

# **Improving the Knowledge Management System at Match Maker Associates Limited**

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## Summary

Knowledge management is a term widely used in companies working in the field where knowledge is a main component. Match Maker Associates (MMA) is a consulting company working resilient on the Tanzanian market, and cooperating with other consulting companies all over the world. MMA's aim is to work faster and better with respect to knowledge use. The problem at MMA is the lack of a proper filing system and Knowledge Management System (KMS).

As a small consulting company in Tanzania, MMA must work with inconveniences appearing in Developing Countries, like a poor infrastructure and lower level of technology. However, MMA consultants are well-qualified workers, willing to change and develop their company. The IT improvements are a necessity and must be done together with additional training. The organizational structure at MMA must be changed into a decentralized one, to support the activities.

Due to the fact, that MMA consultants are well qualified, the introduction of the new KM system requires a well-designed proposal, according to which the company works more efficient and effective. However, consultants are often avoiding changes, so the introduction of the KMS must consist of the employees behaviour changes as well (Feher, 2004). There are plenty of new IT solutions that help companies with storing and sharing of knowledge. MMA has good IT specialists, who are willing to help with those new IT solutions. A very popular one is e-learning (Fernandez, 2004; Marvick, 2001; Łobejko, 2004), qualified as one of the best ways of training, what should be given by MMA consultants.

The proposals how to work out sharing and storing of knowledge are presented in the four pillars of knowledge by Stankosky [2001]. Small consulting companies usually have many problems with the organizational structure (Feher, 2004). The proper implementation of the new KMS allows to re-design the current organizational structure (only if such exists), which is the final part of KMS (Stankosky, 2001). Decentralization makes it possible to have a division of tasks. By introducing decentralization, consultants have more time to execute their assignments faster and more efficient.

The introduction of the new way of working should be done as soon as possible, in order to assist the changes within MMA. The implementation of the new KMS must consist of the following steps: the organization environment, strategic goals, KM pillars, organization structure, final KMS version. The recognition of the organization environment is seen as an input. The current use of knowledge and knowledge transformation leads to efficient use of tacit and explicit knowledge. Moreover, it shows how knowledge is extracted and passed on in the environment. The strategic objectives have been specified in the field of knowledge. Other companies were visited in order to find the best solution for the new KMS. The results were compared with MMA preferences and possibilities. The KM pillars, the third step of KMS implementation, required a deep analysis of leadership, organization, technology and learning. The proposals regarding the KM pillars help to balance and integrate enterprise issues. Finally the design in the behavioural aspects and social engineering structure of the new KMS showed the possibilities of improvements within the system. The output is the new KMS, which will bring the efficiency, effectiveness and innovation at MMA.

One of the biggest problems for MMA is the new IT solution. The conditions of the Tanzanian IT market limit the possibilities of dealing with that problem. However, the specialists know the most suitable technology. The new KMS supporting filling, sharing and storing of knowledge must be introduced just after realizing the needed change in the worker's behaviour. IT specialists must assist the new IT proposals. They should make a special training for the consultants, in order to make full use of it. The proposed solution for storing and sharing knowledge is a part of the new KMS and must be done with IT specialists. They will adjust it to the consultants' wishes. This system requires new software, and a number of prerequisites (like buying licenses, new hardware, involving IT specialists, getting trainings in the field of IT), should be met. Moreover, consultants must subscribe for the thematic magazines, to get the newest ideas about the industry sectors. Other employees should present other activities related to knowledge sharing, in order to give the senior consultants more time for executing assignments. The successful implementation of the useful system of knowledge management must be according to MMA consultants' wishes and supported by IT specialist.

Designing the organization structure must be done at the very end. The decentralized structure allows dividing tasks among workers. It leaves the senior consultants the main activities to do.

MMA directors should employ a secretary, who can be also a bookkeeper, and will be responsible for all activities regarding sharing knowledge, accountancy and meetings.

A new, improved Knowledge Management System (KMS) will bring a faster decision making process, better usage of time, and efficient and effective use of knowledge. Moreover, the introduction of the KMS will improve the communication between workers, enable faster response to new business issues and reduce costs of making researches. MMA consultants will surely work better after adapting the new KMS at the company.

