burrows, 1994). Strategies to investigate Knowledge Management (KM) would be to increase the level of social interaction that occurs in the organization, as only some of which may be technologically assisted, Earl and Scott (1999), Bontis (2001). Raghuram, Garud, Wiesenfeld and Gupta (2001), mention that ICTs provide information and knowledge sharing with a new dimension.

To some extent, every human process issue is a key success factor. Every one has been important since people first formed organizations to accomplish tasks too big to be performed by individuals working alone—and every one will continue to be a challenge as long as people work together. The form each takes is
constantly evolving to fit changing circumstances, but every once in a while, major shifts occur which dramatically change what is required in each of these key areas. We are experiencing such a shift right now—moving from the industrial age to a knowledge-based economy. (Culture-building.com, 2003).

Key Concept: What is Knowledge Management?

1.2 Definition

Although KM concepts have been around for a long time, the term “knowledge management” seems to have arisen in the mid-70s. Nicholas Henry (1974) uses ‘knowledge management’ in a manner that resembles our current understanding of the expression.

Defined broadly, “KM is the process through which organizations extract value from their intellectual assets” (Kaplan, 2002). By adopting this belief of KM, the following definition of KM is suitable.

"Knowledge Management caters to the critical issues of organizational adaptation, survival and competence in face of increasingly discontinuous environmental change. Essentially, it embodies organizational processes that seek synergistic combination of data and information processing capacity of information technologies and the creative and innovative capacity of human beings" (Malhotra, 1997).

To clarify, a classification of knowledge management is made in two dimensions: one dimension is to manage existing knowledge, which includes developing of knowledge repositories (memos, reports, presentations and articles), knowledge compilation, arrangement and categorization. Another is to manage knowledge-specific activities, that is, knowledge acquisition, creation, distribution, communication, sharing and application (Stenmark, 2001).

Knowledge management consists of the administration of knowledge assets of an organisation and the, sharing and enlargement
of those assets. Knowledge modelling plays a crucial role in the achievement of these goals (Dignum, 1999). In practice, knowledge management often encompasses identifying and mapping intellectual assets within an organisation, generating new knowledge for competitive advantage, and making vast amounts information accessible, considering and enabling all of the above.

Knowledge Management looks at how an organization adapts to changing conditions in order to survive; in the same way that animal and plant species change over time to adapt to changing conditions, unsuccessful firms die off or are swallowed up by more successful competitors (Burn, Marshall and Barnett, 2002). KM is concerned with the exploitation and development of the knowledge assets of an organization with a view to furthering the organization’s objectives (Sanchez, 2000; Abell and Oxbrow, 2001).

Knowledge maps can be a useful method to support the KM strategy since it takes both individual and team level interactions and processes into consideration. (ibid)

Public sector agencies throughout the world are at the forefront of implementing KM. Closer citizen engagement, cross-agency collaboration and efficiency dividends are driving agencies to adopt initiatives that focus on making the best use of knowledge. Many government departments and agencies have investigated ways to best use knowledge resources to improve their operations. Knowledge management (KM) builds on earlier approaches of data management and information management and adds a higher level of complexity with the inclusion of meaning, networking, collaboration and business process improvement (AGIMO Knowledge Management, 2004). Thus, Knowledge management (KM) is a process that helps organizations find, select, organize, disseminate, and transfer important information and expertise to gain business advantage.
1.3 KM Strategy, ICTs and KM-tools

In the eEconomy, today’s competencies become tomorrow’s core rigidities with unprecedented speed. Under these conditions, it is incumbent upon companies to ruthlessly reconsider the value of established processes and ways of doing business, to gear the organization towards purposeful attendance of its most valued asset – its knowledge base. Best practices should be shared within the company’s network, though it is understood that in the current, networked, eEconomy, companies that harvest and hoard their knowledge will be at a competitive disadvantage. Companies today live in knowledge ecologies where one company feeds knowledge into another. What counts is a networked approach to Knowledge Management, involving internal as well as external parties.

The logic behind this is as simple as it is compelling: if you cut off the outflow of knowledge, you will also cut off the inflow. Therefore, the firm’s openness to external experts and the sharing of ideas within a broad network will be a key driver in maintaining competitive success. (Thomas Davenport and Gilbert Probst, 2002).

An organization should have the capacity to exploit its knowledge and learning capabilities better than its competitors should if it decides to assume a given competitive strategy (Grant and Gnyawali, 1996; Roth, 1996). This capacity depends on its KM tools, the usage of ICTs and the organizational structure. It is therefore important to investigate how organizations and their employees take advantage of the technological tools that can make communication more convenient and less expensive. Before describing the tools in detail it is important to remember that the knowledge repositories consists of all the documents with knowledge embedded in them, such as memos, reports, presentations and articles (Kaplan, 2002). These repositories are used when knowledge goes through the following phases: acquisition, creation, distribution, communication, sharing and application (Stenmark, 2001).
Today organizations often have electronic directories and databases to nurture these knowledge phases. However, it is said, “If KM is just handed over to IT, it ensures failure.” - Born Wright, referred by Kaplan, 2002

1.4 Knowledge as a competitive advantage

The question is, how can companies use knowledge to secure a strategic advantage? Concisely, it is about generating greater value through the knowledge in products, people, and processes. That is, Knowledge in Technology or Products implies Tools and infrastructure, leading to ‘Intelligent’ or ‘smart’ products which can command premium prices and be more beneficial to users. One example is the ‘intelligent’ oil drill that bends and weaves it way to extract more oil than ever from the pockets of oil in underground formations.

Knowledge in People, wherein is Communication- is “Our most valuable asset”, according to many company reports. Although the actual way the “People” issues are treated and managed may often belies this, it still remains the most important factor. For example, the ‘Learning Organization’ programmes, is one way of nurturing and applying underutilized talent. Knowledge in Processes, which is the KM-Practices, in many companies; there are often differences in performance levels among different groups performing the same process. Closing such a gap saved Texas Instruments the cost of one new semiconductor fabrication plant (a $1billion investment). (Skyrme, DJ and Amidon, DM 1997).

These are not the only ways that companies are creating strategic advantage through knowledge but give a flavour of what is possible. Others include active management of intellectual property portfolio of patents and licenses, and creating new businesses that exploit internally generated information and knowledge.
1.5 Distributed KM-Systems

The growing importance of distribution of knowledge has given rise to the development of several information systems for the support of distributed knowledge management within an organisation (Schmid and Stanoevsk-Slabeva, 1998). Examples of such systems are:

- **Document Management Systems**: database oriented storage, management and accessibility of documents.

- **GroupWare**: support co-ordination of co-operative work by capturing a repository of (unstructured) pieces of information created by a team during their common work.

- **Organisational Memory Information Systems (OMIS)**: OMIS integrate context, documents and unstructured information, aimed at enhancing its access and reuse.

- **Intranets and Extranets**: apply the basic principles of DMS and OMIS systems, can be enhanced with GroupWare functionality and have brought the multi-media aspect to knowledge management.

These information systems for distributed knowledge management have to great extent improved information availability but have not reached the goal to provide an efficient support for knowledge management. The major weaknesses can be summarised as follows (Dignum, V and Heimannsfeld, K 1999).

- The concepts and solutions concentrate explicit knowledge leaving the fluid tacit knowledge of humans and the human carriers outside of the system. Thus, an important integral part of organisational knowledge is not integrated in the system.

- Knowledge is considered without the context within which it was created. This limits its reusability to employees having background knowledge about the context.
• The systems are not designed to be an integral part of knowledge creation. In order to receive added value of the stored information, additional tasks have to be performed. These additional tasks do not provide immediate value and therefore, often omitted even though they may be of importance in the mid or long term.

• The meaning of the terms used as part of structured or unstructured information is not explicitly stored in the system. As the meaning of words might change over time the stored knowledge might be misunderstood.

• Most systems furthermore focus on knowledge management within a specific area of application. As a result, they do not provide a generic solution and do not provide support for knowledge combination across organisational boundaries as departments or functional areas. Thus, existing solutions apply the conventional paper-based knowledge management concepts without their adoption to the potentials of the new medium.

1.6 **KM in Practice**

The working definition of knowledge is that Knowledge must involve an agent, who uses knowledge to perform actions necessary to reach a goal. Knowledge can and should be evaluated by the decisions or actions to which it leads (Davenport and Pruzak 1998).

When knowledge is of essential importance for the realisation of the strategic goals of the organisation, such organisations are called knowledge intensive. In order for an organisation to move from a knowledge-intensive structure to a knowledge-based structure, is necessary to start by identifying organisation structure from a knowledge perspective. The level of knowledge orientation of an organisation is based on seven characteristics: strategy, organisational structure, technology, performance measurement, HRM, culture and
level of explicitness of knowledge (Dignum, V and Heimannsfeld, K 1999).

Having identified the knowledge situation of the organisation, the next step is to evaluate the specific knowledge problems in the organisation, or in one of its departments, processes or activities. The most usual knowledge problems are unbalanced distribution, fragmentation, unavailability and inaccessibility of knowledge. This procedure, called a knowledge audit, is based on the following steps: (Wisdom Team 1998).

Identification of organisation goals (or department goals, process goals or activity goals).

- Identification of problems which hinder the achievement of these goals.
- Identification of the organisational processes to achieve organisation goals.
- Analysis of these processes from a knowledge perspective.
- Analysis of the problems from a knowledge perspective.
- Identification and definition of knowledge problems and generic solutions.
- Implementation of concrete solutions.

Although KM is as an enterprise-wide goal, many companies kick-off an initiative in one department and then extend the practices throughout other parts of the organization. Often KM practices relating to service and support can be defined as knowledge-powered problem resolution - using a knowledge base, knowledge sharing, collaboration and knowledge recycling to efficiently solve customer questions (ServiceWare 2003).
1.7 **Key Success Factors**

*Introduction:*

Making the transition to becoming a firm that manages all aspects of knowledge well, is clearly going to be difficult, with the emphasis on its commitment and resolve, and to find the resources to get Knowledge Management off to a good start. Measures will depend on the concept of knowledge. Thus the various approaches and popular theories and practices in vogue that have been successful; are dealt with below.

*Popular Theory & Practice*

A key success factor is a performance area of critical importance in achieving consistently high productivity. There are at least two broad categories of key success factors that are common to virtually all organizations: business processes and human processes. Both are crucial to building great companies. Our focus is on the human process areas.

When the success factors are studied focus falls on the human aspects. A strong academic majority raises a big concern around this area. All agree that the intellectual assets of the employees are the foremost critical success factor. “Usually people begin a KM project by focusing on the technology needs. But the key is people and process.” (Shir Nir, 2002). The key to successful knowledge management (KM) projects is focusing on people first, not cutting-edge technology. The biggest misconception that IT leaders make is that knowledge management is about technology," says Shir Nir, There is no "cookie-cutter approach" to adopting knowledge management.

Every organization and company has its own definition of knowledge and how it should be gathered, categorized and made available to employees. What works for one company will not work for
another because organizational knowledge is so subjective. The one-size-fits-all mentality, coupled with the tendency to focus on technology rather than people and process, has obscured the real benefits that KM can bring, according to Nir (2002). It does not help that knowledge management means different things and often involves different kinds of technologies at different organizations.

Bixler (2002) developed a four pillar model to describe success factors for a KM implementation. To achieve a basic entry level KM program, it has been determined that all "four pillars" must be addressed. The four enterprise engineering pillars are leadership, organization, technology and learning in support of enterprise wide knowledge management initiatives. Leadership means that managers develop business and operational strategies to survive and position for success in today's dynamic environment. Those strategies determine vision, and must align knowledge management with business tactics to drive the value of KM throughout the enterprise. Focus must be placed on building executive support and KM champions.

The success factor organization describes that the value of knowledge creation and collaboration should be intertwined throughout an enterprise. Operational processes must align with the KM framework and strategy, including all performance metrics and objectives. While operational needs dictate organizational alignment, a KM system must be designed to facilitate KM throughout the organization. Technology enables and provides the entire infrastructure and tools to support KM within an enterprise.

The Gartner Group defines 10 technologies that collectively make up full-function KM. The functional requirements that enterprises can select and use to build a KM solution include: “capture and store”, “search and retrieve”, send critical information to individuals or groups, “structure and navigate”, “share and collaborate”, “synthesize, profile and personalize”, “solve or recommend”, “integrate with business applications”, and “maintenance”.

Key Success Factors
No technology product meets every requirement, and before selecting a solution, enterprises need to clearly define their KM strategy, scope and requirements, and perform product evaluations to identify technology products that effectively meet their needs. Bixler (2002).

Organizational learning must be addressed with approaches such as increasing internal communications, promoting cross-functional teams and creating a learning community.

Davenport & Probst (2002) developed a similar, yet more extensive list of success factors for implementing knowledge-management initiatives. Their success factors are leadership, performance measurement, organisational policy, knowledge sharing and acquisition, information-systems structure, and benchmarking and training.

Also empirical studies show the importance of different factors for the implementation of KM. The results of a KM implementation project of company Natura (Waldir Arevolo, Esteban Kolsky and Kathy Harris, 2003) indicate that cultural and technological barriers had to be overcome successfully, as the key factors for ensuring successful KM implementation.

The Supreme Court in the USA ventured on a KM project that lasted for more than six months and eventually came out with flying colours on the successful implementation of KMS. Here the focus was on Top-level management drive, the organization structure starting with the own IT Department, Communication: internal and external, and Phased Implementation was found to be the key areas that led to the successful implementation (Burger, 2003).

Ruggles (1998) points out that the success factors people, process and technology needs to be balanced in a 50/25/25 relation. People need to be the major focus with 50% of the time and budget of a KM
implementation project while process and technology only need 25% each.

Since, for a while “people issues” may be endemic to any change initiative, knowledge management activities seem to bring them out in abundance. However, more deliberate management is required, to leverage the knowledge existing in an organization to a higher degree, since leveraging organizational knowledge is not only important, but, is the most important job management has. However, it is also crucial to realize the conditions for success. Ruggles (1998).

Conditions for success

The success of the initiative is ultimately determined by sufficient combination of the above-mentioned factors and their incorporation within the line organization. Successful implementation requires not only that knowledge is collected and distributed, but also, more importantly, that knowledge within the organization is easy to use in daily processes, that it is accurate and up-to-date, and that people can quickly contact subject matter experts for feedback and questions. Often the knowledge processes required and the level of organization needed are fragmented and incomplete, endangering the momentum created by the initiative in the organisation. Focus on implementing the continuous and demand-drive knowledge processes needed for the knowledge area at hand, and ensure enforcement of the necessary roles and goals within the organisation, without additional staffing needs. (KPMG, 2003).

