A KNOWLEDGE MANAGEMENT APPROACH FOR SMALL MEDIUM ENTERPRISES (SME)

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ABSTRACT

This paper was written to help identify some contradictions which can be found in the notion of knowledge management. The author suggests that knowledge – that is to say "what we know" – can scarcely be understood and managed even by ourselves, much less by means of sophisticated information and communications (example: groupware and shareware) technologies. This paper examine the relationship between sustainable sales growth and knowledge management activities in small and medium sized enterprises (SMEs). this paper explores whether knowledge management has an influence on corporate success in small- and medium-sized enterprises (SMEs).

Keyword : *Management, Information, Communications, Relationship*

1. Introduction

We are increasingly being bombarded by information about something called "knowledge management", the topic of possibly greatest management fascination in the late 1990's. We are being told that we can 'database' and 'capture' knowledge ... that information, in effect, contains meaning. But does it? And is this an issue worth worrying about? Let's assume for the moment that it is, and explore why.

It is common to confuse data, information, and knowledge (Hay, 2000)**.** People are beginning to tease apart definitions of each. Verna Allee has defined levels of knowing in terms of the first two categories described above: what is known, and how is it used. In each of these realms, she has then characterized the following:

Table 1. Levels of Knowing

What is known?	How is it used?
DATA (Instinctual learning) – the sensory or input level.	**DATA (Feedback)** – registering data without reflection.
INFORMATION (Single feedback loop learning) – data organized into categories	**PROCEDURAL (Efficiency)** – doing something the most efficient way. Conforming to standards or making simple adjustments to modifications. Focus is on developing and following procedures.
KNOWLEDGE (Behavior modification) – the interpretation of information by someone.	**FUNCTIONAL (Effectiveness)** – seeking effective action and resolution of inefficiencies. Evaluating or choosing between alternate paths. Focus is on work design and engineering aspects.

What is known?	How is it used?
MEANING (Communal learning) – perception of concepts, relationships, and trends. From this perspective it is possible to detect relationships between components.	**MANAGING (Productivity)** – using conceptual frameworks to understand what promotes or impedes effectiveness. Effective management and allocation of resources and tasks, using concpetual frameworks to analyze and keep track of multiple variables.
PHILOSOPHY (Inquiring into our own thinking processes) – integrative or systemic understanding of dynamic relationships and non-linear processes, discerning patterns that connect. Recognizes the imbeddedness and interconnectedness of systems.	**INTEGRATING (Optimization) –** long-term planning and adaptation to a changing environment. This includes long-range forecasting, development of multi-level strategies, and evaluating investments and policies with regard to long-term success.
WISDOM (Generative learning) – learning for the joy of learning, involving creative processes, heuristic and open-ended explorations, and profound self-questioning.	**RENEWING (Integrity) –** Defining or reconnecting with values, vision, and mission. Understanding purpose.
UNION (Synergistic) – integration of direct experience and appreciation of oneness or deep connection with the greater cosmos. Requires processes that connect purpose to the health and well-being of the larger community and the environment.	**UNION (Sustainability)** – Commitment to the greater good of society, the environment, and the planet.

Knowledge management (KM) has been evolving as one of the prominent management concepts in recent years. Business and multilateral organizations are developing its processes, tools and techniques. It was born of the need to achieve better productivity and effectiveness from the intangible assets or intellectual capital of the organizations. Managing knowledge is not a new idea to an organization or a government. But the concept of KM as it is evolving focuses on the reinforcement of the established tools from the perspective of improving the management of knowledge resources (creating, storing, sharing, and transferring) within an organization and outside world. Efficient and effective management of knowledge is critical to secure benefits from the knowledge resources (data, information and knowledge) developed and obtained over a period of time.

2. Information, Knowledge And Knowledge Management

Karl-Erik Sveiby in his recent book *The New Organisational Wealth* has this to say about information :

... we should turn our concept of information on its head and acknowledge the following radical notion: information is meaningless and of low value. Currently, however, governments and many businesses alike act as if information is meaningful and has a

high value. ... Yet the value does not lie in the information stored but in the knowledge created [from it].

Information, it turns out, is simply the vehicle by which we attempt to provoke – or evoke – a human response. Information on its own is quite static and lifeless. It simply exists – on multimedia computer screens, in text books, magazines, movies, TV, CDs, reports, letters, emails, faxes, memos and so on – all waiting to be interpreted, all waiting to have meaning attached – *by people*. As Hugh Mackay explains in his book *The Good Listener*, although information certainly *stands for meaning*, it is never *meaning* itself. Meaning is a mental thing and is only ever tacit, that is to say, 'in us'. Identical information almost invariably provokes (or evokes) different meanings in each of us. We shouldn't be surprised by this. Rarely do two people (even identical twins) attach the same meaning to experiences – even when the experiences appear on the surface to be identical – like reading the same newspaper article, watching the same movie, attending the same political rally or participating in the same meeting. Identical *information* always provokes different meanings in us because our interests, motivation, beliefs, attitudes, feelings, sense of relevance etc are always personal and changing – almost minute by minute.

The following chart suggests how information and knowledge are distinguished:

Information	**Knowledge**
Static	Dynamic
Independent of the individual	Dependent on individuals
Explicit	Tacit
Digital	Analogue
Easy to Duplicate	Must be re-created
Easy to broadcast	Face-to-face mainly
No intrinsic meaning	Meaning has to be personally assigned

Knowledge is information of which a person, organization or other entity is aware. Knowledge is gained either by experience, learning and perception or through association and reasoning. The term knowledge is also used to mean the confident understanding of a subject, potentially with the ability to use it for a specific purpose.

Knowledge is basic to human being. We all possess some knowledge. Being a subject of everyone's interest, knowledge is susceptible to multiple interpretations. The following definitions might help to gain the perspectives of knowledge:

1. Awareness, consciousness or familiarity gained by experience or learning.
2. Information and skills acquired through experience and education.
3. Knowledge is understanding the why, what, how, who, when, and relative to taking some action. Knowledge is the product of organization and reasoning applied to raw data.

4. Knowledge is a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knowers. In organizations, it often becomes embedded not only in documents and repositories but also an organizational routines, processes, practices and norms.
5. Knowledge is intrinsically a human characteristics manifested in the thinking, learning, artistic, behavioral, and problem solving capabilities of human beings acting in a social context.

The function of knowledge is to make a sense of things. Knowledge is high-value form of information that is ready to apply to making decisions and taking actions. It includes information, ideas, experience, insights and awareness.

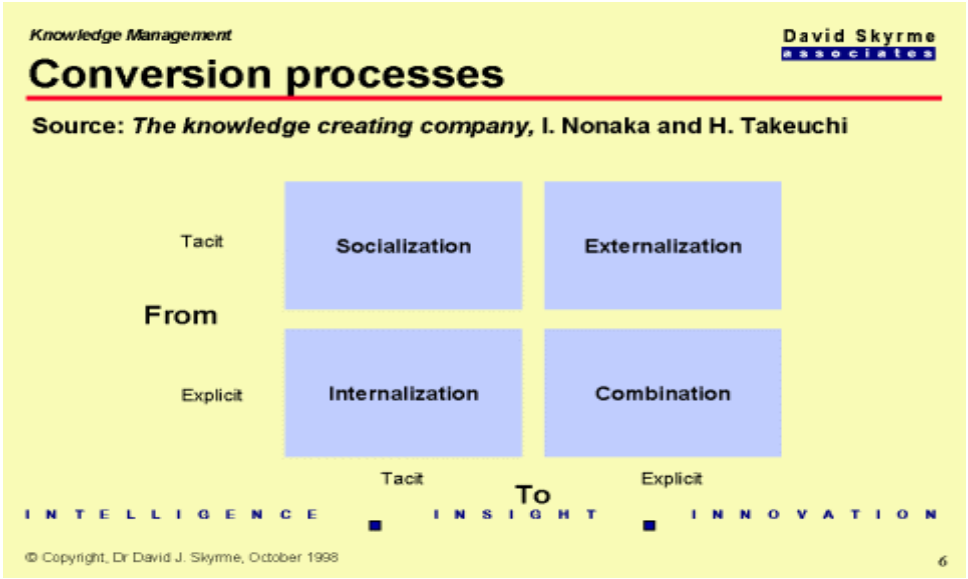
3. Two Kinds of Knowledge

There are two kinds of knowledge. One is explicit knowledge, which can be expressed in words and numbers and shared in the form of data, scientific formulae, product specifications, manuals, universal principles, and so forth. This kind of knowledge can be readily transmitted across individuals formally and systematically. This has been the dominant form of knowledge in the West. The Japanese, however, see this form as just the tip of the iceberg. They view knowledge as being primarily tacit, something not easily visible and expressible.

