

**Assessing Knowledge Management Initiative Successes
as a Function of Organizational Culture**

By

Vincent Michel Ribière

**Industrial Engineering Degree June 1995, Aix-Marseilles University - France
MS/Computer Science September 1995, Aix-Marseilles University -France
MS/Bank & Finance September 1999, Aix-Marseilles University - France**

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**Dissertation directed by
Michael A. Stankosky, D.Sc.
Associate Professor of Engineering Management
and Systems Engineering**

I can be reached at ribiere@american.edu or 202.885.1488

Online survey available at <http://www.csis.american.edu/kmsurvey/>

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This Dissertation is Dedicated to

My Wife, Suzel Ribière

For her love, patience, support and her wonderful cuisine ☺

My parents Andrée and Maurice Ribière

For their love, support, sacrifice, encouragement and advice throughout my life.

My beloved grandmother, Mémé Hélène

Who is for me a model of generosity, dedication, humor, simple happiness
and who will turn 90 years old the day of my graduation.

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For the love of their little brother (me).

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To my close friends Martine & Frédéric and Nadia & Marc

For their love, happiness and friendship.

Abstract of Dissertation

Assessing Knowledge Management Initiatives' Success as a Function of Organizational Culture

Knowledge Management (KM) initiatives are expanding across all types of organizations worldwide. The competitive benefits of KM efforts have been demonstrated and documented in industry, government and in the academic world for the past six years. However, recent global analyses of such initiatives highlight the fact that not all of them are necessarily successful. One of the main success barriers relates to organizational culture. After having primarily focused efforts on information technology (IT), practitioners are now realizing the importance of the “soft” aspect of KM initiatives. A knowledge-friendly organizational culture must be present or nurtured in order to succeed in KM.

The purpose of this research is to explore relationships between the successful implementation of knowledge management initiatives and specific organizational cultural orientations and attributes. Organizational culture is assessed through organizational trust and organizational solidarity variables. Depending on a company’s degree of integration of these two cultural factors, we demonstrated that specific KM initiatives (codification or personalization) are more or less likely to succeed.

The research findings were accomplished through a validated questionnaire that surveyed 58 organizations involved in KM. Organizations that participated were predominantly large organizations in the consulting and IT - telecommunication field as well as agencies in the Federal Government. Respondents were mainly service-oriented offering both standardized and customized products/services and were predominantly located in the Washington, DC area.

The contribution of this study may help companies and their units seeking to launch a KM initiative to choose which KM initiative to employ in order to maximize their chance of success. Though limited in terms of sample size, this study has the potential to assist other researchers in refining and modifying such approaches to maximize knowledge and insight in this field that is still deficient in theory, tools, models and frameworks.

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My Final Examination Committee:

Howard Eisner, D.Sc. *Professor of Engineering Management and Systems Engineering*

Anita La Salle, PhD *Professor of Computer Science and Information Systems*

Lile Murphree, PhD *Professor of Engineering Management and Systems Engineering*

Michael Stankosky, D.Sc *Associate Professor of Engineering Management and Systems Engineering*

Francis Doug Tuggle, PhD *Professor of Information Systems*

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“ The age of Knowledge Management ‘early adopters’ is over”

(APQC 2000)

I. Introduction

I.1. Knowledge Management status

The debate among Knowledge Management (KM) practitioners and academics about whether knowledge management is a fad or not appears to be over. We no longer talk about KM being an “oxymoron”. Knowledge management has proven benefits and has been adopted by eighty percent of the world’s biggest companies (KPMG Consulting 2000). A study conducted by International Data Corp. indicated the KM industry is crossing from the early adopter phase to the early majority phase (Dyer 2000). We can now talk about KM as being mainstream.

Knowledge management is not new, it has been studied by philosophers and practiced for centuries although the terminology was not widely used until the middle of the nineties. Rod Newing retraced the origins and evolution of knowledge management starting with the cuneiform language in about 3,000 B.C. and going through the main discoveries that made the management of knowledge possible (papyrus, parchment, the invention of the printing press, ...) (Newing 1999). If we look more closely at what made the KM movement boom more recently, we can cite the work and publications of a number of modern management writers. The "Know how company" book by Karl Erik Sveiby in the late 1980s followed by the "Brainpower" article by Tom Stewart in Fortune magazine in 1991 can be considered as the first KM sparks. Karl Wiig's three-volume work published in 1993-94 (Wiig 1993) as well as "the Knowledge-Creating Company" by Nonaka and Takeuchi (Nonaka and Takeuchi 1995) were other important contributions to the KM field. In 1998 Davenport and Prusak (Davenport and Prusak 1998), with their "Working Knowledge" book, presented successful KM case studies and provided practical advice about implementing KM systems. Since then, an important number of journals, articles, reviews, conference proceedings and books have been published and this number has doubled every year (Despres and Chauvel 1999).

But why are we suddenly so interested in managing knowledge?

I.2. Why Knowledge Management?

A significant transformation has occurred in our economy. As depicted in Figure I-1, the United States moved from an industrial economy to an information-based economy beginning in approximately 1991.

In the information economy, innovation, service, quality, speed and knowledge sharing, are the defining factors (Hope and Fraser 1997). Ideas and knowledge become the principle raw materials.

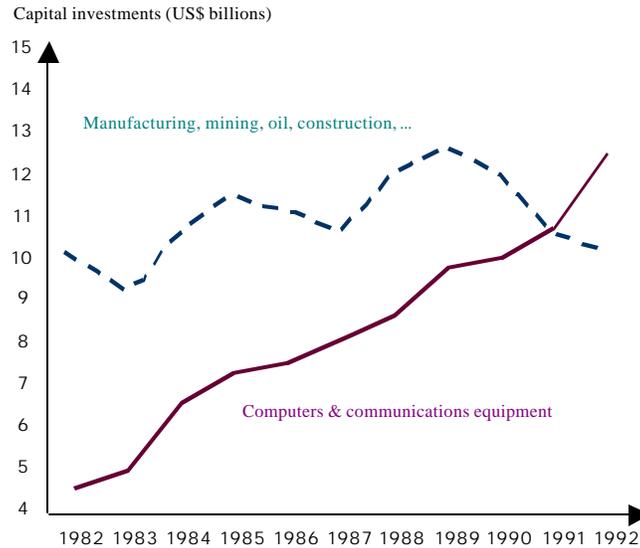


Figure I-1 Capital investments in the US

In an information economy environment, intellectual capital becomes a critical metric for determining the economic value of a company. In most companies today, intellectual capital forms the greater part of their market value (Figure I-2).

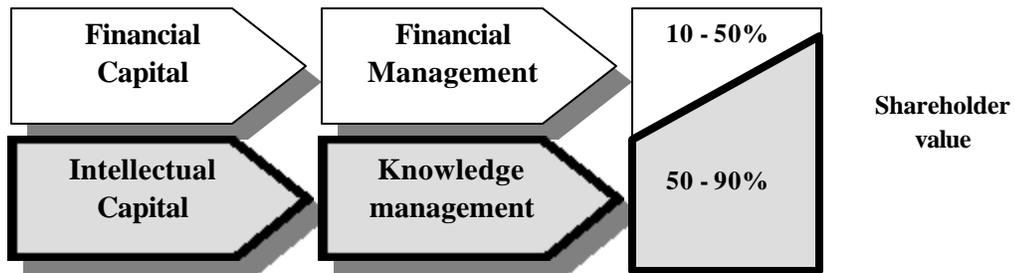


Figure I-2 The new management priorities (Hope and Fraser 1997)

For companies like Coca-Cola intellectual capital is reported to comprise an incredible 96% of market capitalization. ABB (Asea Brown Boveri) and GE (General Electric) have over 80% of their value in intellectual capital, reflecting, more than anything else, the strength of their managerial capabilities (Hope and Fraser 1997; Hope and Hope 1997).

But what is knowledge management?

I.3. Knowledge Management definitions

There are probably as many definitions of knowledge management as there are people defining it. We selected three of them:

- *" Knowledge management is the systematic, explicit, and deliberate building, renewal and application of knowledge to maximize an enterprise's knowledge related effectiveness and returns from its knowledge assets" (Wiig 1997)*
- *"Knowledge management is the process of capturing a company's collective expertise wherever it resides $\frac{3}{4}$ in databases, on paper, or in people's heads $\frac{3}{4}$ and distributing it to wherever it can help produce the biggest payoff" (Hibbard 1997)*
- *"KM is getting the right knowledge to the right people at the right time so they can make the best decision" (Pettrash 1996).*

Knowledge is gained not only from employees' skills but also from all the organization's environmental elements and the understanding of their relationship, what Arc Partners (Siemers and Arc Partners 2000) describes as the "knowledge landscape" (Figure I-3).



Figure I-3: Knowledge landscape -
(Siemers and Arc Partners 2000)

Once identified, knowledge must be managed, that is, captured, stored, transferred and used. These different phases (Figure I-4) are part of the knowledge flows (Newman and Conrad 1999) as well as the top-level conceptual framework for KM defined by Murray (Murray et al. 2000) shown in Figure I-5.

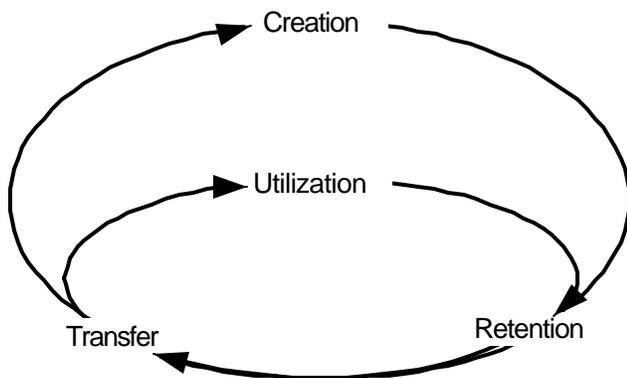


Figure I-4 Basic Elements of Knowledge Flows
(Newman and Conrad 1999)

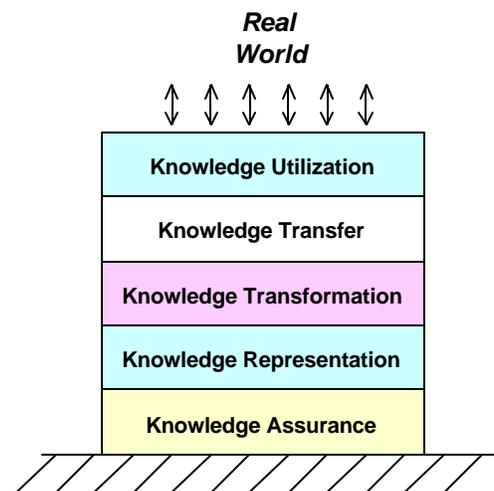


Figure I-5 Top-Level Conceptual Framework for KM
(Murray et al. 2000)

- **Knowledge creation:**

Organizations are repositories of data and information. These data and information are traditionally quantitative in nature and clustered in different formats and in different locations (databases, Enterprise Resource Planning (ERP), data warehouses, etc.). Methods of information acquisition from external sources include: benchmarking best practices from other organizations; attending conferences; hiring consultants; monitoring economics, social, and technological trends; collecting data from customers, competitors, and resources; hiring new staff; collaborating with other organizations, building alliances, forming joint ventures, and establishing knowledge links with business partners (Morse 2000). Internally, knowledge is captured from employees' minds, group projects, experience and practices. Knowledge management systems can also help to automatically find and gather information from the Internet and electronic resources.

Another way to take advantage of an organization's plethora of information in order to create knowledge is to use knowledge discovery and data mining tools that can be applied to databases, data marts and data warehouses (consolidated data) in order to discover trends, patterns concerning customer's profiles and behaviors.

Knowledge can be **explicit** (expressed, codified, formalized) or **tacit** (not easily expressed, codified and formalized). The problem is that Knowledge must be formalized, or made explicit in order to be "electronically" available (Beckman 1997). Interviews, observation, after action reviews and knowledge elicitation can be used in order to convert tacit knowledge into explicit knowledge (Cross and Baird 2000). Nonaka

defines this step as “Externalization” where the use of metaphor facilitates this conversion (Nonaka and Takeuchi 1995). Moreover, there are two types of organizational information: **structured** information (data) such as bank transactions, accounts, and **unstructured** information (documents), such as memoranda, emails, presentations, graphs, and multimedia. To date almost all of the information management spending allocated is to manage structured information. Unfortunately corporate knowledge is mainly unstructured (Figure I-6). The goal of KM is to fill these two gaps, converting tacit to explicit knowledge and to attach more importance and resources to unstructured information.

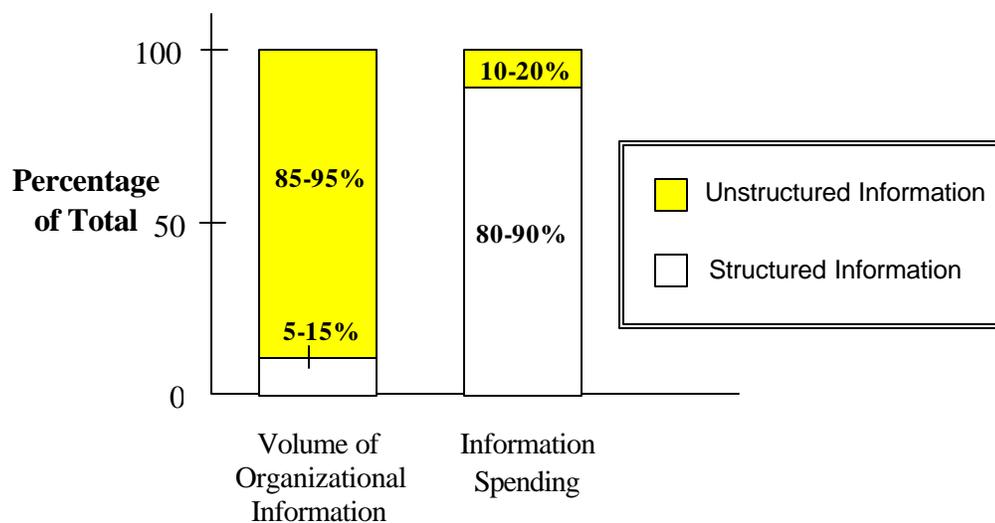


Figure I-6 Information Management Spending vs. Information Type (Corporate Executive Board 2000)

- **Knowledge retention:** “Knowledge retention includes all activities that preserve knowledge artifacts and allow them to remain in the system once they have been introduced. Knowledge retention also includes those activities that maintain the viability of artifacts within the system” (Newman and Conrad 1999).

In this phase, knowledge can be retained in an information/knowledge management system. The structure of the system may include databases, data warehouses, document management systems, as well as discussion groups, groupware, and other ways of managing unstructured information. Discussion groups, groupware and others are beginning to generate a larger part of the structure. According to Murray, “because explicit knowledge is encoded linguistically, the construction of rich domain ontologies is required in order to define the appropriate context”(Murray et al. 2000). Therefore, knowledge can also be retained in the following formats; rules, cases, models, languages and grammars and will have to be managed and maintained in a compatible way. Knowledge is context and time dependent. What is knowledge today may not be knowledge tomorrow. Thus, knowledge must be maintained through constant testing and validation to preserve the integrity and relevance of the knowledge.

- **Knowledge transfer:** “Truly improving business performance, however, demands more than simply putting more knowledge into databases; it requires leveraging the many ways that knowledge migrates into the organization and strengthens business performance”(Cross and Baird 2000). So once captured and stored, knowledge must be shared and made available to anyone who needs it. Communications architectures must be in place (e.g., Intranets) to allow users across all branches to have access to any piece of the organizational knowledge. Knowledge can be pulled or pushed to the user who is involved with the context of this new knowledge artifact. During the transferring process, Knowledge must be presented in the appropriate format, making it understandable and directly interpretable and actionable by users. Interactive charts,

On-Line Analytical Processing (OLAP), balanced scorecards, multimedia, knowledge maps, “drill down” and “slice and dice” techniques are typical visualization methods for knowledge transfer. They allow users to view and massage information in a chosen **context** and to select the level of details and format that best make sense for the decision maker’s judgment.

- **Knowledge utilization:** Knowledge utilization refers to the application of the knowledge transferred. Decision making at the organizational level, innovation, and customer relationship management are examples of direct knowledge utilization. The utilization of knowledge may generate new knowledge or update current knowledge that will have to be stored.
- **Knowledge assurance:** “Knowledge assurance is the foundation upon which everything else rests”(Murray et al. 2000). Too often this aspect is given little attention or ignored altogether. Knowledge assurance is associated with Confidentiality, Non-Repudiation, Identification and Authentication, Availability and the Integrity of the knowledge. Because Knowledge is becoming the competitive advantage of companies, organizations need to make sure that the knowledge they use is authentic, trustworthy, and secure. Because of the value and sensitivity of knowledge, it needs to be protected against unauthorized outside access. “Information security must be organic to the architecture, not an add-on, such as firewalls. Information security is critical to the success of sharing knowledge”(Stankosky 2000).

The realization of these techniques and procedures is not sufficient to ensure a successful knowledge management initiative; key elements of the four pillars of the conceptual KM

framework (Figure I-7), developed by Stankosky (Stankosky 2000), such as the presence of a facilitating knowledge management culture, leadership, learning and organizational structure, will also have to be present in order to increase the benefits and reduce the risks of failure.

I.4. The conceptual knowledge management framework

Early in 1999, Dr. Michael A. Stankosky, Associate Professor of Engineering Management at the George Washington University, postulated a conceptual framework of “four pillars of KM” (Figure I-7): Technology, Organization, Leadership and Learning.” Since then this framework has been validated by Calabrese (Calabrese 2000).

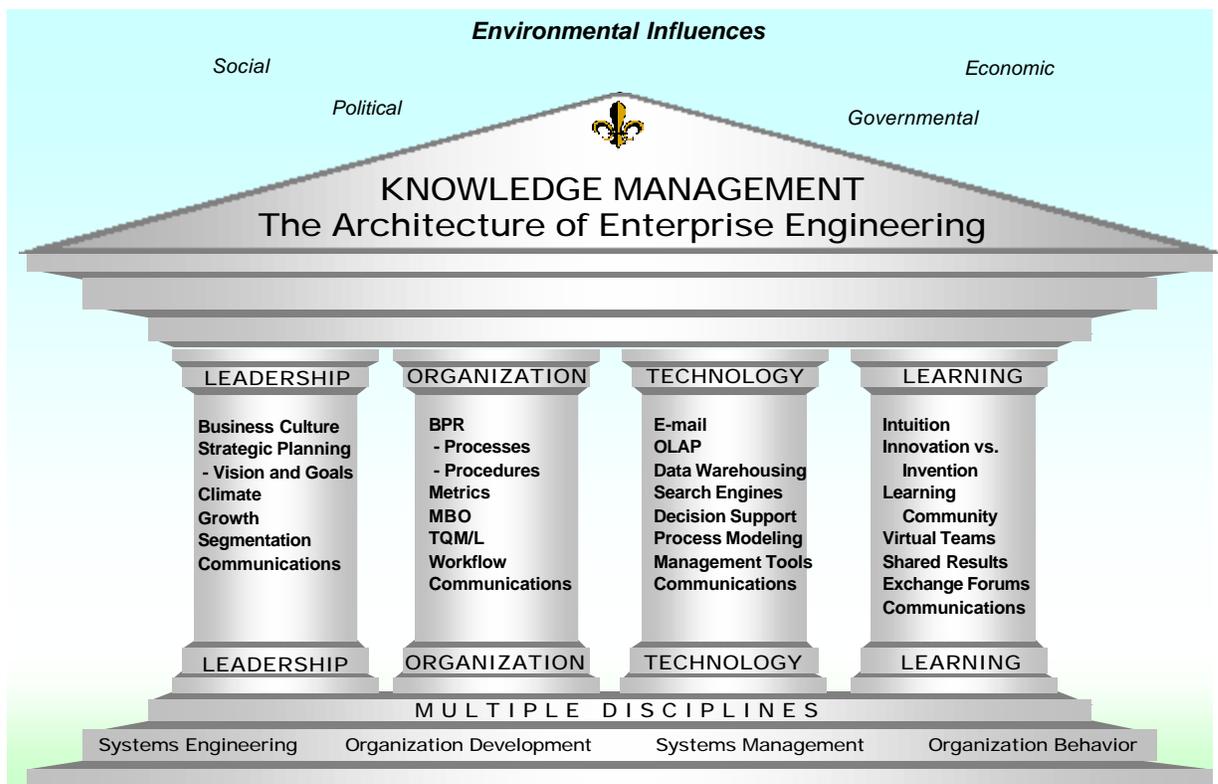


Figure I-7 The four pillars of Knowledge Management (Baldanza and Stankosky 1999)

Stankosky and Baldanza (Baldanza and Stankosky 1999) described the purpose of each pillar:

- ◆ **Leadership**—Leadership develops a business strategy to survive and position itself to success. Success of a process and/or system must be developed with the business strategy in mind. Leadership establishes and implements the strategy and nourishes the culture and climate which the strategy necessitates. Leadership interacts with the environment to position itself for success.
- ◆ **Organization**—The organizational structure must support the strategy. The right business processes and performance management system must be strong enough to deal with turbulence yet flexible enough to adapt to change.
- ◆ **Technology**—Technology is an enabler--an essential asset for decision support, data warehousing, process modeling, management tools, and overall communications. Technology must support the business strategy, add value, and be measured.
- ◆ **Learning**—Positive impact is achieved from lessons learned if they are actualized into improved effectiveness and/or efficiency. It must build from managing information, to building enterprise-wide knowledge, to managing that knowledge, to organizational learning and change. The aim of process/system development is to improve status quo, however, instituting knowledge management may become the only sustainable source of competitive advantage.

Each pillar and its component are interconnected and build upon each other as shown in Figure I-8. A balance of these elements must remain flexible in order to fit the business strategy and to adapt to a turbulent and ever-changing environment (Baldanza and Stankosky 1999).

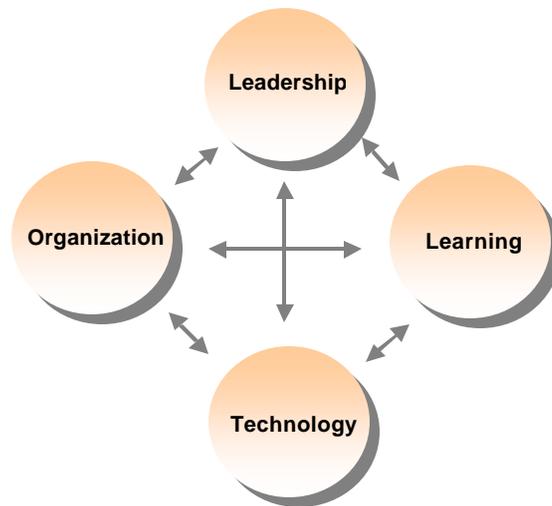


Figure I-8 Four pillars interrelationship (Baldanza and Stankosky 1999)

In order to implement a KM initiative, the layers of top-level conceptual framework for KM developed by Murray (Figure I-5) will have to be combined with the four KM pillars (Figure I-7) to produce a “KM taxonomy cube” (Figure I-9). Each slice and dice of this KM cube is currently a focus of research conducted by PhD candidates of the George Washington University.

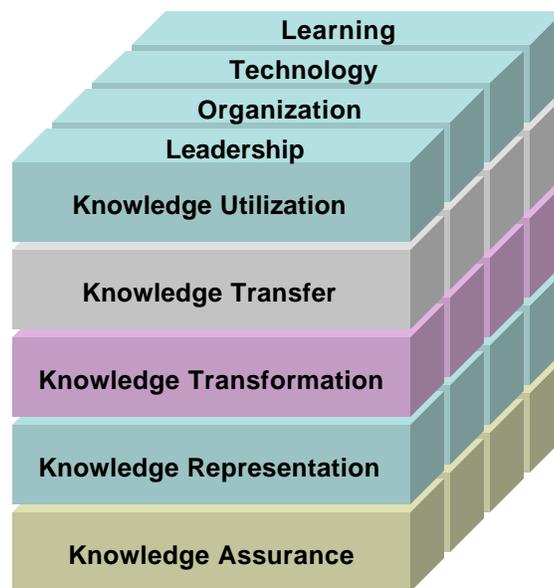


Figure I-9 KM Framework including the Four Pillars (Murray et al. 2000)

Murray went even further and identified the core components of each level of his KM conceptual framework (Figure I-10). We can observe the interdisciplinary nature of the research topics covered, ranging from computer science to linguistics, psychology, electrical engineering and management sciences.

Knowledge Utilization	Culture & Behavior	Metrics & Valuation	Implementation	Assessment	
Knowledge Transfer	Social Structures	Sharing & Dissemination	Exchange Protocols	External Interfaces	
Knowledge Transformation	Discovery	Innovation	Reasoning	Inference	Control
Knowledge Representation	Mental Models	Ontology	Semiotics	Conceptual Structures	Artifacts
Knowledge Assurance	Confidentiality	Non-Repudiation	Identification & Authentication	Availability	Integrity

Figure I-10: Levels of the KM Conceptual Framework (Murray et al. 2000)

I.5. Business drivers for the adoption of KM

Inherent in the concept of knowledge management is the management of a firm's knowledge assets - the core competencies, processes and human potential that together create value for a company. Competitive advantage is achieved when these assets are applied in support of business objectives (Duffy 2000).

According to Carla O'Dell of the American Productivity and Quality Center, there are six primary ways that knowledge adds value (Skyrme and Amidon 2000):

1. Knowledge management as a business strategy- in products and processes.
2. Innovation and knowledge creation- new products, rapid commercialization, and renewing unique knowledge and expertise.
3. Transfer of knowledge and best practices- improving customer service, reduced cycle time or repair times.
4. Customer focused knowledge- building customer intimacy and working with them to make them successful.
5. Intellectual asset management- realizing the value in intellectual assets.
6. Personal responsibility for knowledge-encouraging individual learning and development.

Though there may be overlap between these six categories, clearly the key areas that knowledge creates value are: business strategy management, customer relationship management, and intellectual asset management. According to International Data Corporation's 2000 market survey of user organizations and individuals familiar with knowledge management, the three most common motivations for implementing KM projects are to grow revenues and profits; retain key talents and expertise; and improve customer service"(Dyer 2000). Bixler also did some extensive and validated research identifying the value of Knowledge Management to an enterprise in terms of its ability to solve enterprise-wide problems, determining the resources and conditions necessary for initiating a Knowledge Management System (KMS), and determining the expected benefits of a KMS (Bixler 2000).

“Take a look at your culture before launching a knowledge initiative”

(Davenport and Prusak 1998)

“What’s happened here is 90% culture change. You need to change the way you relate one another. If you don’t do that, you won’t succeed”

CEO of Buckman Labs

II. Statement of the problem

Knowledge management initiatives are expanding across all types of organizations and companies worldwide. However, recent global analyses of such initiatives highlight the fact that not all of them are necessarily successful. A recent issue of the Knowledge Management Magazine was dedicated to KM horror stories (Barth 2000). Many publications are related to best practices but very few mention failures and their causes. As Barth mentions in his article “we learn more from our mistakes than from our successes” and “couldn’t a collection of worst practices be as helpful as best practices?”. All studies looking for causes of KM initiative failure (KPMG Consulting 2000) (Barth 2000) come to the same conclusion: **Organizational culture is the main barrier to success or an important precondition** (Tuggle and Shaw 2000).

After having primarily focused efforts on information technology (IT), practitioners are now realizing the importance of the “soft” aspect of KM initiatives. As Davenport says “Don’t expect software to solve your knowledge problem, if you are spending more than a third of your time, effort and money on technology, you’re neglecting the other factors that will help them to come the content, the organizational culture, the motivational approaches, and so

forth” (Davenport and Prusak 1998). In 1999, the Gardner group came up with these two strategic planning assumptions concerning implementing a KM culture:

- “Through 2003, enterprises lacking a strong KM cultural foundation, including operationalizing KM, incentives and reward for demonstrating enterprise dynamics, and the time and space for collaboration, will fail to achieve their KM business objectives (0.7 probability)” (Harris 1999).
- “Through 2001, more than 75 percent of KM programs will focus on knowledge sharing to improve access to and relevance of information, and to build a culture of sharing and collaboration (0.7 probability)” (Harris 1999).

There is a general agreement that a knowledge-friendly organizational culture must be present or nurtured in order to succeed with a KM initiative. However, few publications define the components of a such KM friendly culture. Once these critical cultural components are defined, we can measure them within organizational cultures and draw conclusions from the findings.

Does having an unfriendly organizational culture mean that a company should not consider launching a KM initiative? Or, are there some approaches that might succeed and also help to change the culture? If yes, what are those approaches?

The central finding of a KM culture study conducted by McDermott, in collaboration with large US companies, was that “however strong your commitment and approach to

knowledge management, your culture is stronger. Companies successful in promoting a strong knowledge-sharing culture do not try to change their culture to fit their knowledge management approach. **They build their knowledge management approach to fit their culture.** As a result, there is not one right way to get people to share, but many different ways depending on the values and style of the organization” (McDermott and O’Dell 2000; McDermott 2000). This is the central focus of our research.

The purpose of this research is to explore relationships between the successful implementation of knowledge management initiatives and specific organizational cultural orientations and attributes. Organizational culture can be assessed through different lenses (cf. literature review on organizational culture p. 31) but we strongly believe that the two main characteristics of a successful knowledge-sharing culture are directly linked to **organizational trust** and **organizational solidarity**. These two variables were chosen after an extensive literature review of articles related to KM and organizational culture as well as a review of successful and unsuccessful KM case studies.

Knowledge management initiatives can be classified into two main types: codification and personalization (Hansen, Nohria, and Tierney 1999)(cf. literature review on KM practices p.21). **Codification** can be considered as a people-to-document KM strategy that mainly emphasizes the reuse of codified knowledge stored in databases. **Personalization** is more of a person-to-person strategy that emphasizes development networks for linking people so that tacit knowledge can be shared.

We believe that depending on a company's level of trust and on its level of solidarity between employees, the implementation of a specific KM initiative (**codification** or **personalization**) will be more or less likely to succeed.

We propose to develop a survey tool to assess:

1. The culture of an organization based on its level of trust and solidarity (using validated tools developed by Goffee and Jones (Goffee and Jones 1998) for the solidarity aspect, and based on a validated tool developed by De Furia for the trust facet (De Furia 1997).
2. The type of KM practice implemented by the organization (codification or personalization oriented).
3. The perceived success of such KM initiative. The factors that will be used in order to assess success will be mainly based on the ones defined by Davenport (Davenport, De Long, and C. 1998).

By surveying organizations involved in KM initiatives, we can map each KM case study and its associated KM initiative type onto an organizational culture matrix that we anticipate will help reveal correlation patterns. The mapping will result in three-dimensional topographies or sets of "organizational spaces" (Figure II-1).

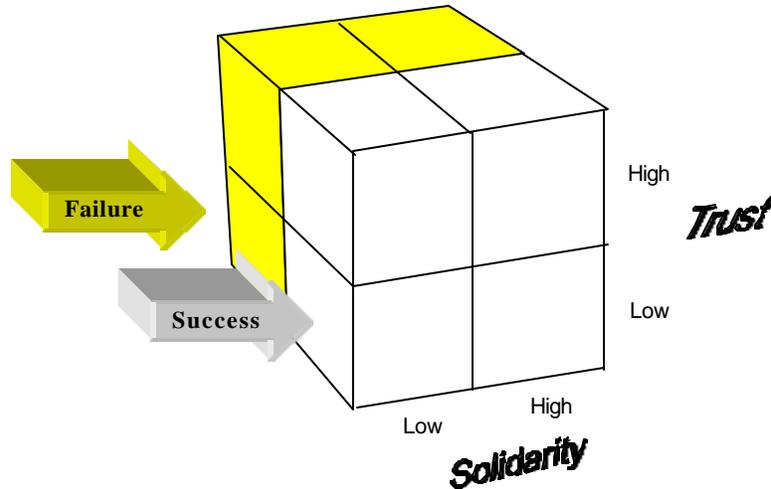


Figure II-1 Organizational culture / KM initiative success

KM case studies launched at the organizational level as well as those launched at unit levels (division, department, branch) will be assessed independently.

The contribution of this study may help companies or their units seeking to launch a KM initiative to choose what KM initiative to employ in order to maximize their chance of success.

If we look at where this research fits into the KM framework previously described (p.10) we can see that two pillars are directly involved in this research (leadership and technology) and a third one indirectly (learning) (Figure II-2). Learning will be more an effect of the combination of the two other pillars.