Summary

Based on the above research study, it is considered that the most relevant factors for the successful implementation and sustenance of momentum for the KM initiatives are:
Key Success Factors

(1) A Culture of pervasive knowledge sharing needs to be nurtured enabled within and aligned with organisational objectives. The underlying concern is employees do not want to share information. Successful organisations empower employees to want to share and contribute intellectual information, by rewarding them for such actions. And, with organisational leaders role models of information sharing and interface regularly with staff, teams and stakeholders in review sessions and openly talk about successes and failures.

(2) KM Organization: The first important variable is leadership with a vision, strategy and ability to promote change of the management to a compelling knowledge management actively promoted by the Chief Executive that clearly articulates how knowledge management contributes to achieving organizational objectives. A specialist team to aggressively manage knowledge property i.e., manage intellectual assets as routines-process, appropriate technology, infrastructure for “social” and electronic networking to allow for innovation and leverage organizational knowledge. Followed by

(3) Effective & Systematic Processes creating a “knowledge environment” with processes to capture the knowledge assets of the organization is important, but it will probably be most successful once most of the technologies of electronic commerce have been implemented. Thus, the need for

(4) Strategy, Systems & Infrastructure establishes a clear definition of all required KM elements and an overall system approach and integration.

(5) Finally the Measures the success of knowledge management can be measured against pragmatic milestones, such as the creation of products, the development of new clients and an increase in sales revenue.
METHODOLOGY AND ITS PRESENTATION

Measuring Knowledge Management is a critical basis for developing incentives for further stimulating knowledge sharing and networking on local and global levels.

Without quantifiability, measurement endeavours remains elusive. Further, it is critical to ensure that existing knowledge assets are constantly challenged in a purposeful way. Especially in the current ‘‘Internet Age’’, where today’s core competencies quickly turn into tomorrow’s core rigidities, it is incumbent upon companies to ensure that the knowledge they nurture inside is still relevant to the market. Thus, the need to explicitly address the issue of developing metrics and incentives for Knowledge Management. These issues were addressed in the year 2003 hypothesis (See AA. 10 Appendix J Research Hypothesis 2003) and subsequently followed up in 2004 again, after more feedback.

Based on these and the above theoretical observations and evaluations of the critical success factors for implementing KM the following hypothesis has been defined:

The Key Success Factors of implementing Knowledge Management in organizations are:

- Culture,
- KM Organization,
- Strategy, Systems & Infrastructure,
- Effective & Systematic Processes and
- Measures.
2 Methodology

2.1 Research Methods and its Presentation: Instruments

2.1.1 Methods of the study

When conducting a research, one often makes the choice of using either a quantitative or a qualitative method. The qualitative approach has also been referred to as “interpretative” and is thus directly connected to the hermeneutic school. (Bryman, 1995)

Based on the nature and the purpose of this study, the qualitative method applies to the project work based on the essay format. The other is the quantitative method based on numerical scoring and grading. Finally, the results clubbed together in the mixed approach, a natural choice. In addition, the study is a four-model interview guide spread over a period of one year. It involved more than two different types of questionnaires. The complete model included a questionnaire with numeric variables, another essentially interviews with a drive to get to know the subject better and cross check the numeric variables too. Thus, it included questions that overlapped into both qualitative and quantitative approaches. This gave the interviewees options to respond qualitative, quantitative, a combination of both or just one of them.

According to Alasuutari (1995, p 13), a qualitative research process involves two phases: the Purification of Observations and the Unriddling.
2.1.2 Qualitative Research Design

On qualitative research basis for the course of action Bryman (1995, p. 29) mentions that there are five to choose from: experiment, survey, qualitative research, case study and action research.

The emphasis is on individual’s interpretations of their environment, behaviour (self & other’s) and the presentation of data lies in understanding the participants and their terms (Bryman, 1995). The main purpose of qualitative research is to study a social reality (Bryman, 1995). In this case study, the focus is on a company in southern most part of Germany, also considered as the “Drei Land Region” that is the “3 Nation Region of Austria, Germany and Switzerland”. The study is on how the firm works in relation to key success factors for knowledge management.

2.1.2.1 Qualitative Analysis

The results from Part 2 of the Questionnaire in the Appendix A and B in the German and the English Language were mainly used for deducing Qualitative Analysis. However, the Questionnaires in Appendix C & D were greatly in use for the informal part of the interviews conducted. Some of the qualitative results from these informal interviews were partially, conducted interviews in the course of preparing the Interview guide for EED (European Engineering Database). These interviews were for the then EED which catered exclusively to the Experts and Virtual Team Members in September 2003, have been included. Thus, these encounters were basically with the members of the EED team and also the prospective members of the EED team who mostly declined to cooperate for various reasons. Also included is the qualitative feedback from the Questionnaire Form prepared on launching EED in Nov 2003 for Experts and Virtual Team Members. The collective results are put forward as part of the Qualitative Analysis. Before starting collecting data, an identification of the phenomenon is necessary. The topic and
the perspective for the study have to be chosen. This is done in chapter 1. This then is followed by qualitative analysis as mentioned above, which in turn is followed up by quantitative analysis, as mentioned in the subsequent paragraph sub chapter.

This interview guide was used during all the interviews. However, separate interviews were used, for each departmental head or the office director. Before conducting the interviews, the HR Department was contacted to assign the responsible or grant permission to contact the recognized expert in the concerned area or field of activity for the topic. A contact with the person was initiated, requesting an appointment to interview the individual on the subject of Knowledge Management. This was followed up by sending an email, on the subjects that were central to the discussion during the interview, so that the respondents would be able to prepare themselves. The interview guide functioned as a support tool during the interviews, for all conversational purposes. During the interviews, the respondent was encouraged to talk freely within the scope of the interview guide. The interview schedule timed out to take approximately 45 minutes in English or mostly in German, whichever the case maybe. When faced with the shortage of time, the interviews were conducted in a relatively short time. Herein the interviewees were requested to fill out the questionnaire in their own time, and on a later date, the interviews were conducted in an informal manner.

Moreover, this meant if the concerned manager could make any time and if they were inclined to participate in the research. Initially, emails were sent in the end of last week of March and a week later, it was followed up by telephone call(s). However, eight of the ten Metzeler employees who were contacted, cited various reasons and declined to participate.

In a second attempt, in the month of June’04 several interviews were conducted personally and mostly arranged by the intranet, telephone and through web-based e-mail. Some were also
complemented later by personal e-mail contact and phone calls. Most employees chose to be anonymous and did not want to be titled, consequently they have been given an alias; and so they were generally categorised under departments or by other parameters where it was feasible. The personal interviews were mainly conducted during June followed up in July.

2.1.2.2 Interviews: Target Groups and Periods

There were different key roles while conducting the interviews. The limitations of the individual employees under the circumstances were understandable. The focus was primarily on the experts in general and the top experts from the respective departments in particular, for the last quarter of the year 2003. The same trend continued in the year 2004 but the focus shifted to the entire cross section of the executives and their involvement in knowledge management. Below is the table containing the target groups for the year 2004.

Fig. 1 Target Groups

<table>
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<tr>
<th>Target Groups</th>
<th>Period</th>
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<tbody>
<tr>
<td>Top/ Senior Management or Experts</td>
<td>2003 &amp; 2004</td>
</tr>
<tr>
<td>Executives/ Management</td>
<td>2003 &amp; 2004</td>
</tr>
<tr>
<td>KAM, Euro Team and Project Managers</td>
<td>2003 &amp; 2004</td>
</tr>
<tr>
<td>General Administration</td>
<td>2004</td>
</tr>
<tr>
<td>Technical, IT and ETC Research Personnel</td>
<td>2003 &amp; 2004</td>
</tr>
<tr>
<td>Interns</td>
<td>2004</td>
</tr>
<tr>
<td>Others (Experienced Blue Collar Workers &amp; Semi Skilled workers)</td>
<td>2004</td>
</tr>
<tr>
<td>TOTAL</td>
<td>2004</td>
</tr>
</tbody>
</table>
The results essentially reflect the views and opinions of the executives. In addition to the above, it was imperative that some of the employees who were experienced, executives not connected with Best Practices, skilled and semi-skilled senior blue-collar workers who served as experts in their fields of operations were included in the survey. Their number in this survey was not significant but served the purpose of balanced views and outcomes in the findings for some important departments, involved in the establishment of Best Practices, and for allowing cross checks within the procedure involving different questionnaires in two different languages in two years.

When conducting the interviews for the later questionnaires the choices did not depend on specifics. The procedure of selecting people for taking part in the questionnaire was based on random sampling among experts and executives primarily, yet it meant that I lost some control over how well informed the respondents were. This compromise was inevitable since some employees were neither aware of the terminology nor actively involved with some form of knowledge management. Besides, there was a need to get these people to willingly share their knowledge on this specific topic.

To make it faster for the respondent, the later German version created in 2004 was practically in use. All the questionnaires were first pre-tested on a test group that gave some valuable insights. Then a few questions amended, introduction brief updated, a new test personal for each department were approached to get objective insights. The subsequent attempts saw fewer problems in understanding the lack of motivation from the non-respondents to the test questionnaires. The verified German version of the questionnaire was used to gather data. The selection of respondents was influenced by the fact that a well-informed person on a managerial position is present in almost all departments. This made the answers more concrete, since a crosscheck and confirmation was done by the information obtained from the top management. Moreover, generally in principle, they are the ones that implement KM processes in the organizations. This also contributed to
According to Holme and Solvang (1991), selecting respondents with the right knowledge about the research area is crucial for qualitative research. In the departmental case studies, the research data analysis was presented by reducing it to each research question.

### 2.2 Interviews: Specific Target Group selection and Time Period

#### 2.2.1 Quantitative Analysis:

*Target: Specific Groups, Specified Periods and Number of interviews for the year 2003 and 2004.*

**Fig. 2** Target Groups Data in 2004

<table>
<thead>
<tr>
<th>Target Groups</th>
<th>Requested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top/ Senior Management or Experts</td>
<td>20</td>
</tr>
<tr>
<td>Executives/ Management</td>
<td>70</td>
</tr>
<tr>
<td>KAM, Euro Team and Project Managers</td>
<td>10</td>
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<tr>
<td>General Administration</td>
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<td>Technical, IT and ETC Research Personnel</td>
<td>30</td>
</tr>
<tr>
<td>Interns</td>
<td>06</td>
</tr>
<tr>
<td>Others(Experienced Blue Collar Workers &amp; Semi Skilled workers)</td>
<td>30</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>186</strong></td>
</tr>
</tbody>
</table>
The second step in the data collection is to gather primary information from different employees in the company. Together with the interviews, primary data was collected by using fill up questionnaires at the company. The questionnaire can be constructed in a combination of grading scales, multiple choices and open-ended questions (Yin, 44, 1994). A self-introduction followed by a brief explanation introducing the concept of Knowledge Management was made before the commencement of the interview questionnaire. The questionnaires had the similar set of questions as in the interview guide.

However, these new questionnaires were structured to cover a wide range of issues, with quite a few open-ended questions. The choice fell therefore on the use of grading scales and multiple alternatives. This made it possible to compare, verify and derive the final statements from the data collected within the company. These second version of constructed questionnaires for the year 2004 developed in two versions, English and German are attached/enclosed as APPENDIX A and B

A few lists were made at Metzeler for carrying out the quantitative analysis in the form of tabulated and graded forms in conducting the interviews in different periods. During this processes in the quarter ending 2003, the focus was on Experts only. The project failed to generate enthusiasm and support for initiating Best Practices in the firm. This was a non starter to the questionnaires in 2003. And, the conception of the project on initiating the "go live" stage during the last quarter ending year 2003 failed to revive the project completely. The questionnaires on feedback could not be initiated due to disinclination to discuss a failed project. Therefore, it was necessary to introduce a second series of interview questionnaires by the first quarter ending of the year 2004 to investigate the matter. The new lists then included an exploration of the entire cross section of executives, experts and employees in the firm, in a bottom up approach.
From all these lists, some employees were excluded, due to constraints of the location, time, or lack of any KM basis. Finally, at the beginning of the second quarter of 2004 emails were sent to many employees together with an introduction, interview questions in order to prepare the managers for the KM interview in a quantitative analysis form.

Summary:

The choice of using interviews, documentation and Questionnaires was made to increase/ strengthen the validity of the thesis. Besides, a part of the respondents for the interviews were targeted by telephone interviews. In the absence of an authentic knowledge management personal available in a department, a substitute or a departmental survey was carried out- to make it clear and minimize the misunderstandings. The validity was raised by conducting cross checks with people that were indirectly involved in the KM processes. Since, some of them are likely to become or will come into being in a managerial position, in the future KMS. The validity was further affected by the respondents degree of openness and participation during the interviews and their willingness to share there knowledge.

Conclusion:

The collected data has been organized into separate sections where each of the departments in the company is presented. This automatically includes the risk of making translation errors. It was however the most natural way of conducting my interviews. As Yin (1994) brings up it is always risk that personal biases might interfere the interviews however cautious one tries to be. Therefore, it is understood that, the influence of the respondents as well as own attitudes and values can always be questioned.
The Scale:

The fundamental task in the analyses was to characterize the spread, or variability, of the data set. The scale of Zero to Five was simple and the best attempt to estimate this variability. The variability of the data set had two key components:

Spread of the data values near/ far of the centre

Spread of the lose ends also

Different numerical summaries gave different weight to these two elements. The final choice of a scale estimator was driven by the following components which needed to be emphasized.

1. The mixed method approach was adopted.
2. Varied issued involved, ranged from the present practices to future possibilities.
3. The different target groups had different levels of awareness and experience.

2.2.2 Structure of the Questionnaire and Response

The survey consisted of three main questionnaires. Two designed in the year 2003 and the main questionnaire designed and developed in 2004. The part two of the 2004 Questionnaire which was used for qualitative analysis also was supported in an informal manner by the two questionnaires of the year 2003.

The purpose of these questionnaires was first to handle the interpretation of the term KM and the company’s key objective in KM. The second objective was to handle the aspects that come into play in KM, such as the existence of a strategy, the openness of the culture, the processes of quality control of data, the content that is being managed, and the functioning of communities of practice. These
aspects are assessed in their current situation and it is also asked where the future priorities lie. The third issue examines which tools foundations use and how well they are appreciated and also where the priorities for the future are. Nevertheless, all these culminate for the final objective to substantiate the hypothesis on the key success factors for KM.