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# 1. Background and objective of the assignment

Small consulting companies have huge influence on the market in the developing countries, through improving and developing business. Because of the expensiveness, consulting corporations stay usually beyond reach of the beginning businesspersons. This niche of small, new companies is approached by small consulting companies, which pay attention to the needs of emerging businesses. An example of such consulting company is Match Makers Associates (MMA), operating on the Tanzanian market where new businesses appear frequently.

Match Maker Associates Limited (MMA) is a private limited company based in Tanzania striving to develop and manage a centre of excellence in private sector development and business services consultancy. Its clients vary from private, public and donor organizations involved in private and/or small enterprise development mainly in East and Southern Africa. MMA runs two offices, one in Arusha in the North East Tanzania and another one in Dar Es Salaam, the country business capital and on the coast of the Indian Ocean.

The directors of MMA have a broad experience especially in working with projects in small enterprises. They undertake also large projects in countries like Tanzania, Zambia and Zimbabwe. MMA offers a broad range of services, including development of private sector, its management and evaluation, analysis of value chain, and business development services. Moreover, MMA helps with mobilizing funds for joint ventures, new businesses in small enterprises sector and promoting and sharing knowledge from best practice. Therefore, the object of MMA is three folded:

1. MMA delivers applicable and adaptable methodologies in value chain development.
2. MMA operates in a network of professional consultants of high standards and integrity.
3. MMA acknowledges and promotes mutual learning<sup>1</sup>

Because of working on projects, MMA has an excellent knowledge in applying such methodologies like: the market linkages approach, the credit guarantee mechanism through

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<sup>1</sup> [www.mma-ltd.com](http://www.mma-ltd.com)

commercial banks, economic mapping and sub sector analyses. Since two years, MMA is specializing in value chain development.

MMA consultants are currently occupied by assignments and have limited time to sort out in-house knowledge management and operational issues. These issues exist since knowledge is relative chaotic and especially to a large degree a context-bound factor, that is difficult to organize due to its characteristics. MMA directors strongly believe that a proper filing system will be instrumental for upgrading the possessed knowledge in the company. This filing system can then be used to provide easy access to all the data available in the company. This data consists not only of internal reports in the areas of sub sector selection, sub sector analysis and value chain development, but also of general information like demographic, socioeconomic and regulatory information.

Small consulting companies working in less developed markets need a proper Knowledge Management System (KMS) that will help with the effective and efficient use of possessed information and knowledge. Well-developed systems will bring a company a competitive position, reduce the time of executing an assignment, broaden the sources of knowledge and adjust the company to the prevailing market situation. Proper transformation of tacit and explicit knowledge helps consulting companies with improvement of their KMS and emphasizes different sources of knowledge (tacit, explicit, implicit knowledge).

MMA faces difficulties with the storing and sharing knowledge, tacit and explicit knowledge transformation and the limited time which consultants can put into an assignment. Therefore MMA wants to improve its activities by exploring the possibilities of improving the existing KMS. Those problems bring me to the following objective for my research:

**The objective of my research is to explore how consulting companies, like Match Makers Associates Ltd. can improve the Knowledge Management System in order to enable them to perform better.**

### ***1.1. Problem definition***

In this part of my research plan I need to take into consideration several things. The objective of my study can be characterized as both strategic and operational. Moreover, MMA

has already some kind of tacit and explicit knowledge. Improving the Knowledge Management System (KMS) should be based on the existing problems and possibilities. A successful improvement of KMS will have to be guided by a well-detailed plan. Next to that, it is also possible that the way of working of MMA has to be reshaped to better fit to the KMS requirements.

Based on the above considerations, combined with the background of MMA, the problem formulation is defined as follows:

**What is a suitable KMS, for Match Maker Associates Ltd., and how can it be implemented?**

Successful implementation of the KMS requires a number of pre-requisites which have to be met. First of all a thorough analysis of the activities of MMA has to be performed. The way of working and the information demands of MMA have to be analysed. With this, I can compare the situation at MMA with how consultancy and matchmaking processes are carried out according to the applicable literature. Comparing MMA to other companies offering similar services will lead to a best practice suggestion of working. Using this comparison, I can make a judgement about what information is actually needed in the company.