Tacit knowledge is highly personal and hard to formalize, making it difficult to communicate or share with others. Subjective insights, intuitions and hunches fall into this category of knowledge. Furthermore, tacit knowledge is deeply rooted in an individual's action and experience, as well as in the ideals, values or emotions he or she embraces. To be precise, there are two dimensions to tacit knowledge. The first is the "technical" dimension, which encompasses the kind of informal and hard-to-pin-down skills or crafts often captured in the term "know-how". Master craftsmen or three-star chefs, for example, develop a wealth of expertise at their fingertips, after years of experience. But they often have difficulty articulating the technical or scientific principles behind what they know. Highly subjective and personal insights**,** intuitions, hunches and inspirations derived from bodily experience fall into this dimension.

Tacit knowledge also contains an important cognitive" dimension. It consists of beliefs, perceptions, ideals, values, emotions and mental models so ingrained in us that we take them for granted. Though they cannot be articulated very easily, this dimension of tacit knowledge shapes the way we perceive the world around us.

The difference in the philosophical tradition of the West and Japan sheds light on why Western managers tend to emphasize the importance of explicit knowledge whereas Japanese managers put more emphasis on tacit knowledge. Western philosophy has a tradition of separating "the subject who knows" from "the object that is known", epitomized in the work of the French rationalist Descartes. He proposed a concept that is called after him, the Cartesian split, which is the separation between the knower and the known, mind and body, subject and object.



Picture 1. Conversion Processes by Dr. David J. Skyrme

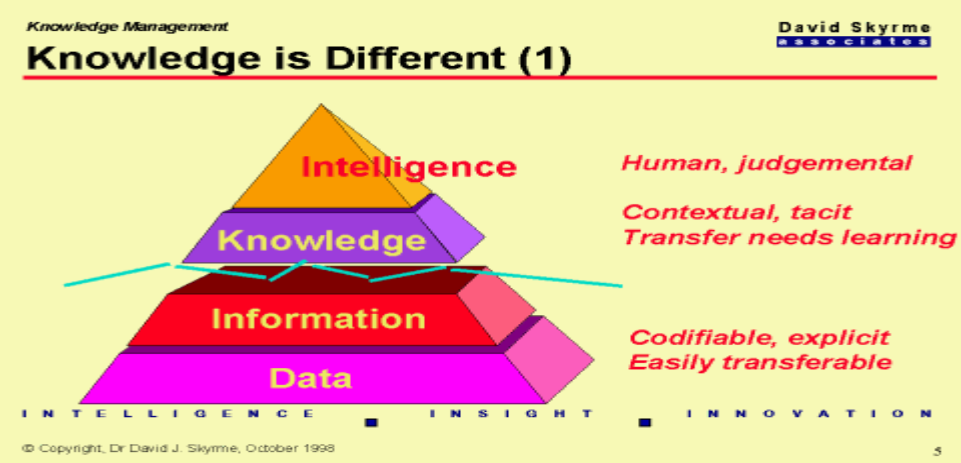
Descartes argued that the ultimate truth can be deduced only from the real existence of a "thinking self", which was made famous by his phrase, "I think, therefore I am." He assumed that the "thinking self" is independent of body or matter, because while a body or matter does have an extension we can see and touch but doesn't think, a mind has no extension but thinks. Thus, according to the Cartesian dualism, true knowledge can be obtained only by the mind, not the body.

In contrast, the Japanese intellectual tradition placed a strong emphasis on the importance of the "whole personality", which provided a basis for valuing personal and physical experience over indirect, intellectual abstraction. This tradition of emphasizing bodily experience has contributed to the development of a methodology in Zen Buddhism dubbed "the oneness of body and mind" by Eisai, one of the founders of Zen Buddhism in medieval Japan.

Zen profoundly affected samurai education, which sought to develop wisdom through physical training. In traditional samurai education, knowledge was acquired when it was integrated into one's "personal character". Samurai education placed a great emphasis on building up character and attached little importance to prudence, intelligence and metaphysics. Being a "man of action" was considered more important than mastering philosophy and literature, although these subjects also constituted a major part of samurai education.

The Japanese have long emphasized the importance of bodily experience. A child learns to eat, walk and talk through trial and error. He or she learns with the body, not only with the mind. Similarly, a student of traditional Japanese art - for example, calligraphy, tea ceremony, flower arrangement or Japanese dancing - learns by imitating the moves of the master. A master becomes a master when the body and mind become one while stroking the brush (calligraphy) or pouring water into the kettle (tea ceremony). A sumo wrestler becomes a grand champion when he achieves shingi-ittai, or when the mind (shin) and technique (gi) become one (ittai).

There is a long philosophical tradition in the West of valuing precise, conceptual knowledge and systematic sciences, which can be traced back to Descartes. In contrast, the Japanese intellectual tradition values the embodiment of direct, personal experience. It is these distinct traditions that account for the difference in the importance attached to explicit and tacit knowledge.



Picture 2. Knowledge is Different by Dr. David J. Skyrme

Knowledge Management (KM) by Wikipedia, "the free encyclopedia", refers to a range of practices and techniques used by organizations to identify, represent and distribute knowledge, know-how, expertise, intellectual capital and other forms of knowledge for leverage, reuse and transfer of knowledge and learning across the organization. Knowledge Management programs are typically claimed to be tied to specific organizational objectives and are intended to lead to the achievement of specific targeted results such as improved performance, competitive advantage, or higher levels of innovation.

Good reasons to pay attention on Knowledge Management are as follows:

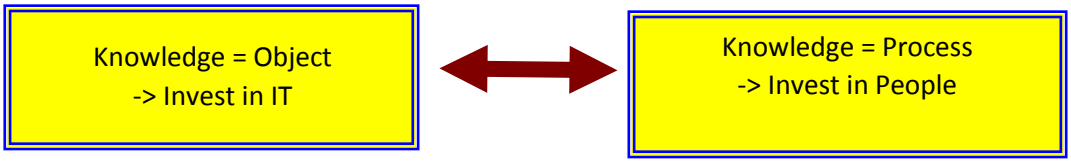
- Technological breakthrough has made the world a global village. The concepts of liberalization and globalization and the adoption of the open market policies have promoted competition. Adopting and promoting measures that support in making organization competitive is the only way of survival. Knowledge is one of the main bases of competitiveness. The traditional factors of production (capital, markets and raw materials) remain important but increasingly secondary to knowledge in establishing competitiveness in the new global market place. Economists, development workers and business managers are seeing the birth a new global economy, where knowledge is outstripping material resources and capital as a source of wealth. Knowledge economy is a recently coined term that refers to the stage of economic growth in which knowledge, as opposed to land, labor, and capital, is the key factor of production.
- Every member of organization irrespective of position is required to make some decisions. Many decisions require historical and contextual information. Decision

makers always look for information that helps them in making right decisions. A well functioning KM system supports in making useful information available for informed decision making.

- Institutions spend substantial resources in developing policies, strategies and making decisions of strategic importance. Some decisions may be implemented at various stages and by multiple units independently or in collaboration. Managers implementing decisions require credible data and information on the context and basis of strategies and decisions for planning, programming, budgeting, implementation, monitoring and evaluation purposes.
- An effective KM system contributes in: (a) improving the level of performance by ensuring continuity and consistency in the ways of doing things; (b) promoting transparency in decision making; and (c) saving resources in making decisions by retaining critical information; and (d) managing operations smoothly by bridging the information gap between the departing and incoming member of the organization.
- Organizations have to continue operations even people change. Systematic process of knowledge transfer helps new staff members to learn about the work procedures, resources and environment which contributes in enhance professional skill and adopting them in an efficient and effective manner.
- KM protects intellectual capital from deterioration, augments intelligence and provides increased flexibility. Knowledge is applied to problem solving and learning, forming judgments and opinions; decision making, forecasting and strategic planning; generating feasible options for actions to achieve desired results.
- KM helps networking to enable people to access knowledge resources developed by other regions and countries. This also helps learning what worked well and what not. International development institutions such as the UNDP, the World Bank (WB) and the Asian Development Bank (ADB) consider that such networking will be beneficial to its staff and also to member countries. Highlighting three dimensions of KM, Vice-President of the ADB says ‘to understand KM, it’s important to understand its three dimensions. One is to manage within ADB efficiently. For instance, if somebody is designing a project in Pakistan, that person should be able to look at similar project in Indonesia and benefit from its experience. The second dimension is to learn from DMCs. The third dimension is sharing knowledge among countries with ADB as a regional bank well positioned to be a broker.