The questionnaire was probing into the 'know-how' on the subject by addressing the issue in five major areas. The questions derived based on the study of knowledge management and the crucial issues for success in knowledge management. Moreover, it was subjected to literature Review, cross checks on the ground and further distilled the many important issues to essentials in knowledge management success. Further on, the essentials were clubbed together to portray the elementary issues. The questions then took shape to answer the basic theme of each success factor and thus led to the key success factors interview questions.

Some of the questions have been borrowed from various sources that have used the interview method and the survey method to arrive at the knowledge management status in their respective firms and also individual research, besides consultant firms that have worked on the subject. {Davenport & Probst (2002), Ruggles (1998), Fahey and Prusak (1998), Bixler (2002)}

Piloting the Questionnaire (2004) and the Interviews leading to Key Success Factors

**Questionnaire:**

The exercise is divided into two parts. One part consists of 11 Questions in five sections, supporting qualitative analysis and another part supports quantitative analysis in five sections. These two parts consist of the same five Sections covering the key areas of KM success areas. These sections are:
1) Culture: Shows whether the behaviours within an organisation enable effective knowledge management. Awareness and Commitment is confirmed from responses that show whether staffs understand the concept of knowledge management and whether senior management is committed to its use. Incentives given are checked from whether the organisation properly rewards those that support its efforts towards knowledge management. (12 Quantitative Questions, 03 Qualitative Questions)

2) Organisation: The degree to which the organisational structure supports knowledge management. And it’s External Focus Demonstrates whether an organisation is attempting to look beyond its own boundaries in order to maximise its business opportunities (13 Quantitative Questions, 04 Qualitative Questions).

3) Strategy: Whether the organisation has committed to a programme of knowledge management improvement and how it is managed to ensure business benefit. (02 Quantitative Questions, 03 Qualitative Questions)

4) Effective & Systematic Processes: IT: Indicates whether the IT in place is sufficient and used effectively enough to support knowledge management. (08 Quantitative Questions, 01 Qualitative Question)

5) Measures: Indicates Using and Applying Knowledge: Whether the business actually uses and exploits the knowledge inherent in the company in an effective manner. (04 Quantitative Questions, 01 Qualitative Question)

The question-answers were essentially created or modified at best. The creative process involved was the assimilation of various issues of KM and the latest trends in facing the KM issues and practices by the contemporaries. The lessons learnt and the experiences gained by others in the field of KM have been borrowed and applied in approach methodology. Tom Davenport’s “Knowledge Management Case Book, Siemens Best Practises” is a major work that has been referred to in this matter. Knowledge Management Case Book: Siemens Best Practises is Edited by Thomas Davenport and Gilbert Probst and published by John Wiley/ Publicus Corporate Publishing, 2002. This
Knowledge Management (KM) case book is one of the best-documented case studies of knowledge transformation at work in a global business powerhouse and Siemens has been rated as one of the top 10 KM-driven companies worldwide according to an international benchmarking exercise (MAKE—Most Admired Knowledge Enterprise), due to its comprehensive efforts at fostering, promoting and optimising knowledge utilisation.

Profile of Respondents

The research was based on survey data collected from October 2003 to December 2004. A total of 112 respondents completed the survey. The research targeted at both senior and middle managers, since the middle managers are the true “knowledge engineers” of the knowledge-creating company (Nonaka & Takeuchi, 1995).

Technologies to support Knowledge Management

There are a number of technologies commonly thought of when the term "knowledge management is intoned. Therefore, a diagram depicting the technologies that support knowledge management systems was used for clear presentation.

Approach & Scale:

The interview questionnaire was also in use as a short email-based survey at the close of each interview, besides having qualitative and quantitative parts to it. It provides each participant five choices. Each choice is anchored with a descriptor ranging from Very Unsatisfied to Very Satisfied. The responses were then to apply a 5-point scale to the results with one (1) corresponding to Highly Unsatisfied, etc. In order to strive for a certain average score (e.g.
three (3) or higher) three (3) was taken the median or implying 50% or some designated percentage depending on the frequency of occurrence. This was done to ensure that the option of “0 “that is Zero could be chosen to give a non-committal response or to show lack of awareness or simply to reserve comment. Similarly five (5) scored a high value (e.g. 90% or more with an average score of 4 or higher); followed by four (4) was treated as 4+ and in agreement.

Herein qualitative response there is no "right" answer to a question. Both goal-setting options are viable. Typically, though, it was necessary and the research requirement would suggest setting the goal as a percentage responding at some point on the frequency distribution, e.g., 90% with 4 ratings or higher, so called, “top box” reporting, simply because it's more understandable to the "statistically challenged." A goal of a simple yes or no in the quantitative analysis and, 4.2 or 3.7 or 4.0 in a quantitative analysis is not easily interpretable and does not carry the same gravities. However, there is a downside. With the single percentile goal, then it does not matter how dissatisfied a respondent is because the goal satisfaction or attainment is not affected whether someone rates service as a zero, one, or two and sometimes even three. It would not make a valid rating, if one were to rate an issue as four (4), when giving values to qualitative responses. Therefore, the scale values had to pair. Thus, some graphs should have a paired goal, and so the values have been paired. Any one of 90% with four (4) or higher, that is five (5) is the maximum grading, are clubbed together into this affirmative group. Any one less than the 5% with a 0 are neutral, 1 and 2 are considered and, or clubbed as “disagreement”. Value 3, where applicable retained the old scale value of three, and served as the median. Thus, the qualitative representation scale is simplified to essentially three values: One-Disagreement, Two- Agreement, and Three-Affirmative in giving a graphical representation to qualitative findings. In addition, to another situation the same scale implies One-Non Existent, Two-Partially and Three-In Practice. Finally, the scale reads different for a situation in
the future, wherein the scale implies One- Low Priority, Two- Priority, and Three- High Priority.
3 EMPERICAL PROJECT

CASE ANALYSIS – METZELER

3.1 Introduction

Metzeler is a multi-national automobile profile systems group of companies with local and the Euro Head offices based in Lindau, Germany. In its 130-year history, Metzeler has satisfied market demands with innovation and an industry leader, setting trends that others are still trying to achieve. Currently, Metzeler has over 1100 employees in Lindau, Germany. They are operating mainly in automobile profile systems services in almost all continents in the world. In its history, the Metzeler Company is a conglomerate.

To this end, the European Engineering Database (EED) project was initiated in 2003 for developing, modifying and implementing the Virtual Team and an "e" Knowledge Database created on the Lotus Notes Platform for all the Metzeler locations of Europe. The concept of Communities of Practice had to be examined, as a driving force for effective Knowledge Management in the company. Thus, it served as a forum for sharing knowledge and a knowledge community, and as a testing laboratory for integral knowledge-management systems. The question of how this Community of Practice, in a non-centrally organized and heterogeneous company, can develop and attract sufficient attention was examined. Together with its aim to bring into the central corporate office, the co-ordinated support of the other Knowledge Management activities. Implementing this concept had to be engineered carefully to integrate it with day-to-day practice. As in

- Developing a basis for practice exchange:

- Mobilizing best practices in a marketplace
3.2 Project Description

Background (2003)

Metzeler GmbH already have a sophisticated digital library in place, developed continuously over the past ten years. The domain technology APS-Rubber culture has a strong foundation of data and expertise. The experts were already collaborating with other colleagues who have taken the lead in developing expert& expertise knowledge based tools for various categories, functions& processes.

EED October 2003

The development of ICTs has come to a turn point, where investments in implementation of new ICTs tools and methodologies need to be replaced by initiatives aiming at leveraging investments (both in the organizational structure and in ICTs) the company made in the past. Such indications suggest concentrating the efforts of the research towards the achievement of a better and eventually complete understanding of the factors that influence the effectiveness and efficiency of KM as socio-technical.

At the end of the second quarter of 2003 it was mooted that a threefold subdivision of the most diffused IT applications for KM-KMS were done based on their main finalization: (1) to code and share best practices, (2) to create corporate knowledge directories, (3) to create knowledge networks.
At the end of the third quarter of 2003, in this KM(S) work, the project referred to such categories and, more precisely, it centred the analysis on the first one, which is to code and share best practices. Thus, the aim of this work is to contribute to the improvement of the effectiveness of applications devoted to the codification and sharing of knowledge.

However, the failure of the project (EED) due to its non-acceptance, led to a major rethink on why KM(S) failed. On going back to basics, it was projected at the end of November 2003 that the project is likely to fail in the face of stiff opposition from the experts. However, this was denied by the project members. Eventually, it prevailed that the onus rested on making the KM initiative a success at the nucleus, and subsequently duplicated for the atomic and later at the molecular levels, to conclude as an integral part of the element. Thus, it was later realized (first quarter of 2004), the need to first identify the key success factors. Thereon the focus shifted from the structural aspects to the study of key success factors. This shift costed time, and the efforts involved doubled, in order to unlearn what was learnt on KMS structures and start anew on the KSFs for KM in the firm. In order to do so, it was necessary to perform a multi-staged research process that combined theoretical analyses and empirical investigation, both qualitative and quantitative, to design and test a research hypothesis. The theoretical analyses and qualitative investigation have been presented in the previous chapters.

Firstly, the quantitative statistical validation of the researched hypothesis is treated as in chapter two and in chapter three, case study. Recall the first chapter for the description of the literature review and the qualitative investigation outputs in the start of the chapter four. The description of the researched method is contained in chapter three and in its sections. The presentation of the data analysis follows in chapter four, while the discussions on the results of the data analysis finally conclude thereafter in the concluding parts of chapter four and in the last chapter, concluding the project.
**Aims and Aspirations:** EED support would allow

1. Develop exemplary new methods & management of best practices. Each of these reviewed and stamped with the imprimatur of the best experts experience in the field plus an expert - global, editorial board.

2. Evaluate the work with a wide utility and high scholarship for this new medium.

3. Establish a trained body of techno-management editors who can help others develop methods for best practices.

4. Publish and make available online, standards and “specifications” that new experts or employees can use as models, as they create their own methods or management of project or best practices.

Thus, EED was conceived to further the Metzeler knowledge Database/ a knowledge management system. The overall goal was to help change the culture of expert knowledge and workflow in particular and the knowledge management of the learning in all processes in the various departments involving human errors in general. The proposal was to combine the best features of traditional and new electronic modes of platforms already available. This is achieved by providing the quality control of info-tech, expertise management and expert reviews to organize, manage and make available the services online. This is partially done by partially publicising the expertise knowledge that can freely move about the Metzeler Intranet. Thus, EED would have addressed the problem of what happens after the different nationality electronic institutions at all Metzeler locations (for ex., like tech centres) have access to the Intranet at the Global Level.

**The Task (Sept. 03):** The task was to remodel and rewrite a set of innovations for the commencement of EED. And, to contribute to a fundamental change in the relationship between what technocrats write and what the general (tech) employee reads.
3.3 Project Work Sept.03-Nov.03

The above task was entrusted to me by Metzeler as part of the project work. However, the project work continued till its conception in November “03 and ceased by the end of the same year. The potential of this project is still to be realized.

Achievements: Partial success of EED support and implementation

(1) Improved productivity by restructuring expertise knowledge and its technical application. The academic writing strengthened the ties between teaching and learning on the hand and entire procedures itself. That is the various processes of expert solutions for execution using expertise knowledge and experience.

(2) Used the intranet to broaden the audience of practicing experts and thus increase the links between specialists and colleagues.

(3) This gave the certified experts and the future experts to develop their careers within the firm. It created an environment of growth and opportunity. This appropriate platform helped them publish high quality scientific materials aimed at a wide audience.

(4) Served as readily accessible and a well-evaluated model disseminating specific innovations made possible by the new electronic medium.

3.4 Project Status 2004

Using the flexibility of electronic platforms and by exploiting the growing reach of the intranet, ‘‘expert’’ authors create documents that contain first-rate creative ideas. Such ideas help to break out of the narrow confines of a scholarly readership, by serving both specialists and a more general audience. Such a broadening of audience is important in all areas of learning, especially for the IT growth,
Information management, knowledge-based tools, and knowledge management. Since, these depend upon reaching a wide segment of the expert, employee and people-involved in various projects, for their continuing vitality. This in turn helps in pulling together a great deal of work that is already underway, and make far more constructive progress than would otherwise be feasible. EED provides publication models that exert broad influence throughout the tech-humanities.
4 Findings

4.1 Introduction

The study focuses on critical success factors. The study revealed variations in how knowledge is being managed. The four sets of questionnaires (Appendix A (German Language Version), B, C, & D) were pursued during the course of one year to understand the KM in the firm as perceived by the employees.

The results from Part 2 of the Questionnaire in the Appendix A and B (for the year 2004) in the German and the English Language were mainly used for deducing Qualitative Analysis. However, the Questionnaires in Appendix C & D (for the year 2003) were greatly in use for the informal part of the interviews conducted. Some of the qualitative results from the partially conducted interviews in the course of preparing the Interview guide for EED- Experts and Virtual Team Members in September 2003 have been included. Also included is the qualitative feedback from the Questionnaire Form prepared on launching EED in Nov 2003 for Experts and Virtual Team Members. The collective results are put forward as part of the Qualitative Analysis in the first phase and Quantitative Analysis in the second phase and the combined results and their deductions are presented in the chapters thereafter.

Given the time constraints, the response rate was very good for both the questionnaires in the year 2003 (Appendix C & D) and 2004 (Appendix A and B). However, the present focus is on the results obtained during the year 2004 and the questionnaire used in this year. In addition, the year 2003 and the observations from the questionnaires in that year are covered and integrated into the qualitative analysis for the questionnaires in the year 2004.
A large majority of the employees do not use or know the term "knowledge management" (Responses to Question 10 in Part 2 from Appendix B, Question 3 from Appendix C, and Question 1 in Appendix D). However, more than one-third had come across the term KM in other ways of description, in their strategy or general management documents (more than half of those also use the terms information management and/or knowledge sharing). A third of them altogether use the term "knowledge sharing". The category termed "others" also includes junior management beside blue skilled senior company employees and most of them concerned are from Europe. Twenty per cent use the term "learning organisation" (Responses to Question 1 in Appendix D) (more than half of them using this term come from middle level management). Another third say that they do not use any specific term but have only recently heard or known the knowledge management concept (most of the organisations from other parts of Europe have not participated or contributed except a few from the UK locations) and that too very few. While half of the firm use the term "information management", only less than 10 per cent of the company only use this term in their strategy documents (Responses to Question 3 from Appendix C). Thus the results help to identify the overall perception of the knowledge management, thereby substantiating the hypothesis of the thesis on the need for a cultural overhaul as one of the KSFs.