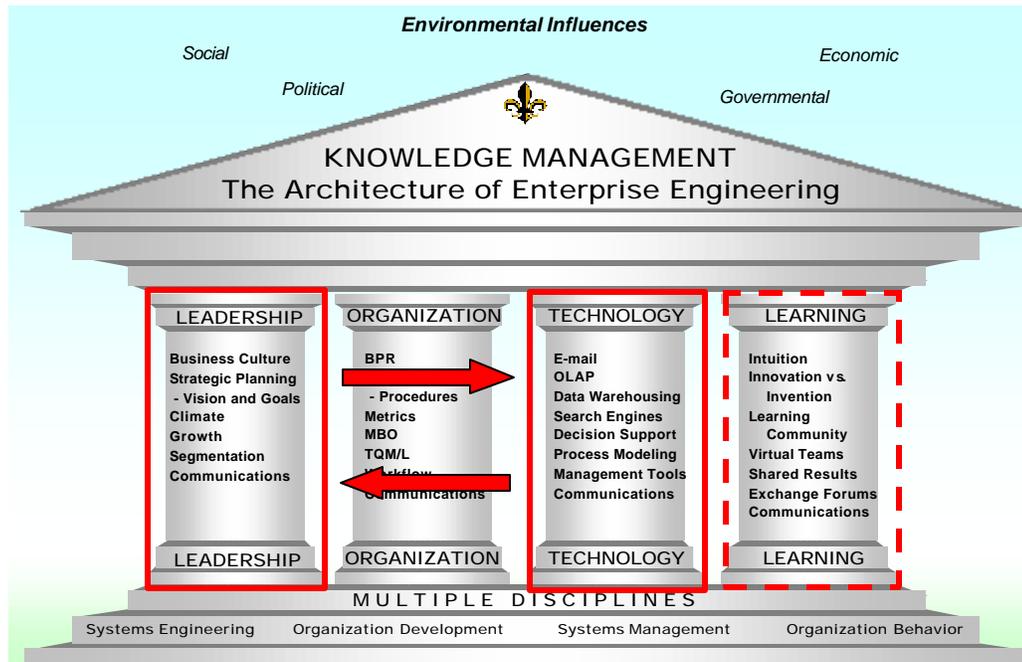


Figure II-2 KM pillars involved in this research

If we look at the levels and components of the KM conceptual framework, our research is mainly addressing the “knowledge utilization” and the “knowledge transfer” layers through the “Culture & Behavior”, “Social Structure”, and “Sharing and Dissemination” components. The “Innovation” component of the knowledge transformation layer will also be a side effect of the interconnection between the previous components cited (Figure II-3).

Knowledge Utilization	Culture & Behavior	Metrics & Valuation	Implementation	Assessment
Knowledge Transfer	Social Structures	Sharing & Dissemination	Exchange Protocols	External Interfaces
Knowledge Transformation	Discovery	Innovation	Reasoning	Inference
Knowledge Representation	Mental Models	Ontology	Semiotics	Conceptual Structures
Knowledge Assurance	Confidentiality	Non-Repudiation	Identification & Authentication	Availability
			Integrity	

Figure II-3 Components of the KM Conceptual Framework involved in this research

III. Literature review

The literature review was conducted in two main areas: knowledge management and organizational culture.

III.1 Knowledge Management Initiatives

After a literature review of the knowledge management field in general we focused our research on publications trying to categorize knowledge management initiatives/practices. A large number of classifications are IT oriented, but we were primarily looking at how people share knowledge. We found a certain agreement on a typology defining two main approaches: **codification** versus **personalization**.

III.1.1. The codification approach

This “codification approach” is intended to collect, codify and disseminate information. It relies heavily on IT. One of the benefits of the codification approach is the reuse of knowledge.

“The aim of codification is to put organizational knowledge into a form that makes it accessible to those who need it. It literally turns knowledge into a code (though not necessarily a computer code) to make it as organized, explicit, portable, and easy to understand as possible” (Davenport and Prusak 1998).

It has been named and described differently by authors. In 1999, Hansen, Nohria, and Tierney published an article in the Harvard Business Review titled “What’s your strategy for managing knowledge?”(Hansen, Nohria, and Tierney 1999). In this article they describe

how different companies are focusing on different practices/strategies in order to manage their knowledge. The first initiative is called “codification”, where the strategy centers on the computer. “Knowledge is codified and stored in databases, where it can be accessed and used easily by anyone in the company. Knowledge is codified using a *people-to-documents approach*: it is extracted from the person who developed it, made independent of that person, and reused for various purposes” (Hansen, Nohria, and Tierney 1999). Large consulting companies such as Anderson Consulting and Ernst & Young have adopted this strategy. The table below summarizes the characteristics of such an approach

	Codification
Competitive strategy	Provide high-quality, reliable, and fast information-systems implementation by reusing codified knowledge.
Economic model	Reuse Economics: Invest once in a knowledge asset; reuse it many times. Use large teams with a high ratio of associates and partners Focus on generating large overall revenues.
KM strategy	People-to-documents: Develop an electronic document system that codifies, stores, disseminates, and allows reuse of knowledge.
Information technology	Invest heavily in IT; the goal is to connect people with reusable codified knowledge.
Human Resources	Hire new college graduates who are well suited to the reuse of knowledge and the implementation of solutions. Train people in groups and through computer-based distance learning. Reward people for using and contributing to document databases.

Table III-1: Consulting firms managing their knowledge using a “codification” approach (Hansen, Nohria, and Tierney 1999)

Stephen Denning (CKO of the World Bank) defined, in a white paper, what knowledge management is and how it is applied at the World Bank (Denning 1998). Denning describes

two different ways of sharing knowledge: the collecting dimension and the connecting dimension. The *collecting dimension* is described as “capturing and disseminating of know-how through information and communication technologies aimed at codifying, storing and retrieving content, which in principle is continuously updated through computer networks” (Denning 1998).

Know-Net, a Leading Edge Total Knowledge Management Solution developed by a European Consortium (Know-Net 2000), incorporates such an approach. They call it the “product view” and the “process view”. The *product view approach* is described as having a focus on products and artifacts containing and representing knowledge. This implies managing documents, their creation, storage, and reuse in computer-based corporate memories. The competitive strategy being to exploit organized, standardized and reusable knowledge.

Natarajan and Shekhar in their book “Knowledge management: Enabling Business growth” (Natarajan and Shekhar 2000) present two models, “Transformation model” and the “independent model”, that clearly comply with the previous descriptions. *The transformation model* deals with explicit knowledge relying mainly on document capture, structured databases, knowledge extraction tools, text mining and search and retrieval applications.

A Lotus white paper, describing KM and collaborative technologies, categorizes KM applications as Distributives or Collaboratives. “*Distributive applications* maintain a repository of explicitly encoded knowledge created and managed for subsequent distribution to knowledge consumers within or outside the organization” (Zack and Michael 1998).

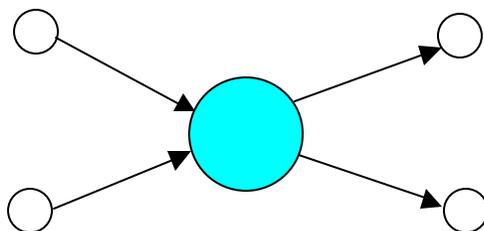


Figure III-1 Distributive applications (Zack and Michael 1998).

Finally, Corey Wick did some extensive research in trying to define the different KM perspectives that he organized as a “continuum metaphor”, where each perspective encompasses the previous one and extends its scope (Wick 2000). His four common perspectives on knowledge management are: document-centered, technological, socio-organizational and the knowledge organization. Wick’s document centered on technological perspectives which match the “codification” approach. “The *document-centered approach* place primary emphasis on extracting knowledge from individuals, analyzing it, synthesizing it and developing it into documents which make it easier for others to understand and apply” (Wick 2000). “The *technological approach* employs multitudes of technologies which facilitate the dissemination and application of knowledge: intranets, portals, data mining, high-powered search engines, corporate memories, web conferencing, and collaborative technologies like Lotus Notes” (Wick 2000). This last approach adds the document-centered approach and involves much more technology, especially “intelligent” systems. It also permits knowledge capture, as soon as it is created through collaborative and conferencing tools. Table III-2 summarizes both the document centered and technological KM approaches.

Document centered KM	Technological KM
<ul style="list-style-type: none"> ◆ Emphasis on documents (codified knowledge) ◆ Connects people to documents ◆ Formal development and review process ◆ Value from leveraging existing knowledge 	<ul style="list-style-type: none"> ◆ Emphasis on technology ◆ Connects people to technological systems and applications ◆ No formal development cycle (captures knowledge as it is created/used through electronic media) ◆ Specialized KM applications (portals, advanced search engines, data-mining, expert systems, decision support software) ◆ Emphasis on documents (codified knowledge) ◆ Connects people to documents ◆ Formal development and review process ◆ Value from leveraging existing knowledge

Table III-2 Document and technological KM (Wick 2000)

As we can observe, all these descriptions and definitions are very closely related in depicting codification processes and tools. For the remainder of this document we will adopt the *codification* naming in order to refer to the type of approaches previously described.

III.1.2. The personalization approach

The personalization approach focuses on developing networks for linking people so that tacit knowledge can be shared. It invests moderately in IT. All the previously cited authors, who defined the codification approach, also came up with their own definition for this approach. Hansen, Nohria, and Tierney named it “personalization”. It focuses on dialogue between individuals, not knowledge in a database. “Knowledge that has not been codified - and probably couldn’t be - is transferred in brainstorming sessions and one-on-one

conversations” (Hansen, Nohria, and Tierney 1999). An investment is made on building networks of people, where knowledge is shared not only face-to-face but also over the telephone, by email, and via videoconference. Consulting companies such McKinsey & Company and Bain & Company focus on this strategy mainly due to the fact that they work on customized and innovative projects. Table III-3 summarizes the characteristics of such an approach.

Personalization	
Competitive strategy	Provide creative, analytically rigorous advice on high-level strategic problems by channeling individual expertise.
Economic model	Expert Economics: Charge high fees for highly customized solutions to unique problems. Use small teams with a low ratio of associates to partners. Focus on maintaining high profit margins
KM strategy	Person-to-person: Develop networks for linking people so that tacit knowledge can be shared.
Information technology	Invest moderately in IT; the goal is to facilitate conversations and the exchange of tacit knowledge.
Human Resources	Hire M.B.A.s who like problem solving and can tolerate ambiguity. Train people through one-on-one mentoring. Reward people for directly sharing knowledge with others.

Table III-3 Consulting firms managing their knowledge using a “personalization” approach (Hansen, Nohria, and Tierney 1999).

Stephen Denning defines it as the *connecting dimension*. “It involves linking people who need to know with those who do know, and so developing new capabilities for nurturing knowledge and acting knowledgeably. For example, help desks and advisory services (small teams of experts to whom one can call to obtain specific know-how or help in solving a problem) can be very effective in the short term in connecting people and getting quick

answers to questions, thus accelerating cycle time, and adding value for clients” (Denning 1998).

Know-Net defines this as the *process-centered approach* which focuses on knowledge management as a social communication process (Know-Net 2000). It facilitates conversations to exchange knowledge and can be improved by various aspects and tools of collaboration and cooperation support.

Natarajan and Shekhar use *the independent model* designation describe the tools that attempt to find solutions for sharing of tacit knowledge (Natarajan and Shekhar 2000). They list a number of technologies that could be used to facilitate the sharing of knowledge.

Among them are technologies such as Web-based training with learning management systems used for skill enhancement programs. Yellow paging, Web crawlers, broadcast applications, Communities of practice (using expert locators, collaboration, virtual work space applications) and Best practice sharing (using knowledge repositories and discussion group based applications) are also examples of knowledge sharing.

Zack and Serino talk about the *collaborative approach* that focuses primarily on supporting interaction and collaboration among people holding tacit knowledge. They highlight that “in contrast to distributive applications, the repository associated with collaborative applications is a by-product of the interaction, rather than the primary focus of the application. This repository of messages is dynamic and its content emergent. The ability to capture and structure emergent communication within a repository provides a more valuable, enduring, and leverageable knowledge by-product than the personal notes or memories of a traditional conversation or meeting. Collaboration technologies, therefore, can support a well-structured repository of explicit knowledge while enabling the

management of tacit knowledge. The knowledge repository represents a valuable means to manage the explication, sharing, combination, application, and renewal of organizational knowledge” (Zack and Michael 1998).

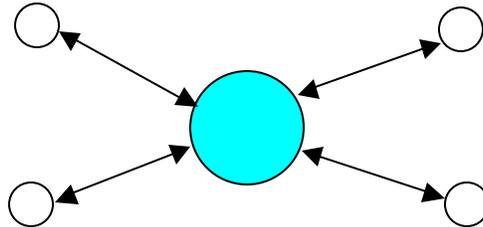


Figure III-2: Collaborative applications (Zack and Michael 1998)

Finally, Corey Wick in his “continuum metaphor” defines this stage as *Socio-organizational knowledge management*. “The highest priority in socio-organizational knowledge management is growing and nurturing a knowledge-sharing culture and encouraging and fostering relationships between knowledge workers” (Wick 2000). Such an approach emphasizes the innovation and the generation of new knowledge. Table III-4 lists the additional key elements of the Socio-organizational KM.

Once again we can observe that all of these descriptions and definitions are very similar and depict the same type of processes and tools. Personalization approaches facilitate the person-to-person knowledge transfer. For the rest of this document we will adopt the *personalization* designation in order to refer to the type of approaches previously described.

Technological KM	Socio-organizational KM
<ul style="list-style-type: none"> ◆ Emphasis on technology ◆ Connects people to technological systems and applications ◆ No formal development cycle (captures knowledge as it is created/used through electronic media) ◆ Specialized KM applications (portals, advanced search engines, data-mining, expert systems, decision support software) ◆ Emphasis on documents (codified knowledge) ◆ Connects people to documents ◆ Formal development and review process ◆ Value from leveraging existing knowledge 	<ul style="list-style-type: none"> ◆ Emphasis on interactions between people ◆ Connects people with other knowledgeable people ◆ Leverage tacit knowledge ◆ Foster innovation and knowledge creation ◆ Enable and reward knowledge-sharing culture and behavior ◆ Integrated with other organizational strategies and practices ◆ Implements communities (of interest, of practice, others) ◆ Emphasis on technology ◆ Connects people to technological systems and applications ◆ No formal development cycle (captures knowledge as it is created/used through electronic media) ◆ Specialized KM applications (portals, advanced search engines, data-mining, expert systems, decision support software) ◆ Emphasis on documents (codified knowledge) ◆ Connects people to documents ◆ Formal development and review process ◆ Value from leveraging existing knowledge

Table III-4 Technological and Socio-organizational KM (Wick 2000)

III.1.3. Codification versus Personalization

What is the best strategy for managing knowledge? Hansen, Nohria and Tierney noted in their article that effective firms excel by emphasizing on one of the strategies and using another in a supporting role (Hansen, Nohria, and Tierney 1999). They refer to a 20-80 split between codification and personalization. They postulate that companies trying to excel at

both strategies risk failing at both. The 20-80 split raised much discussion in the HBR forum referring to this article (HBR Forum 1999). Denning mentioned that organizations that focus entirely on a personalization approach, with little or no attempt at collecting, can be very inefficient (Denning 1998).

In order to select an adoption strategy Tiwana (Tiwana 2000) designed a checklist based on Hansen's (et al.) recommendations. Hansen (et al.) recommends examining the company's competitive strategy (What value do customers expect from the company? How does the knowledge that resides in the company add value to customers' goals?). Once the competitive strategy is clear three additional questions might be investigated:

- Does your company offer standardized or customized products?
- Does your company have a mature or innovative product?
- Do people rely on explicit or tacit knowledge to solve problems?

Companies having standardized products and/or mature products might want to focus on a codification approach, and companies having customized and/or innovative products might want to focus on personalization approaches. People relying on explicit knowledge will also be more disposed to adopt a personalization approach.

While we personally agree with these parameter choices we strongly believe that an organizational culture factor must also be considered in order to make a decision about embarking on a KM project with greater confidence for success.

Another aspect to consider is that some organizational units (slightly independent) might have a different KM strategy than the overall organization. Our research will take such cases into consideration.

III.2 Organizational Culture

III.2.1. Background

Research in organizational culture is not new. The well-known Hawthorne studies conducted at Western Electric Company (Chicago, IL) in the early 1930's were pioneer experiments in the field. Elton Mayo (faculty member in the Harvard Business School) conducted this research with the help of an anthropologist (W. Lloyd Warner) (Trice and Beyer 1993). Their focus was on the observation of workgroup cultures. These early observations spawned some interest from sociologists and anthropologists in the decades that followed but the potential payoff of such observations were not obvious. In the early eighties, two best-selling books revitalized the field and made visible to managers the importance of organizational culture and its impact on productivity and adaptability. These two books were *In search of Excellence* (Peters and Waterman 1982) and the *Theory Z* (Ouchi 1981). Since then, a substantial body of research has been published concerning organizational culture and leadership. For the research described in this document, we looked, in particular, at the tools designed to assess organizational culture.

III.2.2. Definitions

The term "Organizational culture" has been defined in the literature by numerous authors (Ott 1989; Morris 1992; Mallak and Kurstedt 1994; Rogers and Ferketish 1993; Westbrook 1993; Ouchi 1981). We selected two of them:

“Routinized ways of doing things that people accept and live by. Organizations have norms and values that influence how members conduct themselves. These norms may prevent members from applying a maximum effort or may encourage them to do so” (Blake and Mouton 1969, 1985).

“A pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration, that had worked well enough to be considered valid, and therefore, to be taught to new members as the correct way to perceive, think and feel in relation to those problems”(Schein 1992, 1999).

Organizational culture can be defined as the character or the personality of an organization. Schein describes it as “the ways things are done in an organization”. Based on Schein’s research, organizational culture can be analyzed at three levels (Figure III-3).

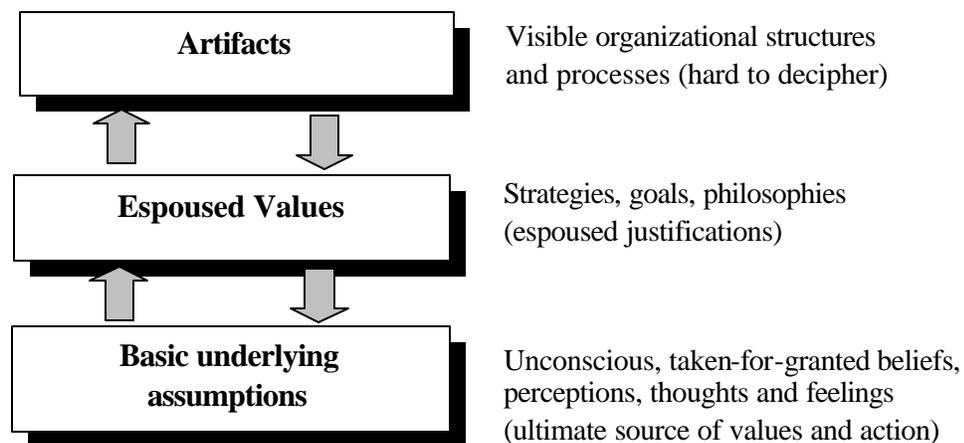


Figure III-3 Levels of organizational culture (Schein 1992, 1999)

The first level is the level of artifacts. “**Artifacts** include all the phenomena that one sees, hears and feels when one encounters a new group with an unfamiliar culture” (Schein 1992). Artifacts can be as varied as the way employees dress, office layout, common language, jargon, technology used and rituals and ceremonies. Artifacts are easy to detect and

recognize but their interpretation remains difficult, subjective and ambiguous. In order to understand the meaning of these artifacts you need to dig deeper and reach the second level of culture named **espoused values**. Espoused values are nondiscussable assumptions supported by articulated sets of beliefs, norms and operational rules of behavior shared by the employees of a company. These are guidelines for behaviors and actions reflecting the company's values, principles, ethics and visions (Schein 1999). Examples of espoused values could be "Believe in teamwork" or "Have fun; work smart". Espoused values do not always dictate identical behaviors and working styles so in order to understand the full culture picture, a close examination of the deepest cultural layer named "**basic assumptions**" is required. Basic assumptions are assumptions that over the years became taken for granted and shared by the whole group. They are not debated and might be very difficult to change. They often take their source to the history of a company where founders and leaders used them to succeed. Examples could be "When the team wins, everyone wins" or "good ideas trump seniority".

As previously described, most of the important culture components are invisible and tacit. If you ask an employee to describe his/her company's culture, he/she might not be able to describe it. "People are unaware of their culture until it is challenged, until they experience a new culture, or until it is made overt and explicit through (framework or model)" (Cameron and Quinn 1999). So, how can we capture a company's culture?

In order to answer this question we first carried out a literature review of the tools developed in order to assess organizational culture.

III.2.3. Why is culture so important?

Schneider summarized his perception of the answer to this important question (Schneider 1994).

- It provides consistency for an organization and its people
- It provides order and structure for activity within an organization
- It establishes an internal way of life for people
 - It provides boundaries and ground rules
 - It establishes communications patterns
 - It establishes membership criteria
- It determines the conditions for internal effectiveness
 - It sets the conditions for reward and punishment
 - It sets up expectations and priorities
 - It determines the nature and use of power
- It strongly influences how an organization is structured
- It sets the patterns for internal relationships among people
- It defines effective and ineffective performance.
- It fixes an organization's approach to management
- It limits strategy
- It is fundamental to an organization's productivity
- It parallels individual character

III.2.4. Assessing Organizational Culture

There is agreement among researchers concerning organization culture components and their definition. Unfortunately, this agreement is not so strong when we look at how to measure culture.

Rousseau mentioned, “Quantitative assessment of culture is controversial” (Rousseau 1990), and that only certain dimensions of culture may be appropriately studied using quantitative methods. Reigle and Westbrook recently noted that “currently there are inadequate means to measure organizational culture” (Reigle and Westbrook 2000). Based on the analysis of the most recognized existing tools used to measure organizational culture they extracted the five most critical dimensions: 1. Language - jargon, metaphors, myths, stories, heroes, legends, 2. Tangible artifacts and symbols, 3. Patterns of behavior, rites and rituals, behavioral norms 4. Espoused values and 5. Beliefs and underlying assumptions. Based on these dimensions they created a new assessment tool that demonstrated a high level of validity and reliability, naming it Organizational Culture Assessment (OCA). Schein also asserted that “ there are survey instruments and questionnaires that claim to measure culture, but in terms of the culture model that I present, they only unearth some of the artifacts, some espoused values, and maybe one or two underlying assumptions. They do not reach the tacit shared assumptions that may be of importance in your organization” (Schein 1999). He supports his assumption first by the assertion that culture is heavily dependent on the company’s history and that several hundred questions will be needed in order to assess all the critical dimensions. Secondly he says that “asking individuals about a shared phenomenon is inefficient, and possibly invalid”. Schein suggests posing questions to groups to see if there is a consensus among the members of the group. This argument is based on the fact that “the things employees complain about may not be changeable because they are embedded in the culture. In other words, what is often labeled the “desired culture” is a set of espoused values that may simply not be tenable in the existing culture”.

Apparently, the deep assessment of an organizational culture is unlikely to only using a questionnaire. Learning about the history of a company, visiting the place, talking to employees and observing behaviors is preferred. Our research doesn't aspire to reach this level of understanding, identifying each organizational culture with its unique dimensions. Our goal is to obtain a global perception of the culture of an organization in order to profile it and to aggregate it with other organizations having similar traits. Sufficient tools have been developed in order to categorize organizational cultures to the necessary degree for this research.

III.2.4.1. The Managerial Grid

Blake and Mouton were among the first to develop a cultural assessment called "the managerial grid (Blake and Mouton 1969, 1985). Their approach is leadership driven where the purpose of the grid is to identify major theories about how to exercise leadership in the pursuit of production with and through others. The grid has two dimensions: *concern for production* and *concern for people* (Figure III-4).

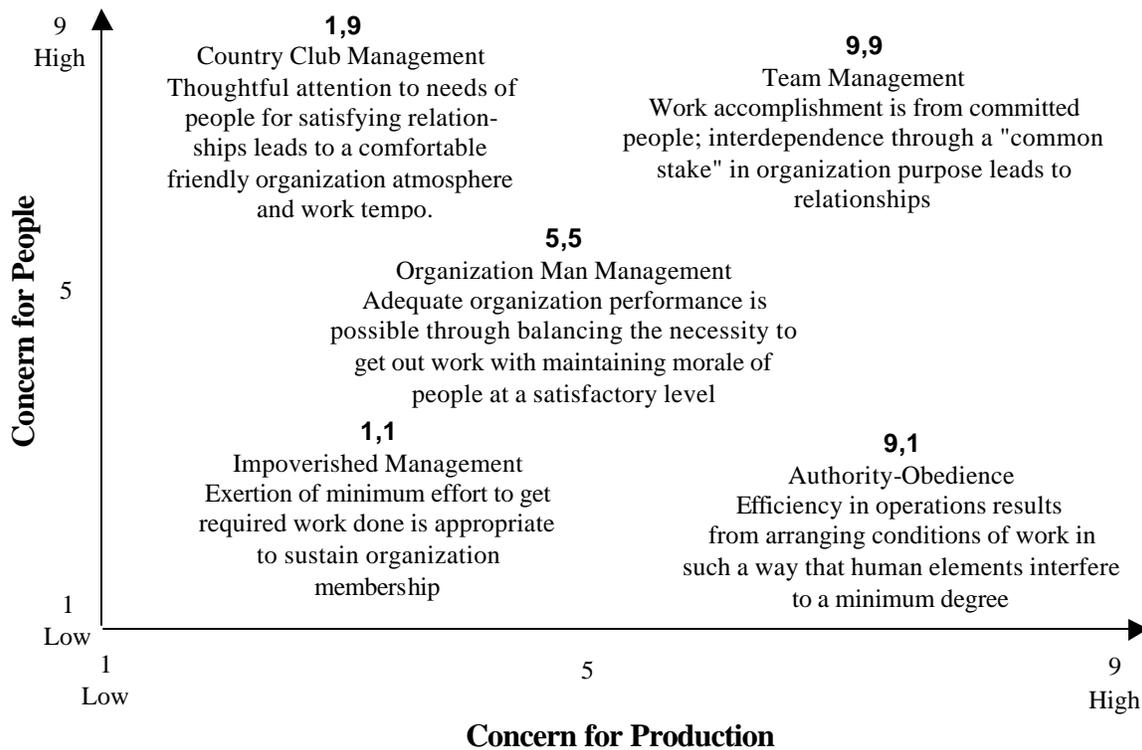


Figure III-4: The Managerial Grid (Blake and Mouton 1969, 1985).

Concern for production includes results, bottom line, performance, profits or mission. It covers both quality and quantity and can be applied in service companies as well as product companies.

Concern for people can take different forms. Getting results based on trust and respect, obedience, sympathy or understanding and support as well as working conditions, salary structure, job security, etc are concerns for people. The degree of concern includes both character and intensity (Blake and Mouton 1969, 1985).

The term “concern for” doesn’t relate to the amount of production achieved or the behavior toward people but rather to the degree of interest attached to them by the managers.

The manner in which these two concerns are expressed by a leader defines how authority is used. According to Blake and Mouton, five leadership styles arise from this grid.

- **(9,1)** A manager acting on these assumptions concentrates on maximizing production by exercising power and authority, and achieving control over people by dictating what they should do and how they should do it.
- **(1,9)** Primary attention is placed on good feelings among colleagues and subordinates even at the expense of achieving results.
- **(1,1)** The 1,1 oriented manager does only the minimum required to remain within the organization.
- **(5,5)** This is the “middle of the road” theory or the “go-along-to-get-along” assumptions, which are revealed in conformity to the status quo.
- **(9,9)** It is a goal centered, team approach that seeks to gain optimum results through participation, involvement, commitment, and conflict solving of everyone who can contribute.

The first four styles listed are not the most effective and only the (9,9) style will result in improved performance, lower employee turnover and absenteeism and greater employee satisfaction. This assumption, that there is only one best way to lead, is not shared by everyone. Other theories, for example “Situational, or Contingency Theories”, start out with the assumption that appropriate behavior depends on the circumstances at a given time (Mondy and Premeaux 1993). Five major theories fit in this category, the *Path-goal theory* (House 1971), the *Leadership Continuum* by (Tannenbaum and Schmidt 1973), the *Contingency leadership theory* (Fiedler 1967), the *Normative theory* (Vroom and Yetton 1974) and the *Situational leadership theory* (Hersey and Blanchard 1974). Schein also

supports the idea that there is no best or right culture except in relation to what the organization is trying to do and what the environment in which it is operating allows (Schein 1999). Schneider also mentioned that “core culture conveys no meaning of better or higher or superior. One core culture is not better than another. Each has its own mix of strengths and weaknesses. Each has its own role to play in the structure and conduct of organizational life” (Schneider 1994).

III.2.4.2. The Organizational Culture Profile

O'Reilly, Chatman, and Caldwell did some extensive research on organizational commitment and on person-organization fit (O'Reilly, Chatman, and Caldwell 1991; Caldwell, Chatman, and O'Reilly 1990; Caldwell and O'Reilly 1990; O'Reilly and Chatman 1986; Chatman 1989). In one of their publication (O'Reilly, Chatman, and Caldwell 1991) they designed a tool to quantitatively assess organizational culture. The tool, named the *Organizational Culture Profile (OCP)*, was used to examine person-culture fit and its implications for work attitudes and behavior. OCP is based on 54 items/attributes that are used to characterize both individuals and organizations. These 54 items were culled out of a set of 110 items that were developed on the basis of an extensive review of practitioner-oriented writings on organizational values and culture. The item selection was made by knowledgeable reviewers who based their choice on the following criteria: (1) **generality** - an item should be relevant to any type of organization, regardless of industry, size, and composition, (2) **discriminability** - no item should reside in the same category for all organizations, (3) **readability** - the items should be easily understandable to facilitate their having commonly shared meanings and (4) **nonredundancy** - the items should have distinct

enough meanings that they could not substitute for one another consistently (O'Reilly, Chatman, and Caldwell 1991). The 54 remaining items are listed in Table III-5.

Respondents received the following definitions and instructions: "Important values may be expressed in the form of norms or shared expectations about what's important, how to behave or what attitudes are appropriate. Please sort the 54 values into a row of nine categories, placing at one end of the row those cards that you consider to be the most characteristic aspects of the culture of your organization, and at the other end those cards that you believe to be the least characteristics ...".

O'Reilly, Chatman, and Caldwell conducted a number of tests in order to assess the reliability and validity of the OCP. Since then, a number of studies have been conducted using this tool in order to verify it to a high level of validity and reliability. Among them, is the research conducted by George Harper on *Assessing Information Technology Success as a Function of Organizational Culture* (Harper and Utley 1999; Harper 2000). Harper used the OCP tool in order to quantify organizational culture and mapped the results to the Blake and Mouton *Managerial Grid* previously described.

This combination of tools as well as the *Information Technology Profile* (ITP) instrument, allowed him to demonstrate that an organization possessing a

9-9 cultural orientation had greater overall success at implementing information systems.

"Such an organization also more successfully addressed issues associated with information technology's influence on the structure of the organization as well as issues concerning the way users are involved throughout such initiatives"(Harper 2000).

• Flexibility	• Taking initiative
• Adaptability	• Being reflective
• Stability	• Achievement orientation
• Predictability	• Being demanding
• Being innovative	• Taking individual responsibility
• Being quick to take advantage of opportunities	• Having high expectations for performance
• A willingness to experiment	• Opportunities for professional growth
• Risk taking	• High pay for good performance
• Being careful	• Opportunities for professional growth
• Autonomy	• Security of employment
• Being rule oriented	• Offers praise for good performance
• Paying attention to detail	• Low level of conflict
• Being precise	• Confronting conflict directly
• Being team oriented	• Developing friends at work
• Sharing information freely	• Fitting in
• Emphasizing a single culture throughout the organization	• Working in collaboration with others
• Being people oriented	• Enthusiasm for the job
• Fairness	• Working long hours
• Respect for the individual's right	• Not being constrained by many rules
• Tolerance	• An emphasis on quality
• Informality	• Being distinctive-different from others
• Being easy going	• Having a good reputation
• Being calm	• Being socially responsible
• Being supportive	• Being results oriented
• Being aggressive	• Having a clear guiding philosophy
• Decisiveness	• Being competitive
• Action orientation	• Being highly organized

Table III-5: Organizational Culture Profile Item Set (O'Reilly, Chatman, and Caldwell 1991)

III.2.4.3. Organizational Content and Process

Schneider in his book *The Reengineering Alternative: A plan for making your current culture work* built a questionnaire of 20 questions (Schneider 1994). Based on the answer to these questions he categorized a company's culture in a matrix of four quadrants (Figure III-5).

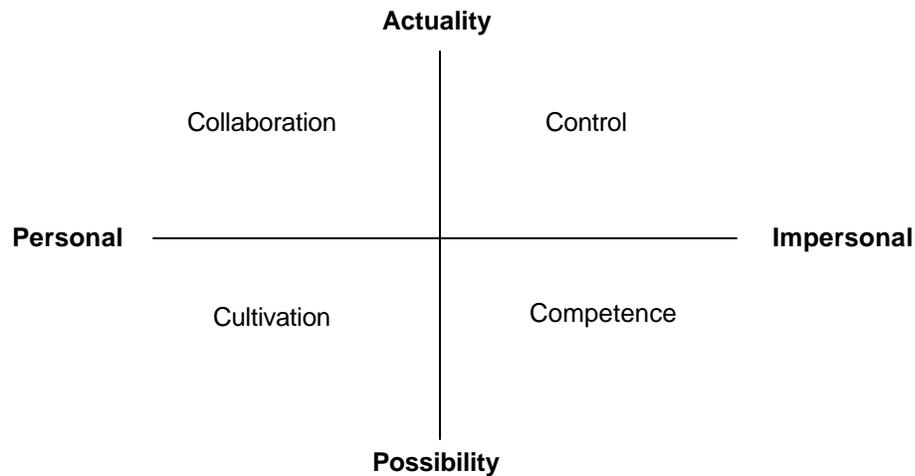


Figure III-5: Four culture model (Schneider 1994)

The vertical axis considers an organization’s attention focus, or its “content”. The horizontal axis considers how an organization makes decisions, forms judgments, or its “process”. The content axis is bounded by *actuality* and *possibility*; the process axis is bounded by *impersonal* and *personal*. As Schneider mentions, qualities and characteristics associated with these axes are only cultural and organizational preferences and tendencies and that companies having a preference to focus on one does not preclude involvement in the other (Schneider 1994). Figure III-6 and Figure III-7 summarize characteristics of each axis.