3.1. Is Knowledge An Object Or A Process?

The other dynamic concerns the understanding of what Knowledge is. Is Knowledge an object or a Process? The question is generally placed in the “too hard-basket” so the existing implicit paradigm that Knowledge is some kind of advanced Information is allowed to prevail. However, the question must not be avoided.



If you as a manager believe that knowledge is more or less the same as information you will also tend to believe that by investing in Information Technology you will have "implemented Knowledge Management". It is an easy way out. Unfortunately it is also an easy way to lose money. The reluctance to deal with this issue has caused wastage in the order of billions of dollars world-wide. Ernst & Young for instance, the first of the Big Five to make heavy KM-related investments, readily admit that their initial ~$100 million investments in IT systems were wasted.

If you, on the other hand, are convinced that Knowledge is a Process (i.e. a human faculty) and that the key to success in Knowledge Management lies in People you find yourself in a dilemma. Where do you start?

According to Karl-Erik Sveiby to answer the question about Knowledge by defining it as a"capacity-to act".

Knowledge = A Capacity to Act

Knowledge is a Process. It is dynamic, personal and distinctly different from data (discrete, unstructured symbols) and information (a medium for explicit communication). Since the dynamic properties of knowledge are in focus, the notion Individual Competence can be used as a fair synonym.

The definition is too important for managers to be dismissed; What's the point in having people with lots of knowledge, but who are unable to do anything with it? What is the point in filling computers with information if the value is in the people?

If we accept that Knowledge is a human faculty, the purpose for Knowledge Management concerns how the organization best can nurture, leverage and motivate people to improve and share their Capacity to Act. Knowledge Management becomes a strategic issue for the whole organization. We can call it a Knowledge-based Strategy.

3.2. Implications Of Knowledge Management To Companies

New to the equation is the idea that we can *manage* knowledge itself. This entails "monitoring and improving knowledge by measuring and modifying the knowledge processes and their environment."

So how do you manage a knowledge-based company? Which is to say, how do you manage the knowledge of any company? First, you get rid of the organization chart. In the past your job was defined (and constrained by) who was above you and who was below you in the organizational hierarchy. Now it is defined by who you work with – wherever in the company (and in the world) those people are.

The "boss" is now irrelevant. In the old days, the boss told you what to do and instituted controls to make sure that you did that. Now, the boss may not even really understand what you do. His job is to make sure that you have what you need in order to do what you are to do. He supplies resources and then gets out of the way.

Knowledge is created "through the reconstruction of older concepts as well as the invention of new ones. Contrary to popular belief, knowledge is not discovered like diamonds or oil. It is constructed through concepts that we already have through

observation of objects and events. And it only becomes knowledge when a person, group, or society validates the concept."

Knowledge processes are those intended to (1) produce knowledge, (2) acquire knowledge, and (3) transmit knowledge. Knowledge processes support other business processes by providing knowledge needed by agents to perform acts. Knowledge management attempts to bring together technology-based repositories of codified information (the "supply-side" view) and knowledge-enabling environments, or *learning organizations* (the "demand-side" view). Specifically, the old practice of handing out standard print-out reports is an example of supply side information processing; a data warehouse that allows flexible queries on a large body of corporate knowledge is an example of demand side processing.

Good knowledge management means influencing knowledge processes within an organization so that goal-directed learning, innovation, and adaptive evolution can occur.

3.3. Accounting doesn't cut it

Companies are ultimately evaluated in financial terms. The double entry accounting system we use to account for a company's assets and liabilities was invented in 1494 by Luca Pacioli, in a world where everyone was either a farmer or shopkeeper. Aside from the addition of specialized reports such as balance sheets, income statements, and cost accounting, the scheme hasn't changed in 500 years.

The problem with it is that it only recognizes tangible assets – assets from the farming and later the industrial revolution days. It has no way to recognize a company's intellectual assets. "The components of cost in a product today are largely R&D, intellectual assets, and services. The old accounting system, which tells us the cost of material and labor, isn't applicable."

The effect of this is that companies are often sold for many times their book value – which is to say, for many times their physical assets – based on the perceived value of their intangible assets. On the books, this amount is listed as "good will", but somehow that isn't really an adequate representation.

For example, in 1998, Berkshire Hathaway's net worth was $57.4 billion, the largest of any American corporation. Berkshire Hathaway's market value, however, was only one third that of knowledge companies Microsoft and General Electric.

3.4. Kinds of capital

If the physical capital on the balance sheet isn't important any more, what is? Thomas Stephens lists three kinds of "intellectual capital":

- *Human capital* **–** the value of the knowledge held by a company's employees.
- *Structural capital* – the physical means by which knowledge and experience can be shared.
- *Customer capital* **–** the value of the company's franchise and its ongoing relationships with its customers (and vendors).

3.5. Human Capital

A company always has much more knowledge and expertise than it realizes. Many companies are very poor at realizing and exploiting this. Traditional corporate organizations have often prevented companies from gaining full benefit from employees'

knowledge. In the new world, this must change. During the 19th century, the writings of Karl Marx and Charles Dickens gained currency because they described the fundamental problems of having people work as appendages to machinery. People didn't own the equipment they used. They were interchangeable. The jobs were narrow and boring. Unfortunately, because of the nature of the work to be done, this was the most economically attractive alternative, and it continued well into the twentieth century.

In the last fifty years or so, the value of the knowledge component of products has become recognized, and factory workers have become knowledge workers. Suddenly the tables have turned. Now the worker chooses what he works on and how he goes about it. Because the company is dependent upon his knowledge, it must permit this to happen. It is in the nature of knowledge that it is communal, so people are no longer working on isolated tasks. The working environment is becoming clusters of people who share an area of interest or an objective. Their motivation is in the work itself, not the benefits bestowed by the corporation.

Thomas Stewart describes the opinion of Frank Walker, president of GTW Corp, that there will ultimately be only four types of career:

- The top level sets strategy: It is the land of presidents and CEOs and executive VPs.
- Resource-providers develop and supply talent, money, and other resources; they are the CFOs and CIOs, human resources managers, temporary services firms, or heads of traditional functional departments like engineering and marketing.
- Project managers buy or lease resources from resource-providers – negotiating a budget and getting people assigned to the project – and put them to work.
- Talent: chemists, finance guys, salespeople, bakers, candlestick makers (and presumably the odd system developer or two).

Managing in this environment is not easy – especially for people who only know the old capitalist approach.

3.6. Structural Capital

This is what we information technologists can deliver. This includes everything from the internet and Lotus notes, for sharing ideas and thoughts on various subjects, to data warehouses, which publish the operational data from the company. Companies, like Wal-Mart, that are successful in building their structural capital are very successful in the marketplace.

So what does all this mean to those of us that build systems? Knowledge management can be divided into two topics: Natural knowledge management and artificial knowledge management. Natural knowledge management is concerned with the way people learn and communicate with each other. It is, for the most part, not concerned with technology. Artificial knowledge management is all about information processing using technological tools. As we address artificial knowledge management, we must keep in mind three things:

We must understand the role of systems, systems don't create knowledge; they manipulate data and turn them into information. System design will make it easier or harder for users to take the next step and turn information into knowledge. The decision

to build particular systems should be based on the meaning, philosophical and wisdom levels of understanding.

We must design systems to support knowledge management (filter variety), the job is not to push out more data. The job is to allow a user to naturally retrieve the right data. This requires skill in designing data and the user interface. This is the fundamental criterion we must apply in designing our data marts: are they presenting the right amount of the right data for the user to make decisions? (Does the variety of the presentation match the variety of the user?)