## ***1.2. Research questions***

Taking into consideration the Match Makers Associates Ltd. case and available literature it was possible to formulate the questions. Since this project is based on the a knowledge management system implementation, the Stankosky and Baldanza model [2001] will be used as a main framework. This model leads to the following questions:

1. How is MMA currently using KMS in Tanzania?
2. What is the desired KMS at MMA? (strategic goals)
3. Which objectives are formulated for the desired KMS with respect to the KM pillars?
4. What will be the most proper organization structure for MMA, as a prototype of KMS?

Answering these questions will bring the answer to the problem definition. In the meantime, other issues connected with KMS implementation appear like transformation of the tacit and explicit knowledge. That transformation is based on the technological solution for the KMS. With respect to the market of Tanzania, the possibilities of implementing new technological solutions should also be explored. This leads to the question 1a and 1b.

1. How is MMA currently using KMS in Tanzania?

- a) To which extent does the environment influence KMS development and implementation?
- b) How does MMA currently use existing knowledge?

The Stankosky and Baldanza [2001] model helps with the correct implementation of KMS. The implementation requires preparations that must be known before starting improvements. For a better understanding the KMS implementation idea, it is good to observe the way of working other consulting companies, both small and big corporations. The comparison of all visited companies will be done and resulting in a benchmark for MMA.

2. What is the desired KMS at MMA?

- a) What are the relevant strategic goals at MMA?
- b) What can be learned from other companies?
- c) What are the possibilities and preferences at MMA?

After this the analysis of four pillars will be done, as proposed by the authors of the same model, leading to question 3a, 3b, 3c and 3d.

3. Which objectives are formulated for the desired KMS with respect to the KM pillars

- a) leadership
- b) organization
- c) technology
- d) learning?

The final KMS will be based on the Łobejko [2004] model, showing the relationships between the internal and external environment of the company.

4. What will be the most appropriate organization structure for MMA, as a prototype of KMS?

### ***1.3. Research approach***

In order to find the answers to the research questions specific methods and models, that are applicable to the issue of Knowledge Management System at MMA, have been used. The research started in the Netherlands and had the aim to recognize the environment of international consulting companies, working on the well-developed market. The tool used is a survey. The purpose of visiting companies was to understand their KMS and consequently improvement KMS at MMA as required.

Finding and reading substantial (internal) reports, analysing the way of working with respect to its consultancy activities and matchmaking processes was done with the purpose of analysing the internal environment of MMA. It gave also an insight in the way of using existing knowledge by MMA and its advantages and disadvantages. All those researches were done in Tanzania. After collecting data from both MMA and other consulting companies, it was possible to make comparisons and suggest the improvements of KMS.