The content of an <i>actuality</i> culture	The content of a <i>possibility</i> culture
<ul style="list-style-type: none"> • Concrete, tangible reality • Facts • What has occurred in the past and is occurring in the present • Actual experience/actual occurrence • What can be seen, heard touched, weighed, or measured • Practicality/utility 	<ul style="list-style-type: none"> • Insights • Imagined alternatives • What might occur in the future • Ideas/beliefs • Aspirations/inspirations • Novelty • Innovations/creative options • Theoretical concepts or frameworks • Underlying meaning or relationships.

Figure III-6: What the organization pays attention to

The process of an impersonal culture	The process of a personal culture
<ul style="list-style-type: none"> • Detached • System, policy, and procedure oriented • Scientific • Objective • Principle and law oriented • Formal • Emotionless • Prescriptive 	<ul style="list-style-type: none"> • People driven • Organic/evolutionary/dynamic • Participative • Subjective • Informal • Open-ended • Important to people oriented • Emotional

Figure III-7:How the organization decides

Geoffrey Moore reused and slightly modified Schneider’s model (Moore 2000). Like Schneider he describes in detail the characteristics of each of the four cultures, lists the different ways they prioritize the essence of business success and provides some examples of large companies that will fit in each quadrant (Figure III-8).

Based on his new-economy, surviving model variables (value disciplines, stages in the technology adoption cycle, competitive advantage and shareholder value) Moore shows how each of the four cultures can bring competitive advantage and shareholder value.

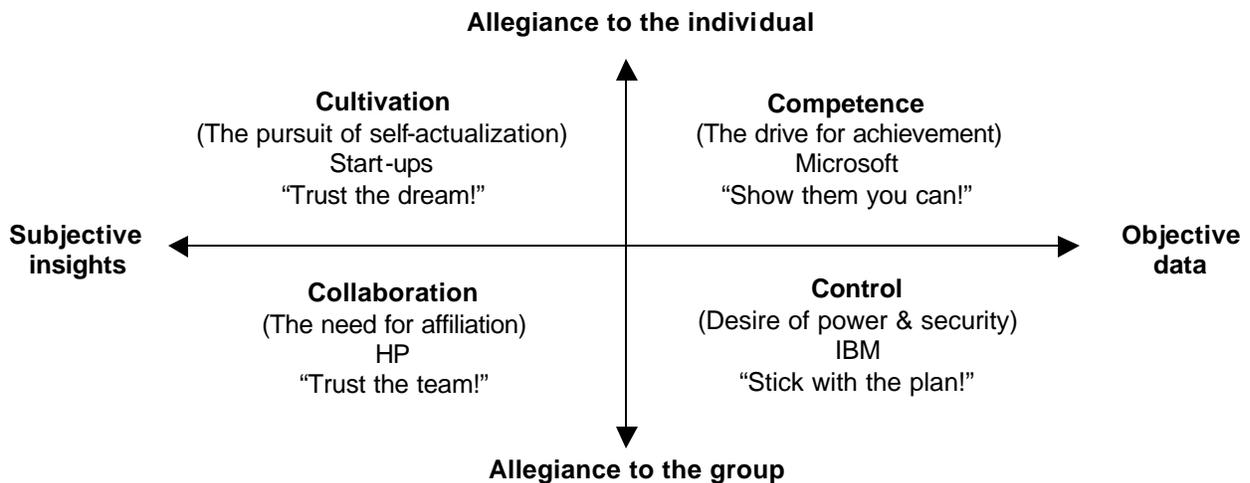


Figure III-8: Four culture model (Moore 2000)

III.2.4.4. The Organizational Culture Assessment Instrument

Cameron and Quinn, in their book *Diagnosing and Changing Organizational Culture*, designed a validated instrument for diagnosing organizational culture and management competency as well as a theoretical framework for understanding organizational culture (Cameron and Quinn 1999). The purpose of the Organizational Culture Assessment Instrument (OCAI) is to assess six key dimensions of organizational culture (Dominant Characteristics, Organizational Leadership, Management of Employees, Organizational Glue, Strategic Emphases and Criteria of Success). Each of these six dimensions has four alternatives and the respondent must allocate 100 points among these four alternatives depending on the extent to which each alternative is similar to their organization. The set of questions can be completed twice if the purpose of the assessment is to help make a culture change. In this case the respondent first assesses the current culture status and then responds a second time according to what it should be in five years. After calculating the score average of each of the alternatives, four average values are obtained. Each of these scores relates to a type of organizational culture. Four organizational cultures have been defined by Cameron and Quinn. The cultures are mapped on two dimensions on what Cameron and Quinn call the competing values framework (Figure III-9). “One dimension differentiates effectiveness criteria that emphasize flexibility, discretion and dynamism from criteria that emphasize stability, order and control. The second dimension differentiates effectiveness criteria that emphasize an internal orientation, integration, and unity from criteria that emphasize an external orientation, differentiation and rivalry” (Cameron and Quinn 1999).

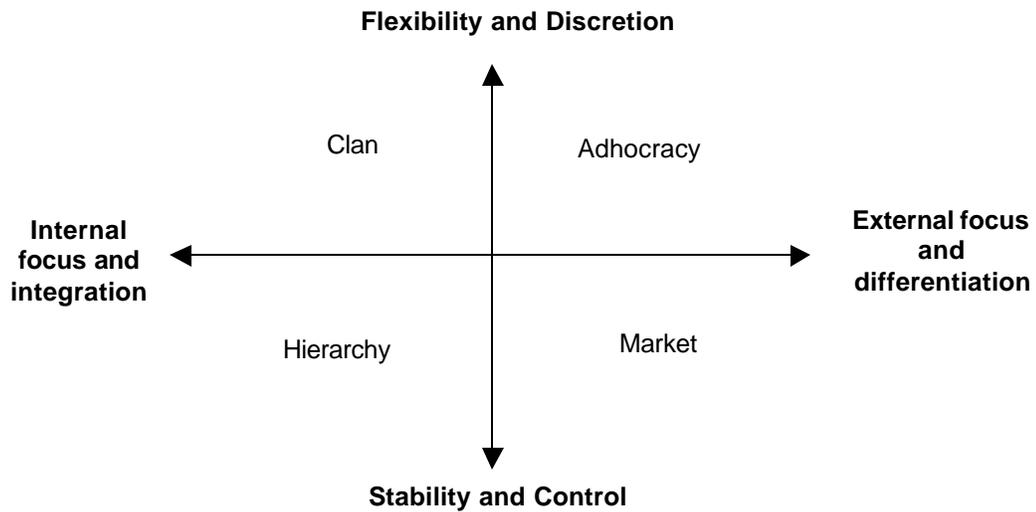


Figure III-9: The Competing Values Framework (Cameron and Quinn 1999)

In mapping the average scores on the competing values framework, organization profiles can be revealed.

The Clan culture: an organization that focuses on internal maintenance with flexibility, concern for people, and sensitivity to customers.

The adhocracy culture: An organization that focuses on external positioning with a high degree of flexibility and individuality.

The hierarchy culture: An organization that focuses on internal maintenance with a need for stability and control.

The Market culture: An organization that focuses on external positioning with a need for stability and control.

Figure III-10 illustrates some examples of culture profiles for four organizations.

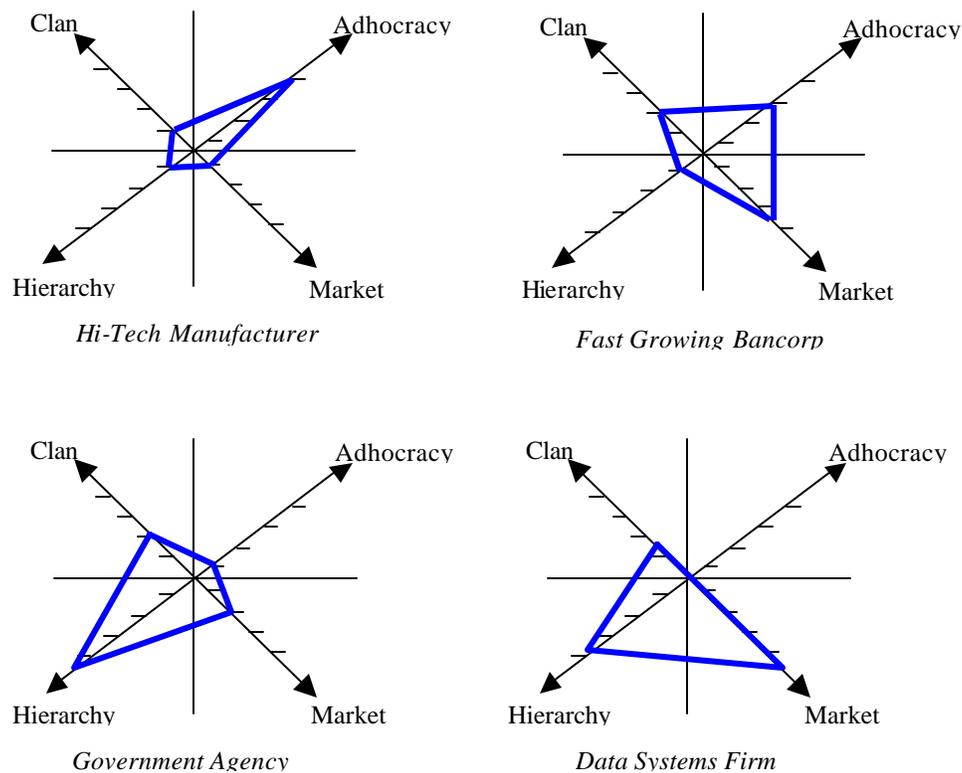


Figure III-10 Examples of Culture Profiles for Six Organizations (Cameron and Quinn 1999)

Cameron and Quinn explain these culture profiles: “The hi-tech manufacturer is dominated by the adhocracy quadrant. Its survival depends on the rapid and constant innovation of new products and services for a hyperturbulent environment. The fast growing Bancorp is unusual in that its culture emphasizes the right side of the profile—adhocracy and market. The U.S. federal government agency fits the stereotype of an efficient, stable controlled system dominated by the hierarchy quadrant. The data systems firm is one of the few organizations that has a close to zero score in the adhocracy culture. Parenthetically, this firm was purchased by another larger firm to help stimulate the parent company in its

development of new products and creation of innovations. Predictably, a great deal of conflict, discomfort, and disillusionment occurred” (Cameron and Quinn 1999).

III.2.4.5. Sociability, Solidarity, and the double S Cube

The last model presented here is the one developed by Goffee and Jones (Goffee and Jones 1996, 1998). The Goffee and Jones framework like most of the previous models classify organizational cultures in a matrix of four quadrants. The axis employs two very old and well-established sociological concepts Solidarity and Sociability. Solidarity is defined as:

“a measure of a community’s ability to pursue shared objectives quickly and effectively, regardless of personal ties” (Goffee and Jones 1996).

“Solidaristic relationships are based on common tasks, mutual interests, and clearly understood shared goals that benefits all the involved parties, whether they personally like each other or not” (Goffee and Jones 1998).

Sociability is defined as:

“the measure of emotional, noninstrumental relations (those in which people do not see others as a means of satisfying their own ends) among individuals who regard one another as friends” (Goffee and Jones 1996).

“Sociability is much as it sounds: a measure of friendliness among members of a community. Sociability often comes naturally. ... In short, sociability flourishes among people who share similar ideas, values, personal histories, attitudes and interests” (Goffee and Jones 1998).

Goffee and Jones plotted the two dimensions against each other and came up with four culture types that they named: Networked, Fragmented, Mercenary and Communal (Figure III-11).

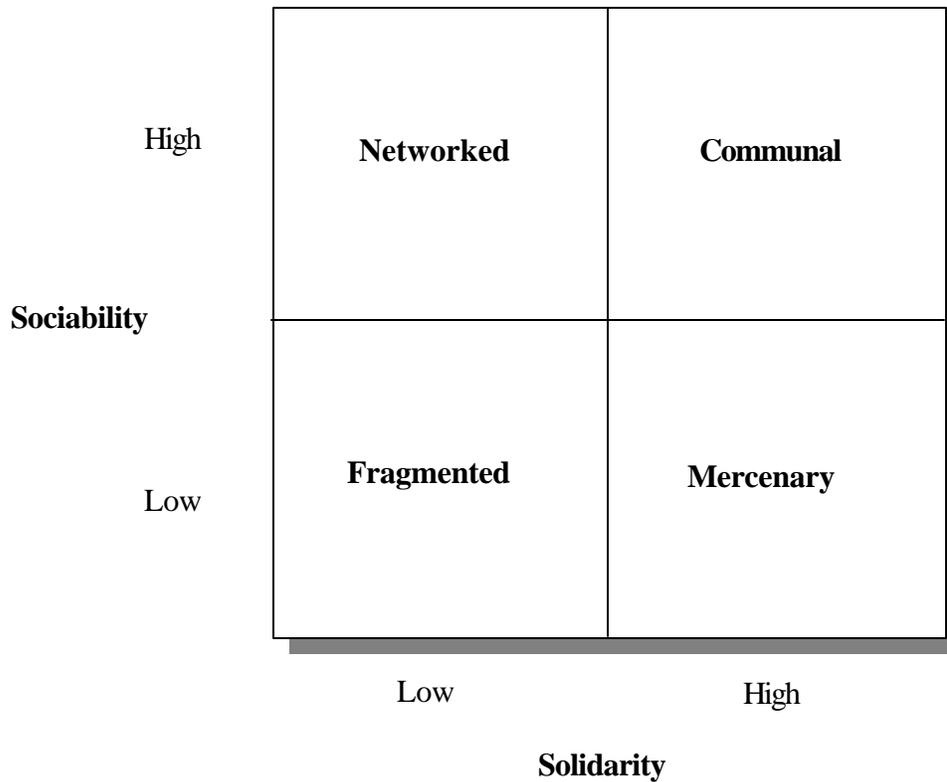


Figure III-11: Organizational culture matrix

In order to measure the level of each variable, a questionnaire of twenty-three questions was created. Twelve questions were used to measure solidarity and eleven were used to measure sociability. The range for both runs from low to high. Goffee and Jones added a third dimension to this two dimensional framework (Figure III-12). The third dimension deals with the fact that the culture can be positive or negative. Each of the four can also migrate toward a very negative, dysfunctional expression. Additional tools were developed in order to measure if the culture was positive or negative. Negative aspects of sociability for instance could be that no one wants to rebuke a friend or that friendship might allow people to pull and end run around the hierarchy. A dark side of solidarity could be that too much focus on the group’s goal and requirements can be oppressive or hurtful to those individuals who get in the way (Goffee and Jones 1998).

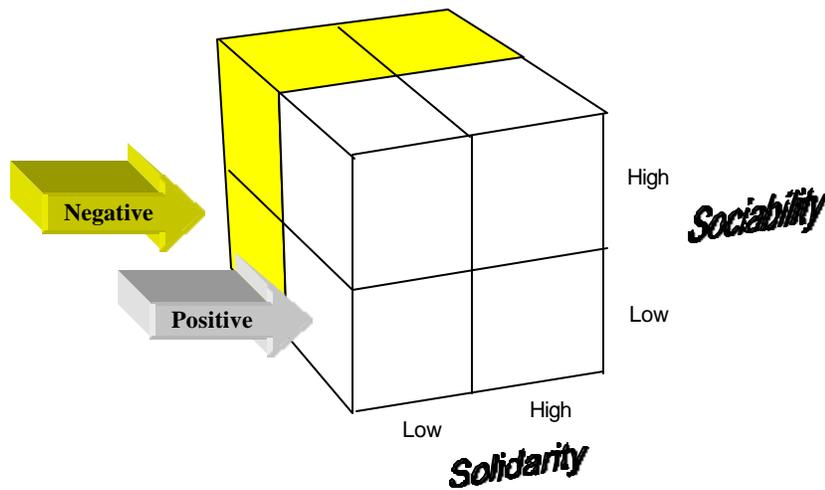


Figure III-12: The double S cube (Goffee and Jones 1998)

We selected some of the main characteristics of these four cultures as Goffee and Jones describe them (Goffee and Jones 1998):

Networked “Between friends” (Low Solidarity, High Sociability): “The low level of solidarity means that managers often have trouble getting functions or operating companies to cooperate. Because there is little commitment to share business objectives, employees in networked organizations often contest performance measures, procedures, rules and systems.

Tacit knowledge makes itself known and available in subtle ways - long conversations, questions, and even facial expressions. Likewise, all information moves around quickly and fluidly in a positively networked culture. Creativity is also enhanced because creativity flows more freely out of situations characterized by trust and openness” (Goffee and Jones 1998) .

Fragmented “All together alone” (Low Solidarity, Low Sociability): “Employees display a low consciousness of organizational membership. They often believe that they work for themselves or they identify with occupational groups - usually professional (e.g., surgeon). They are often secretive about their projects and progress with coworkers, offering information only when asked point-blank. People

work with their doors shut or, in many cases at home. The low level of solidarity means that members rarely agree about organizational objectives, critical success factors, and performance standards. This culture hinders institutional learning. People must learn on their own and this happens but more slowly. Creativity exists but it is individual and not shared. Newspaper, Lawyer and Academia most of the time fit into this culture category” (Goffee and Jones 1998).

Mercenary “Get to work on Sunday” (High Solidarity, Low Sociability): “The mercenary community is low on hallway hobnobbing and high on data-laden memos. Almost all communication is focused on business matters. Socializing is primarily instrumental. High levels of commitment to a common purpose. Because of the absence of strong personal ties, mercenary organizations are generally intolerant of poor performance. The low level of social ties means that mercenary organizations are rarely bastions of loyalty. Employees who are busy chasing specific targets are often disinclined to cooperate, share information or exchange new creative ideas. To do so would be a distraction. Cooperation between units having different goals is even less likely. Hierarchies tend to be flat with no unnecessary layers. Sharing of information and knowledge is also critical to fostering synergies between departments and functions. Of course, there is some of this in the mercenary culture, especially when it is expressly measured and rewarded. But mercenary cultures often don’t know - because of their focus on the task at hand - where to even look for synergies. How can you exploit something if you are not sure what it is and where it is located. By contrast *networked* and *communal* cultures, due to their high level of sociability, often have a much better time with synergies because synergies make themselves known only through informal conversation” (Goffee and Jones 1998).

Communal “We are family” (High Solidarity, High Sociability): “Imagine a networked organization and a mercenary one combined, the first bringing its high levels of friendship and commitment and the latter its performance focus and energy.

You then obtain deep friendships coupled with a passion for the company and product (e.g., Start-up). High, sometimes exaggerated, consciousness of organizational identity and membership. Social events are usual. The high solidarity is often demonstrated through an equitable sharing of risks and rewards among employees. Solidarity also shows itself clearly when it comes to company goals and values. The mission statement is often given front and center display in a communal company's offices, and it evokes enthusiasm rather than cynicism. Communal companies are often formed around particular founders or leaders whose departure may weaken either or both forms of social relationship. This culture type strikes a balance between an individualistic task focus and a social club" (Goffee and Jones 1998).

III.2.5. What encourage employees to share knowledge?

Based on previous sections, it seems that "one reason so many dimensions have been proposed is that organizational culture is extremely broad and inclusive in scope. It comprises a complex, interrelated, comprehensive, and ambiguous set of factors" (Cameron and Quinn 1999). So, what organizational factors encourage employees to share their knowledge?

Davenport and Prusak mentioned four main factors/"payments" that exist in the knowledge market (Davenport and Prusak 1998).

- **Altruism:** "It is possible, that a knowledge sharer may be a nice guy who wants to help whether or not he gets anything beyond a "thanks you" in return. Or he may be so passionate about his knowledge that he is happy to share it whenever he gets a chance. Such people do exist and we all know individuals who simply like helping. Mentoring is also a form of knowledge transfer based in part on altruism" (Davenport and Prusak 1998).

- **Reciprocity:** As Aristotle said “people are more ready to receive than to give benefits”. In short it premises a common tendency toward what used to be called “egoism,” a salient (but not exclusive) concern with the satisfaction of one’s own needs (Gouldner 1960). Some early sociological work on reciprocity was conducted by Malinowsky and Gouldner (Malinowski 1932; Gouldner 1960). Malinowsky conducted some research on primitive societies in order to answer the specific question “Why is it that rules of conduct in primitive society are obeyed, even though they are hard and irksome?”. He discovered that the social explanation was directly related to what he called the “principle of reciprocity”. One of Malinowsky’s central theses holds that people owe obligations to each other and that, therefore, conformity with norms is something they give to each other. This implies that people believe that (a) in the long run the mutual exchange of goods and services will balance out; or (b) if someone does not aid those who helped them certain penalties will be imposed upon them; or (c) those whom they have helped can be expected to help them; or (d) some or all of these (Gouldner 1960). More recently Davenport and Prusak looked at how reciprocity is involved in knowledge sharing. “A knowledge seller will spend the time and effort needed to share knowledge effectively if he expects the buyers to be willing sellers when he is in the market for their knowledge. Reciprocity may be achieved less directly than by getting knowledge back from others as payment for providing it to them. In firms structured as partnerships, knowledge sharing that improves profitability will return a benefit to the sharer, now and in the future (stock options)” (Davenport and Prusak 1998). They also highlight the fact that the use of corporate electronic repositories

allow anyone to post and access information. The person that downloads information from such system doesn't feel the same sense of obligation (reciprocity) as if he/she had obtained the material through a phone call or a meeting. We can also mention the work done by Butler and DeFuria concerning relation between *reciprocity* and *trust* (Butler 1983; De Furia 1997).

- **Repute:** “A knowledge seller usually wants others to know him/her as a knowledgeable person with valuable expertise that he/she is willing to share with others in the company. Having a reputation of knowledge sharing makes achieving reciprocity more likely. Having a reputation as a valuable knowledge source can also lead to the tangible benefits of job security, promotion, and all the rewards and trappings of a company guru” (Davenport and Prusak 1998).
- **Trust:** “Trust can trump the previous factors that positively affect the efficiency of knowledge markets. **Without trust, Knowledge Management will fail**, regardless of how thoroughly it is supported by technology and rhetoric and even if the survival of the organization depends on effective knowledge transfer”(Davenport and Prusak 1998). Due to the importance of this factor we are going to focus the following literature review chapter on this concept.

III.2.6. Assessing Organizational Trust

Considerable research has been conducted concerning the concept of *trust* and *organizational trust*. We are going to present some of the research that we think highly

influential to the current body of knowledge concerning the concepts associated with *trust* as well as the tools designed to measure its level in organizations.

Let's first look at some definitions of *trust*:

“The reliance upon the characteristics of an object, or the occurrence of an event, or the behavior of a person in order to achieve a desired but uncertain objective in a risky situation” (Griffin 1967).

“Trust: expectancy held by an individual or group that the word, promise, or written statement of another individual or group can be relied upon” (Rotter 1971).

“Trust pertains to whether or not one individual is able to value what another is up to and demonstrate respect for him or her particularly when the individual's need and those of the person taking the action momentarily compete” (Culbert and McDonough 1986).

“Trust is defined as the employees' feelings of confidence that, when faced with an uncertain or risky situation, the organization's words and behaviors are consistent, and are meant to be helpful” (Matthai 1989).

“Trust involves faith or confidence in the intentions or actions of a person or a group, the expectation of ethical, fair, and non-threatening behavior, and concerns for the rights of others” (Carnevale and Wechsler 1992).

“Trust consists of a willingness to increase your vulnerability to another person whose behavior you cannot control, in a situation in which your potential benefit is

much less than your potential loss if the other person abuses your vulnerability”
(Zand 1997).

“Trust is the one essential lubricant to any and all social activities. Allowing people to work and live together without generating a constant, wasteful flurry of conflict and negotiations”(Cohen and Prusak 2001).

Trust occurs within a framework of interaction which is influenced by both personality and social system, and cannot be exclusively associated with either” (Luhmann 1979). This means that trust can be differentiated as interpersonal trust (between the employee and the manager) and systems trust (between the employee and the organization as a whole) (Nyhan and Marlowe 1997; Nyhan 1999).

Trust definitions are numerous and sometimes confusing mainly due to the fact that each discipline views trust from its own unique perspective (McKnight and Chervany 2000). In order to clarify and organize all these different approaches, McKnight and Chervany specified a conceptual typology of trust constructs in Figure III-13 (McKnight and Chervany 2000).

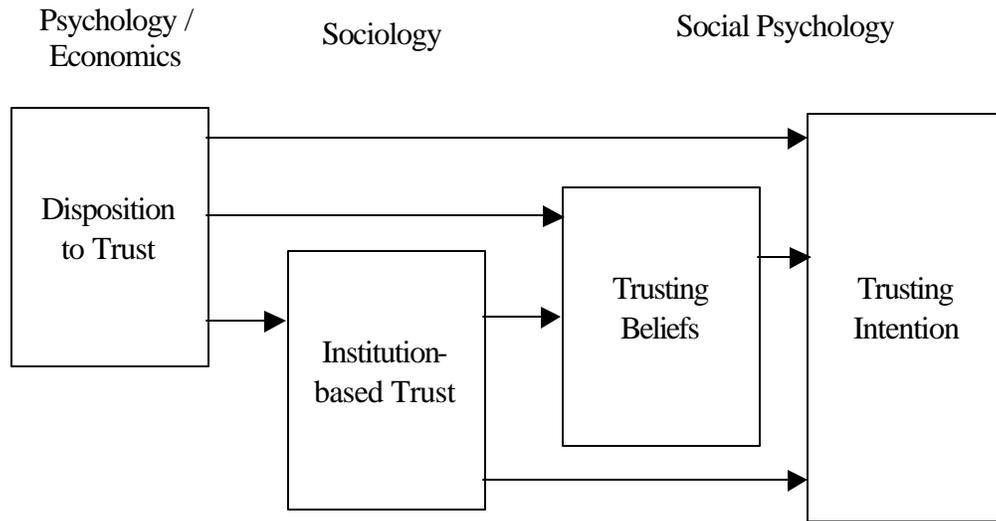


Figure III-13: An interdisciplinary model of trust constructs (McKnight and Chervany 2000)

Disposition to Trust: This construct means the extent to which one displays a consistent tendency to be willing to depend in general on others across a broad spectrum of situations and persons.

Institution-based Trust means one believes the needed conditions are in place to enable one to anticipate a successful outcome in an endeavor or aspect of one's life.

Trusting Beliefs means one believes (and feels confident in believing) that the other person has one or more traits desirable to one in a situation in which negative consequences are possible.

Trusting intention means one is willing to depend on, or intends to depend on, the other person in a given task or situation with a feeling of relative security, even though negative consequence are possible.

The benefits of high trust are (De Furia 1997):

- Stimulates innovation
- Leads to greater emotional stability
- Facilitates acceptance and openness of expression
- Encourages risk taking

Consequences of low trust are (De Furia 1997):

- Values, motives of others are misperceived
- Less accurate communication, poor reception
- Less ability to recognize and accept good ideas
- Increased attempts to obtain relevant information (grapevine)
- Increased control mechanisms
- Self-control replaced by external controls
- Delayed implementation
- Increased rejection, defensiveness, hostility
- Win-lose mentality replaces win-win

Research on *trust* is often associated with research on organizational commitment and work attitudes (Cook and Wall 1980; Mowday, Steers, and Porter 1979; Nyhan 1999). Research conducted by Daley and Vasu, examining employee attitudes of organizational trust toward those in top management positions, demonstrated that demographic controls (education, pay level, race and gender) exhibited no substantive effect (Daley and Vasu 1998). Attitudes assessing internal job characteristics (benefits, extrinsic rewards and work environment) demonstrated a relationship in fostering trust. External work characteristics (job satisfaction, supervisory evaluation, and political interference) also emerged as determinants of organizational trust (Daley and Vasu 1998).

In addition to the many definitions of *trust*, many tools have also been created to assess its level in an organization. Among them is the survey tool designed by Cook and Wall (Cook and Wall 1980) that has been extended by Wilson (Wilson 1993). Wilson developed a heuristic conceptualization - in the form of an influence diagram- that can be used by managers in assessing the level of organizational trust. Cummings and Bromiley designed a survey tool named the *Organizational Trust Inventory (OTI)* (Cummings and Bromiley 1996). This tool is intended to measure the degree of trust between units of an organization or between organizations. Their questionnaire is based on a (3x3) “definitional matrix of trust as a belief” where three *Dimensions of trust* (keeps commitments, negotiates honestly and avoids taking excessive advantage) are mapped against three *Components of belief* (Affective state (feel), Cognition (think) and Intended Behavior). Nyhan and Marlowe developed a 12-item scale to measure an individual’s level of trust in his or her supervisor and his or her work organizations as a whole (Nyhan and Marlowe 1997). Two recent books on trust also offered assessment tools. *Built on Trust* by Ciancutti and Steding offers an audit questionnaire based on 21 questions as well as six open-ended questions (Ciancutti and Steding 2000). This questionnaire is designed to detect both the overall level of trust and the type of issues in which closure is a concern. The second book by Lewis is more oriented toward how companies build mutual trust and how interpersonal relationships are a critical component (Lewis 1999). The tool presented in this book is defined as a yardstick for measuring how close your company is to building high trust. A set of 21 trust practices is listed and for each of these a low trust behavior as well as a high trust behavior are listed. “Where you and your partner fall in the continuum between high and low trust determines your ability to rely on each other to reach a common objective” (Lewis 1999).

The last tool that we want to present in order to assess organizational trust is the one developed and validated by De Furia where trustworthiness is based on five behaviors (De Furia 1996, 1997).

$$TW = SI + RC + AI + CE + ME$$

TW: Trustworthiness

AI: Allowing for mutual influence

SI : Sharing relevant information

CE: Clarifying mutual expectations

RC: Reducing control

ME: Meeting expectations

Sharing relevant information (SI) refers to the behaviors whereby one individual transmits information to another person.

Reducing controls (RC) refers to the behaviors of reducing the processes, procedures or activities with which one individual (1) establishes the performance criteria or rules for others, (2) monitors the performance of another person, (3) adjusts the conditions under which performance is achieved, or (4) adjusts the consequences of performance (i.e., positive or negative reinforcements).

Allowing for mutual influences (AI) occurs when one person makes a decision that affects both individuals. Mutual influence means that both individuals have approximately equal numbers of occurrences of convincing the other or making the decision for both individuals.

Clarifying mutual expectations (CE) refers to those behaviors wherein one person clarifies what is expected of both parties in the relationship. It involves sharing information about mutual performance expectations.

Meeting expectations (ME) involves any behaviors in which one individual fulfills the behavioral expectations of another person. It is closely related to confidence, reliability and predictability.

De Furia built and validated three different questionnaires. The Interpersonal Trust Survey (ITS), the Interpersonal Trust Survey-Observer (ITS-O) and the Organizational Trust

Survey (OTS)(De Furia 1997). The **ITS** is designed to help people understand how an individual's expectations of trust and the individual's own behaviors contribute to the level of trust enjoyed. It is based on an instrument containing 60 questions. The **ITS-O** is the accompanying instrument to the (ITS). It is designed to help an individual to become aware of how others perceive that individual's trust-associated behaviors. It is also based on 60 questions. The **OTS** allows organizations to measure the trust-related behaviors of various categories of people within the organization upper managers, first line supervisors, and coworkers in relation to how employees' trust-related expectations are being met. It also measures trust-related behaviors between organizational units and the perceived impacts of organizational policies and values on trust-related behaviors. This tool (questionnaire) is based on 50 questions (10 questions for each of the 5 factors).

IV. Research Design and Methodology

IV.1 Overall research hypothesis

The formal directional hypothesis is defined as:

H₁: There is a relationship between *successful* knowledge management initiatives and the *organizational culture* of a company.

As described in our literature review, organizational culture can be assessed through different lenses. Two organizational culture variables seem to be constantly listed as a main precondition for knowledge sharing: **organizational trust and solidarity**. Both of these concepts were described in our literature review section. So for this research *organizational culture* will be measured through the *organizational trust* and *organizational solidarity* variables.

The survey tool we plan to use in order to assess the organizational level of solidarity of organizations and organization units is the one developed and validated by Goffee and Jones (Goffee and Jones 1998). The original tool that they developed assessed *solidarity* and *sociability* as variables. We agree on the fact that *sociability* is an important factor for knowledge sharing but in our vision it is a subcomponent of *trust* because:

Affection can be present without trust (e.g., parent-child)

Trust can be present without affection (e.g., passenger-pilot)

(De Furia 1997)

The level of organizational trust will be assessed with the Organizational Trust Survey (OTS) designed and validated by De Furia (De Furia 1997).