We must expand the domain of our systems to include "fuzzier" data. this includes not only compiling data in databases about such things as patents and trademarks, but also making available better communications tools, so that people can work together on projects, even if they are not physically in the same place. This is particularly true of research kinds of projects where the process is one of pure intellectual exploration. Also important is the need to capture the results of knowledge creation in meaningful, accessible ways. Electronic mail and products such as Lotus Notes have taken us a long way in this direction.

3.7. Customer Capital

In the days of smoke-stack capitalism, the economy consisted of factories producing thousands of copies of the same thing. Marketing consisted of persuading lots of people that that thing was exactly what they wanted. The customer was at the mercy of the producer.

Now, the balance of power is devolving onto the customer. Customers expect tailor-made products. (Land's End just published an ad for swimsuits that are designed precisely for your shape.) This means that the company's relationship to the customer – its ability to clearly understand what the customer wants – is critical. Companies that have established such relationships are worth a great deal more than companies which have not. But these relationships show up nowhere on the books.

4. Management Initiatives Round The Globe

There are 40 examples Knowledge Management Initiatives taken by companies and practitioners world wide, which reveal how companies create value from their Intangible Assets. The initiatives are summarized under three headings for Intangible Assets, the same that are used in the Intangible Assets Monitor: the External structure, the Internal Structure, and the Competence of the People.

4.1. External Structure Initiatives

1. Gain Information and Knowledge from Customers
   a. Benetton, Italy. Produces "masscustomised" apparel to fit latest trends in colours and designs. Daily sales data from their own boutiques are integrated with CAD and CIM.
   b. General Electric's Answer centre USA: GE has since 1982 collected all customer complaints in a database, that supports telephone operators in answering customer calls. GE has programmed 1,5 million potential problems and their solutions into its system.

c. National Bicycle Industrial Company, Japan. Produces "mass customized" bikes to fit customers exact height, weight and colour preferences in a day. Is achieved through computer aided design and computer integrated manufacturing integrated with customer database.
d. Netscape USA. Very close links via Internet to opinion leaders among customers, who are encouraged to report problems enable it to create new generations of software at very fast pace.
e. Ritz Carlton. All staff are required to fill in cards with information from every personal encounter with a guest. These data plus all guest requirements are stored and printed out to all staff when the guest arrives again, so that each guest receives a personal treatment.

Table 2. Knowledge Management Initiatives

External Structure Initiatives	**Internal Structure Initiatives**	**Competence Initiatives**
Gain Knowledge from Customers	Build Knowledge Sharing Culture	Create Careers based on Knowledge Management
Offer Customers Additional Knowledge	Create New Revenues from Existing Knowledge	Create Micro Environments for Tacit Knowledge Transfer
	Capture Individuals' Tacit Knowledge, store it, spread it and Re-use it	Learn from Simulations and Pilot Installations
	Measure Knowledge Creating Processes and Intangible Assets	
Companies Benetton, General Electric, National Bicycle, Netscape, Ritz Carlton, Agro Corp, Frito-Lay, Dow Chemical, Outokumppu, Skandia Switzerland, Steelcase	**Companies** 3M, Analog Devices, Boeing, Buckman Labs, Chaparral Steel, Ford Motor Co, Hewlett-Packard, Oticon, WM-data, McKinsey, Bain & Co, Chevron, British Petroleum, PLS-Consult, Skandia AFS, Telia, Celemi, Skandia, WM-data,	**Companies** Buckman Labs, IBM, Pfizer, WM-data, Affaersvaerlden, Hewlett-Packard, Honda, PLS-Consult, Xerox, National Technological University, Matsushita,IKEA

2. Offer Customers Additional Knowledge

a. Agro Corp USA. Sells fertilisers and seed. Data on farmers« soils are combined with weather forecasts and information on crops. Analyses are fed back to the farmer via sales reps to help farmer select best combinations of crops.

b. Frito-Lay USA. Sales reps collect daily on the spot data about shelf space utilisation for all brands. Data are computed, combined with market information and re-fed to the sales reps, who use it to give the retailers info on best shelf utilisation.

3. Create New Revenues from Existing Knowledge
   a. Dow Chemical USA. Has put all its 25.000 patents into a database, which is used by all divisions to explore how existing patents can gain more revenues. The experience from this application is now being transferred into other intellectual assets, like brands.
   b. Outokumppu Finland. Smelter of copper and other metals. Knowledge on how to build smelting plants is used to construct whole plants including education of personnel and managers to customers all over the world. This business is now more profitable than the original smelting business.
   c. Skandia Switzerland. Back office system developed by Skandia world-wide is sold to Swiss insurance companies.
   d. Steelcase USA. Does basic research into innovation and learning, best learning environments and new interfaces (3D and virtual tools). Steelcase sells its knowledge in this area to other companies.

4.2. Internal Structure Intitiatives

1. Build Knowledge Sharing Culture

a. 3M, USA. With 60, 000 products of their own innovation process, this company has an organisation that balances between creativity and conservatism. 3M«s values encourage learning and risk taking, but managers are required to link continuos learning to revenues.
b. Analog Devices, USA. CEO Ray Stata initiated break down of functional barriers and competitive atmosphere and created a collaborative knowledge sharing culture from the top. Encourages "community of inquirers" rather than "community of advocates".
c. Boeing 777 USA. First "paperless" development of aircraft. Included customers in design teams. More than 200 teams with wide range of skills both designed and constructed sub parts, rather than usual organization design team, construction team. Suppliers world-wide used same digital databases as Boeing.
d. Buckman Labs USA. A biotech firm has reorganised itself to optimise knowledge sharing. Has created a Knowledge Transfer Department to co-ordinate efforts. Employees best at Knowledge sharing gain both financial rewards and management positions.
e. Chaparral Steel USA. Mini steel mill that has introduced broad range of initiatives like: Flat hierarchy, broad education, blue collar workers as responsible for customer contacts and rewarded for personal initiatives. Egalitarism and trust building. Chaparral uses 1.5 hrs labour per ton compared to the industry standard1.5 - 3.0 hrs per ton.
f. Ford Motor Co. Old company that has transformed itself by outsourcing and creating virtual networks of vendors using IT.

g. Hewlett-Packard. Famous for its overall culture of collaboration, which encourages knowledge sharing and risk taking on all levels. H-P even supports people who try out things that don't work.
h. Oticon Denmark. Has created a "spaghetti organisation", a chaotic tangle of interrelationships and interactions. Knowledge workers have no fixed job descriptions, but work entirely on project basis.
i. WM-data. No work unit allowed to be larger than 50 employees. This creates sense of "family" and belonging, which in its turn increases trust and knowledge sharing.

2. Capture, store and spread Individuals' Tacit Knowledge

a. McKinsey and Bain & Co. These two management consulting firms have developed "knowledge databases" that contain experiences from every assignment including names of team members and client reactions. Each team must appoint a "historian" to document the work.
b. Chevron. Has created a "best practice" database. It captures experience of drilling conditions and innovative solutions to problems on site in a database for sharing globally with other sites.
c. British Petroleum. Is using KM as a means of drawing together talents from all over the organisation. BP emphasises transfer of tacit knowledge rather than accumulation and transmission of raw data and has installed a communication network comprising video-conferencing, multi-media and email,.
d. Skandia AFS**,** Sweden. Has created a formalised procedure to capture experiences while starting new financial services products has reduced the time from start to profitability from 2 years to 6 months.
3. Measure Knowledge Creating Processes and Intangible Assets
a. Celemi, Sweden. Publishes world´s first Audit of its Intangible Assets in Annual Report 1995.
b. PLS-Consult, Denmark. Categorises customers according to value of knowledge contribution to the firm. Follows up in management information system.
c. Skandia**,** Sweden. Measures processes using non-financial indicators. Publishes the world«s first Annual Report supplement on Intellectual Capital.
d. Telia, Sweden. Sweden's Telecom company publishes since 1990 an annual Statement of Human Resources including a profit & loss account visualising human resource costs and a balance sheet showing investments in human resources.
e. WM-data Sweden. One of Europe´s fastest growing and most profitable IT-companies. A pioneer in linking non-financial indicators to strategy and publishes an extensive report on Intangible Assets in its Annual Report. Considers traditional financial ratios of little use for management.