According to the research results, the survey respondents were primarily the executives (Targeted 70, Responded 32 as in AA.12 Appendix “L” Target Groups Data). This substantiates the hypothesis background literature, that there is a greater interest on KM related implementation subject within this employee group. The executive KM culture as one of the key components, support the hypothesis in the thesis on the KSFs for the success of KM implementation.

Finally, it was necessary also because of the language problem, to draw the following figure 3 in order to bring clarity and lucid
Remarks from the executives and the employees on the concept of KM and its implementation.

**Figure 3: Technologies contributing to KM**

<table>
<thead>
<tr>
<th>Entities</th>
<th>Technologies</th>
<th>Process</th>
<th>Sponsorship</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Function IT</td>
<td>Collaboration e-Learning</td>
<td>Continuous Improvement</td>
<td>Bottom-Up</td>
</tr>
<tr>
<td>Organizational Learning</td>
<td>Artificial Intelligence Decision Support Systems e-mail Data Warehousing</td>
<td>Total-Quality Management Customer Relationship Management Process Reengineering Best Practises</td>
<td></td>
</tr>
</tbody>
</table>

With regard to the technologies that the respondents felt contributed significantly to knowledge management applications, Internet interlinked with Intranet (Lotus Notes) ranked first. Several respondents also recognised the contributions of technologies like Document Management Systems, Groupware, Data Warehousing, Directories of resident experts etc. Actually, these were the key words that the respondents were more familiar with than the word “Knowledge Management”. This supports the hypothesis of the thesis on the impact of culture as one of the KSFs for KM implementation.

Further on, 34% stated that the firm had no plans for a KM initiative, 21% stated that they were evaluating the importance of knowledge management, 1% stated that KM is pervasive in the Metzeler organization, while the rest 44% either had implemented one or more
Qualitative results

pilot applications or planning a knowledge management project, but with another name or title, with/ in a different category or classification. Among the respondents who said that the company has either implemented KM or planning to implement KM, 57% of them stated it is or will be implemented across the whole organization, while the rest stated that it might or will be implemented in specific departments like Finance, HR, Marketing& Sales, R& D etc in the future. The percentile in picture on KM planning and initiatives, are not convinced in their involvement of KM. 51% of them felt the need for the position of a Chief Knowledge Officer for effective implementation of KM in the firm. This calls for more inputs on KM and so the hypothesis findings on the need to deploy the right KSFs in KM as derived in this thesis endorsed.

4.2 Qualitative results

The following results are based on the qualitative analysis of the responses from the questionnaires predominantly from 2004, as in appendix A& B and from 2003 as in appendix C& D. The results are displayed for each of the five Key Success Factors which together form the hypotheses of this thesis.

Culture:

The questionnaire answers showed that most employees don’t use the intranet in an informal manner and so, a few face-to-face, knowledge-sharing meetings are required often in such form of work, wherein the firm is spread over different locations across the continent (Responses to Question 1 in Part 2 of Appendix B). An open organization is less sensitive to individual cultural aspects and allows internal/external communication (Responses to Question 7 in part 2 of Appendix B). Culture is becoming less important in understanding KM only when emphasizing the open organization mode (Responses to Question 6 in
Qualitative results

Communication policies are limiting the knowledge exchange rate and level (Responses to Question 9 in part 2 from Appendix B). The answers in the questionnaires favoured communication, together with professional behaviour, knowledge/experiences and previously teamwork as most important factors (Responses to Question 13 in part 2 from Appendix B). They mentioned other factors like similar knowledge and communication skills as key factors in success including low stress level and a development of better KM tools and ICTs (Responses to Question 13 in part 2 from Appendix B).

KM Organization:

Group meetings once a month where employees share some particular knowledge or experiences with others in the organization is practiced (Responses to Question 9 in Part 2 from Appendix B. This knowledge is also shared through departmental databases (Responses to Question 9 in Part 2 from Appendix B). The results of the questionnaire showed that the employees could distinguish several benefits from KM in the future. They mentioned increased efficiency and lower costs (Responses to Question 10 from Appendix D, Question 10 in Part 2 from Appendix B). According to the questionnaire regarding how employees distinguish benefits from working in high technology areas or teams in a KM environment there was a strong preference for face-to-face communication, which remains essential as business is conducted at least towards customers. (Responses to Question 8 - 13 from Appendix D, Question 10 in Part 2 from Appendix B). Another issue found was the policy regarding communication. It was found that the communication level is higher within departments, which actually practised KM policies (Responses to Question 6 in part 2 from Appendix B). Lack of KM policies in some departments could prevent other informal knowledge sharing channels between the employees (Responses to Question 10 in Part 2 from Appendix B).
Qualitative results

*Strategy, Systems & an IT Infrastructure:*

The study shows that there can be some benefits from using a given strategy in KM (Responses to Questions 3, 4, 5 & 6 from Appendix C and Questions 10, 11, 18 & 19 from Appendix D). The employees and the management see a clear path or plan of how the individual employee could develop his/her knowledge and experiences if KM initiatives were incorporated in a phased manner. The answers from the questionnaire stated that employees know the benefits for themselves and thought that it was a good idea to have a Knowledge Management Systems Strategy announced and made visible for the entire Euro Operations.

On the issue of IT tools; IT Tools have the opportunity to increase interaction both internal and with external partners but in the end, the company is very dependent on its personal communication skills (Responses to Question 13 from Appendix D). Another issue that was discovered is what happens when the organization loses control over knowledge storage. The use of any extensive use of ICTs and KM tools carries an inherent risk of losing the control over the information flow in the organization. This is clearly shown in the research where the employees have problems to find the searched topic due to overload of information (Responses to Question 8, 9 and 10 in Part 2 from Appendix B).

A large amount of databases have an extensive amount of information in them. Parts of the results from finished tasks are stored in these databases (Responses to Question 10 in Part 2 from Appendix B). The company uses the databases in a large amount. Some employees complain that the databases are creating problems due to the lack of a logical search function (Responses to Question 8 & 10 in Part 2 from Appendix B). The ICTs tend to force the employees to interact. It is obvious that the ICTs and role division are part of the pattern, but the management of KM cannot work alone without a proper strategically viewed approach by the KM organization and its members on how to do
it. (Responses to Question 5 from Appendix C, Question 3 from Appendix D)

**Effective & Systematic Processes:**

The employees responded on the issue of knowledge assets as equivalent to Intellectual assets in reflecting the company image and accordingly have put efforts in having continuous evaluation of working routines in order to provide top quality services (Responses to Question 1 from Appendix D & Question 11 from Part 2 from Appendix B). Intellectual rights are legally protected. The awareness among the employees is evident, but the procedures and the latest developments are not clear. There is a constant flow of ideas within the organisational context yet, most of these ideas have either been lost or not recorded or shared with the right people, according to (more than 70% of) the employees. Thus, the clear need for KM initiatives with emphasis on Effective and Systematic Processes as advocated in the hypothesis.

**Measures:**

According to the questionnaire, most of the KM initiatives fail due to ineffective use of inbuilt measures (Responses to Question 3 from Appendix D). Thus, for the success and sustenance of KM, some guidelines (Responses to Question 4 from Appendix D) and measures are required. The analysis of the importance of the factors for the improvement of knowledge sharing and knowledge transfer practices or the good implementation of KM strategies shows that respondents have a broad view of the complexity of the reforms (Responses to Questions 5, 6, 10 & 11 in Part 2 of Annexure AA Appendix B).
Summary

The qualitative results support the hypothesis of this thesis regarding the importance of the five KSF for the success of KM implementation projects.

Knowledge sharing among departments is not actively encouraged. This confirms the culture factor as one of the hypothesis key success factors for KM success.

A greater number of employees believe that management of knowledge is a part of the company business strategy by the end of the interview. This clearly proved that an explicit character for an ambitious KM initiative is very important for awareness, acceptance, adjustment and eventual success.

Undoubtedly, the requirements of an IT infrastructure fine tuned to KM in the firm has been reiterated and emphasized as in the hypothesis for KSFs.

### 4.3 Key Success Factors – Quantitative Analysis

Overview

![KSF Mean Value Indicator](image)
The respondents cited changing people’s behaviour and overcoming impediments to knowledge transfer within the company locations and at the euro level (Culture, Mean 2.9) as one of the important factors for managing knowledge in the company. On a more positive note, the respondents said deliberate management could indeed overcome this obstacle. On the company’s ability to compete based on knowledge depends more upon people, process, or technology issues, the aggregate responses placed the emphasis heavily on people, with the other two areas carrying equal, secondary weight. This is a direct correlation to the literature reviewed on KM in the chapter 2.5 wherein, the literature study and background to the hypotheses had favoured the requirement of people, process and technology ratio in the desired format of 50:25:25 for the KSFs of this thesis in implementing KM.

(KM Org, Mean 2.6) The need for a knowledge initiative, which could influence the top management in justifying the use of scarce resources for knowledge initiatives and set up the appropriate scope for knowledge initiatives is another major problem faced by the organization. Owing to the company’s KM Organizational structure in its lack of complete ownership of (KM implementation) problem (KM Org Mean 2.6), also arose from ineffective measures as seen in lack of shared understanding of strategy of business model (Strategy, Systems and IT Infrastructure Mean 3.3 and Measure Mean 3.4).

(Effective& Systematic Processes Mean 2.9) Determining what knowledge should be managed and to mapping the organization’s existing knowledge through defining standard processes for knowledge work and making knowledge available is another issue that assumes high priority.
(KSF, Measure 3.4) Measuring the value and performance of knowledge assets, including the problems with finding the wanted information referred to Lotus Notes and the large amount of databases held within departments.

The need for formulating an overall strategy for knowledge management comes forward very strongly. The means above clearly confirm the deductions, the basic postulates made for the key success factors hypothesis and support the strong recommendations thereafter for a dynamic knowledge management initiative. The lack of which was responsible for the failure of the previous KM initiative the EED project. Most KM indicators above clearly indicate either satisfactory in performance or purely functional in an existential form. The key success factors (KSF Mean which is about 3) need to be more effective and taken into account to initiate a database on best practices or revive the EED project that failed in the last quarter of 2003.

4.3.1 Culture

![Culture Diagram]
In general the KM culture at Metzeler is evaluated as average. All detailed results (questions 1 to 12) are slightly above or below a scale value of three. There are three questions which have a difference from 1 scale point to three. These are Question 4 (Mean 4.1), Question 2 (Mean 3.6) and Question 3 (Mean 3.4) which implies the general approach as positive, dynamic to change and co-operative. This is more a basic individual trait and a prerequisite for a Company culture in the HQ location. And, knowledge sharing is not really seen as strength, and definitely, knowledge hoarding is not considered as a weakness (question 5, Mean 2.8).

Most of the respondents are sharply divided into two groups with strong views on the issue of knowledge sharing practices in the firm (question 1, Mean 2.8) and also on the perception of failure as an opportunity to learn is viewed as a part of learning and growth (question 2, Mean 3.4).

This is further confirmed by the result that change is welcome (question 3, Mean 3.6), as the company emphasis on innovation by principle both historically and to stay ahead due to stiff competition. This is further confirmed by the result showing that the employees are
more than willing to help (question 4, Mean 4.1). They are seen as cooperative and helpful when approached for information or help. However, knowledge sharing is not really seen as strength, and definitely, knowledge hoarding is not considered as a weakness (question 5, Mean 2.8). Despite this situation, there is a fair level of intra team communication and sharing of knowledge (question 6, Mean 3.2).

There is not much reusing of knowledge actively and neither is it promoted on a day-to-day basis as an active routine behaviour (question 7, Mean 2.6). Further on, it is a neutral approach, neither discouraging nor in encouraging knowledge sharing actions (question 8, Mean 2.4). The employees are informed about the need to proactively manage knowledge assets (question 10, Mean 3.1). There are no obvious or visible credits awarded or rewarded for knowledge sharing and reuse (question 9, Mean 2.3). There are very few in common practice on knowledge sharing. Neither is there any group or community practice aimed at this endeavour in particular (question 11, Mean 2), other than the natural requirements that demand a group practice sharing for a definite period over the intranet (question 12, Mean 2.1), which otherwise is not used in an informal manner for any significant length of time. This is evident from the high percentage of respondents clearly indicating the non-use of the intranet in an informal manner and no established community or communities of practices that is common for all the locations of Metzeler.

Summary:

The working culture presently is very much functional but doesn’t work out for a major KM changeover.
4.3.2 KM Organization

In general the KM culture at Metzeler is evaluated as average to fair. All detailed results (questions 1 to 12) are slightly above a scale value of two. There are three questions which have a difference from 1 scale point to three, question 1 (Mean 3.2), question 5 (Mean 3.1) and question 7 (Mean 3.3). This is self evident for a corporate HQ profile in most successful mid sized companies.
The results indicate top-level management’s participation and execution of knowledge management initiatives (question 1, Mean 3.2), but with minimal representation (question 2, Mean 2.5). This is not a major formal function area in the organization (question 3, Mean 2.3). There is a reasonable amount of support given to spread best practices and ideas by actively encouraging internal staff rotation (question 4, Mean 2.6). There are an acceptable number of effective teams with the minimum number of individuals, who have displayed over the years the capacity to learn from others (question 5, Mean 3.1). However, there is low support for virtual or remote teams in providing access to networks or knowledge (question 6, Mean 2.2).