If we map our two variables against each other we will obtain a matrix of four cultures that looks like the one depicted in

Figure IV-1.

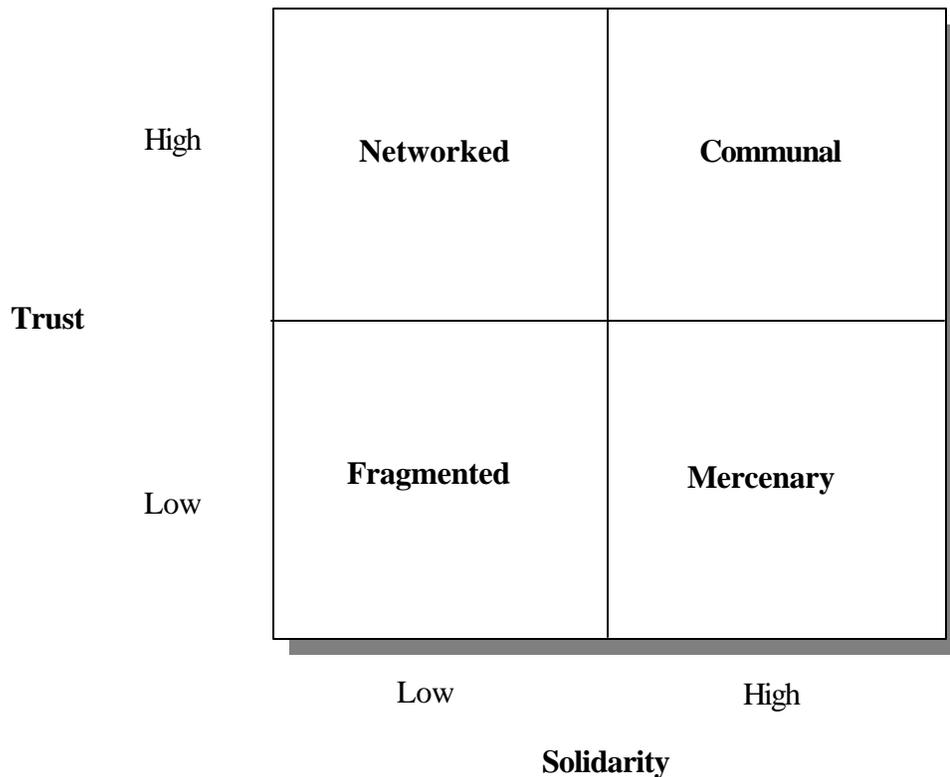


Figure IV-1 Organizational culture matrix

We decided to keep the same cultures' names defined by Goffee and Jones (Goffee and Jones 1998) but their definition/description has been slightly revised/adapted to fit to our KM focus. Table IV-1 describes the key behaviors of each of our new culture type.

Networked (Low Solidarity, High Trust)	Communal (High Solidarity, High Trust)
<ul style="list-style-type: none"> ▪ A lot of talk ⇒ possibility of rapid information exchange. ▪ Sharing of relevant information. ▪ Opportunities for learning and increased creativity. ▪ Discussions, opinions, and suggestions are solicited and are taken in consideration. ▪ Little commitment to shared business objectives. ▪ Management often has trouble getting functions or operating companies to cooperate. ▪ High sociability. ▪ People share ideas and information with no immediate expectation of return. 	<ul style="list-style-type: none"> ▪ Communication in every channel. ▪ Communications flow easily inside between levels. ▪ Sharing of relevant information. ▪ Discussions, opinions, and suggestions are solicited and are taken in consideration. ▪ Equitable sharing of risks and rewards among employees ▪ Teamwork across functions and locations ⇒ synergy ⇒ opportunity for learning and for creativity. ▪ High commitment ⇒ low turnover. ▪ High consciousness of organizational identity and membership. ▪ Members give help and share information with no expectations of getting back. ▪ People protect each other. ▪ High sociability.
Fragmented (Low Solidarity, Low Trust)	Mercenary (High solidarity, Low Trust)
<ul style="list-style-type: none"> ▪ Selectively disseminate information. ▪ Members don't share ideas and information with other units. ▪ Talk is very limited ▪ Documents might not be read. ▪ Little commitment to shared business objectives. ▪ Management often has trouble getting functions or operating companies to cooperate. ▪ Members try to get help without giving anything in return. ▪ Members are secretive about their project and progress. ▪ Minimize dependence on others ▪ Few learning opportunities. ▪ Individual creativity but not at the group level. ▪ Don't identify with their institutions ⇒ might easily leave (high turnover). ▪ Low sociability 	<ul style="list-style-type: none"> ▪ Communication is swift, direct and work focused. ▪ Paper and memo driven. ▪ Productivity and performance driven. ▪ High level of commitment to a common purpose. ▪ Rarely bastions of loyalty ▪ Disinclined of sharing if busy. ▪ Cooperation between units with different goals is even less likely. ▪ Lack of synergy. ▪ Low tolerance of underperformance and even failure ⇒ doesn't support learning. ▪ Minimize dependence on others ▪ Equitable sharing of risks and rewards among employees ▪ Reciprocity is negotiated. ▪ People protect each other. ▪ Low sociability.

Table IV-1: Description of the four organizational culture types

Let's look at another parameter of our main research hypothesis:

H₁: There is a relationship between *successful* knowledge management initiatives and the *organizational culture* of a company.

Success is measured by growth in the resources attached to the project, growth in the volume of knowledge content and usage, the likelihood that the project would survive without the support of a particular individual or two, some evidence of financial return, and by the achievement of expected benefits (from a list of 15 factors) (Davenport, De Long, and C. 1998; Davenport and Prusak 1998; KPMG Consulting 2000).

The overall null hypothesis is defined as:

H₀: There is **no** relationship between successful knowledge management initiatives and the organizational culture of a company.

IV.2 Sub hypotheses (organizational wide)

Sub hypotheses are broken down in two groups. The first group focuses on KM initiatives launched at the **organizational level** and the second group will define them at the **organizational's unit level** (Figure IV-2). A "unit" being a department, a division, or a branch of a company.

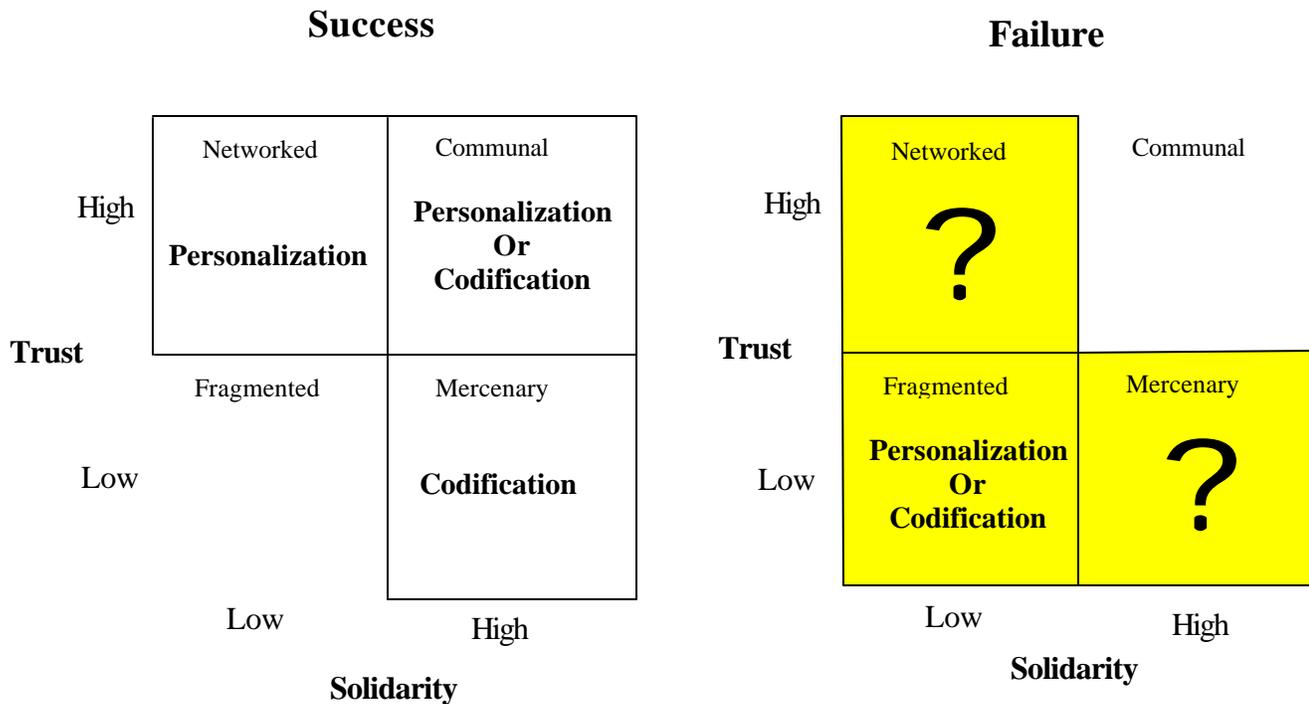


Figure IV-2 Sub-hypotheses (organizational wide)

We anticipate that organizations with a low solidarity and with a low trust profile (fragmented culture) cannot succeed in their **organization wide** KM initiative. Globally they will not succeed but each organizational unit or fragment might have a subculture that might be friendly to local KM initiative success.

We also anticipate that organizations with a high solidarity and with a high trust profile (communal) are not likely to fail in their KM initiative.

These two assumptions will reduce the “organizational spaces” (Figure IV-3).

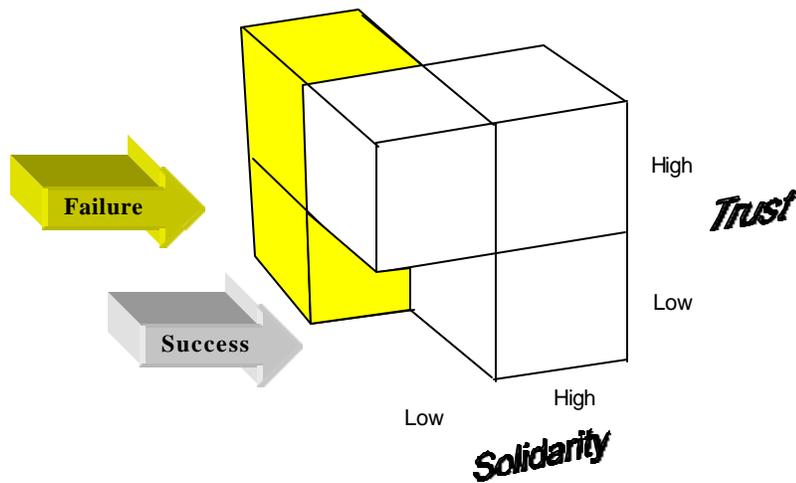


Figure IV-3: KM organizational spaces (organizational wide)

The formal directional sub-hypotheses are defined as:

- H₁:** There is a positive relationship between a **fragmented** organizational culture emphasizing a **codification or a personalization** KM initiative and its chance of **failure**.
- H₂:** There is a positive relationship between a **networked** organizational culture emphasizing a **personalization** KM initiative and its chance of **success**
- H₃:** There is a positive relationship between a **mercenary** culture organizational emphasizing a **codification** KM initiative and its chance of **success**.
- H₄:** There is a positive relationship between a **communal** organizational culture emphasizing a **codification or a personalization** KM initiative and its chance of **success**.

These hypotheses have been stipulated based on our literature review and based on the analysis of five case studies describing in detail their organizational culture: the World Bank, Peace Corp, Intersolv, RWD Technologies and a University (Shaw and Tuggle 2000). Figure IV-4 illustrates in which quadrants we think each of these organization will fit based on the information provided in these case studies. This mapping is according to our own perception and might not exactly reflect reality.

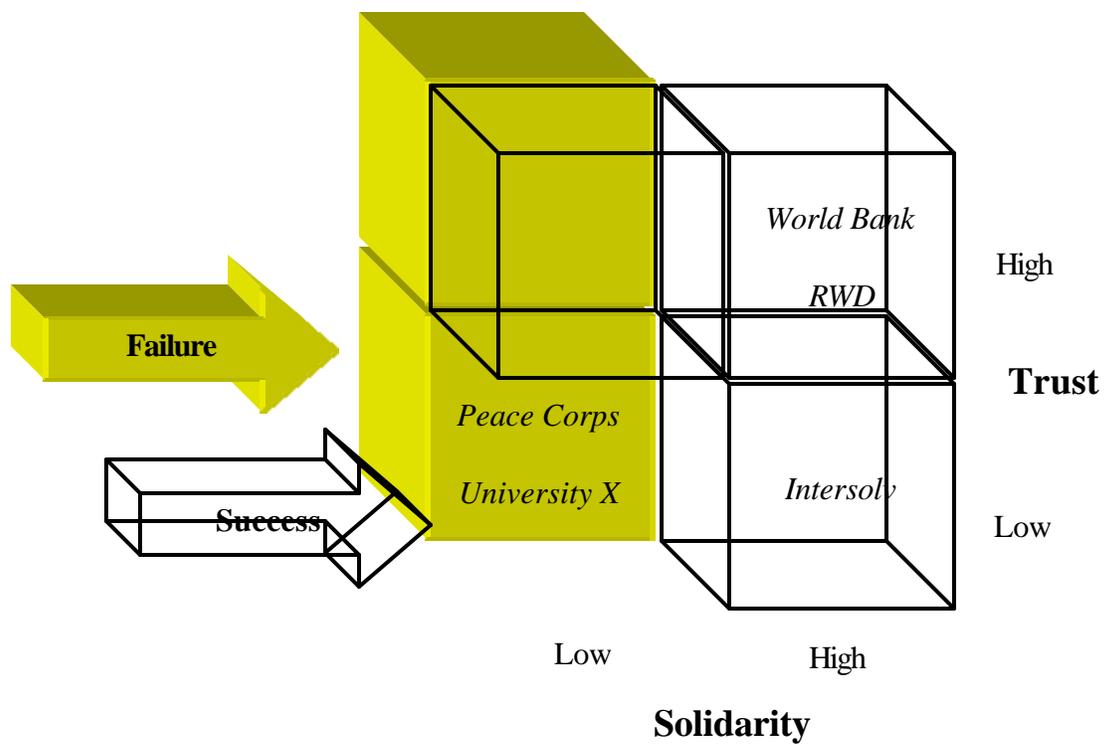


Figure IV-4: Five Organizational KM case studies mapped on our culture cube

IV.3 Sub hypotheses (organizational units wide)

This group of hypotheses is defined at the **organizational unit level**. A “unit” being a department, a division, or a branch of a company. In this case KM might not be fully integrated across the entire organization.

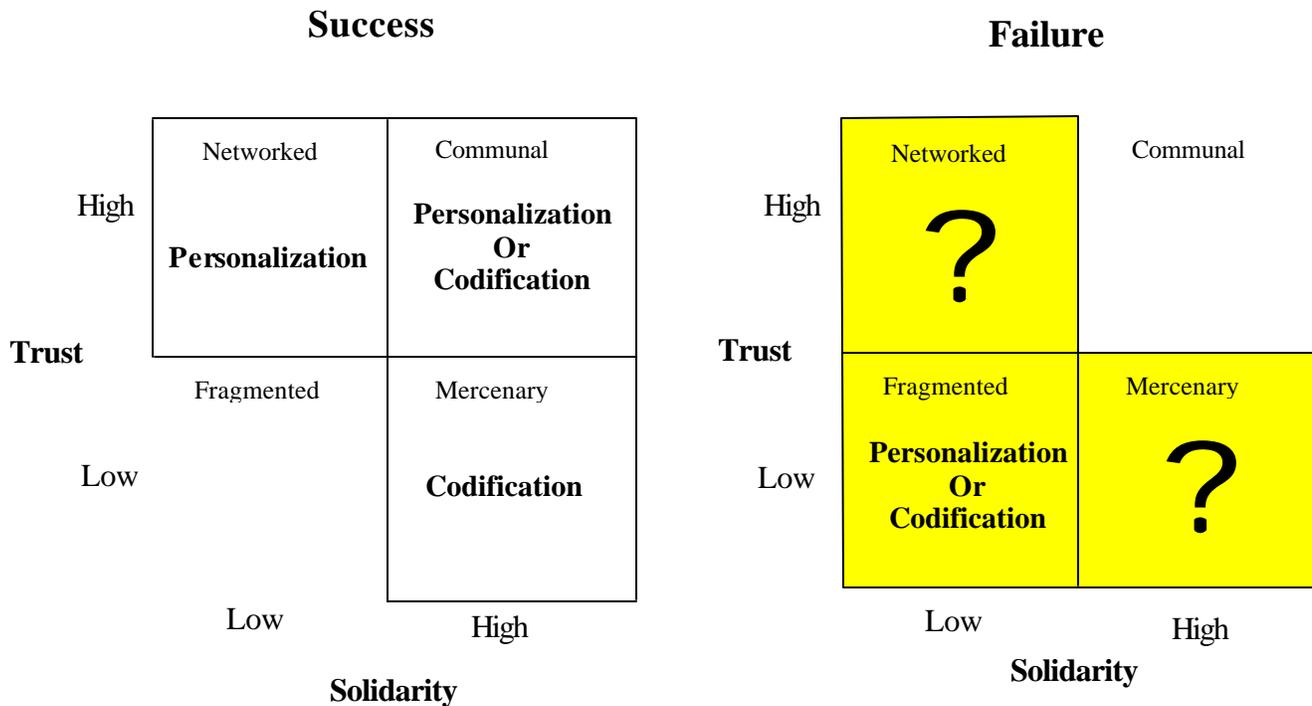


Figure IV-5 Sub-hypotheses (organizational unit wide)

We anticipate that organizational units with a low solidarity and with a low trust profile (fragmented) cannot succeed in their KM initiative.

We also anticipate that organizational units with a high solidarity and with a high trust profile are not likely to fail in their KM initiative.

These two assumptions will reduce the “organizational spaces”(Figure IV-6).

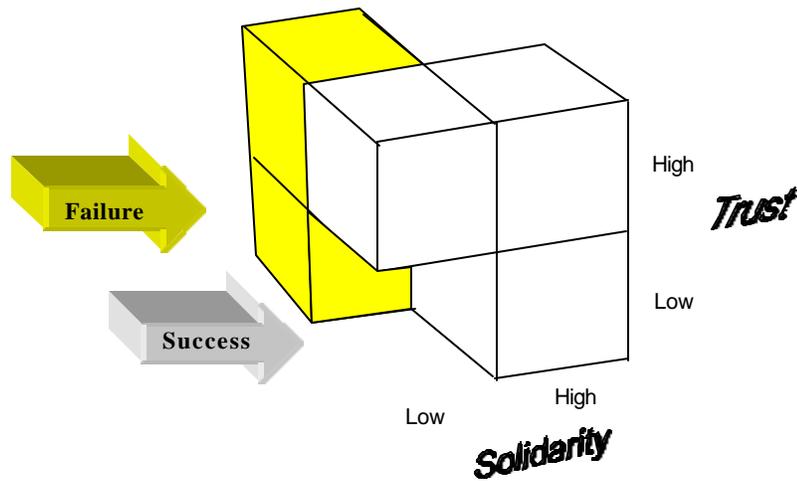


Figure IV-6: KM organizational spaces (organizational unit wide)

H₅: There is a positive relationship between a **fragmented** organizational culture unit emphasizing a **codification or personalization** KM initiative and its chance of **failure**.

H₆: There is a positive relationship between a **networked** organizational culture unit emphasizing a **personalization** KM initiative and its chance of **success**.

H₇: There is a positive relationship between a **mercenary** organizational culture unit emphasizing a **codification** KM initiative and its chance of **success**.

H₈: There is a positive relationship between a **communal** organizational culture unit emphasizing a **codification or personalization** KM initiative and its chance of **success**.

These hypotheses have been stipulated based on our literature review and based on the analysis of five case studies: the World Bank, Peace Corp, Intersolv, RWD Technologies and a University (Shaw and Tuggle 2000). Figure IV-7 illustrates in which quadrants we

think each of these organizations will fit based on the information provided in these case studies. This mapping is according to our own perception and might not exactly reflect reality.

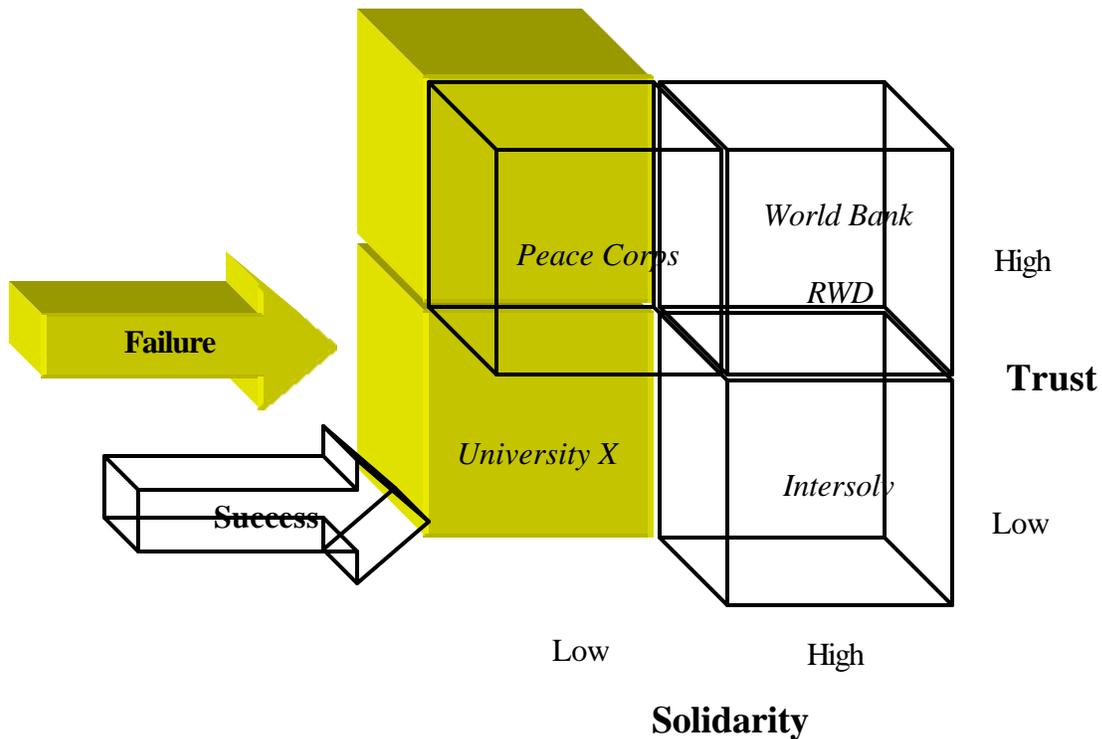


Figure IV-7: Five organizational units KM case studies mapped on our culture cube

IV.4 Method

The type of research that we are conducting can be classified as a **correlational** research. It attempts to determine whether, and to what degree, a relationship exists between two or more quantifiable variables (Gay 1991). The existence of a strong relationship will permit prediction.

Based on the hypotheses defined in the previous section our variables will be:

- **Organizational culture** (independent variable) is measured by the *trust* and *solidarity* variables and will be categorized in four types: networked (high trust, low solidarity), communal (high trust, high solidarity), fragmented (low trust, low solidarity), and mercenary (low trust, high solidarity).
- **Knowledge Management initiative** (independent variable) is measured as the amount of resources and processes attached to one of the KM initiative type (personalization or codification). For example, an emphasize on a 70% personalization approach will mean that the other 30% will be dedicated to codification.
- **Success** (dependent variable) is measured by growth in the resources attached to the project, growth in the volume of knowledge content and usage. The likelihood that the project would survive without the support of a particular individual or two, some evidence of financial return, and by the achievement of expected benefits (from a list of 15 factors) (Davenport and Prusak 1998; Davenport, De Long, and C. 1998; KPMG Consulting 2000).

KM Success = Function of (KM initiative, Organizational Culture(Trust, Solidarity))

IV.5 Subjects

The target population of this study is Chief Knowledge Officers (CKOs), Managers and employees involved in knowledge management initiatives at any level in an organization.

For the data collection we didn't restrict our study to a particular company type, size or orientation. For our data analysis we might have to focus on homogenous company profiles

(e.g., large IT companies, Government, ...) in order to limit the impact and the disturbance of other factors.

The targeted companies were mainly located in the US and some in Europe.

Organizations or organizational units involved in this study had to be involved in a KM

IV.6 Instrument

The survey instrument used was a questionnaire. It contains four sections.

1. The first part captures the organizational profile as well as the respondent profile.
2. The second part classifies the organizational culture of the company through the organizational trust and organizational solidarity variables..
3. The third part assesses the technology and practices the company uses and what KM practice type (codification vs. personalization) they emphasize.
4. The fourth part will assess the success level of the KM initiative.

A copy of the questionnaire is available in appendix A.

IV.6.1. Organizational profile and respondent profile

The first section of the questionnaire is dedicated to obtain demographics about respondents and about their company. The name of the respondent was optional but most of the respondents filled it in and even provided their email address in order to receive results concerning this research.

Questions about the respondent's job title & position level were asked. Industry type, business orientation (service/product), annual business by revenue, as well as the total full-time work force were requested in order to profile the type of organization. Additional questions were asked including:

- Does the company offer a standardized and/or a customized products/service?
- Does the company have a innovative and/or a mature product/service?

These two questions might be additional factors that may affect the choice of KM initiative Cf. III.1.3.

- Has your company recently (past 2 years) been part of a merger or acquisition?
- Has your company recently (past 2 years) gone through downsizing?

These two questions are important because they may affect/disturb the culture of a company and might help to understand it.

IV.6.2. Organizational culture assessment tool

As mentioned in previous sections, we plan to assess organizational culture through two main variables, *solidarity* and *trust*. The tools used in order to assess each variable are described in details in the following sections..

IV.6.2.1. Solidarity assessment tool

In order to assess the level of solidarity of an organization we decided to use the survey developed by Goffee and Jones (Goffee and Jones 1998). This survey is based on 12 questions (question #2 through #13 of section B of our questionnaire). We used the tool “as is” in order to keep its high level of validity and reliability.

In order to interpret the results we will use the original method used by Goffee and Jones assigning a weight of “5” for an answer ranked as “2” and a weight of “1” for an answer ranked as “-2”.

Strongly agree	-	Agree	-	Neither agree nor disagree	-	Disagree	-	Strongly disagree
2	·	1	·	0	·	-1	·	-2
				Ranking		2 · 1 · 0 · -1 · -2		
				Weight		5 · 4 · 3 · 2 · 1		

In adding the scores of each question we will obtain a value score ranging from 12 to 60. A score of 12 will indicate a company with a very low organizational solidarity and a score of 60 a company with a very high level of solidarity.

IV.6.2.2. Trust assessment tool

The survey tool we selected and used in order to assess the organizational level of trust is the one developed and validated by De Furia called the Organizational Trust Survey (**OTS**) (De Furia 1997).

The OTS is based on 50 questions covering five trustworthiness behaviors (10 questions for each behavior). A brief description of the variables assessed by this tool is available in the literature review section III.2.6

$$TW = SI + RC + AI + CE + ME$$

TW: Trustworthiness

SI : Sharing relevant information

RC: Reducing control

AI: Allowing for mutual influence

CE: Clarifying mutual expectations

ME: Meeting expectations

Using the entire OTS questionnaire (50 questions) would have made our questionnaire too complex. Consequently, we decided to reduce the number of questions.

For each question in the original questionnaire, the subsequent question asked the importance the respondent attached to the previous factor. We decided not to use the subsequent question due to the fact that this moderating factor was not used for the other questions of our questionnaire. This action reduced by half the number of questions that dropped from 50 to 25 (five questions per behavior). Trying to reduce even further the number of questions would have seriously affected the validity and reliability of this tool. The table below lists our survey question number associated with each trust component.

Trust factor	Survey Question Number <u>(Part B)</u>
Sharing relevant information	#14 , #19, #24, #29 and #34
Meeting expectations	#15 , #20, #25, #30 and #35
Clarifying mutual expectations	#16 , #21, #26, #31 and #36
Allowing for mutual influence	#17 , #22, #27, #32 and #37
Reducing control	#18 , #23, #28, #33 and #38

Table IV-2: Survey question's numbers related to trust behavior variables

The **OTS** allows organizations to measure the trust-related behaviors of various categories of people within the organization – upper managers, first line supervisors, and coworkers in relation to how employees' trust-related expectations are being met. The question's numbers in bold in Table IV-2 are directly associated with the questions related with first line supervisors and coworkers relations. We can consider these questions assessing

organizational unit trust and the other questions to assess organizational trust (upper management and other departments).

We added two additional questions in section B (#39 & #40) assessing the level of reciprocity at the organizational and at the unit level. We strongly believe that **reciprocity** is also a key factor of trustworthiness.

B39: In your unit people share ideas and information

- (1.) ___ with no immediate expectation of return, or eventually, but just not right away
- (2.) ___ but reciprocity is negotiated with expectation of return.
- (3.) ___ with no expectations of return; they share because it's good for the company
- (4.) ___ no, they just try to get help without giving anything in return.

The four response's choices relates to four types of reciprocity.

Response (1) identifies what is called "balanced reciprocity". It is generally attached to a *Networked* culture. Response (2) is generally attached to a *Mercenary* culture. Response (3) identifies what is called "generalized reciprocity". It is generally attached to a *Communal* culture. Response (4) identifies what is called "negative reciprocity". It is generally attached to a *Fragmented* culture (Goffee and Jones 1998).

We plan to use the same scoring technique as the one described for assessing solidarity.

Companies scoring below the average value will be considered as a low trust culture and above the average will be considered as a high trust culture.

IV.6.3. KM initiative assessment tool

For section C of the questionnaire we developed our own assessment tool. We listed the most common technologies and practices used for knowledge management initiatives based on our literature review. We asked the respondent to list the initiative used at the organizational level as well as the one used at their unit level. A sense of use/utilization ranging from “most” to “least” will also enrich this information.

The following table lists the type of technology and practices likely to be used in each of the different KM initiative type.

Corporate IntraNet - Extranet	 Codification
Database Management System (Oracle, Informix, etc)	
Decision Support Systems(Executive Information; Expert Systems)	
Data Warehouses - Data Marts	
Multimedia Repositories	
Web-based Training	
Search engines - Intelligent Agents - Information retrieval systems	
Help-desk applications	
Document Management Systems	
Data Mining tools - Knowledge discovery tools	
Knowledge-mapping tools	
Best practices repository	
Groupware (as a collaborative tool not as an Email tool, e.g, Lotus Notes)	
Online chat	
Teleconferencing (shared applications, whiteboards)	
Videoconferencing (using audio and/or video)	
Messaging or Email	
Desktop computer conferencing	
Communities of practice (interests in the same topic, field)	
Communities of purpose (common interest in a project/task)	
Mentoring / Tutoring	
Story telling	
Corporate Yellow pages - Directory of expertises - Who's who	

Based on the average usage of each initiative type we will have a sense of what KM strategy the organization focuses on (Codification vs. Personalization).

IV.6.4. KM initiative success indicators

For the last section of the questionnaire (D) we wanted to assess the level of success concerning the KM initiative launched (always at the organizational as well as the unit level). To do so we used the Davenport's success indicators criteria (Davenport, De Long, and C. 1998) in our questions (D#1 to D#5). These factors are:

- Growth in the resources attached to the project, including people, money and so on.
- Growth in the volume of knowledge content and usage (that is the number of documents or accesses to repositories and numbers of participants for discussion-oriented projects).
- The likelihood that the project would survive without the support of a particular individual or two, that is, the project is an organizational initiative, not an individual project.
- Some evidence of financial return either for the KM activity itself (for example, it was profit center) or for the larger organization: this linkage needs to be rigorously specified and may be only perceptual.

These indicators were discerned using the questions listed below and by applying the same evaluation scale used in prior sections of the questionnaire.

Strongly agree - Agree - Neither agree nor disagree - Disagree - Strongly disagree
2 · 1 · 0 · -1 · -2

D1/ I have noticed a significant growth in the volume of knowledge available since the KM initiative has been launched (number of documents available).

Organizational wide: 2 · 1 · 0 · -1 · -2

In my unit: 2 · 1 · 0 · -1 · -2

D2/ I have noticed a significant growth in the usage of knowledge available since the KM initiative has been launched (accesses to repositories and number of participants for discussion-oriented projects)

Organizational wide: 2 · 1 · 0 · -1 · -2

In my unit: 2 · 1 · 0 · -1 · -2

D3/ I believe that the project would survive without the support of a particular individual or two

Organizational wide: 2 · 1 · 0 · -1 · -2

In my unit: 2 · 1 · 0 · -1 · -2

D4/ I believe that resources (e.g., people, money) attached to KM initiatives are going to grow?

Organizational wide: 2 · 1 · 0 · -1 · -2

In my unit: 2 · 1 · 0 · -1 · -2

As in prior sections of the questionnaire, a weight of “5” is assigned for questions answered by a “2” and a weight of “1” for questions answered by a “-2”.

We thought that it would also be relevant to check if the expected benefits of the KM initiative were achieved and, if “yes” to what degree. To do so, we used a question asked by KPMG (KPMG Consulting 2000) in one of their annual surveys (question D#5). This

question is based on 15 main benefits expected of KM. We added two empty rows to let respondents add any eventual additional benefit.