5. Competence Initiatives

5.1. Create Careers based on Knowledge Management

Buckman Labs**,** USA. Employees best at Knowledge sharing gain both financial rewards and management positions.
IBM, USA and most Japanese large companies. Dual careers. Employees are encouraged to switch between professional and managerial jobs, in order to gain more holistic

knowledge about the company.

Pfizer**,** Switzerland. Has created competence models for recruiting treasury executives that call for knowledge building/sharing in addition to basic financial skills.

WM-data, Sweden. Actively seeks to recruit equal numbers of women and men. Claims that a wider diversity of both gender and cultures improves creativity.

Create Micro Environments for Tacit Knowledge Transfer

Affärsvärlden Sweden. Business journal uses "piggy-backing" and "team-writing" to speed up learning among new journalists. Interviews and larger articles are routinely assigned as team work, rather than one-man shows. This speeds up transfer of the seniors´ tacit skills and networks to the juniors.
Hewlett - Packard, USA and Affärsvärlden Sweden. Build offices as open spaces with no partitions or partitions at eye level. This increases sharing of tacit knowledge and values.
Honda and others. Japanese companies routinely build "redundancy"; people are given information that goes beyond their immediate operational requirements. This facilitates sharing in responsibilities, creative solutions from unexpected sources and acts a self-control mechanism.
PLS-Consult, Denmark. Appoints "mentors" with task to facilitate transfer of tacit skills between members in large projects. Actively seeks large projects, so that junior consultants can be added to the teams for learning.
Xerox USA. Provides convenient places where people can get together routinely. Called the "distributed coffee pot" these environments encourage cross-functional links.

5.2. Support Education with Communication Technology

National Technological University USA and Open University UK. New universities sell formal training as continual learning via satellite to companies like General Electric, Hewlett-Packard, Texas Instruments. Learners interact via Internet and via email with each other and with instructors.

5.3. Learn from Simulations and Pilot Installations

Matsushita, Japan. Launched a company wide policy in 1993 to reduce yearly working time to 1800 hours. The policy´s objective was not to reduce costs but to change the mindset of managers. Many of them were puzzled about how to implement the policy, which was at first communicated as explicit knowledge. Matsushita created a promotion office with the task to facilitate experiments with the policy for one month by working 150 hours. Through such a bodily experience, employees got to know what a 1800 hour year would be like.
IKEA, Sweden. The global furniture retail company uses a customised simulation (not computerised) of what makes the IKEA business successful to induct all new recruits.

5.4. Growth Of Small And Medium Sized Enterprises

Growth is considered as one of the key performance measures in any industry, although there are some opposing opinions (Goold, 1996, Storey 1994). Growth is an important measure for stock market valuation and failure to meet growth expectations

may shatter market capitalization. Growth also tends to be one of the key criteria upon which SMEs have been evaluated. Especially sustainable growth of sales is considered as the most important and reliable success criteria of SMEs (Laurence, 2001; O'Gorman, 2001; Watson et al., 1998), and also as the key to prosperity in the modern society (Charan and Tichy, 2000). Mouritsen (1998) claims that even though "growth and financial value creation may not be the only possible objective for the management of the future, in the contemporary world, this is often the case." (p. 461). Furthermore, maintaining stable growth has proven to be difficult in the long run (Goold, 1999). Therefore, sustainable growth, i.e., the growth on the long run in so-called "mature" businesses is considered as a prominent indicator of success (O'Gorman, 2001). Still, growth is by no means an uncontested success variable; The business goals of many small business owner-managers are determined by personal lifestyle or family factors, not by growth. (Curran, 1986; Stanworth and Curran, 1986).

There are also many other measures of performance; profit, ROA, ROI, increase of customers or increase of employees, etc. There are at least three reasons for focusing on growth as a performance variable in SMEs. The first reason is that growth of sales is several studies have shown that a majority of small business owner-managers think that growth at least to some extent is very important (i.e. Penn et al. 1998) and growth related measures have been found to be more related to the strategic goals of the business than profit related measures (Hudson et al., 2001). According to the small business study by Smallborne et al. (1995), one important characteristic, which distinguished the best performing firms from other firms, was their commitment to growth. Secondly, growth of SMEs has been identified in most western societies as one of the most significant components of economic strategies for new job and wealth creation (Carson et all, 1995; Hodgetts and Kuratko, 1995; Holmlund and Kock, 1998). Finally, growth is probably one of the most reliable indicators in owner-led SMEs, as profit-related indicators are notoriously unreliable. There is no single theory that could adequately explain growth of SMEs, and it is unlikely that such theories will be developed in the near future (Gibb and Davies, 1990). In recent studies, the emphasis has been on learning ability, open culture and leadership as antecedents to company growth (Choueke and Armstrong, 2000; Morrison and Bergin-Seers, 2002; Smith, 1998; Watson et al., 1998; Zhang, 2000; Smallborne et al., 1995; Weinzimmer, 2000).

A central challenge of the growing company is maintaining flexibility and innovativeness while at the same time introducing systematic processes. Overcoming this challenge is one of the factors that characterise successful firms (Hambrick and Crozier, 1985).

Strategic knowledge management might therefore enhance meeting this challenge in the growing company. Therefore, we propose that KM may have positive effects on a company's long-term growth prospects:

Proposition 1: The employment of knowledge management practices and policies in small and medium-sized enterprises has a positive relationship with sustainable growth of those enterprises.

Furthermore, given that there is a relationship between KM and company growth, it is reasonable to expect that the subcategories of KM and management of intangible assets are significant dimensions in explaining differences in companies' growth paths

and effectiveness in practicing KM. In other words, we expect that the companies exhibiting high growth and high KM awareness also score higher on their intangible asset dimensions than do other types of companies. Hence, we propose the following:
Proposition 2: The group of companies exhibiting both high growth and high awareness of KM demonstrate higher command of managing their knowledge assets than do other groups.

6. Research Of Sari Salojarvi – Smes Growth In Finland

The data were collected through a combination of a standardised questionnaire from 108 SMEs located in Finland and semi-structured interviews with 10 of the 108 companies that responded to the questionnaire.

The purpose of the questionnaire was to find out to what extent and how Finnish SMEs have introduced and are utilising tools and processes related to knowledge management and the management of their intellectual capital or intangible assets. The questionnaire included both closed and open questions concerning interest and familiarity with knowledge management, motivation, needs and concrete attempts to launch knowledge management systems, the experienced obstacles and doubts of Intellectual Capital management, and the definitions, ideas and estimations of the firm's most important core competence, intangible assets and success factors of the company.

The questionnaire was pre-tested by 10 companies and improved and finalized based on the feedback. The survey was carried out in October 2002 and was sent to 540 Finnish SMEs with less than 249 employees randomly selected from three different sources: 255 companies from the Teollisuus ja Työnantajat-database (Industry and Employers, the industrial employers' common representative body), 197 from Suomen Yrittäjät (Finnish Entrepreneurs), and the remaining 88 companies were selected from the company lists of Finnish Technology and Innovation centres. The number of companies from each of the three databases reflected the total number of companies in them. After one round of questionnaires, 108 valid answers were received. In addition, 5 respondents replied that they no longer were SMEs due to organic growth or mergers. Hence, the effective response rate was 20.0%. The dropout analysis showed that the only demographic factor that distinguished the respondents from the no-responding group was the degree of internationalization.

The respondent companies were slightly more international ($p < 0.05$). There were no differences in size of personnel, industry, location, or annual sales. The 108 companies that responded to the questionnaire were operating in the following industries and geographical locations (also the figures of the original sample of 540 companies is included): Industry and locational characteristics of the whole sample vs. respondent companies.

Whole sample (N = 540)

Industry	Location
40% manufacturing industry	35% Southern Finland
11% information technology	41% Western Finland
28% services	17% Eastern Finland
7% education and consulting	7% Northern Finland
6% retail stores	
8% other	

Respondents (N = 108)

Industry	Location
37% manufacturing industry	35% Southern Finland
12% information technology	50% Western Finland
25% services	12% Eastern Finland
10% education and consulting	3% Northern Finland
6% retail stores	
10% other	

Picture 3. Whole Sample vs Respondent Companies

The average respondent company had 29 employees, was founded 12 years ago, and was located in a city in Western Finland.