#### 1.4. Structure of the research

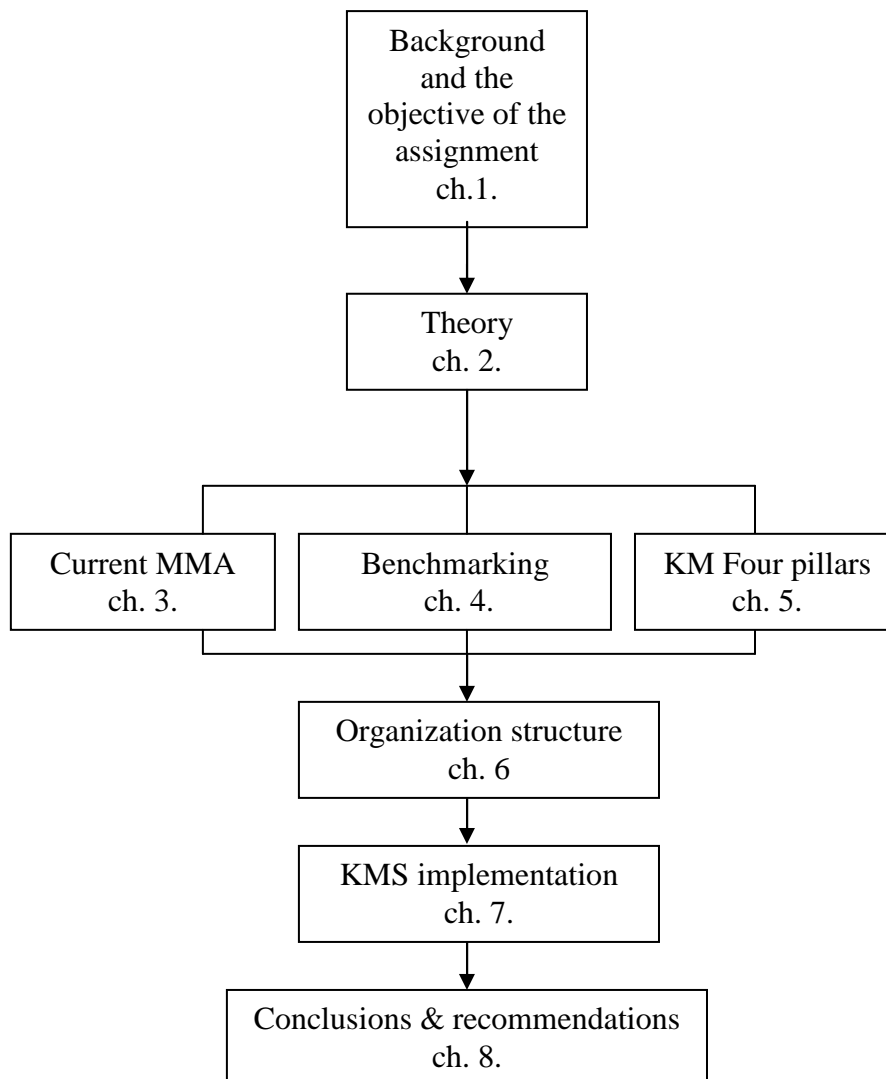


Figure 1. Structure of the research

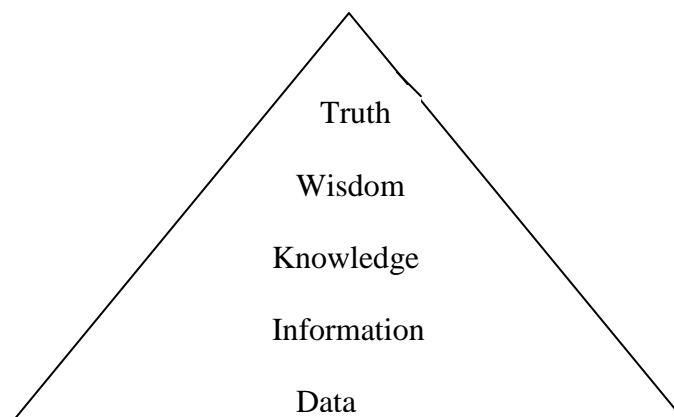
## 2. Models and Theory

### 2.1. Introduction

Introducing models and theories follows the research plan and is used to find an answer to the research problem. The literature research was done in the Netherlands. First the concept of knowledge management and its implementation will be explained. Then the knowledge management system is analyzed according to the available literature. Finally the research framework is introduced.

### 2.2. Knowledge

Knowledge is seen as everything what we know, how to refer that to existing situation and how to recognize facts, techniques, methods. The first ideas of knowledge were defined by Plato's dialogue of the Theaitetos [Jasaphara, 2004]. According to him knowledge was described as "justified true belief". In the modern literature there are many different definitions describing this term. Nonaka [1991] says that knowledge consists of convictions and expectations; it applies to actions and meanings. According to Jashapara [2004], knowledge is seen as 'actionable information'. Such actionable information allows better decision-making and provides an effective input to dialogue and creativity in organization. He says also that knowledge allows acting more effective actions than information or data and equips with a greater ability to predict future outcomes. Jashapara created the triangle of hierarchy of data, information, and knowledge (*Figure 2.*)



*Figure 2. Triangle of hierarchy, Jashapara [2004]*



Knowledge according to Marvick [2001] includes both the experience and understanding of the people in the organization and the information artefacts, such as documents and reports, available within the organization and in the world outside.