Question (D#6) asked about the main causes for not achieving the expected benefits. We listed eleven possible causes as well as two open “other cause” responses. We included in these eleven causes “lack of trust”, “lack of solidarity” and “organizational culture not appropriate” in order to cross check if the respondents had the feeling that trust and solidarity were cultural barriers for knowledge sharing. Nowhere in the questionnaire did we mention that we were going to measure the *trust* and the *solidarity* dimensions.

Finally question (D#7) was used in order to cross check what the respondent thinks about the success level of the KM initiatives organizational wide and unit wide. Respondents might have a tendency to respond that their KM initiative is quite successful, but it is going to be interesting to compare the answer to this question with the one obtained through question D#1 to D#5.

IV.7 Validity & Reliability

Validity refers to the extent to which data, or data collection instruments, measure what actually is desired to be measured. Reliability refers to the accuracy and precision of a data collection procedure (Litwin 1995).

The “solidarity” and “trust” assessment sections of our questionnaire were previously validated and judged reliable (Goffee and Jones 1998; De Furia 1997). The other sections

were new so we needed to check the validity and the reliability of the overall survey questionnaire before the instrument administration.

Copies of the questionnaire were first submitted to members of the GWU knowledge management research group, KM and organizational behavior consultants as well as experts in order to check the appropriateness, the readability and the comprehensiveness of the questionnaire. They were encouraged to add, modify, restate or even delete any question in the survey. Based on the very valuable and very relevant remarks provided by twelve people (academics and professionals), we modified the questionnaire. The main modifications that were made concerned the language/jargon used in the culture section. For example Goffee and Jones originally used terms as “The group is determined to beat clearly defined enemies”, *enemies* was replaced by “competitors” or “Hitting targets is the single most important thing” where *target* is not specific enough and was replaced by “business goals”. Such minor changes were made as well as adding answer options to some questions and improving the layout of some parts of the questionnaire. A pilot survey was done with a few local companies in order to validate our questionnaire and to be sure that we collected all the necessary information. Once the validation was assured, we deployed the survey.

IV.7.1. Best Practices Incorporated in Developing the Questionnaire

Best practices in questionnaire development were used to minimize questionnaire bias. The following best practices were identified (Salant and Dillman 1994; Erdos 1983) (Czaja and Blair 1996; Fink 1995, 1995; Brockett and Levine 1984) and incorporated into the questionnaire

- Limit instrument to six to eight pages
- Introduce the study with a simple and clear explanation of purpose
- Precode response categories by assigning a number to each possible answer for the respondent to circle
- Space the categories so the it is easy for the respondent
- Provide simple instructions
- Use common wording and simple plain English found in everyday use – no complex terms, undefined abbreviations, or jargon should be used
- The questions and format should have no subjective tones which would introduce bias
- Design the questionnaire to be easy and interesting to answer to avoid nonresponse error
- Develop questions in ways that respondents are willing to respond to carefully and accurately
- Group questions into sections with similar qualities and relevance
- Questions should be relevant, easy to answer, and interesting
- Questions should be applicable and answerable by most respondents
- Choices must be mutually exclusive to prevent inaccuracies in response
- Use a closed format – no open ended questions

Throughout the questionnaire we used the same ranking technique

(2 · 1 · 0 · -1 · -2) in order to stay consistent and not confuse the respondent. We tried to make the questionnaire as readable as possible, paying attention to its layout (alignments,

spaces, font size and size) in order to give it an “appealing” and uncluttered look. All of the listed “Best Practices” in questionnaire design were incorporated into the questionnaire.

IV.7.2. Procedures

Data were collected through two main mechanisms. An online version posted on the Web as well as a paper version were used. Most of the responses we got came from the online version. This online survey was developed with the programming language Allaire Cold Fusion and the information was recorded directly into a Microsoft Access database. We tried to make the online version as user friendly as possible. The final version of our online program contained 4000 lines of code.

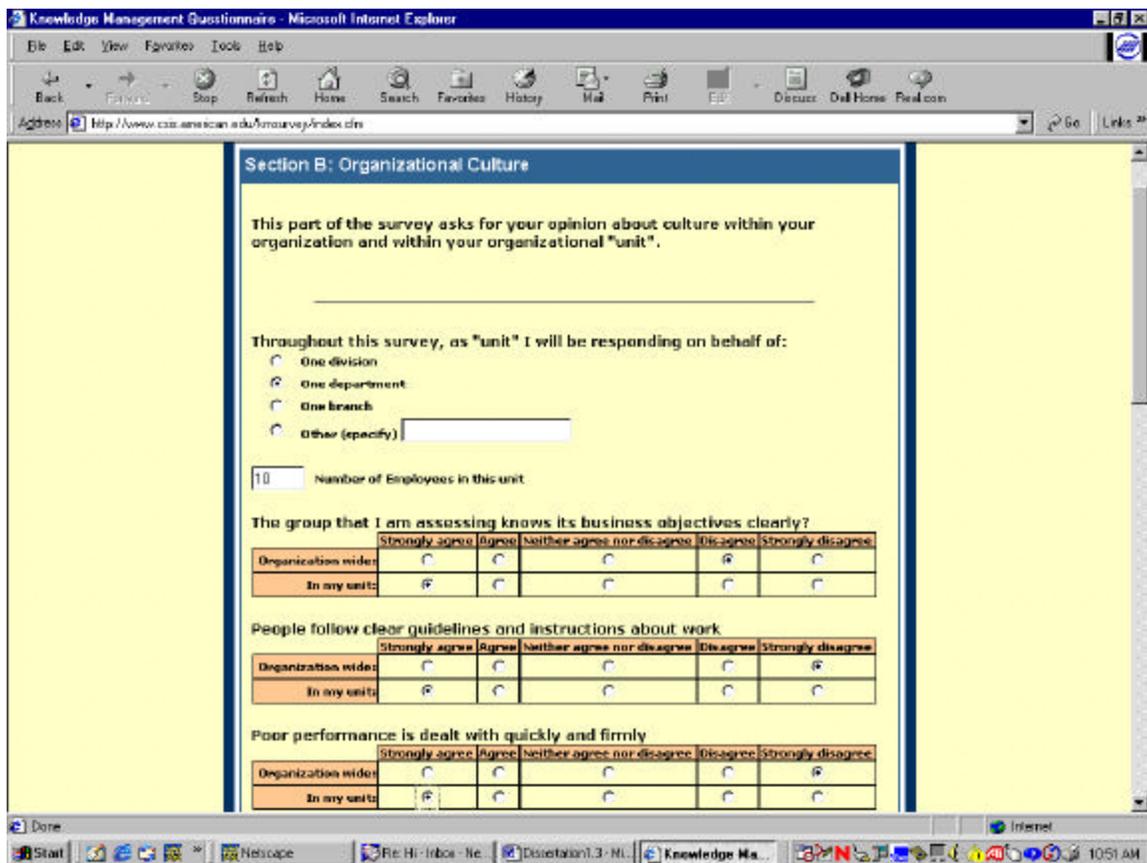


Figure IV-8: Screen shot of the Online version of the questionnaire

An important testing phase was done prior to officially launch the Web site in order to check that the tool was reliable and no problems existed that would result in lose or corruption of data. One limitation of this online questionnaire was that it worked only with respondents using Microsoft Internet Explorer (IE) as a Web browser. Or those using the latest version of Netscape Communicator (V6.0). If a previous version of Netscape Communicator was used the pages would take 2 to 3 minutes to be displayed because of a non-optimized algorithm used to render HTML tables. The first page of the questionnaire was viewable by any Web browser so we clearly stated this limitation and urged users to switch to (IE) in order to fill out our survey or to download the hard copy and to mail it or to fax it to us. This constraint may have limited the number of respondents.

The information collected through the online questionnaire was directly saved into a database in order to simplify the data analysis process. The online version of the questionnaire improved the quality of the data collected due to the fact that an automated macro checked if all the fields had been completed properly and consequently no manual data re-entry was necessary.

IV.7.3. Statistical Procedures

- A Microsoft Access 2000 database was created in order to gather the responses from the online survey. A table containing 234 fields was created.
- A coding system was designed and numbers were assigned to each question.
- All questionnaires were reviewed for completeness, the incomplete ones were removed from the database.
- Data were exported from Microsoft Access into an Excel document format.

- Data was imported into a Microsoft Excel 2000 spread sheet.
- Data was manipulated by Microsoft Excel 2000 and by Statistical Package for Social Sciences (SPSS) 10.0 for Windows to deliver combinations of statistical information.

IV.8 Data analysis

Descriptive analysis will be used in order to provide a demographic profile of the respondent and of their organization.

Inferential analysis will be used in order to reject or accept our null hypotheses. Each KM case study will be mapped on our organizational grid. For each quadrant (each culture) of our matrix we will plot the type of KM initiative used by the organization as well at its perceived level of success.

A regression analysis will allow us to validate if a relationship exists between the KM initiative selected and the level of success achieved. The criterion for the rejection of the null hypothesis will be a determination of statistical significance at the $p < .05$ level of probability.

Regression approach

$$Y_i = \mathbf{b}_0 + \mathbf{b}_1 X_i + \mathbf{e}_i$$

Y = Success of KM initiative

X= % codification (or % personalization)

β_1 = Coefficient

ε = Error term

The following results are expected (Figure IV-9):

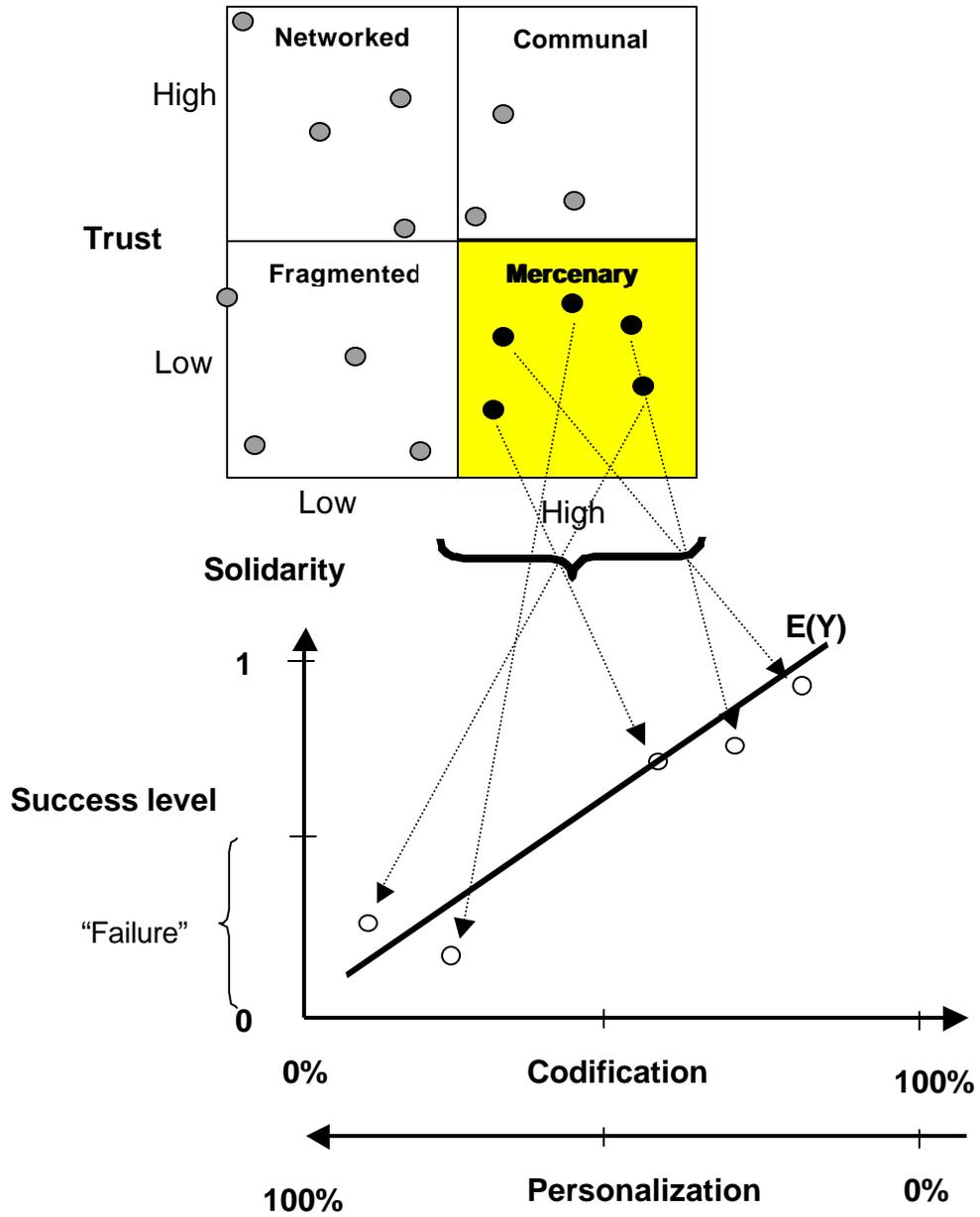


Figure IV-9: Regression analysis on the mercenary culture data

Each company will be mapped first on the culture matrix. Then all the companies that are part of a specific culture quadrant will be mapped on a new grid reference based on their KM initiative type and its success level.

In reiterating this analysis with the other culture types and in mapping all the different regression analyse on the same graph we expect to obtain something that should look like

Figure IV-10.

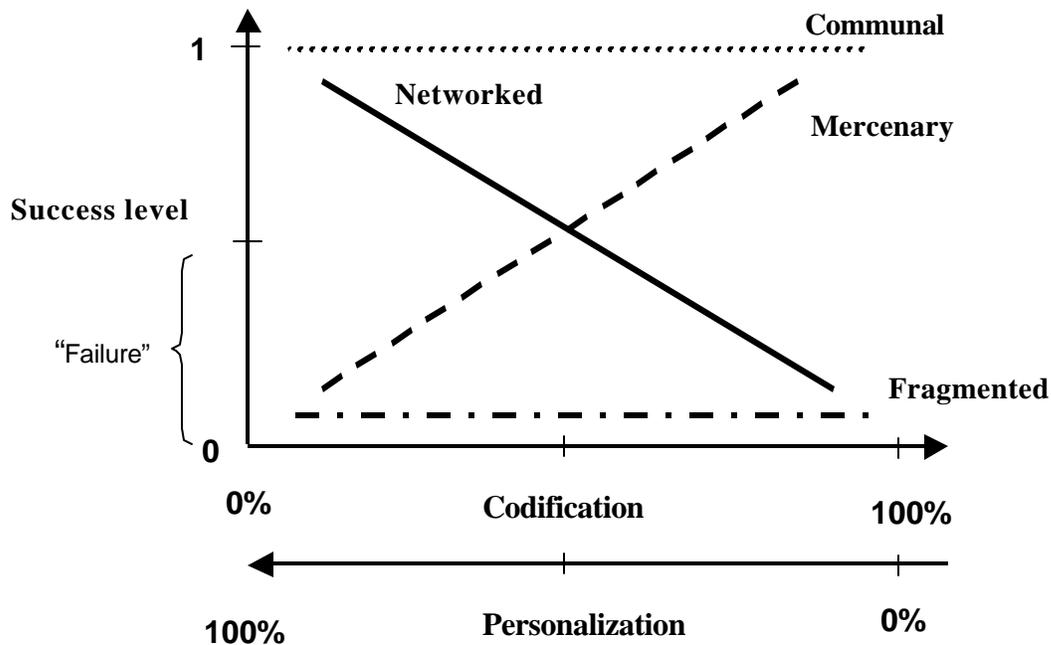


Figure IV-10: Regression analysis expected results

This representation is theoretical. We do not anticipate obtaining a high level of relationship, but we hope to detect some significant tendencies.

IV.9 Limitation

One important methodological limitation that applies to this study is that the data collected will represent the **perception** of members of the research sample, as opposed to an objective measurement of data. As the members of the research sample were qualified to provide expert opinions on the issues involved in the study, however, the downside of this limitation was expected to be minimal.

V. Data Analysis and Results

V.1 Introduction

The purpose of this research was to explore possible relationships between the successful implementation of knowledge management initiatives and specific organizational cultural orientations and attributes. Organizational culture was assessed through two main cultural factors of a successful knowledge sharing culture; **organizational trust** and **organizational solidarity**. Depending on a company's degree of integration of these two cultural factors, we expect that specific KM initiatives (**codification** and/or **personalization**) will be more or less likely to succeed.

V.2 Descriptive Analysis

SPPS (Statistical Package for Social Science) and Microsoft Excel software were used as main statistical analysis tools. All usable responses data was analyzed these two tools. Various analyses authenticated the instrument reliability and validity, and produced a descriptive analysis of the respondents' demographics and their organizations' profiles.

V.2.1. Population and sample

The overall target population of this study is Chief Knowledge Officers (CKOs), Managers and employees involved in knowledge management initiatives at any level in an organization.

A total of 600 emails, asking for participation, were sent out to targeted people involved with KM (members of KM groups and associations). These 600 people were considered as

our accessible or reachable population. Two e-mail follow-ups were made. The targeted companies were mainly located in the US and some in Europe. A total of 88 responses were received within the time limits established (one month). This represented a response rate of 14.6 percent. This modest response rate might be due to the fact that the questionnaire took long to fill-out (30 minutes - 9 pages) and that it contained what some companies judged to be company sensitive/proprietary information. This alone says much about their corporate culture!

Subject bias: our sampling technique cannot be considered as totally random. We will define it as a “convenience sampling” where only motivated volunteers filled out the survey (Gay 1991). That does not necessary mean that our nonprobability samples aren't representative of the population but we might be careful about the generalization of our results (Trochim 2001).

For correlational studies at least 30 subjects are needed to establish the existence or nonexistence of a relationship (Gay 1991). Of the 88 responses we received, only 47 were fully exploitable and relevant to the organizational wide KM initiative assessment and only 46 were exploitable unit wide. The rest of the sample was rejected for two reasons. The main one was based on the fact that some organizations were not involved in KM. The second one was due to response incompleteness. Based on obtaining a 95% confidence level, our confidence interval will be $\pm 13.7\%$ organizational wide and $\pm 13.3\%$ unit wide (Creative Research Systems ; Narins 1995). This number is considered acceptable for the nature of this study. An additional 5 responses were received after the February 5, 2001 cut-off date, and they are being retained to augment the database for any future research.

V.2.2. Demographic Analysis

This section provides a demographic profile of the participants and their organizations.

V.2.2.1. Demographic profile of the respondents

Position level: Figure V-1 shows that 36 (40%) of the respondents who participated in this study were Managers and Directors, 6 (7%) were Executives, 27 (31%) were Technical staff, 6 (7%) were Support staff and 13 (15%) felt in Other categories.

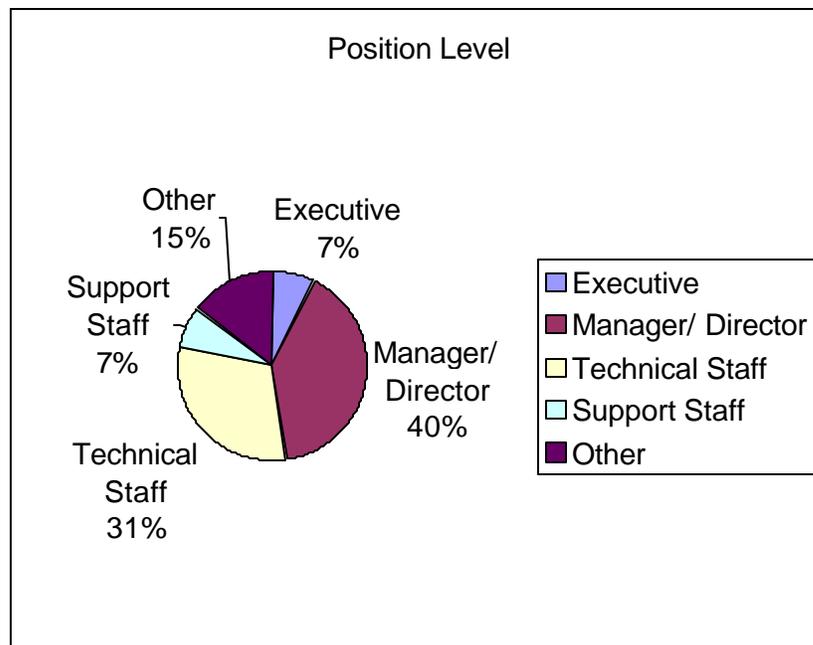


Figure V-1: Position level of the 88 participants

A fundamental premise of the research was that targeted organizations must have had experience with KM initiatives. On the 88 questionnaires received only 58 were complete and were representative of organizations involved in a KM initiative at the unit and/or at the organization level. The Venn diagram in Figure V-2 illustrates the partitions of the 88

organizations' KM initiative type and Figure V-3 illustrates the distribution of the 58 retained respondents' demographics.

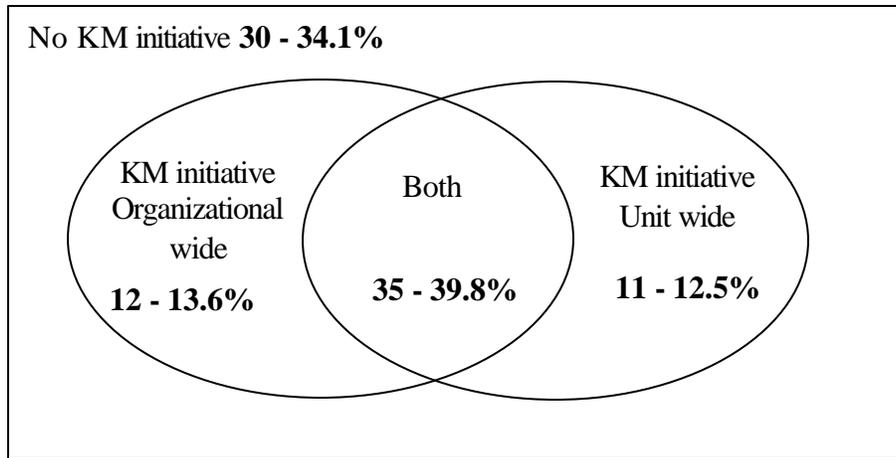


Figure V-2: Partition of the 88 KM initiatives

While Figure V-2 represents the partition of our target organizations, it cannot be used to draw sweeping conclusions such as, “a majority of the KM initiatives are launched organization wide”. Some respondents might have responded only at the organizational level because they are not directly part of a unit (e.g., Executives).

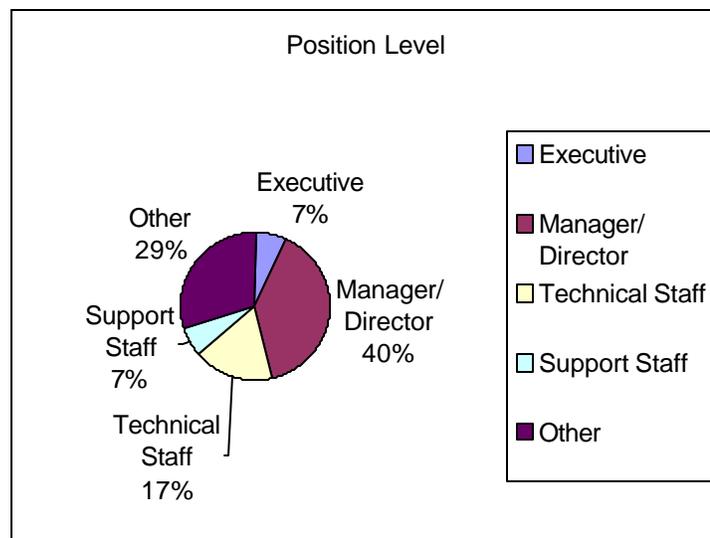


Figure V-3: Position level of participants (58 retained responses)

Of the respondents who participated in this study, 23(40%) were Managers and Directors, 4 (7%) were Executives, 10 (17%) were Technical staff, 4 (7%) were Support staff and 17 (29%) fell into Other categories. We observe that the distribution of the retained respondents' position level is approximately the same as if we consider all the 88 respondents except that the number of Technical is lower and the Other categories is higher. In the Other position category we found a large number of consultants. If we drill down a little bit further on the respondent's position level we can look at respondents' profiles by companies involved in KM at the organization level and those involved in KM at the unit level (Figure V-4).

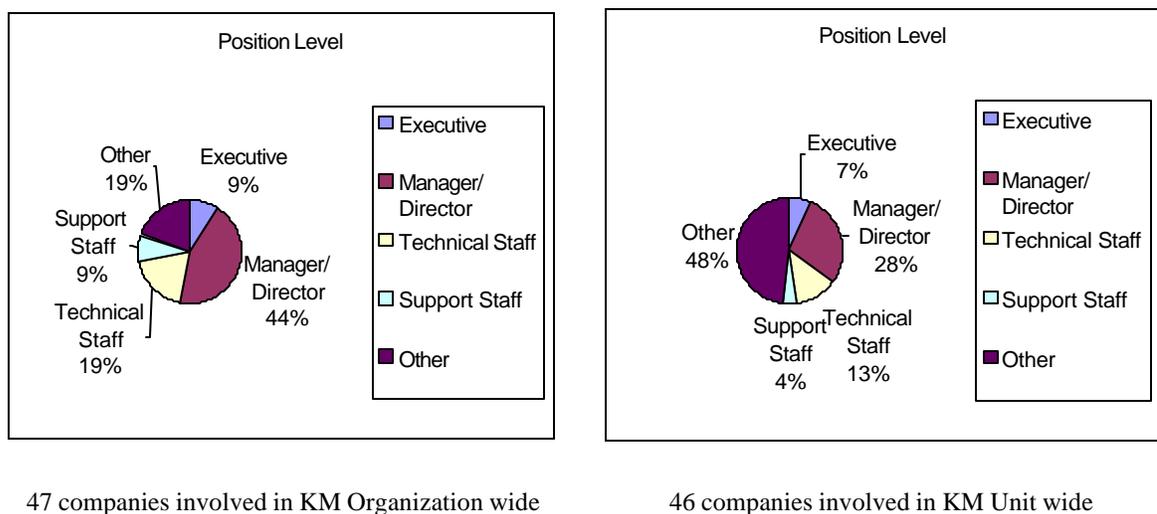


Figure V-4: Position level demographics

The fact that a lower percentage of Managers/Directors responded for the assessment at the unit level (28% compare to 44% organizational wide) can be explained by the fact that such positions are sometimes not directly part of a unit so respondents completed the questionnaire only at the “organization level”.

Concerning the job titles of the respondents, we found that a significant number of them included the term “knowledge”: Director KM, Knowledge Officer, Director, Knowledge Services, Sr. Knowledge Management Officer, Director - Knowledge mgmt program, Manager KM Integration Proliferation and Support, Knowledge Manager, CKO, Knowledge Leader, KM Global Network Leader, Corporate Director of Knowledge Management, Knowledge Strategist. This demonstrates that organizations now consider KM as a unique initiative, not just a subset of IT, and that they are serious about having dedicated resources allocated to such initiatives.

78% of the participants asked to receive results of this research. This is evidence that these people were very interested in the research topic. Only 6% of the respondents didn't mention the name of their organization so they remain totally anonymous.

V.2.2.2. Demographic profile of the organizations

Organizations: employees of the following 70 organizations participated in this survey:

Adrenaline, Amerigroup, AMS, Arthur Andersen, BAE Systems, Bixler Incorporated, Boeing, Booz Allen & Hamilton Inc., Capital One Financial, Center for Systems Management, Cisco Systems Europe, CLMS, Coleman Research Corporation, Computer Associates, Compuware, Constellation Power Source, Convergys Corporation, CSC, Deloitte & Touche, Dynamic Systems Inc., Dept of the Navy, Dynamics Research Corporation, EDS, Federal Government, Freddie Mac, Gartner Group, General Motors, GreyMatter Inc., HCH Hospital, HLS Associates, Hologix, INAP, Intel Corporation, Joint Staff, Keane, KPMG Consulting, Lazard Freres, Logicon, Lucent Technologies, Marine Corps Systems Command, Marriott International, MCI WorldCom, Microsoft, MITRE Corporation, Mitretek Systems, Moeningstar Systems Inc., Oracle Corp, PEC Solutions Inc, Pink Elephant, Port of Portland, PricewaterhouseCoopers, SAIC, SHERIKON, Social Consultants International Inc., Social Security Administration, Software Engineering Institute, Spacenet Inc., SRA International Inc, T Rowe Price Associates, Inc., TASC, Telia, Telignet Services Inc, The Dow Chemical Company, The Peace Corps, The Motley Fool,

The Salvation Army, The Small Image L.L.C., US Dept. of Energy, US Government, USMC, Valtech, Verizon Communication, World Bank.

Some of these are renowned for their efforts and successes in the KM world. This helps reinforce the validity of our study. Four of these companies are headquartered in Europe, the remainder are located in the US.

Organization Types: Most of the organizations that responded to the survey were involved in the consulting sector. Table V-1 summarizes the industry type partition and the Pareto graphs in Figure V-5 and Figure V-6 illustrate these numbers.

Industry Type	Organizational wide		Unit wide	
	Number of respondents	Percentage	Number of respondents	Percentage
Consulting	15	31.9%	14	30.43%
IT / Telecommunications	10	21.3%	8	17.39%
Other	8	17.0%	5	10.87%
Federal Government - Military	6	12.8%	10	21.74%
Manufacturing & Process Industries	5	10.6%	4	8.70%
Software development	3	6.4%	4	8.70%
Financial/ Banking/ Accounting	0	0.0%	1	2.17%
Healthcare - Pharmaceutical	0	0.0%	0	0.00%
Construct. - Architecture - Engineering	0	0.0%	0	0.00%
Education	0	0.0%	0	0.00%
Total	47	100.0%	46	100.00%

Table V-1: Industry type partition

Table V-1 and Figure V-1 illustrate our final sample size that is equal to 47 for KM initiatives launched at the organization level and equal to 46 for KM initiatives launched at the unit level. The total represents data from 58 organizations.

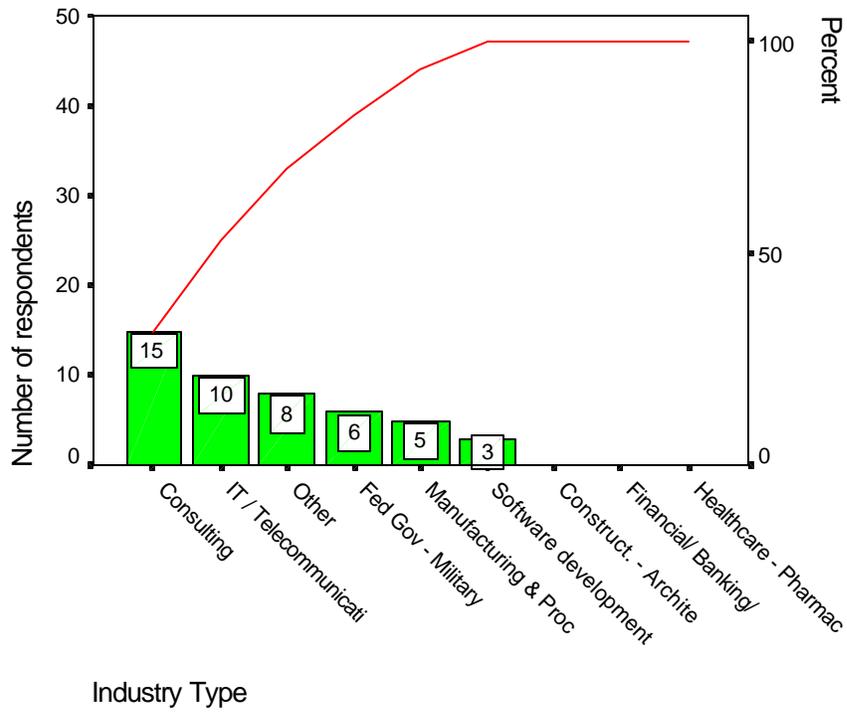


Figure V-5: Industry type organizational wide KM

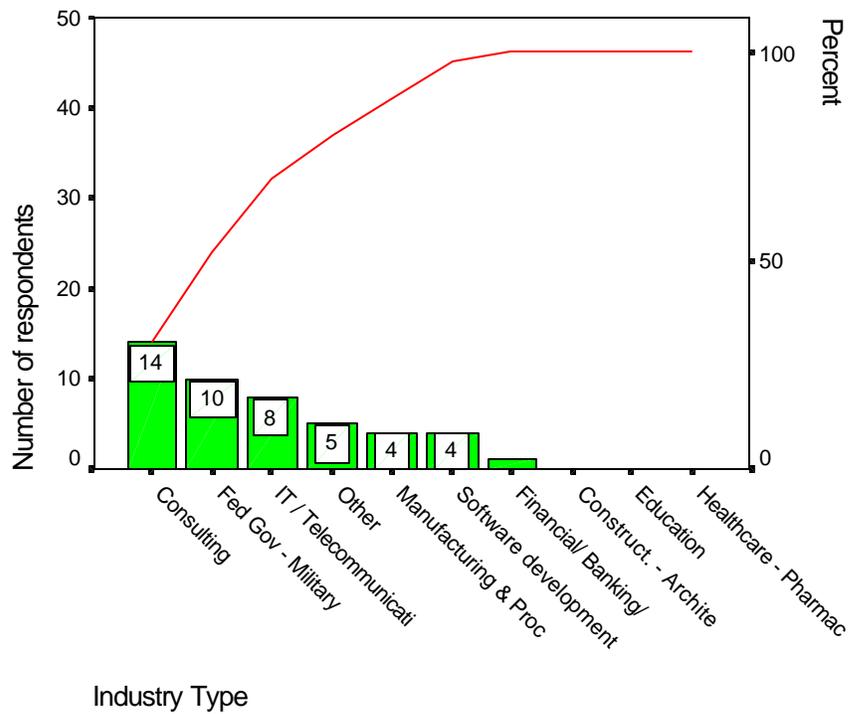


Figure V-6: Industry type unit wide KM

Annual Business (by Revenues):

Organization wide: 8 (17%) companies had an annual business (by revenues) of less than \$25 Million Dollars ('small size' company), 3 (7%) had an annual business between \$25 and \$150 Million Dollars ('mid-size' company), and 35 (76%) had annual business greater than \$150 Millions Dollars ('large size' company) as shown in Figure V-8.