6.1. Variables :

Sustainable growth

Sustainable growth was measured as a function of two variables, annual sales growth and age of the company. We chose a combination of these two variables as it can be argued that in order for growth to be a significant measure of "success", it needs to be sustained over a longer period of time. Growth was measured on a 4-point Likert type scale ranging from 1="no growth in sales" to "4=very rapid sales growth (>25%)". See Appendix 1 for a detailed description of the variable.

6.2. Knowledge Management Awareness – (KMA)

This variable was measured with one question: "Are the concepts of intellectual capital management (ICM) or knowledge management (KM) familiar to you?" and the response alternatives ranged from "1=No; 2=To some extent for me personally; 3=The concepts are familiar to me and have been mentioned in our enterprise; 4=Our enterprise works actively with these issues".

6.3. Intangible Assets Aptitude – (IAA-index)

Knowing about KM as a concept may have no correlation with actual behaviour. Therefore we asked the respondents to do a self-assessment also of management activities. The categorisation follows the MERITUM guidelines of the intangible assets, human capital (HC), organizational capital (OC) and external capital (EC), as described in Appendix 2. The result is three composite variables consisting of 7 items in each of the three categories. The sum of these three constructs is called the IAA-index.

6.4. KM Maturity level

Both IAA-index and KMA-index can be said to show levels of maturity regarding

Knowledge Management. In the course of the analysis we found a very high degree of correlation between them, so for some of the tables, they were combined them into one composite variable, “KM Maturity”. See below Chapter “KM Maturity and Growth – Four Clusters of SMEs”.

6.5. Human capital, Organisational capital, and External capital

The measures of human capital, organisational capital, and external capital follow the MERITUM guidelines of intangible assets (MERITUM, 2002), and each consist of 7 items (see Appendix 2). To test the reliability of the scales concerning these three categories, a reliability analysis was made using the three predetermined IC categories. It gave a KMO measure result 0.74, indicating acceptable simplicity. The Cronbach’s alphas were as follows:
HC á = 0.74; OC á = 0.60; EC á = 0.64, thus being on an acceptable level.

6.6. Degree of R&D

Degree of R&D was measured by asking “How important are innovation and R&D in your business?” and the response alternatives ranged from “1=No role; 2=In minor role; 3=In significant role; 4=Innovation and R&D is the core of our business”.

6.7. Internationalisation level

This variable was measured with the statement “Evaluate the degree of your internationalization” and the response alternatives ranged from “1=No or almost no international contacts; 2=We have international business contacts through our networks but we don’t export our products; 3=Minor part of our business is international (up to 25% of turnover); 4=Significant part of our business is international (25-75% of turnover); 5=All our business is international (more than 75% of turnover)”.

6.8. Customer service personnel

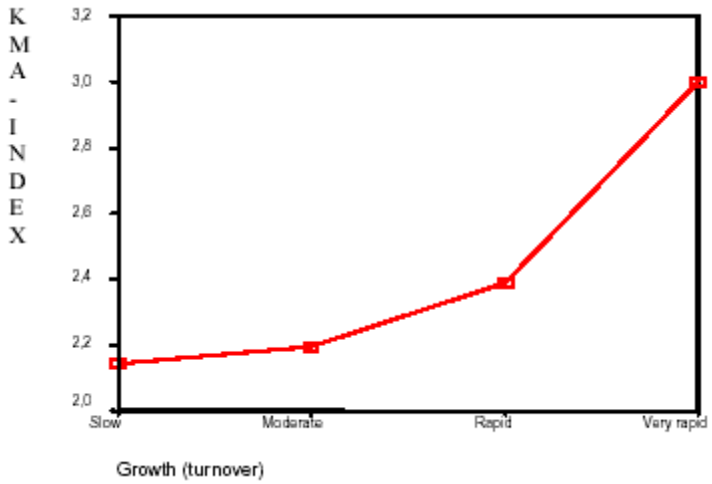
This variable was measured by asking “How many employees in your enterprise work with customers?” and the response alternatives ranged from “1=Less than 5%; 2=5-15%; 3=16-50%; 4=More than 50%”.

6.9. Explorative factor analysis

An explorative factor analysis on the 21 intangible assets items (see appendix 2) was also made. The best fit was found with four factors, which were labelled Collaborative Climate (COL), organizational development (DEV), and service, customer and service orientation (SERV), and risk management (RISK). The KMO measure result was 0.75 (p = 0.000). The details of the factor analysis and variables included in each factor can be found in appendix 3. The fourth factor, risk management, consists only of two variables, IPRs and brands, and therefore, the Cronbach’s alpha is under the acceptable level. After testing several different factor solutions, we found the best model was gained by using all four variables, and therefore, we decided to include all four, taking into account the limitations of the fourth factor.

7. Results Of Salojarvi's Research

We found a high level of awareness about Knowledge Management in this sample of Finnish SMEs. Only 17% of the respondents did not recognize the concept knowledge management at all (KMA value = 1). 53% knew the concept personally (KMA value = 2), 35% of the respondents reported their enterprise somehow to actively discuss (KMA value = 3) or to deal systematically (KMA value = 4) with the concept. Half of those (16%) reported their enterprise to work currently with knowledge management. 11% (N = 12) of the companies reported that they have constructed an own knowledge management system. 35% of the companies were using some other well-known management systems (like TQM, BSC, CRM etc.)



Picture 4. Growth and Knowledge Management Awareness are related

We had included questions concerning different knowledge management processes:
70% of the enterprises had sometimes done customer or employee satisfaction surveys. 15% had used competence mapping. Many respondents, 80%, answered that they conducted employee development discussions, 60% do so annually.

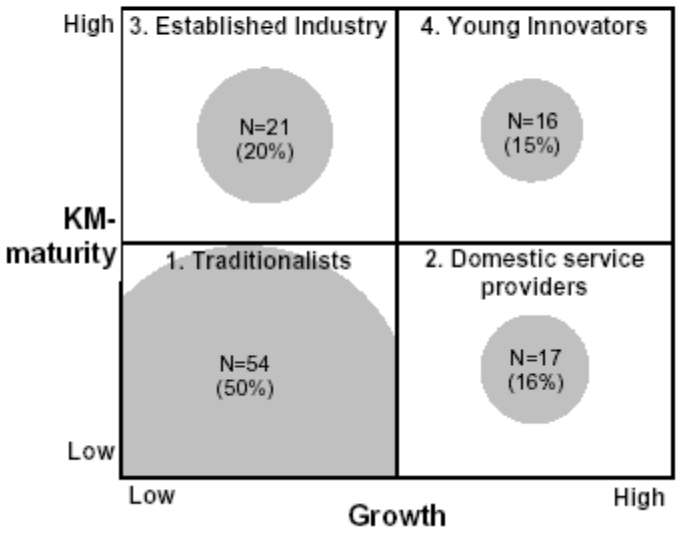
7.1. Annual Sales Growth

The respondents were asked to evaluate their company's sales growth in the past 3 years on a scale from 1 to 4. Option one referred to growth of less than 3% (= slow) per year, which is the average national growth in the past years in Finland. Option two referred to yearly growth of 3-10% (= moderate), option three to growth of 10-20% (= fast) and option four to growth of more than 20% (= very fast) per year. More than a quarter (27%) of the companies reported slow (or non-existing, even negative) growth and 43% moderate growth. 17% had grown fast, and 12% very fast in the past three years. We can see that the very rapidly growing enterprises tend to be significantly more active in knowledge management than the others. Figure 1 illustrates that growth and KMA index are highly correlated. The curve displays an almost exponential relationship.
The conclusion is that growth is clearly correlated with knowledge management awareness.

7.2. Knowledge Management Maturity And Growth – Four Clusters Of Smes

Because of the high degree of correlation between IAA-index and KMA-index they were combined them into one composite variable, "KM-Maturity". Sari Salojarvi had clustered the companies in four different categories with the two dimensions, Growth and KM-Maturity.

Figure 2: Four Clusters of SMEs



Some characteristics of the enterprise clusters are:

Cluster 1: Traditional small businesses, combine relatively low growth and low knowledge management maturity.

- Old and small
- Low development capacity
- Domestic manufacturing or service enterprises with low level international contacts
- Product-based manufacturing business
- Core competencies: Professional knowledge, outsourcing service knowledge and production of special products
- Most important intangible assets: Personnel, technology, flexibility in business
- Most important success factors: Customer orientation and service attitude, knowledge of the business area, competence and commitment of personnel

Cluster 2: Domestic service providers, grow rapidly, but they do not employ a high level of KM-related activities.