Most of the teams formed have a homogeneous composition and a streamlined approach to the project and fewer multidisciplinary teams that are effectively formed and managed (question 7, Mean 3.3). This indicates a streamlined approach and an attempt for a company vision to integrate KM into the business (question 8, Mean 2.2). There are only a few responsibilities and negligible budget for KM initiatives exist, bordering on a formal skeleton initiative (question 9, Mean 2.4). In addition, there is no clear ownership of KM initiatives either by the business units or by the whole business (question 10, Mean 2.4). This is further substantiated by the employee feedback result. It indicates the organization has lately learnt little from other organizations learning processes, especially in honing its skills for generating, acquiring, applying and integrating new knowledge at a rapid pace (question 11, Mean 2.6). Nor do the results show that the organization systematically assess its future requirements and execute plans to meet them at an organizational level (question 12, Mean 2.4). Therefore, most employees gave an average feedback that there is little knowledge sharing across departmental boundaries that is actually encouraged with the whole organization (question 13, Mean 2.9, German Language Version Equivalent).
Summary:

Apparently the graph shows a result just above two that is evaluated as fair value. The company’s KM Organizational structure in its lack of ownership of the problem is also evident (KM Org, Mean 2.6). Top management’s failure to signal importance is observed from an absence of an incentive system. These results further go on to prove the hypothesis on the requirement of a reorganized KM organization on the lines of a more effective, organized and synchronized for a strong KM Culture.

4.3.3 Strategy, Systems & an IT Infrastructure

The result is about an average scale value of 3. In an E economy this average score implies that there are due to the nature of the business conducted limits sharing of technology with clients and suppliers. However, a major portion of employees believe in sharing with clients and suppliers the appropriate technology in an appropriate situation (question 1, Mean 3.8). Though some employees believe that
management of knowledge is a part of the company business strategy, a significant number of employees are of the opinion that it is not practiced in real terms (question 2, Mean 2.8).

Summary:

There are still major bottlenecks to implementing a successful KM; therefore, there are many areas for improvement. This supports the hypothesis findings on Strategy, Systems and an IT infrastructure as a KSF for KM implementation.

4.3.4 Effective & Systematic Processes

![Effective & Systematic Processes](image)

**Figure 8: Effective & Systematic Processes**

1. Are Key knowledge assets such as customer knowledge identified and preserved and maintained.
2. Are Effective cataloguing and archiving procedure in place for document management (not necessarily electronic)
3. Are Intellectual assets legally protected?
4. Are training and development programs in KM behaviour undertaken from point of recruitment?
5. Is there any duplication of effort in the organisation?
6. In the day-to-day working environment, is it easy to find the right information?
7. When a team completes a task, does it distil and document what it has learned.
8. Are ideas for alliances and joint ventures constantly reviewed and acted on when necessary.
The result is about an average scale value of 3. This implies the existence of basic procedures and practices where effective and systematic processes are involved, which leads to the average scale value of 3 for almost all variables. As in, the employees’ views on whether the key knowledge assets such as customer knowledge are identified, preserved and maintained (question 1, Mean 3.1). Similarly, regarding an effective cataloguing and archiving procedure in place for document management that is not necessarily electronic (question 2, Mean 3.3). The intellectual assets as legally protected according to the employees (question 3, Mean 3.8). It is relatively easy to find the right information (question 6, Mean 3.1) by a fair amount of navigation in the day-to-day work environment as posted in the results. However, on completion of a task by the team, the lessons learnt are not effectively distilled for documentation (question 7, Mean 2.4). This leads to the conclusive remark that in spite of an average feedback on other variables and besides a fair availability of information, there is duplication of effort in the organization (question 5, Mean 3). Further, ideas for alliances and joint ventures are not regularly reviewed to be acted on when necessary (question 8, Mean 2.5). Also, the employees regard the recruitment procedure just passé on the issue of training and imbibing KM behaviour development programs (question 4, Mean 2.6).

Summary

The knowledge processes are usually not managed as processes in and of themselves. The same was felt for the resources committed for ongoing training and development of individuals. Further to above, the continuous learning entails, individual employee involvement in the firm processes in knowledge sharing and KM structures for the firm, as advocated by the hypothesis.

These results demonstrate the need for a strong KM Effective and Systematic processes that avoid duplication of work, clear definition of the kind of knowledge that needs to be shared, documented, and managed by the employees. Effective and Systematic processes, is one
of the pre-requisites for KM success and is the first step to a successful KM methodology. Thus the hypothesis finding of this thesis for Effective and Systematic processes as a KSF for KM implementation is substantiated.

4.3.5 Measures

<table>
<thead>
<tr>
<th>Measure Description</th>
<th>Mean Value</th>
</tr>
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<tbody>
<tr>
<td>1. Is there a participative goal setting, measurement and feedback?</td>
<td>3</td>
</tr>
<tr>
<td>2. Are individuals committed to continual improvements?</td>
<td>4.2</td>
</tr>
<tr>
<td>3. Is there a constant flow/ generation of new ideas within the organisational context?</td>
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<tr>
<td>4. Are resources committed for ongoing training and development of individuals?</td>
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<tr>
<td>5. Are intellectual assets evaluated?</td>
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**Figure 9: Measures**

- Is there a participative goal setting, measurement and feedback?
- Are individuals committed to continual improvements?
- Is there a constant flow/ generation of new ideas within the organisational context?
- Are resources committed for ongoing training and development of individuals?
- Are intellectual assets evaluated?

Measures score average or slightly above average. This is due to the fact that there is a participative goal setting, measurement and feedback according to the result posted (MBO: Mission Based Objectives briefly implies that the company’s objectives coincide with the customers objectives) (question 1, Mean 3). Also, the employees ranked the participation of individuals as committed to continual improvements (question 2, Mean 4.2). Besides, there is a constant flow of ideas within the organisational context according to more than
seventy percent of the employees (question 3, Mean 3.6). The same was felt for the resources committed for ongoing training and development of individuals (question 4, Mean 3.7). However, the result for the evolution of intellectual assets showed a marked deviation on this issue with only close to a half agreeing on this matter (question 5, Mean 3).

Summary:

Effective measures are in place and functional of knowledge sharing and recording. Yet from knowledge management perspective much needs to be done for futuristic team efforts on successful KM implementation.

4.4 Summary

There are no dedicated online communities that are built and properly facilitated in order to promote a knowledge sharing dialogue. There is less of “push” technology versus “pull” technology. More active analysis and dissemination (either through intelligent agents or a team of individuals analysing lessons learned) is needed while collecting, analysing and disseminating knowledge. The internet and the intranet by itself have not made significant contribution to make the company more competitive. There are no clear measures on this count. Similarly, structured data almost presumes existence of some kind of a database in the firm.

There is a strong correlation with many of the factors of success often designated in the KM literature such as the resources dedicated to KM or the attribution of the overall responsibility for KM (Question 9 of 2 in Appendix B). The strong correlation between some of the success factors hypothesized in the KM literature, i.e. the level of resources dedicated to KM practices, and the attribution of responsibilities for KM practices, are directly proportional. The lack of rewards for knowledge sharing, apparent focus of the firm on
technology usage for solving problems undermined the importance of
the human factor. Sharing information should be a priority, but it is
not. One of the two biggest obstacles to KM initiatives is "financial
justification" and "boardroom credibility." In the market, secrecy is the
first value followed by the corporate culture, information sharing is a
problem. The relative managerial resistance to the implementation of
KM strategies (managers have the most to lose from knowledge that is
more horizontal sharing) and the absence of updated dynamic e-
commerce mechanisms accompanying the changing responsibilities are
the limitations to the implementation of KM.

The need for formulating an overall strategy for knowledge
management comes forward very strongly. The lack of which was
responsible for the failure of the previous KM initiative the EED
project. Most KM indicators above clearly indicate either satisfactory
in performance or purely functional in an existential form. The key
success factors need to be more effective and taken into account to
initiate a database on best practices or revive the EED project that
failed in the last quarter of 2003. Meantime it is also important to
realize, How to assess the damage of not having an efficient KM
strategy.

The responses also indicated that ideas for alliances and joint
ventures are not regularly reviewed to be acted on when necessary.
These results point out for the need to institute sufficient measures and
a change in the perception to the processes carried out in the firm. The
same situation was recorded with the question on the evaluation of
intellectual assets.

Further, analysis of the different achievements results confirm
the hypothesis findings for increased openness, transparent policies,
investments in ICTs, structural changes and improved competitiveness
of the employer through changes to vertical and silo type of
hierarchical structures are required. There is a high level of need and
want for strategic knowledge management but there exist only a low level of actual implementation.
5 Conclusion

5.1 Conclusive Remarks

The purpose of this thesis is to gain a better understanding of how some factors are critical for the successful application of Knowledge Management (KM). A literature review is in order to identify and categorize the existing measures, suitable for evaluating the hypothesis. Then followed for each construct the existing scales identified, adjusted for application to the specific research field.

In the literary reviews the major work on KM implementation focused on the present trends and applications in the eEconomy. Wherein, today’s competencies become tomorrow’s core rigidities with unprecedented speed. An organization should have the capacity to exploit its knowledge and learning capabilities better than its competitors, if it decides to assume a given competitive strategy. Although KM is and as an enterprise-wide goal, many companies kick-off an initiative in one department and then extend the practices throughout other parts of the organization. To conclude, Knowledge management (KM) is a process that helps organizations find, select, organize, disseminate, and transfer important information and expertise to gain business advantage.

Based on the above research study, it is considered that the most relevant factors for the successful implementation and sustenance of momentum for the KM initiatives are 1) Culture, 2) KM Organization, 3) Strategy, Systems& Infrastructure, 4) Effective& Systematic Processes and 5) Measures.

The success of the initiative is ultimately determined by sufficient combination of the above-mentioned factors and their incorporation within the line organization. To examine the hypothesis a field study technique was employed.
The Lindau Headquarters viewed the survey in the research thesis as a feedback. Later, it was initiated as a full-fledged interview process, to arrive at results that are more concrete. The purpose of the exercise would then be to increase the use of the systems, as proof to the experts, the advantages they could obtain from its adoption. At the least, it would definitely amount to circumstantial evidence.

Based on the nature and the purpose of this study, the qualitative method was applied to the project work based on the essay format. The other is the quantitative method based on numerical scoring and grading. Finally, the results clubbed together in the mixed approach, a natural choice. In addition, the study is a four-model interview guide spread over a period of one year. It involved more than two different types of questionnaires. The complete model included a questionnaire with numeric variables and interviews. Essentially the interviews with a drive to get to know the subject better and cross check the numeric variables too. Thus, it included questions that overlapped into both qualitative and quantitative approaches. This gave the interviewees options to respond qualitative, quantitative, a combination of both or just one of them. The choice of using interviews, documentation and Questionnaires was made to increase/ strengthen the validity of the thesis.

Data analysis carried two-stage methodology: questionnaire validation and then applied in order, to test the hypothesis. Excel sheets are used for data analysis and findings, while the method(s) sections describe the steps of the procedure.

A possible limitation is the fact that the used samples of 60 out of more than 150 requested responses by the present method is not a qualified statistical account. However, the strength of this thesis methodology lies in its comprehensive coverage of various aspects of KM and its implementation at the Company HQ. It provides for both, as in- Positivist researchers adopt a quantitative methodology and carry out surveys and questionnaires. And, interpretive researchers adopt a
qualitative methodology and carry out interviews and ethnographies. Thus the advantage of the study is the fact that it is informed by experience on both these fronts. Also, it attempts to use all available information to balance the weakness of one methodology with the strength of another methodology. The main weakness of the methodology stems from its inability to collect an exhaustive quantitative and statistically representative data that is explicitly amongst some important KM executives. Besides the results need to be interpreted with great care, because the data by itself doesn’t explicitly say so. Due to many incomplete responses that were received and the qualitative response parts are sometimes estimated based on collected impressions, there is a minor influence on the accuracy of the estimates for “key areas of weakness” in KM implementation. While these limitations outline potential areas of weakness in the methodology, yet, it still has been possible to undertake a comprehensive approach successfully.

According to the hypothesis and previous researches in the year 2003 confirm the KSFs advocated by hypothesis in this thesis though the interviews faced many challenges.

The qualitative results clearly support the hypothesis of this thesis regarding the importance of the five KSF for the success of KM implementation projects.

The average KM culture can be accounted for one of the reasons why the EED project failed. These therefore confirm the hypothesis on the requirement of a strong KM Culture, as one of the pre-requisites for KM success. This was the reason why the EED project failed due to the non acceptance by the experts, who didn’t routinely share a KM culture of knowledge sharing and recording, for a futuristic team.

EED project had brought up the roles in the virtual teams. There were some roles similar to or carried the responsibilities like a commission manager, inspector and assistants which was required. The top management hadn’t prioritised the aim of KM strategies in a team.
to make their services more attractive for the customers. The Company does apply both senior employees and younger (new) employees in the various project and virtual teams. However, the composition of the EED project showed minimal balance on the above aspects. Further, partially induced KM initiative substantiates the hypothesis finding for a major effort in KSFs for KM in the firm. Since, the impact of appropriate culture perspective helps achieve KM success to both the senior-junior employee and customer interactions, and outputs in knowledge sharing on a competitive basis. A need for culture overtones in KM directions is required to bring out a healthier and effective interactions aimed in the KM direction, as perceived by the hypothesis in Culture KSF.

At the departmental level, it was difficult to carry out and present the findings of the Technical Centre(s) due to the nature of their operations and functional requirements, which involve many restrictions. Thus, an otherwise essential departmental study for a KM research is excluded from the data interpretations and presentations, including the final conclusive remarks.

Top management was viewed, as apparently missing or not felt, in an otherwise non-existent skeleton structure of KM in the firm. The state of affairs as regards KM organization is remarkably absent and uncertain wherein it exists, and very vague in terms of employee awareness, in an otherwise streamlined environmental organization. This calls for actions to minimize likely loss from, lack of an active KSFs in KM in the firm. Therein the hypothesis findings become self-evident. The incidence of a high employee awareness of a lack of an apparent KM Org. structure is borne in the hypothesis as the major requirement besides culture for the success of KM in the firm.

A consensus on the issue of existing community or communities of practice and the likelihood of using the intranet in an informal manner drew a blank. Both these issues draw a big negative response and a high incidence declined to respond was recorded. KM is not a
formal functional area in the organization. This also contributes to the lack of vision on how KM could be integrated into business. This is one of the major setbacks to the KM initiatives, the lack of a clear vision or goals to establish KM in organizations strapped of funds and resources. This has emphatically laid bare for the need of a strategy in the hypothesis for KSFs for KM in the firm.