Unit wide: 5 (19%) companies had an annual business by revenues less than \$25 Million Dollars ('small size' company), 1(4%) had an annual business by revenues that is between \$25 and \$150 Million Dollars ('mid-size' company), and 20 (77%) had annual business greater than \$150 Millions Dollars (large size company) as shown in Figure V-8.

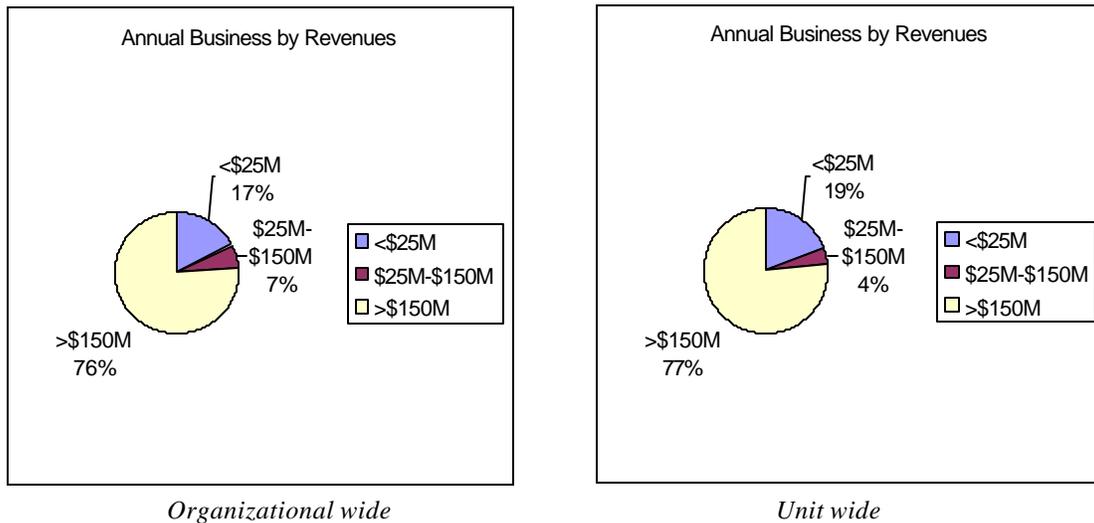


Figure V-8: Annual Business by \$ Revenues

We observe that there were very few mid-size companies represented in our sample.

Main business orientation:

Organization wide: 7 (15%) companies were product-oriented, 24 (51%) were service-oriented and 16 (34%) were both service and product-oriented

Unit wide: 7 (15%) companies were product-oriented, 23 (50%) were service oriented and 16 (35%) were both service and product-oriented. This distribution of business orientation is depicted in Table V-9.

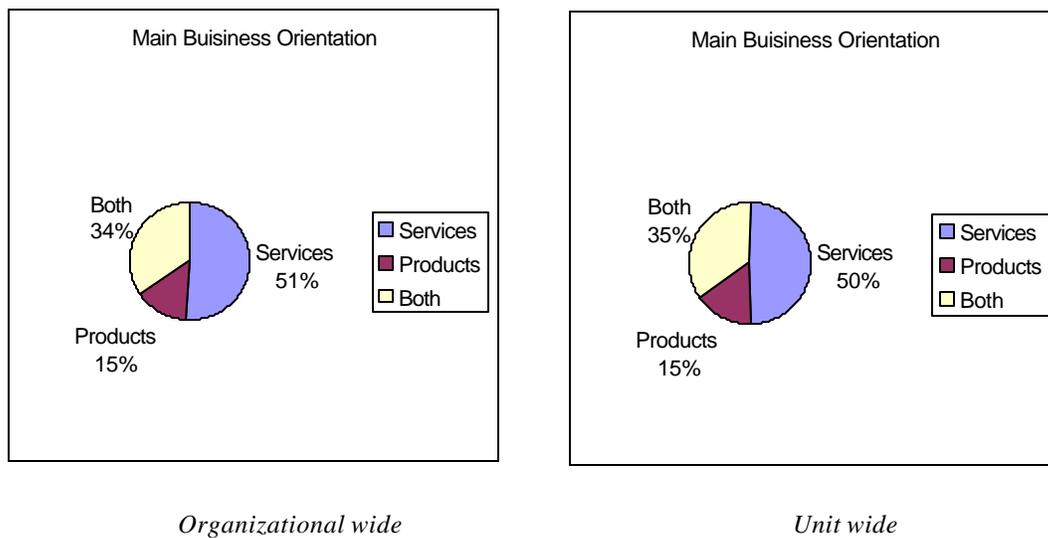


Figure V-9: Main business orientation

Product/Service type :

Organization wide: 5 (11%) companies indicated that they offered standardized products/services, 10 (21%) offered customized products/services and 32 (68%) offered both types of products and services as shown in Figure V-10.

Unit wide: 5 (11%) companies indicated that they offered standardized products/services, 13 (28%) offered customized products/services and 28 (61%) offered both types of products and services as shown in Figure V-10.

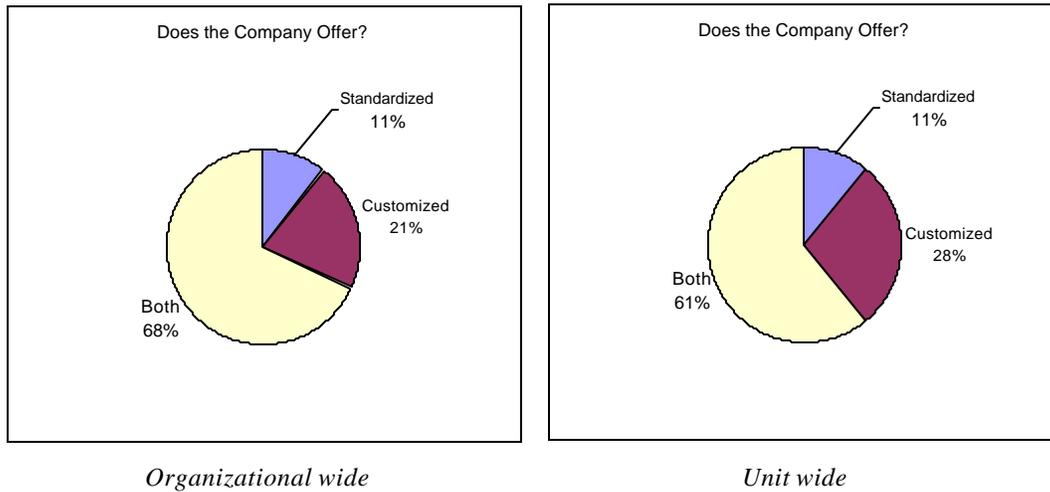


Figure V-10: Company product/service types

Product/service maturity:

Organization wide: 6 (13%) companies offer products or services that they describe as mature, 8 (17%) offer innovative products or services and 33 (70%) offer both types of products and services.

Unit wide: 5 (11%) companies offer products or services that they describe as mature, 8 (17%) offer innovative products or services and 33 (72%) offer both types of products and services.

Merger or Acquisition attributes:

Organization wide: 11 (23%) of the companies were recently (past two years) part of a merger or an acquisition, 33 (71%) were not involved in such an activity, and 3 (6%) unaware if it happened within their company or not.

Unit wide: 10 (22%) of the companies were recently (past two years) part of a merger or an acquisition, 34 (74%) were not involved in such an activity, and 2 (4%) didn't know if it happened within their company or not.

Downsizing issues:

Organization wide: 7 (15%) of the companies were recently (past two years) part of a downsizing effort, 39 (83%) were not involved in downsizing, and 1 (2%) didn't know if downsizing had occurred in their company or not.

Unit wide: 8(17%) of the companies were recently (past two years) part of a downsizing effort, and 38 (83%) were not involved in downsizing.

The merger and acquisition question, as well as the downsizing question, were asked in order to detect whether organizational cultures were affected by participation in downsizing and/or merger and acquisition.

Chief Knowledge Officer (CKO):

Organizational wide: 18 (38%) respondents indicated that their company has a CKO, 27 (58%) didn't have one and 2 (4%) were not sure. This distribution is shown in Figure V-11.

Unit wide: 13(28%) respondents indicated that their company has a CKO, 31(68%) didn't have one and 2 (4%) were not sure as shown in Figure V-11.

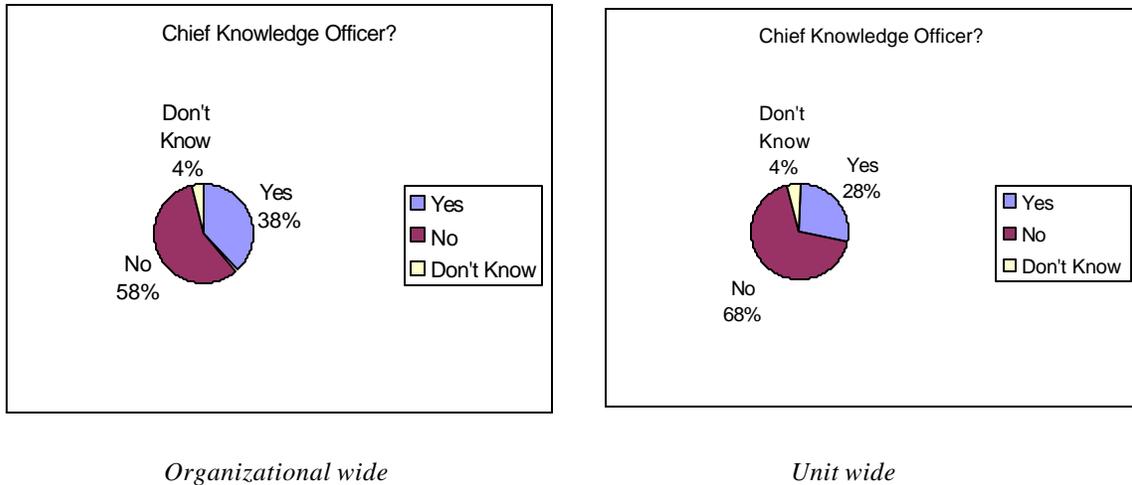


Figure V-11: Companies having a Chief Knowledge Officer (CKO)

As stated previously, the person in charge of KM programs might have a title unrelated to KM aspect and this might have affected the validity of this response.

KM strategy:

41(69,5%) companies stated that their company has a KM strategy, 15 (25.4%) didn't have one and 3(25.4%) didn't know if they had one or not.

KM Development stage:

If we look at all the respondents who filled out our survey 13 (15.9%) of the companies didn't have a KM program in place **organization wide** and were not considering one, about 20 (24%) were in the process of examining the need for such a program, 18 (22%) were currently setting up such a program, and 31 (37.8%) already had a KM initiative in place as shown in (Figure V-12).

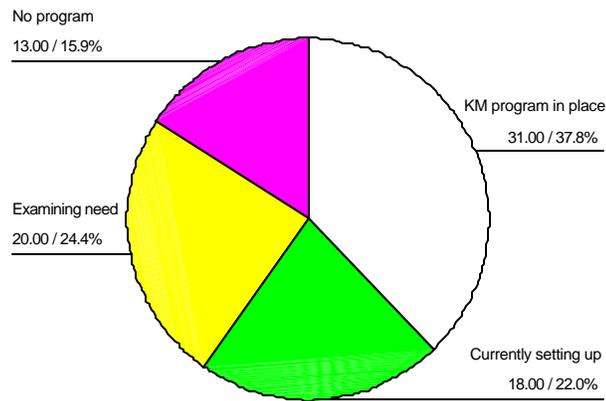


Figure V-12: All respondents' organizations KM initiative stage

We can further refine this data if we look at the 58 questionnaires of companies already involved in KM.

Organization wide: 29 (61.7%) had a KM initiative in place and 18 (38.3%) were currently setting up such a program (Figure V-13).

Unit wide: 21 (45.7%) had a KM initiative in place and 25 (54.3%) were currently setting up such a program (Figure V-13).

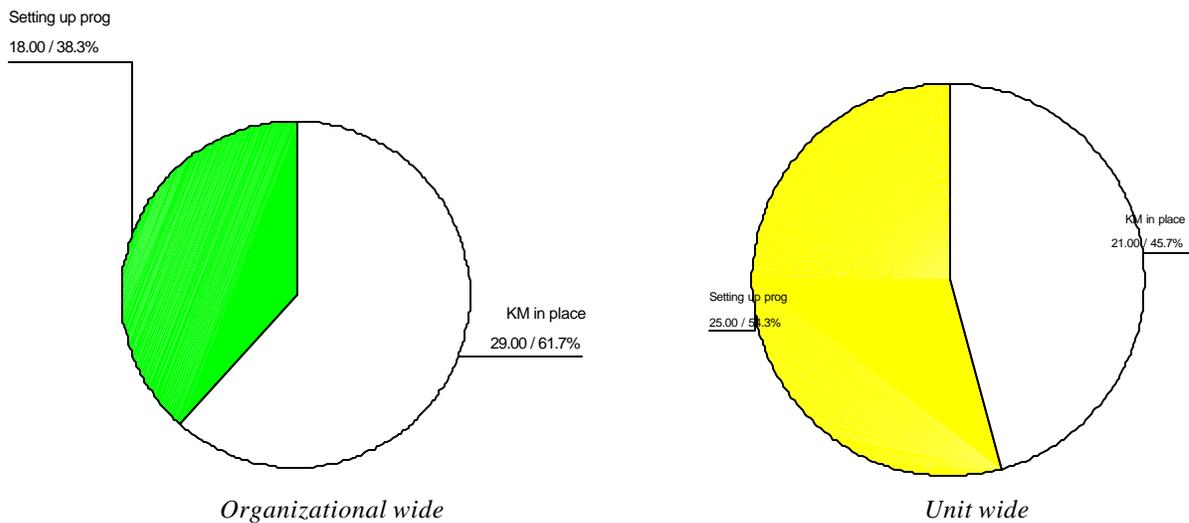


Figure V-13: All respondents' organization unit KM initiative stage

Characteristics of KM system:

Organization wide: 17 (36.2%) of the companies described their KM system as something which had just grown up over time, 9 (19.1%) described it as a specially designed KM system and 21(44.7%) as a little bit of both (Figure V-14).

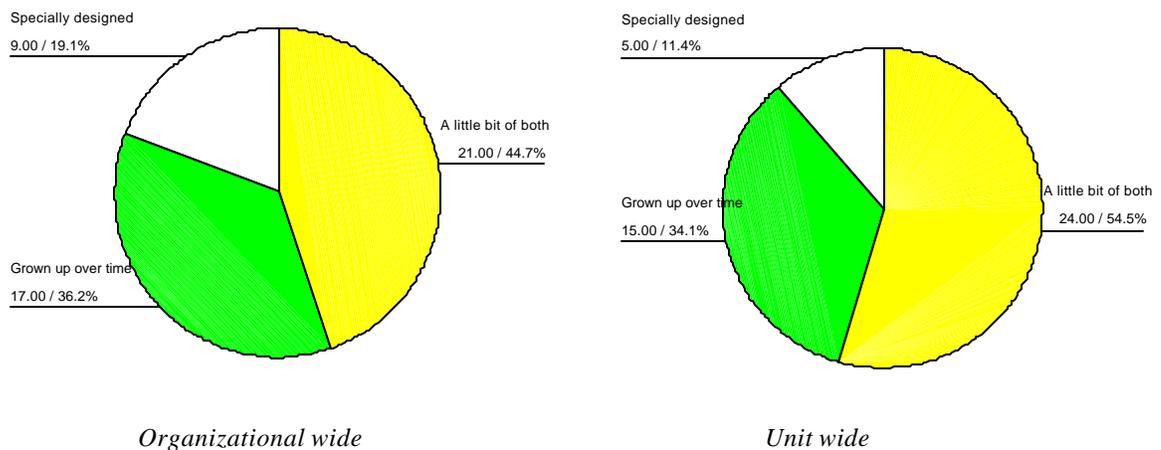


Figure V-14: KM technology evolution

Unit wide: 15 (34.1%) of the companies described their KM system as something which has just grown up over time, 5 (11.4%) described it as a specially designed KM system and 24 (54.5%) as a little bit of both (Figure V-14).

V.2.3. Reliability of the instrument

The reliability of the research instrument is concerned with its consistency. This research used the Cronbach's alpha value in order to assess the internal consistency of the results across items within a test. Alpha values above 0.7 are acceptable indicators of internal consistency as suggested in the literature (Santos 1999; SPSS 2000). Alpha values were

calculated for each multi-item construct (questions measuring the same variable). As seen in Table V-2, all the calculated alpha values were found to be above 0.7 indicating that all the scales are reliable. For example in order to measure the Cronbach's alpha value of the variable *solidarity* at the unit level, we used all the responses (46) of the 12 questions (items) measuring this dimension and applied the Cronbach's alpha formula in order to determine the value of alpha.

Questionnaire Variables	Cronbach's alpha	
Solidarity Organization	N of Cases = 47.0 Alpha = .9028	N of Items = 12
Solidarity Unit	N of Cases = 46.0 Alpha = .8801	N of Items = 12
Trust Unit	N of Cases = 46.0 Alpha = .8883	N of Items = 10
Trust Organization	N of Cases = 47.0 Alpha = .9153	N of Items = 15
Overall Trust	N of Cases = 58.0 Alpha = .9302	N of Items = 25
Success Organization	N of Cases = 47.0 Alpha = .9517	N of Items = 19
Success Unit	N of Cases = 46.0 Alpha = .9485	N of Items = 19

Table V-2: Reliability of Construct

As the foregoing table demonstrates, use of Cronbach's Alpha to assess reliability of the survey instrument supports the essential reliability of that instrument. This statistical test was not applied to our *KM type* (codification vs. personalization) variable due to the fact that this variable just demonstrates the use (or not) of different independent KM practices.

V.2.4. Construct validity

Construct validity was assessed using item-total correlation where the average of each construct was correlated with each item in the same construct. Table V-3, Table V-4, Table V-5, Table V-6 and Table V-7 summarize the results, showing that the correlation coefficients for all these constructs are highly significant.

Item	Organization wide Item-Total Correlation	Unit wide Item-total Correlation
<i>Solidarity question 1</i>	0.79	0.78
<i>Solidarity question 2</i>	0.81	0.77
<i>Solidarity question 3</i>	0.80	0.75
<i>Solidarity question 4</i>	0.61	0.57
<i>Solidarity question 5</i>	0.78	0.81
<i>Solidarity question 6</i>	0.71	0.77
<i>Solidarity question 7</i>	0.81	0.74
<i>Solidarity question 8</i>	0.65	0.74
<i>Solidarity question 9</i>	0.67	0.61
<i>Solidarity question 10</i>	0.66	0.63
<i>Solidarity question 11</i>	0.70	0.57
<i>Solidarity question 12</i>	0.47	0.41

Table V-3: Item-Total Correlation (Solidarity)

Item	Unit wide Item-total Correlation
<i>Trust_SI question 1</i>	0.80
<i>Trust_RC question 1</i>	0.46
<i>Trust_AI question 1</i>	0.71
<i>Trust_CE question 1</i>	0.81
<i>Trust_ME question 1</i>	0.70
<i>Trust_SI question 2</i>	0.68
<i>Trust_RC question 2</i>	0.48
<i>Trust_AI question 2</i>	0.75
<i>Trust_CE question 2</i>	0.74
<i>Trust_ME question 2</i>	0.59

SI : Sharing relevant information
 RC: Reducing control
 AI: Allowing for mutual influence

CE: Clarifying mutual expectations
 ME: Meeting expectations

Table V-4: Item-Total Correlation (Trust-Unit)

Item	Organization wide Item-Total Correlation	Unit wide Item-Total Correlation
<i>Question D1</i>	0.56	0.50
<i>Question D2</i>	0.65	0.61
<i>Question D3</i>	0.74	0.58
<i>Question D4</i>	0.40	0.69
<i>Question D5 Achieved 1</i>	0.81	0.89
<i>Question D5 Achieved 2</i>	0.80	0.75
<i>Question D5 Achieved 3</i>	0.78	0.74
<i>Question D5 Achieved 4</i>	0.84	0.70
<i>Question D5 Achieved 5</i>	0.76	0.75
<i>Question D5 Achieved 6</i>	0.77	0.69
<i>Question D5 Achieved 7</i>	0.67	0.69
<i>Question D5 Achieved 8</i>	0.79	0.76
<i>Question D5 Achieved 9</i>	0.74	0.86
<i>Question D5 Achieved 10</i>	0.73	0.59
<i>Question D5 Achieved 11</i>	0.78	0.69
<i>Question D5 Achieved 12</i>	0.86	0.77
<i>Question D5 Achieved 13</i>	0.71	0.76
<i>Question D5 Achieved 14</i>	0.57	0.60
<i>Question D5 Achieved 15</i>	0.60	0.81

Table V-5: Item-Total Correlation (KM initiative success)

Item	Organization wide Item-Total Correlation
<i>Trust_SI question 3</i>	0.66
<i>Trust_RC question 3</i>	0.66
<i>Trust_AI question 3</i>	0.56
<i>Trust_CE question 3</i>	0.68
<i>Trust_ME question 3</i>	0.72
<i>Trust_SI question 4</i>	0.78
<i>Trust_RC question 4</i>	0.76
<i>Trust_AI question 4</i>	0.66
<i>Trust_CE question 4</i>	0.77
<i>Trust_ME question 4</i>	0.59
<i>Trust_SI question 5</i>	0.67
<i>Trust_RC question 5</i>	0.74
<i>Trust_AI question 5</i>	0.71
<i>Trust_CE question 5</i>	0.62
<i>Trust_ME question 5</i>	0.53

SI : Sharing relevant information
 RC: Reducing control
 AI: Allowing for mutual influence

CE: Clarifying mutual expectations
 ME: Meeting expectations

Table V-6: Item-Total Correlation (Trust-Organization)

Item	Organization wide Item-Total Correlation	Unit wide Item-Total Correlation
<i>SI</i>	0.87	0.86
<i>RC</i>	0.91	0.78
<i>AI</i>	0.85	0.87
<i>CE</i>	0.86	0.91
<i>ME</i>	0.77	0.81

SI: Sharing relevant information
RC: Reducing control
AI: Allowing for mutual influence

CE: Clarifying mutual expectations
ME: Meeting expectations

Table V-7: Item-Total Correlation (Trust)

V.3 Inferential Analysis of the data

This section illustrates the results of the testing of the statistical significance regression models. Simple linear regression was used as the main tool in the inferential analysis. It was used in order to test the relationship between the dependent variable (Success) and the independent variable (Km initiative type). The equation of a straight line is $Y = \beta_0 + \beta_1 X + e$, where Y is the linear function of the explanatory variable for the independent variable X. β_0 is Y-intercept and β_1 is the slope. Because not all predictions are perfect, the regression model contains an error, e. Regression models provide a better understanding of how the independent variable X affects the dependent variable Y. These models can also be used to predict the value of Y for a given value of X.

We mapped each respondent's organizational culture on our cultural matrix, Figure V-15.

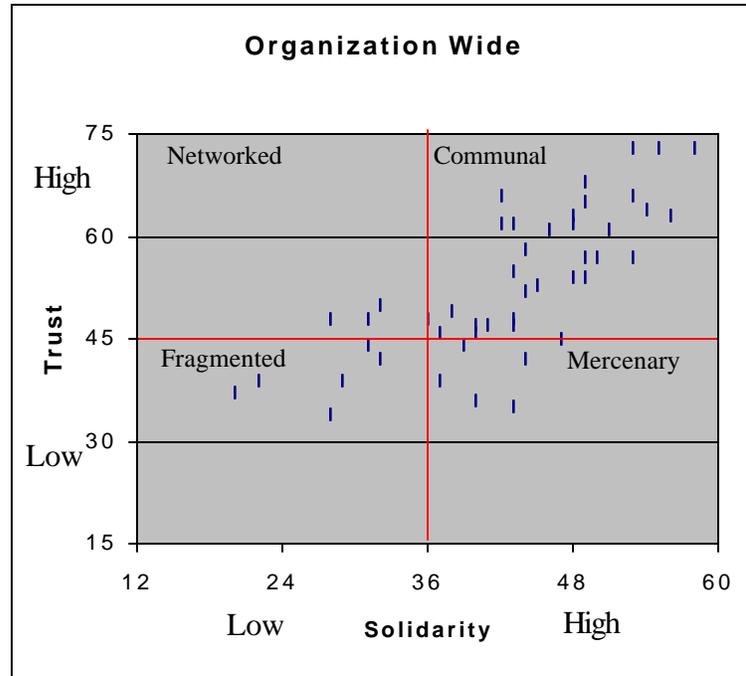


Figure V-15: Culture Matrix, organizational wide

The scales used for the *solidarity* and *trust* axis are value-scores calculated based on the answers of the items (questions) related to each dimension. Value scores range from 12 to 60 for the solidarity variable and from 15 to 75 for the organizational trust variable (cf. IV.6.2). It was interesting to note that most (70.2%) of the organizations fell into the top right quadrant, the communal culture type (high trust, high solidarity). Table V-8 provides the partition of companies for each culture.

Networked		Fragmented		Mercenary		Communal		Total
3	6.4%	6	12.8%	5	10.6%	33	70.2%	47

Table V-8: Culture partition by quadrant (organization wide)

For each industry type we looked at the cultural tendency of companies involved in KM organization wide. These tendencies, for each type of industry, are summarized in Figure V-16.

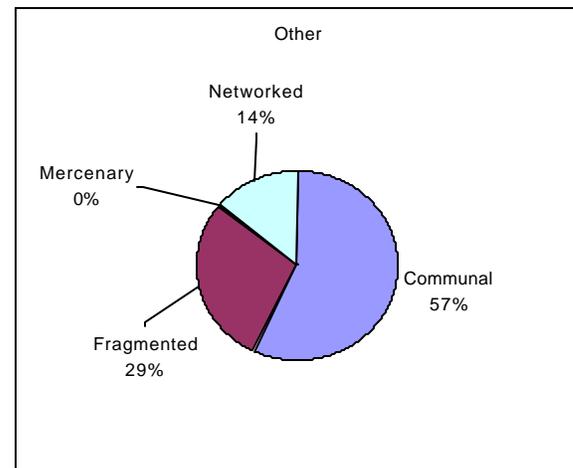
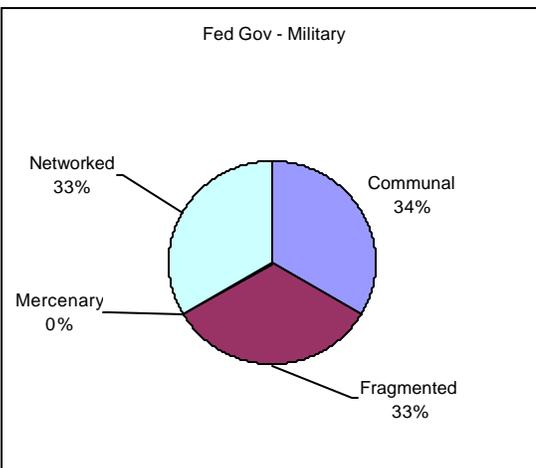
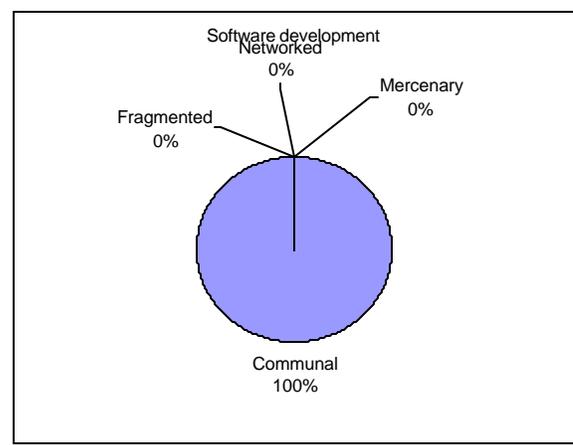
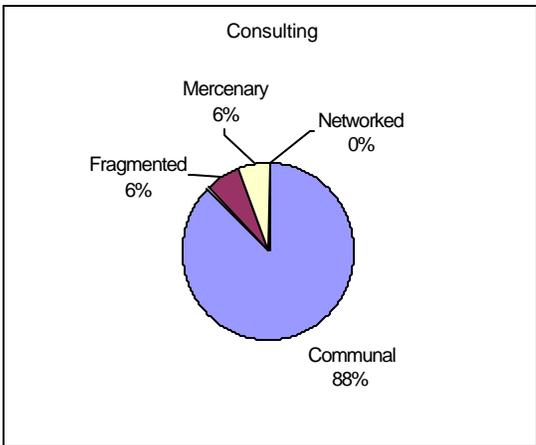
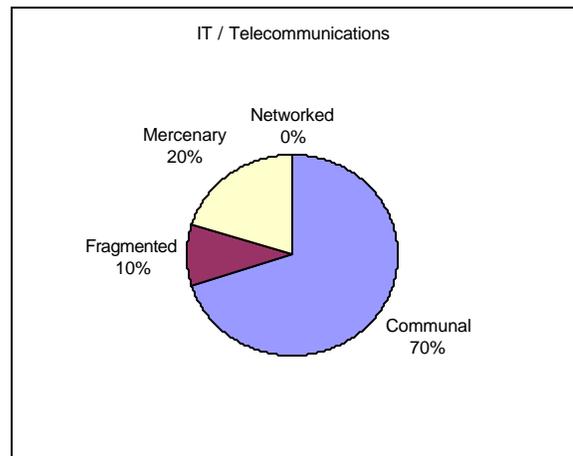
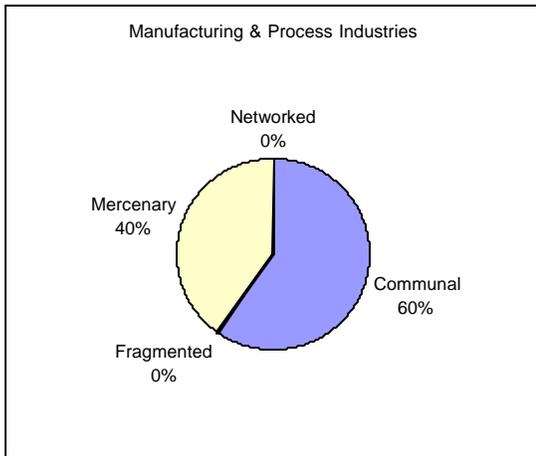


Figure V-16: Industry type vs. Culture type

As we can see, manufacturing and process industries have a very high solidarity culture component (Mercenary and Communal cultures). Their primary focus is to get the job done and they are performance driven. Consulting and Software development companies are quite (>88%) communal. Since the nature of their work is team based, this might explain these high levels of trust and solidarity. Concerning the Consulting sector, 6% of the cases indicate a fragmented culture that might reflect the individualistic behaviors of certain consultants. The IT and Telecommunications sector also have a high solidarity component (communal + mercenary = 90%) but we can also highlight the 10% fragmented revealing the possible existence of some “selfish techies behaviors” that has been reported in the popular press. The interesting culture partition is the Federal Government/ Military types. While this category is quite diverse, the absence of mercenary culture is quite interesting. High trust seems to be a main (67%) characteristic. This is the only industry that has such a high percentage (33%) of networked culture reflecting the openness of such a culture. The low solidarity factor dominance (66%) may be due to the fact that these organizations do not have direct competitors and that they are non-profits.

By expanding the response pool, similar graphs could be used by companies willing to start a KM initiative. The graphs can provide a basic idea of what their organizational culture might be (based on their industry type) and, using that knowledge choose a successful KM initiative type associated with their culture.

In looking at the partition of the plots on the matrix (Figure V-15) we are inclined to project that there may be an unexpected relationship between the solidarity and trust variables.