- Relatively young and small
- Low development capacity
- Domestic service enterprises
- Core competencies: Professional knowledge, innovative products and process knowledge
- Most important intangible assets: Personnel, technology, and service concept

- Most important success factors: Knowledge of the business area, competence and commitment of personnel, and quality, brand or image of the products

Cluster 3: Established industry, "Established Industry", spend resources on KM activities, but they do not grow.

- Old and middle-sized
- Relatively high development capacity
- Domestic or international, most often manufacturing enterprises
- In most cases customer service based, quite often also product based business idea
- Core competencies: Knowledge of the overall business, professional knowledge, and innovative products
- Most important intangible assets: Personnel, customers and networks
- Most important success factors: Knowledge of the business area, competence and commitment of personnel, systematic planning and management, and customer orientation and service attitude

Cluster 4: Young innovators, rapidly growing companies that are actively involved in knowledge management.

- Young and small or middle-sized
- High development capacity, innovation as key element
- Half are IT, rest manufacturing and service branches
- Mostly located in cities
- In most cases customer service based business idea
- Core competencies: Knowledge of the overall business, knowledge of outsourcing service,
- professional knowledge, and innovative products
- Most important intangible assets: Personnel, customers and networks
- Most important success factors: Knowledge of the entire business area, competence and
- commitment of personnel, and customer orientation and service attitude.

In order to test for the differences statistically, and hence to test for Proposition 2, analyses of variance (ANOVAs) were utilised. The results of these tests are illustrated in Table bellow.

ANOVA-analyses of differences between the four groups of companies

Variable	Group 1	Group 2	Group 3	Group 4	F-test
Age of company					
IAA-index	$3.7^{c,d}$	3.8^{d}	4.0^{a}	$4.1^{a,b}$	3.988**
Degree of R&D	2.4	2.5	2.5	3.1	2.649(*)
Customer service personnel	$3.3^{b,c}$	$3.7^{a,c,d}$	$2.8^{a,b}$	3.2^{b}	3.150*
Internationalisation level	2.5	2.2	2.9	2.6	0.877
Intangible assets					
Human capital	3.8	3.9	4.1	4.1	2.015
Organisational capital	3.4^{d}	3.4^{d}	3.7^{d}	$4.1^{a,b,c}$	6.678***
External capital	3.9^{c}	4.1	4.2^{a}	4.1	3.310*
KM factors					
Collaborative climate	3.6^{d}	3.8	4.0	4.1^{a}	2.821*
Organisational development	$3.6^{c,d}$	3.9^{d}	4.0^{a}	$4.3^{a,b}$	5.471**
Customer orientation	4.5	4.5	4.6	4.6	0.542
Risk management	2.3	2.4	2.9	2.6	2.022

*$p < .05$; **$p < .01$; ***$p < .001$ (*)= p = 0.05

The two clusters scoring high on Knowledge Management Maturity, i.e. clusters 3 and 4, differ from the two
low-scoring clusters as follows:

- Firstly, the role of organizational development and innovation is more important and,
- Secondly, they keep the understanding the overall business as a key element, and,
- Thirdly, they see personnel, customers and networks as the most important assets while the other companies often mention only people and products. They also tend to be on average (not statistically significant) more international and,
- Finally, they have a better collaborative climate than the two low-scoring clusters.

The high scorers in KM-maturity thus represent a much more comprehensive and balanced management of intangibles and a more intentionally development orientation style than the two other clusters. The fast growers, (clusters 2 and 4), are relatively young and are mainly found in non-manufacturing industries. They differ from each other in that “the young innovators” have a more active, holistic, innovative and international strategy, which includes systematic organizational development. The “domestic service providers”, on the other hand, are focused on fulfilling customers’ needs, but they do not do much organizational development. Both strategies show a positive correlation with growth.

The differences between the clusters cannot be explained by demographic factors; all industries, all sizes, and all age groups are represented in all clusters. The explanation seems to be more the chosen strategy – or lack of it – than anything else.

To improve the analysis we made a series of interviews; one case from each cluster. Because the most interesting data can often be found in the untypical cases, we also made four interviews with border-line enterprises and they are presented below.

8. Implementing Knowledge Management In Indonesia

Implementing Knowledge Management in Indonesia is still developed. Particularly in Indonesia large-sized company/ organization, for multinational company, of course they will follow the role and system their headquarter, located in foreign country that already have implemented Knowledge Management. Organization that pure from Indonesia which already implement Knowledge Management such as Bina Nusantara College, Bursa Pengetahuan Kawasan Timur Indonesia (BaKTI), Astra Graphia Indonesia, Microsoft Indonesia, IBM Indonesia, Sampoerna. Astra Group, Indofood Sukses Makmur, Kalbe Farma.

Knowledge Management is a new paradigm for SMEs management and employee in Indonesia . SMEs in Indonesia still have a low level of awareness in implementing Knowledge Management, it is different with other country than begin to try implement it such as Finland. In the other side we think Government can help to make rules and policy for implementing Knowledge Management to small and medium enterprises in Indonesia.

8.1. Implementing Knowledge Management in BINUS

Bina Nusantara University (BINUS) is an IT based university that is growing fast in Indonesia. Now, the university has 25000 students studying in 5 schools and its goal is to have 300000 students in 2005. The oldest school in this university is the computer science and engineering school, which has about 80% from the total number of students in the university. This school becomes the important one in the university environment because its contribution for the country from the number of graduates point of view.

The business process in the university is based on IT. It means that all the processes from the students' acceptance until their graduation use information and communication technology. Internet is used widely in the establishment for accelerating the communication between 25000 students, 1000 lecturers, and 300 employees. Exploitation of this technology allows the university to expand rapidly from 25000 students studying in campus right now to 300000 students in 2005 that will study on campus and distantly.

In 1997, the university received international recognition in the form of ISO-9001 certification in Curriculum Design and Lecture Materials, Education, Teaching, and Research. Upon receiving this recognition, BINUS became the first university in Indonesia to successfully receive ISO-9001 certification. Nevertheless, the management realizes that the most important thing is how to continuously maintain and improve quality. The continuous improvement culture through ISO-9001 is realized to produce a better system of education in the future.

Entering the Third Millennium, BINUS has the vision to become a leading and most innovative university. This university is always a step ahead in the development of science and technology—in particular information technology in Indonesia. And its mission is to prepare a high-educated young generation for developing the country in the future. In achieving its vision and fulfilling its mission, BINUS is determined to do its best for the nation in the area of science and technology--in particular information technology. This is in line with its motto, "National Development through Science and Technology".

BINUS is consistent with its quality cultures, which are continuous improvement, benchmarking, sense of belonging and sense of closure. Continuous improvement is an effort to improve our current process by implementing ISO standard. Benchmarking is used to compare our curriculum to other schools in the same field. Sense of belonging is an effort to stimulate the participation of our staffs in knowledge sharing process. Sense of closure is to control that every started project should be well closed.

BINUS is a leading IT school in Indonesia. The number of students in the establishment increases every year, the business processes become more complex, especially the communication problem internally and externally. The other existing problems are:

- Lost of intellectual capital because of high employee turnover
- High training cost for new employees
- Need up-to-date information for real-time decision making
- Duplication of efforts
- Repetition of mistakes
- Distance and time barriers for the future development

For solving those problems, the top management of BINUS has decided to adopt knowledge management system, two years ago. Figure 2 shows the BINUS K-Net architecture. In the next sub sections we present the detail of the knowledge management system implementation in BINUS.