As regards the employee awareness of the need for proactive knowledge asset management, almost all departments were uniformly undecided on the status of the firm. On the issue evaluation of intellectual assets, a high incidence declined to respond was recorded. These findings ground the finding that an important issue is the task of measures for any critical success of KM to ensure further progress, besides essential sustenance of the project initiatives undertaken. Senior employees and younger employees are interacting and learning from each other’s experience. The practice of the hypothesis on sharing knowledge between young and old is commendable. However, the company does not confirm the evident outcomes of such interactions, either in the form of documentation and also by the lack of clear measures indicating the lack of acknowledgement from the firm employees on knowledge sharing efforts. Thus, the process is not complete in itself and there is a KM perspective lacking in this direction for the future requirements that are likely to impose a changing employee base in a highly competitive environment. Therefore, the hypothesis takes further sustenance on its findings of measure in spite of its good scores in the quantitative analysis, as one of the key success factor for KM.

No evidence is found that support any usage of software programs like the intelligent agents in a significant number. One other company location of the firm confirm their “Own programmes” and high usability of the departmental databases. This is part of the KM initiatives constituted under different names for an otherwise KM success in external databases. This could be more effective and
integrated with an overall explicit KM strategy as projected within the hypothesis.

The ICTs and KM tools used in the different departments of the company varied both technically and with different level(s) of usage. The company used databases in a minimum rate, also while it used the same departmental databases largely. This balance can best be achieved by incorporating this as one of the objectives for KM initiatives.

The collected data suggests plans for constructing a database for enhancing the collaboration and sharing knowledge with others. This needs to be done, keeping KSFs at the forefront of KM, in the firm.

These from above and other factors, further confirm the complexity and the ambiguity in the firm that can best be simplified and understood in a single stream by an instituted KM processes that would give direction and connect the various end factors and situations borne out of actions to a meaningful central theme. This is the exact demonstrated ability of the hypothesis in giving the KSFs for KM in the firm. Further on, there is a lack of ownership to KM initiatives either by business units or the whole business. Therefore, undertaking KM responsibility initially is quite challenging and a daunting task in an otherwise time starved employee situation. Thus, the repeated assertion on the requirement of a KM Org. instituted to cater for these apparently insurmountable challenges, affirms the choice of KM Org. as the second most important factor, which is critical for the success of KM as in the hypothesis.

The KM survey identified a significant degree of impact on the awareness of the average employee regarding KM. The need for formulating an overall strategy for knowledge management comes forward very strongly. The KSFs means clearly confirm the deductions, the basic postulates made for the key success factors hypothesis and support the strong recommendations thereafter for a dynamic knowledge management initiative. The lack of which was responsible for the failure of the previous KM initiative the EED project. Most KM
indicators clearly indicate either satisfactory in performance or purely functional in an existential form. The key success factors (KSF Mean which is about 3) need to be more effective and taken into account to initiate a database on best practices or revive the EED project that failed in the last quarter of 2003.

While Metzeler Lindau is a rather centralized and old organization in Lindau, the other companies are well established in Europe with a larger city based organization behind them or close to them. The integration and the unified benefits can best be distilled to all departments in all the bases by instituting KM drives both in a top down and a bottom up approach, as advocated in the hypothesis findings on KSFs for KM.

The results have shown that the individual employees are still logged in watertight compartments as regards their perception and involvement is concerned. This consideration could be more dynamic and global KM in nature on applying the suggested outcomes from the study on KSFs, advocated by the hypothesis.

Continuous improvements have managed to keep the employees updated and competitive; yet, the KM aspects are missing and could become a major deficit if not attended to in the future. This likely eventuality has been forecasted by the hypothesis on KSFs for KM, by basing all deterministic statistics on the principle outcomes and on its likely consequences.

The following factors are important for the future requirements to ensure KM initiatives to succeed.

- high priority given to the initiative at the very top of the hierarchy;
- well developed and co-ordinated communications plans for the initiative;
- strong involvement of staff in the reform;
• establishment of incentives to share knowledge;
• allocation of sufficient financial resources

This study has provided a wide but focused insight into the topic of KM success factors and on managing KM. It would be interesting to investigate how ICTs like intelligent agents could affect the interaction and learning pattern in the end in an organization. Since the company in study had not exactly taken in the use of significant number of intelligent agents, this could become an interesting topic to investigate. More attention has to be given to the intelligent agents.

A quantitative study could also be made to see, when and to what extent each of the ICTs and KM tools are used in different situations. Since this study is at the local office of a large multi-international organization, this opens up interesting perspectives for other researchers. They could make multiple-case study analysis in a single company and deepen their effort on how different nodes in their internal network share knowledge with each other.

Furthermore, the strategy theories are discussing tacit knowledge in a limited way, and not many writers are mentioning it at all. Therefore, it would be very interesting to investigate how tacit knowledge could be strategically blended into the rest of the KM strategy in the organization. In order to find this out, a one-case study with deep interviews could be implied.

Also, the research derives the high probability that developed organization could become sensitive to stress. Research could be initiated to include this area. This research could be done through a survey, a case study or a combination of both. This is done in order to obtain accurate and sufficient results from the researched data.
5.2 Personal Recommendations

1. Finding time to share knowledge is a known problem especially in private enterprises and ironically, most cannot make 10 minutes time to learn, how to save an hour in a high-pressure environment at our workplaces. It is not easy to get people out of their work area to allow them to be able to share. Executive commitment is required to hold dedicated sharing sessions with a specific objective/goal. Almost everyone seems to be baffled by this disarmingly simple issue [sharing information]. The problem is that, employees are so busy that it is difficult to find the time to share or document knowledge to be shared. A strategy for providing employees with time and incentive to make it happen despite an overworked workforce is, a knowledge gathering ‘task force’ people with assigned roles and responsibilities that collect/gather information. The key is to market success stories that it is worth for everybody to take the time to write down and share information.

2. A variety of sources suggests that, we ought to have a look at, is the “re-use” of documentation. Evidently, a lot of the information in the office is not really just in people’s heads. It is in emails and short memos, notes on invoices, all sorts of places. Finding ways to compile this information is not so much as creating time to document, but figuring out how to use documentation in order to share.

3. Metzeler is losing a great deal of institutional knowledge and the need to invest more time and the necessity to have a targeted implementation of Knowledge Management and achieving it within the next three years. Moreover, Knowledge Management is not just about systems, it is about people and institutional attitudes. The staff here should undergo reorganization and learn to share or participate constructively in Knowledge transfer between those who were given new tasks and those who had done the tasks before. There are, and still will be employees who do not have a solid grasp on their duties on knowledge transfers or knowledge sharing. Some Metzeler employees,
approach to daily knowledge transfers as, “here are my files and my notes, good luck! “ As a result many employees are people- who are slow to change, and resistant to sharing their knowledge. Many fear others taking over their task and fear job security. The key is and will be to convince them that they are more necessary to the firm as a regular-normal employee and as a knowledge expert. Some trendsetters embrace change and thus help other employees in utilizing their enthusiasm to propel KM projects forward.

4. On initiating Knowledge Management initiatives, one can expect an increased workload, with a decrease in the number of staff. Currently, the majority of the employees are obtaining outside answers from a large desk binder; from updates from supervisors, who receive updates from other internal experts, business units and from external sources also. The KMS will enable the employees to locate information more quickly, internal and external, as well as receiving necessary updates regarding common misunderstandings, backlogs etc, and procedural changes directly.

5. Many of the employees utilize email and phone conversations to obtain answers, not to mention the intra or the internet. The problem with this is that the different or the same Subject Matter Expert (SME) often answers the same question in different forms and ways, multiple times for multiple people. This occupies time, besides creating a lot of ambiguity and complexity. Thus, a lot of valuable time and energy are lost, that the SME and the employee(s) need to devote to their tasks. The KMS can allow employees to search previous questions/answers, documents, policies and procedures before contacting the SMEs. There are only a few dedicated personnel on the EED team, which is actually working as a KMS team. The other or the rest of the employees work is scheduled around other priorities.

The EED portals Knowledge Management Principles will enable fewer meetings, as teams can do work virtually and on their own schedules. Cross team projects, information meetings with supervisors,
managers and executive teams, exchanges of information then could simply be posted one time for many. There is some use of group and mass emails, however many employees delete them or lose them in the masses of emails. Rather than searching Lotus Notes, Knowledge Management can provide them with any context they desire. This includes related legislature, codes, board decisions, policies, previous policies and procedures that have been superseded, and memos & announcements dealing with exceptions.

This highly specialized versions of data transactions by EEDs allows multiple Tasks/Goals simultaneously implemented to be serialized or multiplexed into a single EEDS channel, reducing boundaries, connecting everybody to everything, and capable to achieve exponential results. THUS, EEDs KMS technology solutions eliminate the trade-offs in speed of thought, information power, numbered search records, and cost for high performance data transaction and project mission applications. Hence, the EEDs KMS technology along with several other permutations & combinations or multiple KMS Technology models and method is most suitable. It helps to transact in highly specialized data reasonably, at a meaningful Human perception output pattern. This is done from the information source centres to the information-processing unit and then to the individual workstations. There are many workstations and at a distance away from each other in space, time and in human perceptions.

Finally the EEDs require a user manual for CoPs along the following five dimensions, would help Metzeler:

- **Purpose**
- **Processes and practices**
- **People**
- **Systems and Tools**
- **Documentation**
6. Metzeler internal regulations are influenced directly from changes in legislation enacted by the different nations around the world, wherein Metzeler is located. The firm faces stiff competition from special local APS industry, manufacturers and customers’ interests at different country locations. This clearly means work slowly transcends borders and affects all people all the time. Thus, the business frontline workers and the contact centre agents need to be able to access all of these changes dating back to retirees who retired decades ago, if they are still living. Again, searching through binders, file drawers and lotus notes, and to seek answers from other employees is occupying much employee time.

7. For Metzeler has to make the Knowledge Management initiative obvious and apparent to all. The need to instil a knowledge vision is needed to build a solid foundation for knowledge management services that is flexible and grow over time. For others, they may find that a more informal structure is preferable. However, Metzeler could institute a better practices database instead of a best practices database. That is, to identify and promote ‘Better Practice’, a checklist has to be created. This would enhance the use of data, information and knowledge to improve productivity and service delivery. The objective is to guide the staff responsible for managing information and knowledge (with) in the firm. IT managers could use the checklist in dealing with daily operations or with contractors, or customers. This checklist could focus on non-technical issues. It should be noted that a checklist, need not necessarily to be comprehensive. Rather, it must highlight key issues. The checklist is mostly meant to be iterative and draw on the expertise and experience of practitioners. The subject matter and issues could be reviewed and updated to reflect developments.
5.3 Points to Note

1. It should be borne in mind that more than half of the executives who participated in the study felt that the organization was not particularly good at generating new knowledge.

2. This thesis is a limited study by excluding measurements of the extent to which the tools are used.

3. Knowing-doing applied to knowledge management is an excellent approach. Especially, with the whole concept that, those documenting knowledge often do not understand that, which they are documenting. Hence, the problem with many systems.

5.4 Implications for Management

The research has investigated how a company can use KM successfully and its success factors in KM. The management implications are made to help the investigated company, as well as other companies that practice the use of KM.

The study has shown that it is necessary to facilitate and encourage both external and internal interaction. Therefore, it is relevant to consider such an approach to the development of knowledge and the knowledge sharing process. An organizational model, where the company promotes for an open external sharing shows a higher degree of knowledge flow and interaction. Furthermore, it is important to remember that the development towards ICTs and KM tools should be brought under controlled forms. As the study showed, a company that reaches a critical level of information storage can briefly lose the overview on the structure and content of knowledge. This scenario could lead to a risk of abundance of the tools by the team members.

Finally, the organization should focus on solutions that offer great flexibility in exercising control over shifting interactions from
"direct" to "IT-enabled". Sometimes a fascination with technology may result in the assumption that employees must adjust to the ICTs instead of the other way around. Organization must create a KM strategy that unifies both the intellectual assets with the technology being used. Viewing ICTs as an enabler of learning allows intellectual assets to make more informed decisions about the appropriate use for various learning tasks.
6 Ancillaries

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General Online Reading & Browsing


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6.3 Appendices

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Questionnaire Form on Launching EED in Nov 2003 for Experts and Virtual
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AA.5 Appendix E Target Groups Data
AA.1 Appendix A

Questionnaire (German Version, 2004 with QUESTIONNAIRE - Part One (Quantitative Analysis)& QUESTIONNAIRE- Part Two (Qualitative Analysis))

Diese Befragung dauert ca. 22 Minuten und sollte ohne Unterbrechung ausgefüllt werden. Fragebogen (Bitte Felder ankreuzen oder ausfüllen.)