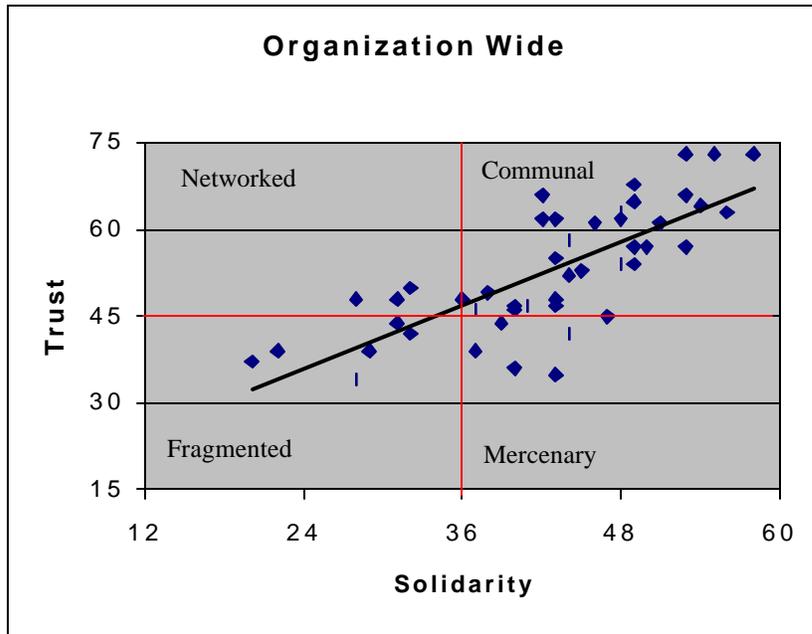


Figure V-17: Culture matrix, organizational wide, trend line

In order to verify this we ran a regression analysis (a correlation analysis would have been sufficient and would have provided a p value equal to $p=0.765$). The correlation coefficient R obtained was equal to 0.765 (Table V-9), which indicates that the trust variable has a non-negligible tendency to increase positively with the solidarity variable. We may also interpret this to mean that a linear trend might exist between these two variables. Summarized data are provided in Appendix B.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.765 ^a	.585	.576	5.80

a. Predictors: (Constant), TRUST

Table V-9: Regression analysis: model summary

The result of the T-test is also an indicator of relationship. This test checks the hypothesis that β_1 (the coefficient for solidarity) is equal to 0. If there was no relationship between the *trust* and the *solidarity* variables, β_1 would be equal to 0. Using a one-tailed test that rejects p if $t > t_{\alpha}$. The calculated value of t from our coefficient table (Table V-10) is equal to $t=7.96$. There are $n-1$ degrees of freedom (d.f.) in each sample, so total d.f. = 45. If we look for the critical value of in a t-table we find that $t_{\alpha,45} = 1.68$. Since the calculated value is larger than the critical value ($7.96 > 1.68$), we can reject that $\beta_1=0$. This test reinforces the relationship tendency between the *trust* and *solidarity* variables. This was not expected and might decrease the need of having to use both variables in order to assess organizational culture.

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8.923	4.290		2.080	.043
	TRUST	.635	.080	.765	7.960	.000

a. Dependent Variable: Solidarity

Table V-10: Regression analysis coefficients

We also mapped each respondent's organizational unit culture on our cultural matrix Figure V-18.

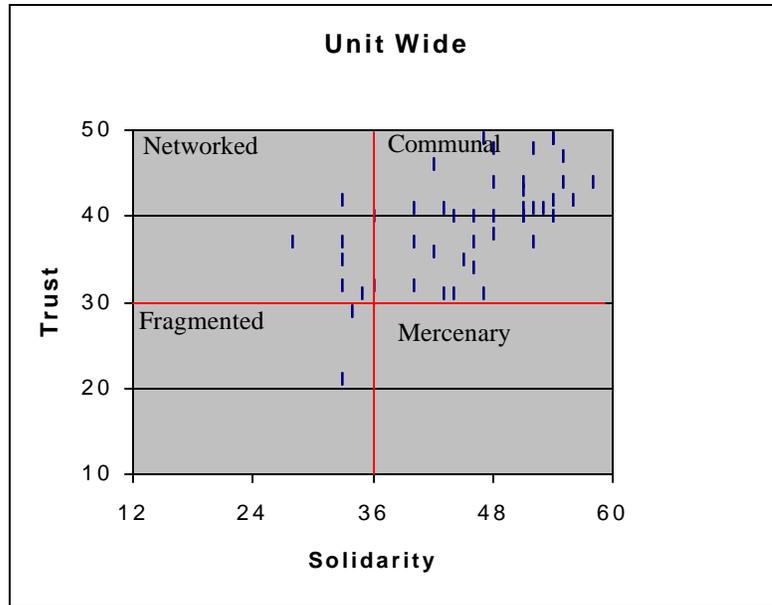


Figure V-18: Culture Matrix, unit wide

Again, surprisingly, we found that most (82.61%) of the organizations' units were located in the top right quadrant, the communal culture type (high trust, high solidarity). Table V-11 depicts the partition of cultures.

Networked		Fragmented		Mercenary		Communal		Total
6	13.04%	2	4.35%	0	0.00%	38	82.61%	46

Table V-11: Culture repartition by quadrant (unit wide)

The correlation coefficient R obtained was equal to 0.607 (Table V-12) that indicates again that the trust variable has a non-negligible tendency to increase positively with the solidarity variable. Summarized data are provided in Appendix B.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.607 ^a	.369	.355	6.27

a. Predictors: (Constant), TRUST

Table V-12: Regression analysis: model summary

The calculated value of t from our coefficient table (Table V-13) is equal to $t=5.072$. If we look for the critical value of in a t-table we find that $t_{\alpha,44} = 1.6814$. Since the calculated value is larger than the critical value ($5.072 > 1.6814$), we can reject that $\beta_1 = 0$.

These tests show again a correlation tendency in between these two variables.

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	14.779	6.093		2.426	.019
	TRUST	.781	.154	.607	5.072	.000

a. Dependent Variable: Solidarity

Table V-13: Regression analysis coefficients

V.3.1. Analysis of Research Hypothesis 1

H₁: There is a positive relationship between a **fragmented** (low solidarity, low trust) organizational culture emphasizing a **codification or personalization** KM initiative and its chance of **failure**.

Null Hypothesis:

H₀₁: There is no positive relationship between a **fragmented** organizational culture emphasizing a **codification or personalization** KM initiative and its chance of **failure**.

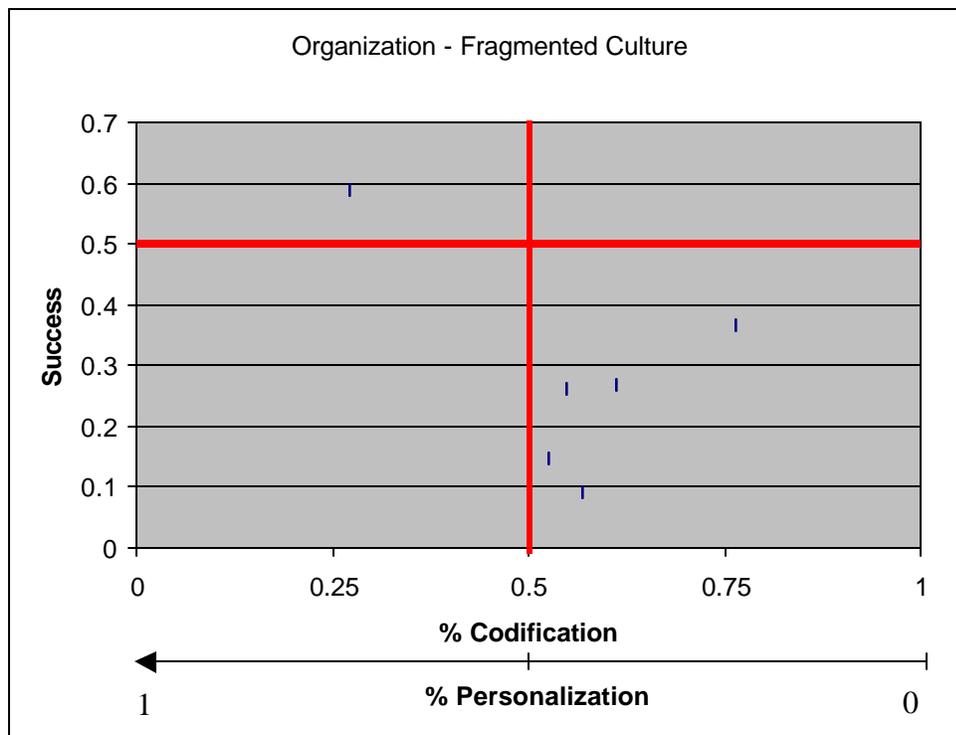


Figure V-19: KM success of organizations having a *fragmented* culture

The scale used for the *Codification/Personalization* axis is a percentage. It was calculated based on a company's usage level of codification and personalization tools

and practices. The percentage value obtained by a company indicates its main KM initiative focus. A company focusing 70% of its efforts on a codification approach spends automatically its 30% remaining efforts on personalization practices.

The scale used for the *Success* axis is a score value that ranges between 0 and 1. A score of “1” indicates a very successful KM initiative and a score of “0” a failure. A company’s success level was calculated based on the score obtained for each of the questions related to KM success (part D of our questionnaire Cf. Appendix A). The final score was normalized to a value ranging between 0 and 1.

All the summarized data used to validate our 8 hypotheses are located in Appendix B.

Figure V-19 plots the companies that were part of the fragmented quadrant. At this point, we are no longer looking at their level of trust and solidarity but at the type of KM initiative they launched (Codification vs. Personalization focus) and at their level of success in such an initiative. Given the small number of data points (6) in this culture quadrant, running a regression analysis will not be relevant. As we can observe 5(83.3%) of the companies that launched a KM initiative focusing on the codification approach obtained a very low success factor (success <0.5). This observation partially verifies our hypothesis H_{01} that companies having a fragmented culture and focusing on a KM codification approach have a high chance of failure.

V.3.2. Analysis of Research Hypothesis 2

H₂: There is a positive relationship between a **networked** (low solidarity, high trust) organizational culture emphasizing a **personalization** KM initiative and its chance of success

Null Hypothesis:

H₀₂: There is no positive relationship between a **networked** organizational culture emphasizing a **personalization** KM initiative and its chance of success

A regression analysis will not be relevant given the few number of data points (3) in this culture. We can observe in Figure V-20, 3 (100%) of the companies that launched a KM initiative focusing on the codification approach obtained a very low success factor (success<0.5). Our hypothesis was stated slightly differently in a way that we were only looking at what initiative type for a networked culture will bring success.

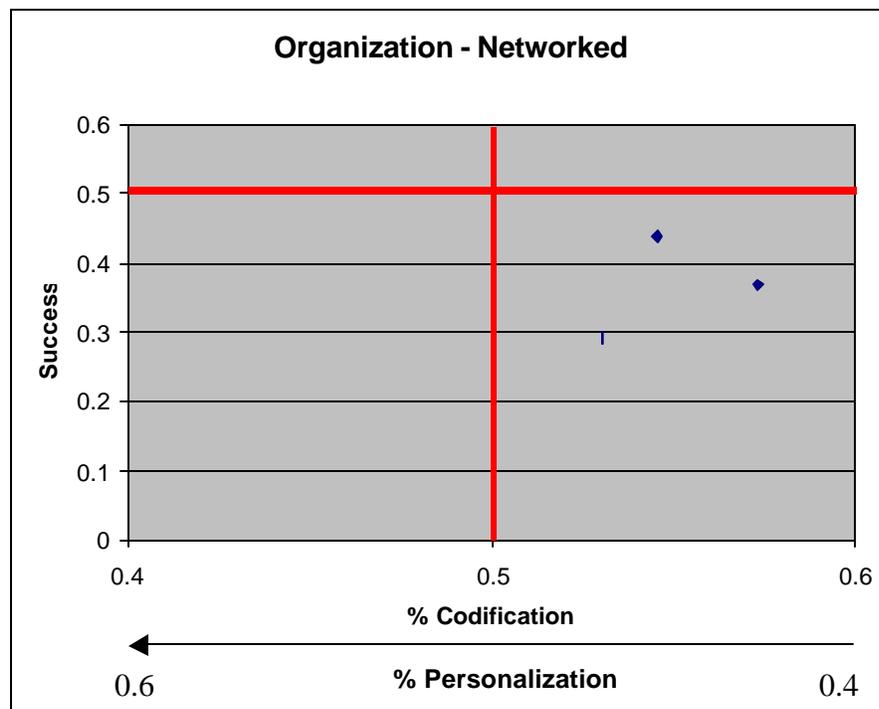


Figure V-20: KM success of organizations having a *networked* culture

Since we don't have any data points in the personalization area we cannot accept or reject our hypothesis. But, based on our observations, companies having a networked culture and focusing their KM initiative effort on codification approach have a high chance of failure.

V.3.3. Analysis of Research Hypothesis 3

H₃: There is a positive relationship between a **mercenary** (high solidarity, low trust) culture organizational emphasizing a **codification** KM initiative and its chance of **success**.

Null Hypothesis:

H₀3: There is no positive relationship between a **mercenary** culture organizational emphasizing a **codification** KM initiative and its chance of **success**.

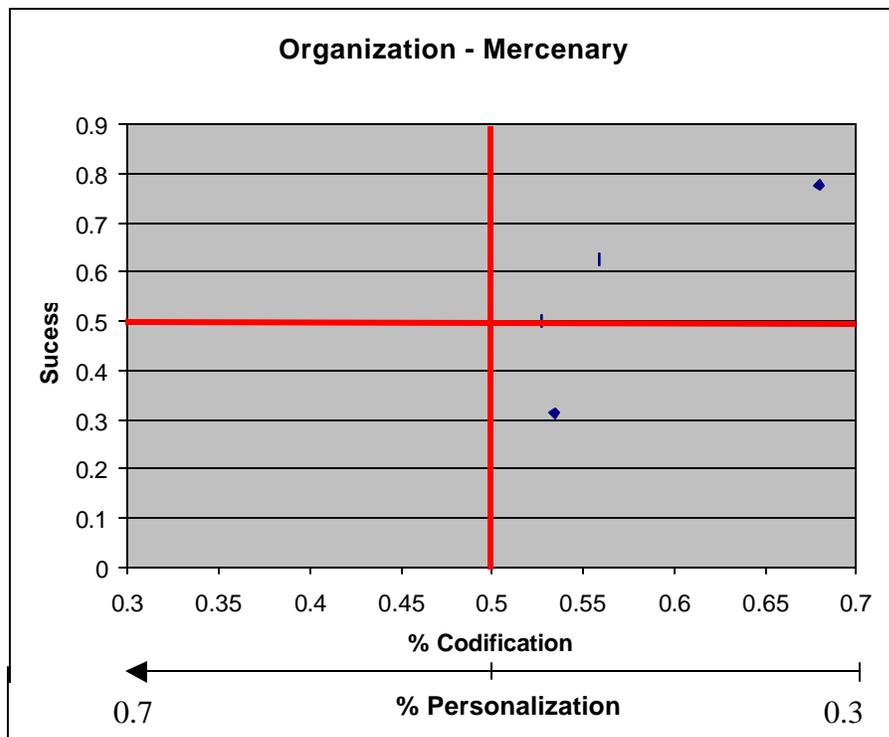


Figure V-21: KM success of organizations having a *mercenary* culture

Running a regression analysis will not be relevant given the few number of data points (5) in this culture quadrant. As we can observe in Figure V-21, 4(80%) of the companies that launched a KM initiative focusing on the codification approach happened to be successful (success ≥ 0.5). This observation agrees with our hypothesis.

V.3.4. Analysis of Research Hypothesis 4

H₄: There is a positive relationship between a **communal** (high solidarity, high trust) organizational culture emphasizing a **codification or personalization** KM initiative and its chance of **success**.

Null Hypothesis:

H₀₄: There is no positive relationship between a **communal** organizational culture emphasizing a **codification or personalization** KM initiative and its chance of **success**.

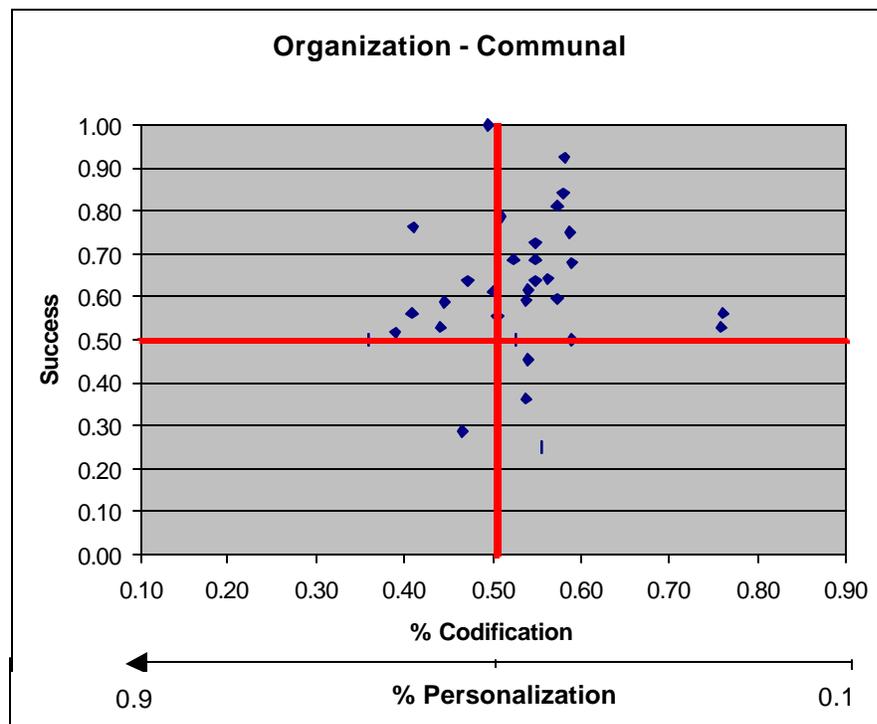


Figure V-22: KM success of organizations having a *communal* culture

In looking at Figure V-22, we can visually note that no correlation seems to occur in between our two variables. We ran a correlation test in order to validate this perception and the result (very low value of P) validated our observation Table V-14.

Correlations

		Codification	SUCCESS
Codification	Pearson Correlation	1.000	.082
	Sig. (2-tailed)	.	.657
	N	32	32
SUCCESS	Pearson Correlation	.082	1.000
	Sig. (2-tailed)	.657	.
	N	32	32

Table V-14: Correlation results

What is evident is that 28 (87.5%) companies having a communal culture are successful running their KM initiative and only 4(12.5%) didn't reach the level we defined as successful (success \geq 0.5). In taking in consideration only the 28 successful companies, 8 (29%) emphasized on a personalization approach (codification < 0.5) and 20 (71%) a codification approach.

Table V-15 and Figure V-23 illustrate the partition of KM type adoption. As we can see, the mean value of the success variable is close to 0.5 (0.53) and the standard deviation is low. This implies that companies are implementing both approaches at the same time without really emphasizing one specific approach. This contradicts the statement of Morten, Nohria, and Tierney (Hansen, Nohria, and Tierney 1999) that companies needed to focus on one of the approaches (80%-20%) if they wanted to be successful.

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Codification	28	.359	.762	.53103	9.1744E-02
Valid N (listwise)	28				

Table V-15: Successful KM type distribution (organization wide)

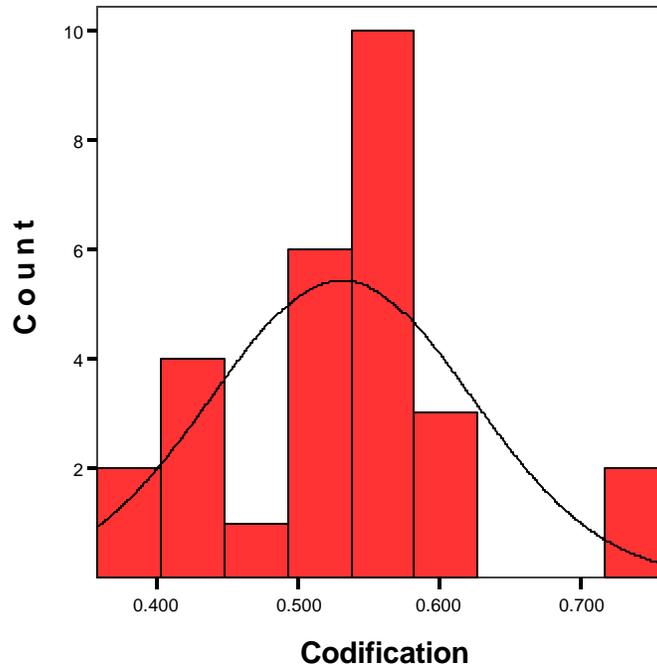


Figure V-23: Successful KM type distribution (organization wide)

V.3.5. Analysis of Research Hypothesis 5

H₅: There is a positive relationship between a **fragmented** (low solidarity, low trust) organizational culture unit emphasizing a **codification or personalization** KM initiative and its chance of **failure**.

Null Hypothesis:

H0₅: There is no positive relationship between a **fragmented** organizational culture unit emphasizing a **codification or personalization** KM initiative and its chance of **failure**.

We are now looking at KM initiatives launched unit wide. Viewing the few number of data points (2) in this culture quadrant, running a regression analysis will not be relevant. As we can observe 2(100%) of the units that launched a KM initiative focusing on the codification approach obtained a very low success factor (success<0.5) as shown in Figure V-24. This observation partially verifies our hypothesis in the sense that units having a fragmented culture and focusing on a KM codification approach have a high chance of failure. We cannot conclude anything about units focusing on personalization due to the lack of data.

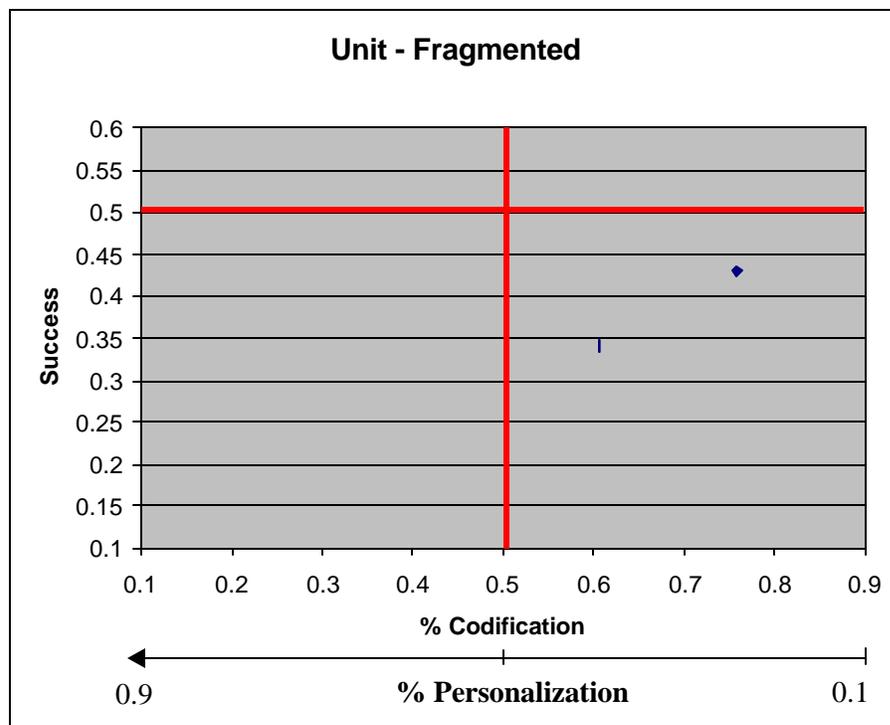


Figure V-24: KM success of units having a *fragmented* culture

V.3.6. Analysis of Research Hypothesis 6

H₆: There is a positive relationship between a **networked** (low solidarity, high trust) organizational culture unit emphasizing a **personalization** KM initiative and its chance of **success**.

Null Hypothesis:

H₀: There is no positive relationship between a **networked** organizational culture unit emphasizing a **personalization** KM initiative and its chance of **success**.

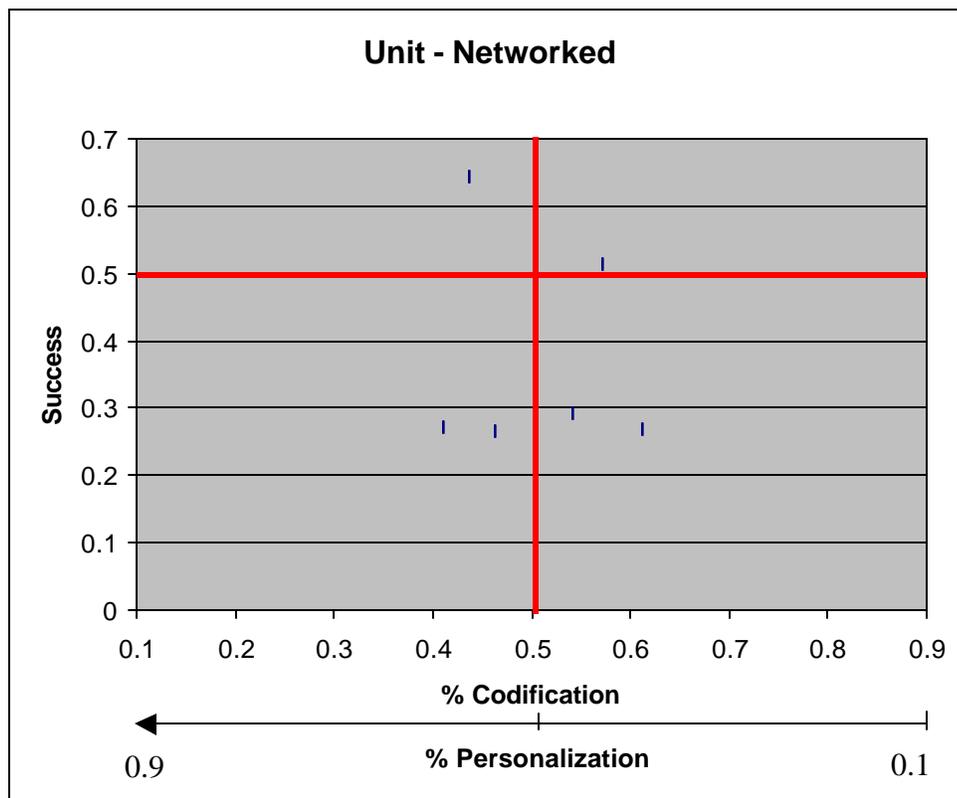


Figure V-25: KM success of units having a *networked* culture

Viewing the few number of data points (6) in this culture quadrant, running a regression analysis will not be relevant. As we can observe in Figure V-25, 4 (66.6%) of the companies

that launched a KM initiative focusing on the codification approach obtained a very low success factor (success<0.5). Our hypothesis was stated slightly differently in a way that we were only looking at what initiative type for a networked culture will bring success.

V.3.7. Analysis of Research Hypothesis 7

H₇: There is a positive relationship between a **mercenary** (high solidarity, low trust) organizational culture unit emphasizing a **codification** KM initiative and its chance of **success**.

Null Hypothesis:

H₀7: There is a positive relationship between a **mercenary** organizational culture unit emphasizing a **codification** KM initiative and its chance of **success**.

No data were collected in this quadrant. Maybe this type of culture is not prevalent to units involved in KM projects where trust might be a precondition. It might also be due to the sample of industry data we collected that are mainly representative of Consulting, Government and IT companies.

V.3.8. Analysis of Research Hypothesis 8

H₈: There is a positive relationship between a **communal** organizational culture unit emphasizing a **codification or personalization** KM initiative and its chance of **success**.

Null Hypothesis:

H0₈: There is a positive relationship between a **communal** organizational culture unit emphasizing a **codification or personalization** KM initiative and its chance of **success**.

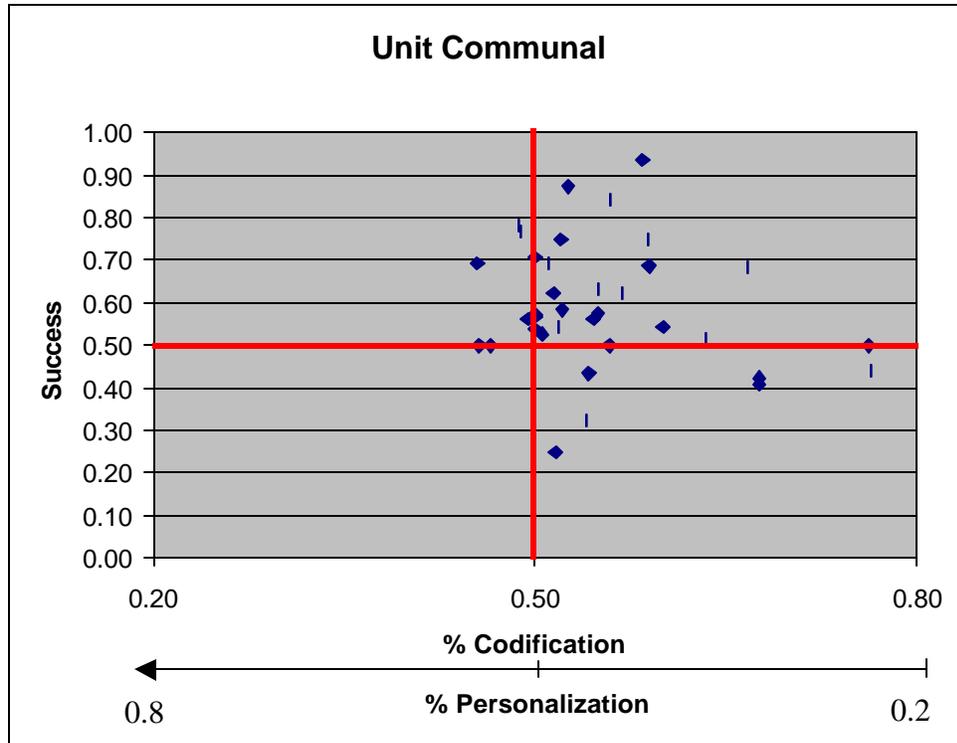


Figure V-26: KM success of units having a *communal* culture

In looking at the plot in Figure V-26 we observe that no correlation seems to occur in between our two variables. We ran a correlation test to validate this perception and the result (very low value of P) validated our observation (Table V-16).

Correlations

		Codification	SUCCESS
Codification	Pearson Correlation	1.000	-.203
	Sig. (2-tailed)	.	.235
	N	36	36
SUCCESS	Pearson Correlation	-.203	1.000
	Sig. (2-tailed)	.235	.
	N	36	36

Table V-16: Correlation results

What seems evident is that 30 (83.3%) of companies having a communal culture unit wide are successful running their KM initiative and only 6 (16.6%) didn't reach this level of success we defined (success \geq 0.5). In taking in consideration the 30 successful units, 6 (20%) emphasized a personalization approach (codif < 0.5) and 24 (80%) a codification approach. We notice a tail towards the codification approach, Figure V-27. Table V-17 and Figure V-27 illustrate the distribution of KM type adoption. As we can see, the mean of the codification variable is close to 0.5 (0.54) with a very low standard deviation. This implies that units are implementing both approaches at the same time without really emphasizing one specific approach.

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Codification	30	.455	.762	.54035	6.5491E-02
Valid N (listwise)	30				

Table V-17: Successful KM type distribution (unit wide)

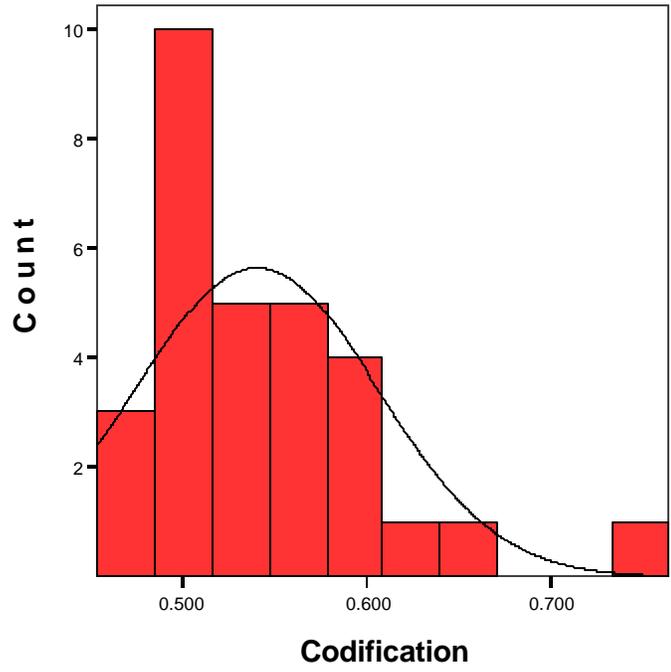


Figure V-27: Successful KM type distribution (unit wide)

VI. Findings, Conclusions, Contributions and Recommendations

VI.1 Findings and Conclusions: The data

The problem addressed in this study focused on developing an answer to the general question of whether or not Organizational Culture affects the choice and success of KM initiatives. Two variables were used in order to assess organizational culture (Trust and Solidarity). KM initiatives were broken down in two types: codification versus personalization. Table VI-1 summarizes our findings. **All our findings are subject to limitations or reservations that will be presented in the following section.**

Hypothesis	Findings
#1	5 (83.3%) of the companies having a fragmented (low solidarity, low trust) culture that launched a KM initiative focusing on the codification approach failed to achieve KM expected benefits.
#2	3 (100%) of the companies having a networked (low solidarity, high trust) culture that launched a KM initiative focusing on the codification approach failed to achieve KM expected benefits.
#3	4 (80%) of the companies having a mercenary (high solidarity, low trust) culture that launched a KM initiative focusing on the codification approach happened to be successful (achieving KM expected benefits).