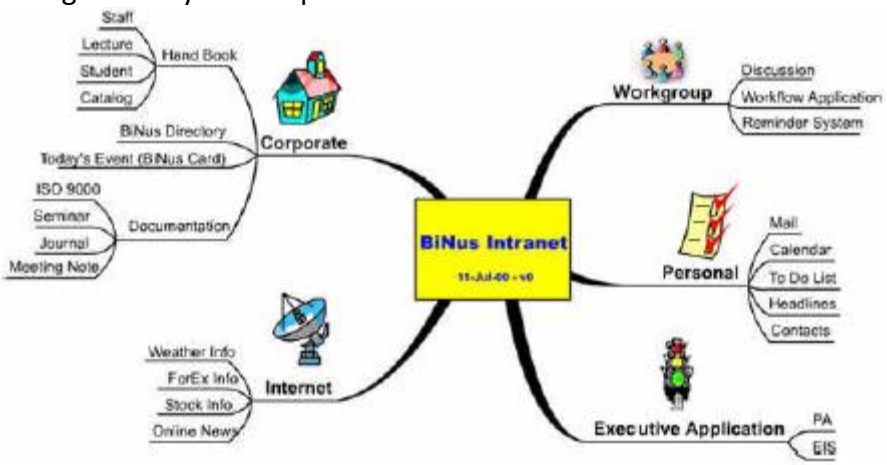


Figure 2 - BINUS Intranet Architecture

BINUS is experienced what David Coleman (1999) said that from many organizations that have implemented groupware, not all of them show high degree of knowledge sharing. This is not due to technological problems, but it is the logical result of a competitive culture instead a collaborative culture a knowledge management system requires.

Changing corporate culture cannot progress well unless top management act as they should, by providing the outmost support to the systems. The development team acknowledged the support and work hard to ensure each system launched to the corporate intranet will properly function and any feedback will be analyzed and properly adapt to the next release of the system.

Management also gives credits to staffs and middle managements for their contribution to the KMS. Proper and proportional awards have always acts as an incentive for the knowledge sharing process. The rector herself acts as the champion in the system implementation; she would refuse to receive any form of documents unless it is done through the system. She also consistently invites staff members of different area to actively participate in the knowledge sharing process as she personally has done.

The organizational mission has to at least partly contain values, which are part of each professional's personal mission. Common phenomenon such as "My area of knowledge is much more important than others', knowledge is (my) power, the Not-Invented-Here-syndrome" have to be replaced by the opposite. Additional ideas such as "It is all right to make mistakes" and "Taking risks is not a threat to your career but a necessity" will have to show how the organization and management of that organization look upon the improvising professional and the circulation of knowledge.

8.2. The advantages of KMS in BINUS are:

- Up-to-date information and knowledge about the business process and the decision made can be accessed easily by staffs to access the information and the knowledge from anywhere within the corporate network and only using a simple web browser.
- Distance and time barriers can be reduced. The system enables each staff to work with his/her team asynchronously and remotely.
- Lost of expertise capital can be minimized.
- Customer (student) satisfaction, which is the ultimate goal of the university, can sufficiently be improved when the internal process itself is improved by KMS implementation.

9. Summary And Conclusion

Knowledge is a key source of competitive advantage. Throughout the oil and gas industry the total sum of knowledge is about to decline dramatically so knowledge is not only key to competitiveness but central to survival. Organisations must act now to build a KM framework that crosses functions, disciplines, geographies and cultures, supported by standard processes and appropriate technology.

A Knowledge Management framework must be linked to key business objectives and deliver focused pragmatic solutions with defined business benefits. From its inception the Knowledge Management framework must embrace and embed best practices throughout the organization. These must, over time become norms and form part of the day-to-day culture. The development of an integrated Knowledge Management system is a worthy goal for any organization but, in the oil and gas industry, there is no viable alternative. We already know that traditional corporate organizations have often prevented companies from gaining full benefit from employees' knowledge. In the new world, this must change.

There are at least three reasons for focusing on growth as a performance variable in SMEs. The first reason is that growth of sales is several studies have shown that a majority of small business owner-managers think that growth at least to some extent is very important (i.e. Penn et al. 1998) and growth related measures have been found to be more related to the strategic goals of the business than profit related measures (Hudson et al., 2001), Secondly, growth of SMEs has been identified in most western societies as one of the most significant components of economic strategies for new job and wealth creation (Carson et all, 1995; Hodgetts and Kuratko, 1995; Holmlund and Kock, 1998). Finally, growth is probably one of the most reliable indicators in owner-led SMEs, as profit-related indicators are notoriously unreliable.

REFERENCES

Carson, D.J., Cromie, S., McGowan, P. and Hill, J. (1995), Marketing and Entrepreneurship in SMEs: An Innovative Approach, Prentice-Hall, London.

Charan, R. and Tichy, N.M. (2000), Every business is a growth business, Three Rivers Press, New York.

Choueke, R. and Armstrong, R. (2000), "Culture: a missing perspective on small- and medium-sized enterprise development", International Journal of Entrepreneurial Behaviour and Research, Vol. 6 No. 4, pp. 227-238.

Curran, J. (1986), Bolton 15 years on: A review and analysis of small business research in Britain 1977-1986, Small Business Research Trust, London. Carson, D.J., Cromie, S., McGowan, P. and Hill, J. (1995), Marketing and Entrepreneurship in SMEs: An Innovative Approach, Prentice-Hall, London.

Charan, R. and Tichy, N.M. (2000), Every business is a growth business, Three Rivers Press, New York.

Choueke, R. and Armstrong, R. (2000), "Culture: a missing perspective on small- and medium-sized enterprise development", International Journal of Entrepreneurial Behaviour and Research, Vol. 6 No. 4, pp. 227-238.

Curran, J. (1986), Bolton 15 years on: A review and analysis of small business research in Britain 1977-1986, Small Business Research Trust, London

Gibb, A. and Davies, L. (1990), "In pursuit of frameworks for the development of growth models of the small business", International Small Business Journal, Vol. 9 No. 1, pp. 15-31.

Goold, M. (1996), "The growth imperative", Long Range Planning, Vol. 32 No. 1, pp. 127-129.

Hambrick, D. C. and Crozier, L. M. (1985), "Stumblers and stars in the management of rapid growth", Journal of Business Venturing, Vol. 1 No. 1, pp. 31-45.

Hudson, M., Smart, A. and Bourne, M. (2001), "Theory and practice in SME performance measurement systems", International Journal of Operations and Production Management, Vol. 21, No. 8, pp. 1096-1115.

Hodgetts, R.M. and Kuratko, D.R. (1995), Effective Small Business Management, Vol. 5 E, The Dryden Press, Fort Worth, TX.

Holmlund, M. and Kock, S. (1998), "Relationships and the internationalization of Finnish small and medium-sized companies", International Small Business Journal, Vol. 16 No. 64, pp. 46-63.

Laurence, G. (2001), Fast growth: How to attain it, how to sustain it, Kaplan Professional Company, Chicago.

Morrison, A. and Bergin-Seers, S. (2002), "Pro-growth small businesses: learning architecture", Journal of Management Development, Vol. 21 No. 5, pp. 388-400.

Mouritsen, J. (1998), "Driving growth: Economic Value Added versus Intellectual Capital", Management Accounting Research, Vol. 9 No. 4, pp. 461-482.

O'Gorman, C. (2001), "The sustainability of growth in small- and medium-sized enterprises", International Journal of Entrepreneurial Behaviour and Research, Vol. 7 No. 2, pp. 60-75.

Penn, D.W., Ang'wa, W., Forster, R., Heydon, G. and Richardson J.S. (1998), "Learning in smaller organizations", The Learning Organisation, Vol. 5 No. 3, pp. 128-137.

Salojarvi, Sari, Furu, Patrick, Sveiby, K-E (2004). "Knowledge Management and Growth in Finnish SMEs

Smallborne, D., Leigh, R. and North, D. (1995), "The characteristics and strategies of high growth SMEs", International Journal of Entrepreneurial Behaviour and Research, Vol. 1 No. 3, pp. 44-62.

Watson, K., Hogarth-Scott, S. and Wilson, N. (1998), "Small business start-ups: success factors and support implications", International Journal of Entrepreneurial Behaviour and Research, Vol. 4 No. 3, pp. 217-238.

Weinzimmer, L. G. (2000), "A replication and extension of organizational growth determinants", Journal of Business Research, Vol. 48 No. 1, pp. 35-41.
Zhang, Y. (2000), "Learning function and small business growth", Managerial Accounting Journal, Vol. 15 No. 5, pp. 228-231.
Sveiby, K-E. (2001), "A knowledge-based theory of the firm to guide strategy formulation", Journal of Intellectual Capital, Vol. 2 No. 4, pp. 344-358.
Verna Allee, The Knowledge Evolution: Expanding Organizational Intelligence, Butterworth-Heinemann (Boston:1997), pages 67-68.