1. Name (freiwillig):
Abteilung...
Orth, Datum…
Wie lang Sind Sie Mit Metzeler ......

2. Ausbildung:
☐ Berufsausbildung  ☐ Hochschule  ☐ Aufbaustudiengang
Bitte nur den letzten Abschluss angeben
3. Geschlecht:
☐ männlich  ☐ weiblich
4. Alter
☐ 20-29  ☐ 30-39  ☐ 40-49  ☐ 50-59  ☐ 60 +
5. Wie viele virtuelle Kommunikationsgruppen/-plattformen bauten Sie bereits auf / halfen Sie aufzubauen? Falls dies nicht zutrifft, geben Sie an, wie vielen kommunikativen Gruppen Sie angehören?
☐ 1-4  ☐ 5-9  ☐ 10-19  ☐ 20 oder mehr
6. Werden Sie regelmäßig von den zuständigen Experten des Wissensmanagement Teams über dessen Inhalts generierung und –Nutzung unterrichtet bzw. haben Sie Zugriff auf diesbezügliche Foren?
☐ Ja  ☐ Nein
Wie viele Mitarbeiter hat Ihr Unternehmen? (ungefähre Wert):

8. Werden Sie oder Ihre Projektgruppe von der Geschäftsführung beim Austausch von „Best Practices“ (Beste Problemlösungen) unterstützt?
☐ Ja  ☐ Nein

Skalenbeschreibung
Bewerten Sie folgende Umfrage mit diesen Werten
NA = keine    1 = Nein
2 = Wahrscheinlich in 2 Jahr/ MINIMAL
3 = Priorität in 2 Jahr/ PARTIELL
4 = Sichtbar/ BETRÄCHTLICH
5 = Ja, VORHANDEN in Praxis

1. Erhebung

Kultur
1. Wir die Erfassung und der Austausch von Wissen in Ihrem Unternehmen routiniert durchgeführt?
NA 1 2 3 4 5
Bemerkung:
2. Werden Fehler als Lernquelle gesehen?
NA 1 2 3 4 5
Bemerkung:

3. Wird Veränderung als Teil des Arbeitslebens gesehen?
NA 1 2 3 4 5
Bemerkung:

4. Sind Ihre Mitarbeiter oder Kollegen bei Anfragen bereit Auskunft zu geben?
NA 1 2 3 4 5
Bemerkung:

5. Wird der Wissensaustausch Stärke und der Vorbehalt von Informationen als Schwäche gesehen?
NA 1 2 3 4 5
Bemerkung:

6. Gibt es eine gute interne Kommunikation und regen Informationsaustausch zwischen den Mitarbeitern?
NA 1 2 3 4 5
Bemerkung:

7. Wird Wissensmanagement (Austausch, Erfassung, usw.) nahezu täglich gefördert?
NA 1 2 3 4 5
Bemerkung:

8. Wird schlechtes Wissensmanagement aktiv „bekämpft“?
NA 1 2 3 4 5
Bemerkung:

9. Wird engagiertes Wissensmanagement belohnt?
NA 1 2 3 4 5
Bemerkung:

10. Wird Wissen in allen Bereichen als Schlüssel-Ressource angesehen?
NA 1 2 3 4 5
Bemerkung:

11. Ist allen Bereichen Ihres Unternehmens die Wichtigkeit von proaktivem Wissensmanagement bewusst?
NA 1 2 3 4 5
Bemerkung:

12. Nehmen alle Bereiche an Kommunikationsplattformen (Intranet) teil?
NA 1 2 3 4 5
Bemerkung:

2. Erhebung

KM Organisation

1. Wird Wissensmanagement vom Top Management als wichtiges Element der Firmenstrategie angesehen?
NA 1 2 3 4 5
Bemerkung:

2. Gibt es im Top Management des Unternehmens einen Verantwortlichen für Wissensmanagement?
NA 1 2 3 4 5
Bemerkung:

3. Gibt es eine eigene Abteilung bzw. einen Verantwortlichen für Wissensmanagement in Ihrem Unternehmen?
NA 1 2 3 4 5
Bemerkung:
4. Wird Wissensaustausch bzw. die Verteilung gefördert?
NA 1 2 3 4 5
Bemerkung:

5. Sind die Arbeitsgruppen Ihres Unternehmens effektiv? Werden Teammitglieder ermutigt von einander zu lernen?
NA 1 2 3 4 5
Bemerkung:

6. Unterstützt Ihr Unternehmen den Zugriff von externen Mitarbeitern/Niederlassungen auf Netzwerke und Informationssysteme?
NA 1 2 3 4 5
Bemerkung:

7. Werden multi-disziplinäre Arbeitsgruppen gebildet und betreut?
NA 1 2 3 4 5
Bemerkung:

8. Gibt es eine Unternehmensvision, wie Wissensmanagement in die Geschäftsfelder integriert werden kann?
NA 1 2 3 4 5
Bemerkung:

9. Gibt es klare Zuständigkeiten und Budgets für Wissensmanagement-aktivitäten?
NA 1 2 3 4 5
Bemerkung:

10. Gibt es klare unternehmens- oder abteilungsbezogene „Eigentumsregelungen“ bei Wissensmanagement-Initiativen?
NA 1 2 3 4 5
Bemerkung:

11. Gibt es unternehmensweite Bestrebungen, die die Erfassung, Allokation und Anwendung von Wissen durch den Lerneffekt von anderen zu Lernen fördert?
NA 1 2 3 4 5
Bemerkung:

12. Schätzt Ihr Unternehmen systematisch die zukünftige Bewertung von Wissen ein bzw. wird Wert von Wissen planmäßig bewertet und die Planerfüllung zielstrebig verfolgt?
NA 1 2 3 4 5
Bemerkung:

3. Erhebung Strategie, Systeme & IT Infrastruktur
1. Werden Technologieansätze zusammen mit Kunden und Zulieferern (wo möglich) gemeinsam verfolgt bzw. geplant?
NA 1 2 3 4 5
Bemerkung:

2. Ist Wissensmanagement Teil Ihrer Unternehmensstrategie?
NA 1 2 3 4 5
Bemerkung:

4. Erhebung: Effiziente & Systematische Prozesse
1. Werden Vermögenswerte des Schlüssel-Wissens (z. B. Kunden Know-How) identifiziert, aufbewahrt und aufrechterhalten?
NA 1 2 3 4 5
Bemerkung:
2. Gibt es effektive Archivierungsprozesse für das Dokumentenmanagement? (nicht zwingend in elektronischer Form)
NA 1 2 3 4 5
Bemerkung:
3. Werden intellektuelle Vermögenswerte des Unternehmens rechtlich gesichert? (sofern möglich)
NA 1 2 3 4 5
Bemerkung:
4. Gibt es kontinuierliche Weiterbildungsmaßnahmen für eine erfolgreiche Anwendung von Wissensmanagement?
NA 1 2 3 4 5
Bemerkung:
5. Wird die Vervielfältigung von Wissen in Ihrem Unternehmen gefördert?
NA 1 2 3 4 5
Bemerkung:
6. Ist es in Ihrem Unternehmen ohne größere Hindernisse möglich, die richtigen Informationen zu bekommen, die für das Alltagsgeschäft notwendig sind?
NA 1 2 3 4 5
Bemerkung:
7. Wenn eine Arbeitsgruppe ein Projekt abschließt wird danach der Lerneffekt dokumentiert?
NA 1 2 3 4 5
Bemerkung:
8. Werden Ansätze/Bestrebungen/Nutzen für Allianzen und Joint Ventures kontinuierlich überprüft oder nur wenn nötig angepasst bzw. in Frage gestellt?
NA 1 2 3 4 5
Bemerkung:

5. Erhebung 
Bewertung
1. Gibt es in Ihrem Unternehmen die Ansätze der partizipativen Zielsetzung, Messung und Rückmeldung?
NA 1 2 3 4 5
Bemerkung:
2. Werden Ihre Mitarbeiter/Kollegen zur kontinuierlichen Prozessverbesserung angehalten?
NA 1 2 3 4 5
Bemerkung:
3. Gibt es einen kontinuierlichen Ideenfluss für die Optimierung des gesamten Unternehmens?
NA 1 2 3 4 5
Bemerkung:
4. Gibt es ausreichend Quellen für eine verbindliche und nachhaltige Weiterbildung in Ihrem Unternehmen?
NA 1 2 3 4 5
Bemerkung:
5. Wird in Ihrem Unternehmen intellektuelles Kapital bewertet?
NA 1 2 3 4 5
Bemerkung:

Themen des Fragebogens (Part 2)
Unternehmenskultur
1. Teilen die Mitarbeiter Ihres Unternehmens Ihr Arbeitswissen?
Bemerkung:

Wird das Intranet zur Wissensverteilung informell genutzt (routinefrei, persönlich und unstrukturiert)?
Bemerkung:

Ermutigen Arbeitsplatzgestaltung und Besprechungen den informellen Wissensaustausch?
Bemerkung:

2. Werden Wissensbeiträge und deren Austausch in Ihrem Unternehmen in irgendeiner Form zusätzlich gefördert oder vielleicht sogar belohnt (Incentives)?
Bemerkung:

3. Wird Wissensaustausch von den Führungskräften Ihres Unternehmens (z. B. GF, IT-Manager etc.) vorgelebt?
Bemerkung:

Organisation des Wissensmanagements
4. Wurden spezifische Stellen für das Wissensmanagement definiert und eingerichtet?
Bemerkung:

Sind die Führungskräfte und Stabsstellen für Wissensmanagement-Aufgaben und -Techniken speziell ausgebildet?
Bemerkung:

5. Wird Wissen durch vordefinierte Stellen bewertet oder gibt es Bibliothekare oder Informationsmanager, die Ablage von Wissen koordinieren?
Bemerkung:

6. Werden Wissensbeiträge und deren Austausch unternehmensweit unterstützt? (Aus organisatorischer Sicht)
Bemerkung:

7. Besitzen Sie in Ihrem Unternehmen Kommunikationsinseln (Cafeteria, Sozialräume, usw.), um Konversation unter den Mitarbeitern zu fördern?
Bemerkung:

Strategie, Systeme & Infrastruktur
8. Kennen Sie die Experten/Schlüsselpersonen Ihres Unternehmens für die unterschiedlichen Wissensbereiche?
Bemerkung:

9. Hat Ihr Unternehmen einheitliche Prozesse/Mechanismen, um Wissensaustausch unter den Mitarbeitern zu ermöglichen?
Bemerkung:

10. Gibt es bereits integrierte Systeme für Content und Knowledge Management. Gibt es Werkzeuge oder Technologien, die folgende Aufgaben übernehmen:
Bemerkung:
Archivierung von Inhalten
Referenzierungen
Trendanalysen
Bemerkung:

Effiziente & Systematische Prozesse
10. Gibt es systematische Prozesse für die Sammlung, Organisation, Verwertung und Sicherung von intellektuellen Vermögenswerten an Schlüsselpositionen?
Bemerkung:

Bewertung
11. Bewertet und verwaltet Ihr Unternehmen das vorhandene intellektuelle Kapital (z. B. ............) systematisch? Werden zu diesem Thema regelmäßig Berichte zu diesem Thema veröffentlicht?
Bemerkung:

Andere kritische Erfolgsfaktoren
12. Was sind Ihrer Meinung nach weitere kritische Erfolgsfaktoren zum Aufbau und Betrieb von praktikablen virtuellen Kommunikationsgruppen/-plattformen.
Bemerkung:
Sonstiges
Haben Sie noch Wünsche, Anregungen oder Kommentare zu diesem Fragebogen oder der Untersuchung?
Bemerkung:

Zusammenfassung:
Freie Kommunikation ist ein wesentlicher Bestandteil für Vertrauen und Vertrauen ist notwendig für die Kapitalisierung von Wissen.
AA.2 Appendix B

Questionnaire (English Version, 2004 with QUESTIONNAIRE - Part One (Quantitative Analysis) & QUESTIONNAIRE - Part Two (Qualitative Analysis))

This QUESTIONNAIRE exercise will take you about 13 minutes (Please put a tick mark ( ) in the appropriate place.)

1. Name (optional):
   Department...
   Date & Place...
   Years of Experience in Metzeler …..

2. Level of education:
   [ ] Certified Certification [ ] Bachelor's Degree [ ] Postgraduate
   Please select the nearest category

3. Gender: [ ] Male [ ] Female

4. How old are you?
   [ ] 20-29 [ ] 30-39 [ ] 40-49 [ ] 50-59 [ ] 60 or above

5. How many virtual communities of practice did you build or helped to build or participated?
   [ ] 1-4 [ ] 5-9 [ ] 10-19 [ ] 20 or above

6. Do the expert- employees or senior & junior colleagues share findings or inform you about the latest in their knowledge creation or progression i.e., 'Groupthink' forums on all issues including 'tricks of the trade', 'advances in a field', etceteras?
   [ ] Yes [ ] No

7. Currently active number of employees or colleagues (estimated):

8. Is your team or group supported by the top management in sharing best practices?
   [ ] Yes [ ] No

Evaluation of the matrix: Assign yourself the following points for each

NA = 0, where 0 is doing nothing at all = NONE and
1 = Don’t Know, Not Sure or Can’t Say = NO
2 = Not Important or as Not been Addressed = MINIMALLY
3 = Partially Beneficial or somewhat Effective or Less Scope for Overall Improvement = PARTIALLY
4 = Important or May not be effective but other associated necessary actions being taken = SUBSTANTIALLY
5 = Critical or already in place and effective = FULLY

Also, the scale can generally be summarized as follows for majority situations

'NA 1 2 3 4 5’ is calibrated as in
'5 (Always) 4 (Often) 3 (Sometimes) 2 (Occasionally) 1 (Never)'
NA (Not Applicable), (Note: "NA" and "1" scale values are equivalent.)
QUESTIONNAIRE - Part One (Quantitative Analysis)

1. EVALUATE Culture
1. Is recording and sharing knowledge a routine and like any other daily habits for the employees?
   NA 1 2 3 4 5
   Remarks:
2. Is failure seen as an opportunity to learn?
   NA 1 2 3 4 5
   Remarks:
3. Is change accepted as part of working life?
   NA 1 2 3 4 5
   Remarks:
4. Are the employees co-operative and helpful when asked for some information or advice?
   NA 1 2 3 4 5
   Remarks:
5. Is Knowledge sharing seen as strength and knowledge hoarding as a weakness?
   NA 1 2 3 4 5
   Remarks:
6. Is there good intra-team communication and sharing of knowledge?
   NA 1 2 3 4 5
   Remarks:
7. Is good knowledge management behaviour like sharing, reusing knowledge actively promoted on a day-to-day basis?
   NA 1 2 3 4 5
   Remarks:
8. Is bad knowledge management behaviour actively discouraged?
   NA 1 2 3 4 5
   Remarks:
9. Are Individuals visibly rewarded for knowledge sharing and reuse?
   NA 1 2 3 4 5
   Remarks:
   Do people at all levels recognise knowledge as a key resource?
   NA 1 2 3 4 5
   Remarks:
10. Are people in the organisation aware of the need to proactively manage knowledge assets?
    NA 1 2 3 4 5
    Remarks:
11. Do people at all levels in the organisation participate in some kind of a community or communities of practice?
    NA 1 2 3 4 5
    Remarks:
12. Is the intranet used to share knowledge in an informal manner (non-routine, personal and unstructured way)?
    NA 1 2 3 4 5

2. EVALUATE KM Organization
1. Does the top management recognise KM as an important part of the business strategy?
   NA 1 2 3 4 5
Remarks:
2. Is there top management representation for KM?
NA 1 2 3 4 5
Remarks:
3. Is knowledge management a formal function area in the organisation?
NA 1 2 3 4 5
Remarks:
4. Is internal staff rotation actively encouraged to spread best practices and ideas?
NA 1 2 3 4 5
Remarks:
5. Are the teams in the organisation effective? Are self managed teams composed of individuals capable of learning from each other?
NA 1 2 3 4 5
Remarks:
6. Are virtual or remote teams supported effectively in terms of access to networks or knowledge?
NA 1 2 3 4 5
Remarks:
7. Are multi-disciplinary teams effectively formed and managed?
NA 1 2 3 4 5
Remarks:
8. Is there a vision for how KM should be integrated into the business?
NA 1 2 3 4 5
Remarks:
9. Are there defined responsibilities and budget for KM initiatives?
NA 1 2 3 4 5
Remarks:
10. Is there a clear ownership of KM initiatives either by business units or by the whole business?
NA 1 2 3 4 5
Remarks:
11. Does the organisation hone its skills for generating, acquiring and applying knowledge by learning from other organisation's learning processes?
NA 1 2 3 4 5
Remarks:
12. Does the organisation systematically assesses its future knowledge requirements and execute plans to meet them?
NA 1 2 3 4 5
Remarks:
13. Is knowledge sharing across departmental boundaries actively encouraged? (Not similar to ‘’incentives’’)
NA 1 2 3 4 5
Remarks:

3. EVALUATE Strategy, Systems& an IT Infrastructure
1. Is Technology shared with clients and suppliers (where appropriate) to enhance relationships?
NA 1 2 3 4 5
Remarks:
2. Is management of knowledge a part of the business strategy?
NA 1 2 3 4 5
Remarks:

4. EVALUATE: Effective & Systematic Processes
1. Are key knowledge assets such as customer knowledge identified and preserved and maintained?
NA 1 2 3 4 5
Remarks:
2. Are effective cataloguing and archiving procedures in place for document management (not necessarily electronic)?
NA 1 2 3 4 5
Remarks:
3. Are intellectual assets legally protected?
NA 1 2 3 4 5
Remarks:
4. Are training and development programs in KM behaviour undertaken from point of recruitment?
NA 1 2 3 4 5
Remarks:
5. Is there any duplication of effort in the organisation?
NA 1 2 3 4 5
Remarks:
6. In the day-to-day working environment, is it easy to find the right information?
NA 1 2 3 4 5
Remarks:
7. When a team completes a task, does it distil and document what it has learned?
NA 1 2 3 4 5
Remarks:
8. Are ideas for alliances and joint ventures constantly reviewed and acted on when necessary?
NA 1 2 3 4 5
Remarks:

5. EVALUATE Measures
1. Is there a participative goal setting, measurement and feedback?
NA 1 2 3 4 5
Remarks:
2. Are individuals committed to continual improvements?
NA 1 2 3 4 5
Remarks:
Is there a constant flow of generation of new ideas within the organisational context?
NA 1 2 3 4 5
Remarks:
3. Are resources committed for ongoing training and development of individuals?
NA 1 2 3 4 5
Remarks:
4. Are intellectual assets evaluated?
NA 1 2 3 4 5
Remarks:
QUESTIONNAIRE- Part Two (Qualitative Analysis)

CULTURE
1. Do the employees share their knowledge?
Remarks:
Is the intranet used to share knowledge in an informal manner (non-routine, personal and unstructured way)?
Remarks:
Do workplace settings and format of meetings encourage informal knowledge exchange?
Remarks:
2. Are there incentives given for knowledge contribution, exchange or on knowledge sharing in your firm?
Remarks:
3. Is the support from executive management to KM (Knowledge Management)\ knowledge sharing VISIBLE?
Remarks:

KM Org.
4. Are there specific knowledge roles identified and assigned?
Remarks:
Are all senior managers and professionals trained in knowledge management techniques?
Remarks:
5. Is knowledge validated through peer or superior review or, are there some kinds of librarians or information management staff that coordinate knowledge repositories.
Remarks:
6. Is knowledge sharing across departmental boundaries actively encouraged? (Not similar to ‘incentives’)
Remarks:
7. Do you have an active ‘‘common’’ meeting space to facilitate knowledge exchange (As in the Canteen\ the Dinning Hall or the water-cooler as meeting place, a knowledge café or any open office to promote communication; a sort of HUB) for unanticipated encounters and marketplace for conversation?
Remarks:

Strategy, Systems& Infrastructure
8. Do you know who your best experts are for different domains of key knowledge?
Remarks:
9. Does your firm have a mechanism in place that allows the sharing of knowledge among the employees?
Remarks:
10. Does your company have systems in place that allow the content and knowledge management. Are there are specific techniques or tools you use for the following:
Remarks:
Content archival
Cross-referencing
Trend analysis
Remarks:
Effective & Systematic Processes

11. Is there a systematic process for gathering, organizing, exploiting and protecting key knowledge assets like ……………………?
Remarks:

Measures

12. Does your organization measure and manage its intellectual capital (Ex. …) in a systematic way, and publish regular reports of any kind on this subject?
Remarks:

Other critical success factors

13. In your opinion, what other factors do you consider as critical success factors for the establishment and operation of ‘Groupthink’ virtual communities of practice?
Remarks:
Comments

14. Would you like to make comments or suggestions about the Questionnaire?
Remarks:

Conclusion
Free communication is essential for trust, and trust is essential for selling knowledge
Interview guide (for EED- Experts and Virtual Team Members in September 2003)

Respondent: Name, Position in company, Background, Time in company and Time on current position

Q.1. How do you view the concept of knowledge?
Information processes
How is knowledge best used within the company?

Q.2. How is knowledge best managed within the company?
Any need for a strategy. (If so, what should it include?)

Q.3. Are you familiar with the concept of “Knowledge Management”?

Q.4. What is the company’s objective in its KM strategy?
- Knowledge consolidation
- Standardisation of existing knowledge in the form of procedures/protocols
- Combination of external knowledge and internal “know-how”
- Acquisition of new knowledge from external sources
- Generation of new knowledge inside the organization
- Transformation individual knowledge into collective knowledge

Q.5. Is KM included in the organizational overall strategic objectives?
- Involved individuals
- Knowledge barriers
- Details/parts that specifically supports the used/planned KM strategy

Q.6. What "norms" and "guidelines" has the company in order to take use of the existing knowledge?
- Knowledge distributors
- Where can these "norms" be found?
- Considering virtual teams

Q.7. How would you like to describe the knowledge transfer within the company?
- In virtual teams
- Group level versus individual level
- Which aid? (Examples only if the respondents are facing problems)
- How important is it today? And for the future?

Q.8. How much of the company's daily internal work is made through teamwork?
- Development (historical and future perspective)

Q.9. To what extent do you and your co-workers use electronic tools/devices in your daily work?
- Creating value (how?)
- Different levels within the company (differences)
- Other effects on the use
- Replacement for face-to-face

Q.10. What is your view towards virtual teams?
- Critical Success Factors
- What is there to win (short term, long term?)
- Lasting coherence (timeframe, pros and cons)
- Failed efforts (reasons)
- Storing methods
- Future expectations on the use (more or less, why?)

Q.11. Do you consider e-mail and Intranet to work as knowledge transfers and storing places for knowledge? (If yes; use of today, desired use)
AA.4 Appendix D

Questionnaire (Prepared as Feedback Questionnaire Form on Launching EED in Nov 2003 for Experts and Virtual Team Members).

In the context of this study, consider "Knowledge Management" to include the strategies and support mechanisms for the creation, identification, collection and sharing of knowledge. This also includes the practices in how knowledge functions as an appliance within the organization. The purpose of Knowledge Management (KM) is to improve the organization's effectiveness by leveraging the knowledge of an individual employee and the need to use to compete. Depending on the business knowledge strategy, important knowledge is:
- The intellectual assets (employees) that underlie products and services
- Knowledge about customers and markets
- The identification and transfer of "best practices"
- The individual expertise

Knowledge is a fundamental factor in the effectiveness of modern organizations. Therefore, your understanding and perception of this subject, by participating in this questionnaire would contribute to making the individual working and the whole organization more effective.

• Position in company: ......................................................
• Tenure: ............................................................................

Q.1. Are you familiar with the term “Knowledge Management”, Or are there any definitions given to knowledge management initiatives internally? If so, what are they?
Intellectual capital
Intellectual assets
Learning organization
Other.................................................................

Q.2. Please rate the following KM objectives in the context of the business strategy? (1 as most important until 6 as the lowest importance)
Facilitation of the "re-use" and consolidation of knowledge about operations
Standardisation of existing knowledge in the form of procedures/protocols
Combination of external knowledge and internal know-how
Acquisition of new knowledge from external sources
Generation of new knowledge inside the organization
Transformation from individual knowledge into collective knowledge
Other ........................................................................

Q.3. Do the organizations’ overall strategic goals include KM explicitly? If yes, are there people assigned to KM; please specify the functions and explain?
....................................................................................

Q.4. What "guidelines" does the company have to attain knowledge and manage it?
....................................................................................

Q.5. How is yours or other individuals’ knowledge shared internally in the company?
Face-to-face
E-mail
Databases
Virtual meetings
Telephone
Reports
Appendices

Courses
Group sessions
Videoconferences
Intranet/GroupWare
Courses
Other......................
Q.6. To what extent is knowledge used and shared through the following devices.
E-mail
Intranet/GroupWare
Teleconference
Computerized advisors (Intelligent agents)
Videoconference
Database applications
Other...
Q.6. How much group work do you conduct in your daily work?
5 (Always) 4 (Often) 3 (Sometimes) 2 (Occasionally) 1 (Never)
Q.7. What are the most important knowledge-carriers in the organization?
People
Paper
Different Media
Routines
Services
Other.................................
Q.8. Where in the organization could you find “guidelines” to remote, manage or participate in virtual teams or knowledge management teams?
At the regular management
The company culture
Outside consultants
In databases or other written forms
Co-workers experiences
Other........................................
Q.9. To what extent is electronic tools used in the daily work.
5 (Always) 4 (Often) 3 (Sometimes) 2 (Occasionally) 1 (Never)
Q.10. In what way do you think electronic tools are adding value to individual and overall performance?
Increasing performance
Lowering costs
Better work access
Creating new contacts
New knowledge into the company
Other........................................
Q.11. How often do you update these tools?
5 (Always) 4 (Often) 3 (Sometimes) 2 (Occasionally) 1 (Never)
Q.12. How is your daily communication divided? (Place a %-part of the overall communication through that specific channel)
Face-to-face
Telephone
E-mails
Others.................................
Appendices

Q.13. To what extent do you think electronic tools can replace face-to-face communication?
5 (Always) 4 (Often) 3 (Sometimes) 2 (Occasionally) 1 (Never)

Q.14. What are the key factors when interacting with others? Rate the different options below with number 1 as most important and upwards to number 8 as the least important:
Cultural background (both organizational and geographical)
Communication
Professional skills
Knowledge background
Early experiences from working together
Trust
Social skills
Physical attractiveness

Q.15. Which advantages/disadvantages have you experienced working in virtual relations?
Expectation for the future?

Q.16. How do you store knowledge established in virtual teams?
Reports
Meeting Protocols
Databases
Seminars/Courses
Other

Q.17. How do you expect your work in virtual teams expand for the future (plans)?
More virtual team works
The same as today
Less virtual team work
No more virtual teamwork

Q.18. Which aspects of the organizational culture seem to support effective KM?

Q.19. What aspects of your culture changed because of the implemented KM process?

Q.20. Have any of your virtual relations failed. If so, what were the major causes?
Cultural issues
Communication issues
Trust issues
Social issues
Knowledge skill issues
Other
AA.5 Appendix E

**Target Groups Data**
Target Groups, Periods and Numbers

*Fig. 1: Target Groups*

<table>
<thead>
<tr>
<th>Target Groups</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top/ Senior Management or Experts</td>
<td>2003 &amp; 2004</td>
</tr>
<tr>
<td>Executives/ Management</td>
<td>2003 &amp; 2004</td>
</tr>
<tr>
<td>KAM, Euro Team and Project Managers</td>
<td>2003 &amp; 2004</td>
</tr>
<tr>
<td>General Administration</td>
<td>2004</td>
</tr>
<tr>
<td>Technical, IT and ETC Research Personnel</td>
<td>2003 &amp; 2004</td>
</tr>
<tr>
<td>Interns</td>
<td>2004</td>
</tr>
<tr>
<td>Others (Experienced Blue Collar Workers &amp; Semi Skilled workers)</td>
<td>2004</td>
</tr>
<tr>
<td>TOTAL</td>
<td>2004</td>
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</table>

*Fig. 2: Target Groups Data in 2004*

<table>
<thead>
<tr>
<th>Target Groups</th>
<th>Requested</th>
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</thead>
<tbody>
<tr>
<td>Top/ Senior Management or Experts</td>
<td>20</td>
</tr>
<tr>
<td>Executives/ Management</td>
<td>70</td>
</tr>
<tr>
<td>KAM, Euro Team and Project Managers</td>
<td>10</td>
</tr>
<tr>
<td>General Administration</td>
<td>20</td>
</tr>
<tr>
<td>Technical, IT and ETC Research Personnel</td>
<td>30</td>
</tr>
<tr>
<td>Interns</td>
<td>06</td>
</tr>
<tr>
<td>Others (Experienced Blue Collar Workers &amp; Semi Skilled workers)</td>
<td>30</td>
</tr>
<tr>
<td>TOTAL</td>
<td>186</td>
</tr>
</tbody>
</table>

*Fig. 3: Interviewees Response: Target Groups Data*

<table>
<thead>
<tr>
<th>Target Groups</th>
<th>Requested</th>
<th>Responses</th>
<th>Qualitative Response only</th>
<th>Number of respondents</th>
<th>Mean Scale 0-5</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top/ Senior Management or Experts</td>
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<tr>
<td>Executives/ Management</td>
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<tr>
<td>KAM, Euro Team and Project Managers</td>
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<tr>
<td>General Administration</td>
<td></td>
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<tr>
<td>Technical, IT and ETC Research Personnel</td>
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<tr>
<td>Interns</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Others (Experienced Blue Collar Workers &amp; Semi Skilled workers)</td>
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<tr>
<td>Category</td>
<td>Count (%)</td>
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</tr>
<tr>
<td>Top/ Senior Management or Experts</td>
<td>20 12 8 6 3 31 – 40%</td>
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</tr>
<tr>
<td>Executives/ Management</td>
<td>70 32 22 24 4 41 – 50%</td>
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<tr>
<td>KAM, Euro Team and Project Managers</td>
<td>10 6 2 6 5 51 – 60%</td>
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<tr>
<td>General administration</td>
<td>20 7 0 2 0 Insignificant</td>
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</tr>
<tr>
<td>Technical, IT and ETC Research Personnel</td>
<td>30 12 7 4 2 21 – 30%</td>
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</tr>
<tr>
<td>Interns</td>
<td>6 3 3 1 0 Insignificant</td>
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<td></td>
</tr>
<tr>
<td>Others (Experienced Blue Collar Workers &amp; Semi Skilled workers)</td>
<td>30 12 4 2 1 11 – 20%</td>
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<td></td>
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<tr>
<td>TOTAL</td>
<td>186 84 46 45</td>
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