Hypothesis	Findings
#4	28 (87.5%) of the companies having a communal (high solidarity, high trust) culture are successful running their KM initiative whatever KM initiative type they decided to focus on.
#5	2 (100%) of the units having a fragmented (low solidarity, low trust) culture that launched a KM initiative focusing on the codification approach failed to achieve KM expected benefits.
#6	4 (66.6%) of the units having a networked (low solidarity, high trust) culture that launched a KM initiative focusing on the codification approach failed to achieve KM expected benefits.
#7	None
#8	30 (83.3%) of the units having a communal (high solidarity, high trust) culture are successful running their KM initiative whatever KM initiative type they decided to focus on

Table VI-1: Findings summary

In order to organize these findings we mapped them on our culture/success cube projected onto two matrices (success, failure). Figure VI-1 illustrates our findings organizational wide and Figure VI-2 illustrates our findings unit wide. The question marks indicate that we couldn't draw conclusions for these cases.

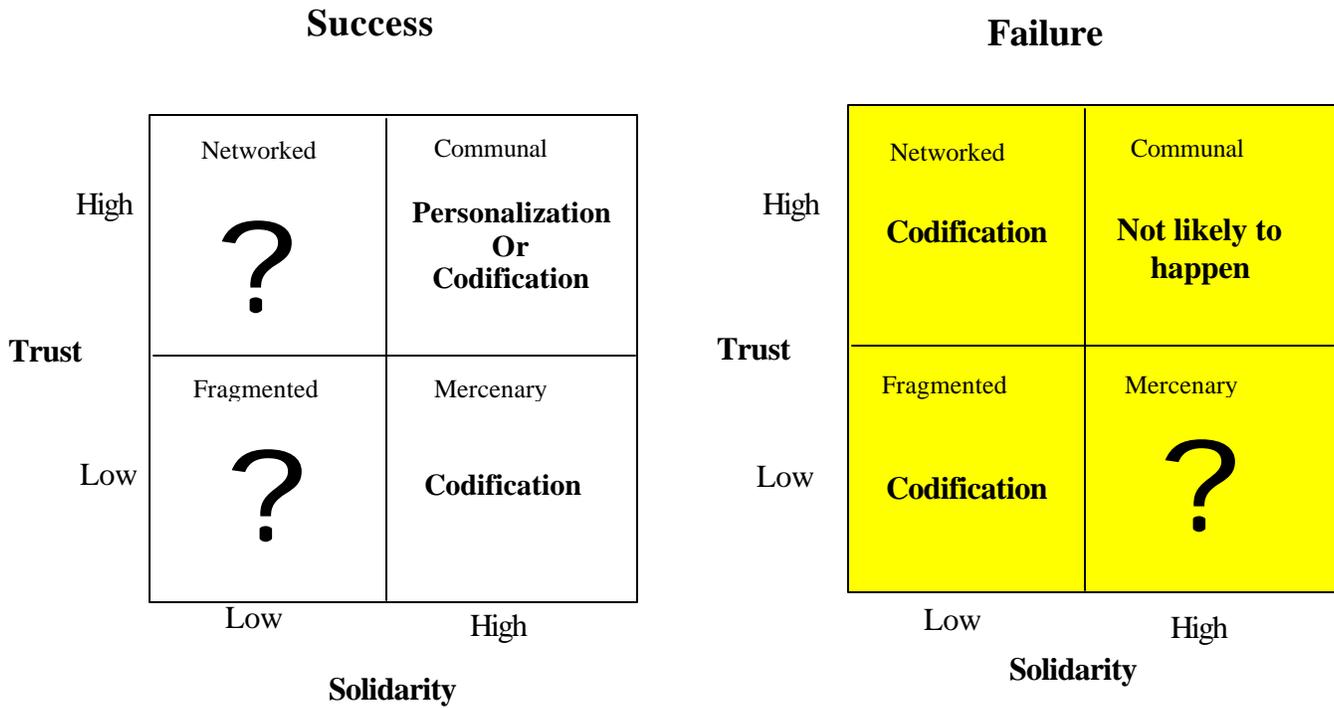


Figure VI-1: Representation of the findings organizational wide

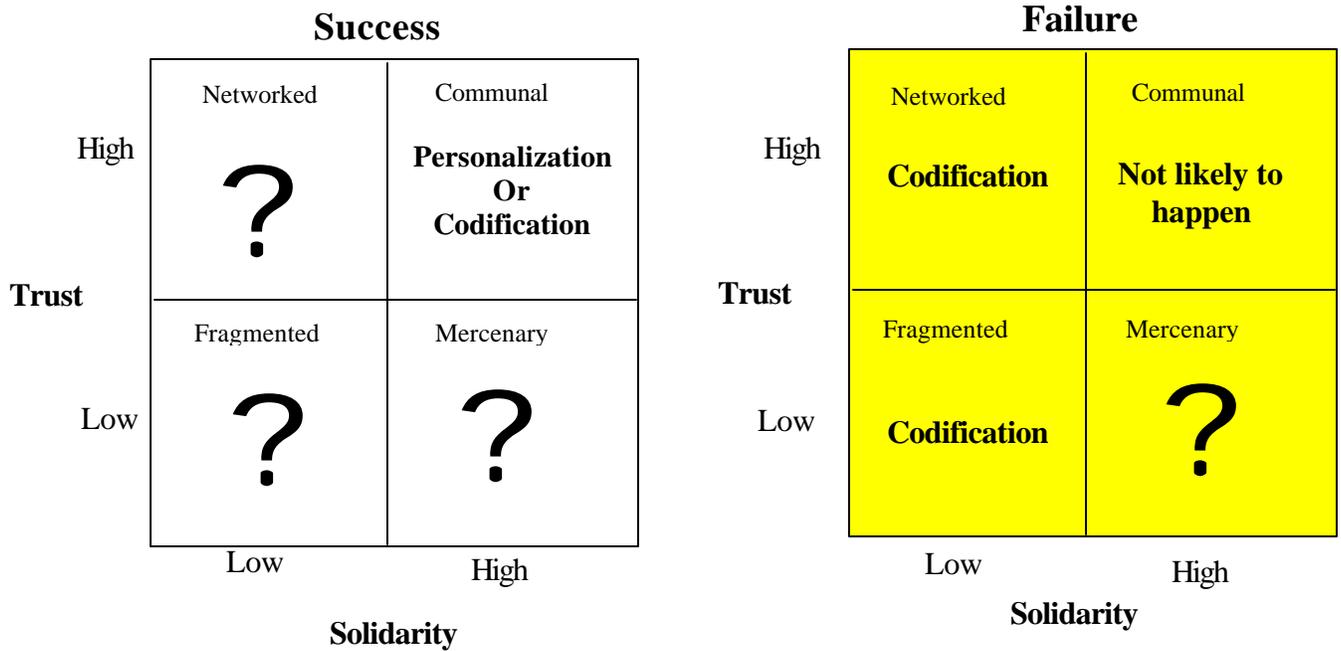


Figure VI-2: Representation of the findings unit wide

We also discovered that communal companies and units succeeding in their KM initiative don't significantly focus on one of the KM approaches (codification vs. personalization), rather they implement both approaches simultaneously.

Based on these findings, we can validate the fact that organizational culture is a non-negligible factor affecting the success of KM initiative organizational wide and unit wide.

VI.2 Findings and Conclusions: The survey instrument

Designing a new survey instrument is always a difficult task. Finding relevant variables and factors that capture the appropriate dimensions (that prove to be valid and reliable over different samples and over time) is quite a challenge. In order to surmount this difficulty, we adopted two previously validated questionnaires to assess the Solidarity as well as the Trust dimensions. We extended these questionnaires to assess the type of KM initiative launched by organizations as well as to assess the level of success of KM initiatives.

A pre-test or pilot study was undertaken to create a more sensitive instrument. Content validity was demonstrated by the review of ten knowledgeable people (academics and professional) highly involved in the field of KM and organizational behavior.

In addition, the use of Cronbach's alpha and other statistical tests were used to determine and support the reliability and validity of our instrument.

Future improvements of this tool might be focused on trying to reduce its length. One way to do so could be to investigate more precisely the correlation discovered between the trust and the solidarity variables, eventually enabling us to get ride of one of these.

VI.3 Significance and contribution of the study

Knowledge Management is relatively new but it has already demonstrated benefits for pioneer organizations that adopted it. Many organizations from different sectors are currently attracted by such initiatives but are worried about making the right decisions concerning the type of technologies and practices to launch and to focus on. Moreover the organizational culture factor has been demonstrated to be one of the main barriers to successful KM implementation. Very few studies have been conducted showing the real impact of organizational culture on the choice and on the success of KM practices.

The present study offers insight into the development of a tested, reliable and valid survey instrument that can be beneficial to companies in order to assess their culture. Based on the result, we provide some guidance as to what type of KM strategy they should focus on in order to increase their chance of success. Though limited in terms of sample size and construction, this study has the potential to assist other researchers in refining and modifying such approaches to maximize knowledge and insight in this field that is still deficient in theory, tools, models and frameworks.

VI.4 Recommendations and limitations

Several recommendations for additional research emerge naturally from the present study. The present study was limited in terms of sample size, the pseudo random sample choice and the industry type. The main types of organizations that participated were large organizations, principally in the consulting and IT - telecommunication field as well as in the Federal Government. They were mainly service-oriented, offering both standardized and customized products/services. More than half of the respondents were managers and

executives from companies located in the US with a concentration in the Washington DC area. This may have led to results that do not necessarily reflect the status of all the business sectors.

Moreover, due to the relatively small size of our sample and the unbalanced partition of the culture they belonged, to we could not statistically test all our hypotheses. Additional data collection will be required in order to increase the validity of our results. Investigations should be made in order to try to reduce the length of the questionnaire while keeping its level of validity and reliability. The high correlation factor between the trust and solidarity variables discovered during this research might reduce the need for using these two variables due to the fact that they measure similar dimensions. Further research must be conducted in this direction or in trying to find what other cultural factors might affect the behaviors related to sharing knowledge. Finally, employing similar survey types and comparing the results would be valuable in gaining even more insight about the impact of culture on KM strategy choice.

VI.5 Conclusion

The purpose of this research was to explore possible relationships between the successful implementation of knowledge management initiatives and specific organizational cultural orientations and attributes. We developed a survey tool that could help companies to select a KM initiative type (codification versus personalization) based on their culture (level of organizational trust and solidarity).

Organizational culture is a complex and sometimes fuzzy and ambiguous dimension.

Knowledge Management is a young discipline that is now largely considered by

organizations but it still lacks theory, tools and frameworks to rely on. When we decided to try to combine and assess culture and KM success using an empirical method, we were not sure that our research hypotheses were going to be verified. It was a risky challenge and when our data analysis revealed some patterns converging on our hypothesis it was quite a relief and a satisfaction!

The results of this research do not offer a magic solution to overcome problems posed by organizational culture barrier in implementing KM initiatives. But, based on a literature review and on an empirical study, patterns in KM implementation alternatives have been discovered that will reveal some that are worthy of more research.

VII. Appendices

<p>Appendix A</p>

December 20, 2000

Re: Dissertation Research on Knowledge Management

Dear Respondent:

Thank you for taking the time out of your busy life to respond to the attached questionnaire. Our test runs support that it can be completed in 20 to 30 minutes. An online version is also available at <http://www.csis.american.edu/kmsurvey>

The purpose of this research is to identify if a relationship exist between organizational culture and the type of Knowledge Management (KM) initiative launched by organizations. The contribution of this study will help companies or companies' units seeking to launch a KM initiative to choose what KM initiative to implement based on their culture in order to maximize their chance of success.

This research is conducted under the supervision of **Dr. Michael Stankosky**, a leading professor in the area of Knowledge Management of the Engineering Management and Systems Engineering department of the George Washington University.

Once again, thank you for your participation. Your answers are of the greatest importance to the success of this study.

With appreciation,

Vincent Ribière
Doctoral candidate in Knowledge Management
(202).885.1488 ribiere@american.edu

Directions:

This survey asks for your opinion about culture within your organization and within your organization unit as well as the type of knowledge management initiatives initiated. Because it asks for your judgment, **there are no right or wrong answers.**

Sometimes people are tempted to answer survey questions in the way they think is expected. Please respond based on **your own judgment**, regardless of what you think others expect or what is socially acceptable. Your responses will be held in strict confidence: we guarantee complete anonymity.

A/ Respondent & Organization profile

1. **Company, Agency and Division :**
2. **Name (Optional):**
3. **Job Title/ Rank:**
4. **Position Level:** Executive Manager/Director Technical Staff Support Staff
 Other, please specify:
5. **Industry type:**
 Manufacturing & Process Industries IT / Telecommunications Consulting
 Financial/Banking/Accounting Healthcare/Pharmaceutical Software Develop.
 Federal Government (including military) Constructions/ Architecture/ Engineering
 Education Other - Please specify:
6. **Main business orientation:** Services **and/or** Products
7. **Does the company offer** Standardized **and/or** Customized **products/service?**
8. **Does the company have a** Innovative **and/or** Mature **product/service?**
9. **Annual Business by Revenues:** (<\$25M) (\$25–250M) (>\$250M)
10. **Total full-time workforce?** <100 people 100 - 999 1,000 -10,000 >10,000
11. **Has your company recently (past 2 years) been part of a Merger or Acquisition?**
 Yes No Don't Know
12. **Has your company recently (past 2 years) gone through downsizing?**
 Yes No Don't Know
13. **Does your enterprise have a KM Program/System?** Yes No Don't Know
14. **Does your enterprise have a Chief Knowledge Officer?** Yes No Don't Know

If you want to receive a copy of the overall survey results once the research has been completed, please mention your email address: _____

B/ Organizational Culture

In the next sections numbers will be used in order to represent your judgment:

Strongly agree - **Agree** - **Neither agree nor disagree** - **Disagree** - **Strongly disagree**
2 . 1 . 0 . -1 . -2

This part of the survey asks for your opinion about culture within your organization and within your organizational "unit".

1. Throughout this survey, as "unit" I will be responding on behalf of:

- One division** (Please specify the number of employees:.....)
- One department** (Please specify the number of employees:.....)
- One branch** (Please specify the number of employees:.....)
- Other** (Please specify as well as number of employees:

2. The group that I am assessing knows its business objectives clearly¹?

Organizational wide: 2 . 1 . 0 . -1 . -2
In my unit: 2 . 1 . 0 . -1 . -2

3. People follow clear guidelines and instructions about work

Organizational wide: 2 . 1 . 0 . -1 . -2
In my unit: 2 . 1 . 0 . -1 . -2

4. Poor performance is dealt with quickly and firmly

Organizational wide: 2 . 1 . 0 . -1 . -2
In my unit: 2 . 1 . 0 . -1 . -2

5. The group really wants to succeed

Organizational wide: 2 . 1 . 0 . -1 . -2
In my unit: 2 . 1 . 0 . -1 . -2

6. When opportunities for competitive advantage arise people move decisively to capitalize on them

Organizational wide: 2 . 1 . 0 . -1 . -2
In my unit: 2 . 1 . 0 . -1 . -2

7. Strategic goals are shared

Organizational wide: 2 . 1 . 0 . -1 . -2
In my unit: 2 . 1 . 0 . -1 . -2

8. Reward and punishment are clear

Organizational wide: 2 . 1 . 0 . -1 . -2
In my unit: 2 . 1 . 0 . -1 . -2

¹ Questions #2 to #12 were adapted from Goffee and Jones' questionnaire (1998) The character of a corporation.

9. The group is determined to beat clearly defined competitors

Organizational wide: 2 · 1 · 0 · -1 · -2

In my unit: 2 · 1 · 0 · -1 · -2

10. Hitting business goals (i.e., targets) is the single most important thing

Organizational wide: 2 · 1 · 0 · -1 · -2

In my unit: 2 · 1 · 0 · -1 · -2

11. Projects that are started are usually completed

Organizational wide: 2 · 1 · 0 · -1 · -2

In my unit: 2 · 1 · 0 · -1 · -2

12. It is clear where one person's job ends and another person's begins

Organizational wide: 2 · 1 · 0 · -1 · -2

In my unit: 2 · 1 · 0 · -1 · -2

13. People "defend/protect" each other's work

Organizational wide: 2 · 1 · 0 · -1 · -2

In my unit: 2 · 1 · 0 · -1 · -2

14. My immediate supervisor keeps me informed about what is going on².

2 · 1 · 0 · -1 · -2

15. My immediate supervisor does not try to control my work activities.

2 · 1 · 0 · -1 · -2

16. I influence my supervisor's decisions as much as my supervisor influences mine.

2 · 1 · 0 · -1 · -2

17. My supervisor clarifies what we can mutually expect of each other.

2 · 1 · 0 · -1 · -2

18. My supervisor lives up to my expectations of him/her.

2 · 1 · 0 · -1 · -2

19. Workers in my basic organizational unit share information about what is going on.

2 · 1 · 0 · -1 · -2

20. My coworkers take the initiative to solve problems sometimes ignoring rules to do so.

2 · 1 · 0 · -1 · -2

21. My coworkers and I influence one another equally.

2 · 1 · 0 · -1 · -2

22. My coworkers openly discuss what they need of one another.

2 · 1 · 0 · -1 · -2

² Questions #14 to #39 are based on the questionnaire developed by Guy De Furia. Interpersonal Trust surveys (1997).

- 23. My coworkers live up to my expectations of them.**
2 · 1 · 0 · -1 · -2
- 24. Upper management keeps everyone in the organization informed about what's happening.**
2 · 1 · 0 · -1 · -2
- 25. Upper management encourages workers to take action even when there are no rules to follow.**
2 · 1 · 0 · -1 · -2
- 26. Workers influence upper management in things such as goals, policies, and decisions.**
2 · 1 · 0 · -1 · -2
- 27. There are policies and/or procedures for workers and upper management to clarify their mutual expectations of one another.**
2 · 1 · 0 · -1 · -2
- 28. Upper management lives up to its responsibilities to the workers.**
2 · 1 · 0 · -1 · -2
- 29. The sharing of information across organizational units is open and easy.**
2 · 1 · 0 · -1 · -2
- 30. Workers can get what they need from other organizational units without being discouraged or hampered by rules or procedures.**
2 · 1 · 0 · -1 · -2
- 31. Mechanisms exist whereby basic organizational units influence one another equally in arriving at decisions that impact the units.**
2 · 1 · 0 · -1 · -2
- 32. Basic organizational units clarify or coordinate what each expects of the other(s).**
2 · 1 · 0 · -1 · -2
- 33. Basic organizational units meet their responsibilities to other basic organizational units.**
2 · 1 · 0 · -1 · -2
- 34. It is a goal of the organization for all employees to be as open in sharing information as possible.**
2 · 1 · 0 · -1 · -2
- 35. The organization encourages workers to make their own decisions.**
2 · 1 · 0 · -1 · -2
- 36. The organization encourages workers to influence managers.**
2 · 1 · 0 · -1 · -2
- 37. The organization encourages workers to participate in the establishment of their goals and performance objectives.**
2 · 1 · 0 · -1 · -2

38. Within the organization, everyone is held responsible for his/her performance and behavior.

2 · 1 · 0 · -1 · -2

39. In your unit people share ideas and information

- with no immediate expectation of return, or eventually, but just not right away
- but reciprocity is negotiated with expectation of return.
- with no expectations of return; they share because it's good for the company
- no, they just try to get help without giving anything in return.

40. Organizational wide people share ideas and information

- with no immediate expectation of return, or eventually, but just not right away
- but reciprocity is negotiated with expectation of return.
- with no expectations of return; they share because it's good for the company
- no, they just try to get help without giving anything in return.

C/ Knowledge Management Initiatives

1. Does your organization have an overall Knowledge Management strategy?

- Yes No Don't know

2. Select the stage of development of the KM initiative in your unit & in your Organization

(Just check one in each column)

	Organization	Your Unit
KM program in place		
Currently setting up such a program		
Examining need for such a program		
No program / not considering one		
Considered and decided against		

3. Thinking about the technology that your organization & unit have in place for managing information, would you describe it as ... ?

(Just check one in each column)

	Organization	Your Unit
Something which has just grown up over time		
A specially designed KM system		
A little bit of both		

4. Technology/Practices: Please indicate which type of technology support tools/processes exist in your organization and in your unit pertaining to KM programs/systems, and your sense of : **MOST (2) used, LEAST (-2) used, Doesn't Exist (DNE), or Don't Know (DK).**

	Level	2	1	0	-1	-2	DNE	DK
Corporate IntraNet - Extranet	Organiz.							
	Unit							
Database Management System (Oracle, Informix, etc)	Organiz.							
	Unit							
Multimedia Repositories	Organiz.							
	Unit							
Messaging or Email	Organiz.							
	Unit							
Decision Support Systems (Executive Information; Expert Systems)	Organiz.							
	Unit							
Data Warehouses - Data Marts	Organiz.							
	Unit							
Web-based Training	Organiz.							
	Unit							
Search engines - Intelligent Agents - Information retrieval systems	Organiz.							
	Unit							
Help-desk applications	Organiz.							
	Unit							
Document Management Systems	Organiz.							
	Unit							
Data Mining tools - Knowledge discovery tools	Organiz.							
	Unit							
Knowledge-mapping tools	Organiz.							
	Unit							
Groupware (as a collaborative tool not as an Email tool, e.g, Lotus Notes)	Organiz.							
	Unit							
Online chat	Organiz.							
	Unit							
Teleconferencing (shared applications, whiteboards)	Organiz.							
	Unit							
Videoconferencing (using audio and/or video)	Organiz.							
	Unit							
Desktop computer conferencing	Organiz.							
	Unit							
Communities of practice (interests in the same topic, field)	Organiz.							
	Unit							
Communities of purpose (common interest in a project/task)	Organiz.							
	Unit							
Mentoring / Tutoring	Organiz.							
	Unit							
Story telling	Organiz.							
	Unit							
Best practices repository	Organiz.							
	Unit							
Corporate Yellow pages - Directory of expertises - Who's who	Organiz.							
	Unit							
Other (Please specify):	Organiz.							
	Unit							

5. When you look for problem-solving information are you more likely to first:

(check only one)

- Contact a coworker
- Look in the corporate repository
- Use outside sources (e.g., Internet)
- Other (please specify):.....

Why? (check all that apply)

- Faster
- More accurate
- Higher trust
- More detailed
- Easier
- Other (please specify):

6. When solving problems, employees rely more on knowledge that is: (use % e.g., 20%, 80%)

% explicit (codified/documentated) % tacit (in people's mind) (total must be =100%)

7. Does your company formally reward knowledge sharing? Yes No Don't Know

If **Yes** how? Compensation Awards Other (specify):

D/ KM initiative success indicators

Strongly agree - Agree - Neither agree nor disagree - Disagree - Strongly disagree
 2 . 1 . 0 . -1 . -2

1. I have noticed a significant growth in the volume of knowledge available since the KM initiative has been launched (number of documents available)³.

Organizational wide: 2 . 1 . 0 . -1 . -2
 In my unit: 2 . 1 . 0 . -1 . -2

2. I have noticed a significant growth in the usage of knowledge available since the KM initiative has been launched (accesses to repositories and number of participants for discussion-oriented projects)

Organizational wide: 2 . 1 . 0 . -1 . -2
 In my unit: 2 . 1 . 0 . -1 . -2

3. I believe that the project would survive without the support of a particular individual or two

Organizational wide: 2 . 1 . 0 . -1 . -2
 In my unit: 2 . 1 . 0 . -1 . -2

4. I believe that resources (e.g., people, money) attached to KM initiatives are going to grow?

Organizational wide: 2 . 1 . 0 . -1 . -2
 In my unit: 2 . 1 . 0 . -1 . -2

³ Questions #1 to #4 are based on Davenport's (et al.) successful KM projects article. Sloan Management review Winter 1998

5. KM Benefits expected and achieved⁴ (circle)

To a very high extent - To a high extent - To some extent - To a little extent - To a very little extent
 2 . 1 . 0 . -1 . -2

Benefits	Level	Expected	Achieved
Better decision making	Organization	Yes / No	2 . 1 . 0 . -1 . -2
	In my unit	Yes / No	2 . 1 . 0 . -1 . -2
Better customer handling	Organization	Yes / No	2 . 1 . 0 . -1 . -2
	In my unit:	Yes / No	2 . 1 . 0 . -1 . -2
Faster response to key business issues	Organization	Yes / No	2 . 1 . 0 . -1 . -2
	In my unit:	Yes / No	2 . 1 . 0 . -1 . -2
Improved employee skills	Organization	Yes / No	2 . 1 . 0 . -1 . -2
	In my unit:	Yes / No	2 . 1 . 0 . -1 . -2
Improved productivity	Organization	Yes / No	2 . 1 . 0 . -1 . -2
	In my unit:	Yes / No	2 . 1 . 0 . -1 . -2
Increased profits	Organization	Yes / No	2 . 1 . 0 . -1 . -2
	In my unit:	Yes / No	2 . 1 . 0 . -1 . -2
Increased innovation	Organization	Yes / No	2 . 1 . 0 . -1 . -2
	In my unit:	Yes / No	2 . 1 . 0 . -1 . -2
Sharing best practice	Organization	Yes / No	2 . 1 . 0 . -1 . -2
	In my unit:	Yes / No	2 . 1 . 0 . -1 . -2
Reduced costs	Organization	Yes / No	2 . 1 . 0 . -1 . -2
	In my unit:	Yes / No	2 . 1 . 0 . -1 . -2
New ways of working	Organization	Yes / No	2 . 1 . 0 . -1 . -2
	In my unit:	Yes / No	2 . 1 . 0 . -1 . -2
Increased market share	Organization	Yes / No	2 . 1 . 0 . -1 . -2
	In my unit:	Yes / No	2 . 1 . 0 . -1 . -2
Create additional business opportunities	Organization	Yes / No	2 . 1 . 0 . -1 . -2
	In my unit:	Yes / No	2 . 1 . 0 . -1 . -2
Improved new product development	Organization	Yes / No	2 . 1 . 0 . -1 . -2
	In my unit:	Yes / No	2 . 1 . 0 . -1 . -2
Staff attraction / retention	Organization	Yes / No	2 . 1 . 0 . -1 . -2
	In my unit:	Yes / No	2 . 1 . 0 . -1 . -2
Increased share price	Organization	Yes / No	2 . 1 . 0 . -1 . -2
	In my unit:	Yes / No	2 . 1 . 0 . -1 . -2
Other:	Organization	Yes / No	2 . 1 . 0 . -1 . -2
	In my unit:	Yes / No	2 . 1 . 0 . -1 . -2
Other:	Organization	Yes / No	2 . 1 . 0 . -1 . -2
	In my unit:	Yes / No	2 . 1 . 0 . -1 . -2

⁴ Question based on the KPMG KM Research Report 2000

6. If some benefits failed to materialize, what do you think the main causes are?
(Check all that apply)

- Lack of time
- System too complicated
- Lack of trust
- Users could not see personal benefits
- Lack of user uptake due to insufficient communication
- Every day use did not integrate into normal working practice
- Organizational culture not appropriate
- Other (please specify)
- Other (please specify)
- Lack of solidarity
- Lack of training
- Technical problems
- Senior management was not behind it

7. Overall how would you describe your KM initiative

- Organizational wide: Very successful Successful Neither Successful nor unsuccessful
 Unsuccessful Failure
- In my unit: Very successful Successful Neither Successful nor unsuccessful
 Unsuccessful Failure

Thank you very much for your time and effort

Feel free to add any comments

Please Fax to Vincent Ribière
Fax: 202.885.1479
Phone: 202.885.1488 ribiere@american.edu

or Mail to: Vincent Ribière
5401 Westbard Av, Apt #306
Bethesda, MD 20816

Appendix B

Company ID	Score Solidarity Organization	Score Trust Organization
1	31	48
5	28	34
8	49	54
9	53	66
10	49	65
11	29	39
12	31	44
14	22	39
15	37	39
16	28	48
17	58	73
18	44	42
19	43	48
20	43	47
24	40	36
25	50	57
26	43	35
27	44	58
29	37	46
30	36	48
31	48	54
33	32	50
34	49	57
40	44	52
41	55	73
42	32	42
43	43	62
46	38	49
49	43	55
51	53	73
53	45	53
58	46	61
62	47	45
69	56	63
70	54	64
72	48	63
73	42	66
74	39	44
75	49	68
77	40	46
83	53	57
85	40	47
87	51	61
88	42	62
89	20	37
91	41	47
94	48	62

Culture scores obtained by 47 companies for their **organization** wide KM initiative

Company ID	Score Solidarity Unit	Score Trust Unit
1	33	37
2	51	41
9	52	41
10	48	44
12	33	35
13	36	40
14	44	31
16	34	29
17	58	44
19	47	49
20	43	31
24	40	32
25	47	31
26	52	48
27	52	37
29	33	21
30	51	40
31	46	37
34	53	41
42	33	32
43	43	41
44	33	42
45	36	32
46	51	40
49	44	40
51	54	49
53	45	35
58	48	40
62	46	40
63	28	37
65	40	41
66	54	42
69	54	40
70	56	42
71	48	38
73	48	48
74	46	34
79	40	37
80	54	49
83	55	44
84	35	31
87	51	44
88	42	46
89	55	47
91	42	36
94	51	43

Culture scores obtained by 46 companies for their **unit** wide KM initiative

Company ID	Culture Organization	Codification focus	Success score
27	Communal	58.89%	0.50
87	Communal	53.85%	0.59
91	Communal	56.25%	0.64
29	Communal	75.86%	0.53
49	Communal	57.33%	0.60
70	Communal	49.48%	1.00
72	Communal	44.12%	0.53
77	Communal	48.81%	0.25
83	Communal	54.12%	0.62
88	Communal	52.56%	0.50
8	Communal	53.85%	0.36
9	Communal	76.19%	0.56
17	Communal	52.38%	0.69
40	Communal	38.89%	0.52
41	Communal	57.95%	0.84
43	Communal	50.00%	0.61
46	Communal	53.97%	0.46
51	Communal	51.02%	0.79
53	Communal	58.82%	0.75
58	Communal	46.51%	0.29
73	Communal	44.62%	0.59
75	Communal	58.06%	0.92
85	Communal	40.74%	0.56
94	Communal	54.93%	0.69
31	Communal	55.42%	0.25
34	Communal	57.32%	0.81
69	Communal	41.07%	0.76
10	Communal	54.88%	0.72
62	Communal	35.94%	0.50
20	Communal	54.95%	0.64
19	Communal	47.22%	0.64
30	Communal	50.51%	0.55
25	Communal	58.93%	0.68
11	Fragmented	56.82%	0.09
5	Fragmented	54.93%	0.26
12	Fragmented	61.11%	0.27
14	Fragmented	76.36%	0.37
42	Fragmented	52.63%	0.15
89	Fragmented	27.27%	0.59
18	Mercenary	53.49%	0.31
26	Mercenary	52.70%	0.50
15	Mercenary	50.00%	0.56
24	Mercenary	67.92%	0.78
74	Mercenary	55.88%	0.63
16	Networked	57.35%	0.37
33	Networked	53.06%	0.29
1	Networked	54.55%	0.44

Codification focus score and Success score obtained by 47 companies for their **organization** wide KM initiative

Company ID	Culture Unit	Codification focus	Success score
26	Communal	49.37%	0.56
27	Communal	54.22%	0.43
87	Communal	50.00%	0.54
91	Communal	52.04%	0.58
24	Communal	66.67%	0.68
30	Communal	50.51%	0.53
49	Communal	60.00%	0.54
70	Communal	58.42%	0.94
83	Communal	50.00%	0.57
88	Communal	46.43%	0.50
9	Communal	76.19%	0.50
17	Communal	25.00%	0.63
25	Communal	67.65%	0.41
43	Communal	50.00%	0.57
46	Communal	53.97%	0.32
51	Communal	51.02%	0.69
53	Communal	58.82%	0.75
58	Communal	51.55%	0.25
65	Communal	52.00%	0.75
66	Communal	63.33%	0.52
71	Communal	55.91%	0.84
73	Communal	48.68%	0.78
74	Communal	51.40%	0.63
94	Communal	58.95%	0.69
31	Communal	56.82%	0.63
34	Communal	48.81%	0.77
69	Communal	50.00%	0.71
80	Communal	52.63%	0.88
10	Communal	54.88%	0.63
13	Communal	67.65%	0.42
14	Communal	76.36%	0.44
20	Communal	54.95%	0.58
62	Communal	45.61%	0.50
79	Communal	54.55%	0.56
89	Communal	51.79%	0.54
2	Communal	32.14%	0.64
45	Communal	55.81%	0.50
19	Communal	45.45%	0.69
29	Fragmented	75.86%	0.43
16	Fragmented	60.61%	0.34
42	Networked	41.03%	0.27
84	Networked	57.14%	0.51
12	Networked	61.11%	0.27
44	Networked	43.75%	0.64
63	Networked	46.24%	0.27
1	Networked	54.17%	0.29

Codification focus score and Success score obtained by 46 companies for their **unit** wide KM initiative

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