Knowledge has some special characteristics. It belongs to the owner and due to this fact it is hard to transfer. Also sharing the knowledge requires special features. The value of knowledge may be higher if the owner is using it properly and relatively often. Lack of that causes disappearance of knowledge [Łobejko, 2001].

Common division of knowledge with respect to questions asked, is *know-what*, *know-why*, *know-how*, and *know-who*. *Know-what* describes usually information, facts and incidents. *Know-why* is about rules and laws in the environment, society and human mentality. *Know-how* is an answer on a question about ability of doing some things. The last question is *know-who* and is about who knows what and how to do that. According to de Jong and Freguson-Hesselar [1993] knowledge is identified as declarative, procedural, situational and strategic (*know-what*, *know-how*, *know-when* and *know-why*).

### **2.3. Knowledge Management**

“Knowledge management may simply be defined as doing what is needed to get the most out of knowledge resources.” [Fernandez, 2004] In other words, knowledge management is seen as the way of using knowledge to get the greatest value from that. Effective knowledge management requires a proper combination of technology and knowledge. Knowledge management has several objectives. The most important areas are getting knowledge from the environment, making it usable for organisation, selling through new products, services or technologies. From human resources point of view knowledge management helps to build trust between workers, encouraging them for sharing it, making transparent, improving the understanding of it, improving cooperation, training and education among workers, improving access and improving sharing and storing of knowledge. According to Fernandez [2004] KM focuses on organizing and making important knowledge available, every time when it is needed. In a traditional way, KM is recognized and articulated in forms including knowledge about processes, procedures, intellectual property, documented best practices, forecasts, lessons learned and solutions to recurring problems included.

The objectives of KM is to acquire and maintain highly skilled workers in case of using knowledge in an efficient way, to make organisation better than others and to create new opportunities for workers to upgrade their capabilities. Proper understanding of KM at consulting companies will improve the services, which they offer. Moreover, it will encourage workers to share knowledge and due to this fact brings efficiency in the way of working.

#### ***2.4. Knowledge Management System***

Knowledge Management System (KMS) is a term describing the connection between the latest technologies and social/structural mechanisms [Fernandez, 2004]. Within the KMS process, technology plays an important role in development, discovering, sharing, storing and application of knowledge. Effective use of KMS brings knowledge as the most workable tool for the growth of the organisation. Nevertheless human capital is, according to scientists, in 80% responsible for creating knowledge. Only 20% of that is brought by technology [Fernandez, 2004]. Therefore, the technology only assists creating knowledge. A KMS helps to use it in an efficient and effective way.

The KMS has some tasks to do. First of all it should help with extracting knowledge from all available and incoming information. It should also prevent loss of information in case of a well-qualified worker leaving the company. Getting knowledge may help in continuous improvement of key skills and prevent repeating mistakes. Through correctly using existing knowledge, new acquired knowledge is used in a more effective and efficient way. The KMS makes it possible to share knowledge among workers. The process of introducing new products on the market is easier and the product cycle is faster. The last but not least task that KMS has to do, is to improve the innovation level in the company; organisation should be more competitive, decision processes should be appropriate and faster, while higher productivity and cost reduction are only few things, where KMS may help organisation. [Łobejko, 2004]

## 2.5. KMS Implementation

The success of the organisation depends on proper implementation of KMS. Stankosky and Baldanza [2001] developed a system approach and methodology of KMS projects.

The Stankosky and Baldanza [2001] model details an approach for a new KMS (Figure 3). That new system should be based on the analysis of the microenvironment (customers, suppliers, and competitors), macro environment (law, political situation, economy and culture of the country where the company exists), research and development, innovation monitoring, workers skills and experience, technology transfer, own market researches, databases, conferences and exhibitions. [Łobejko, 2004]

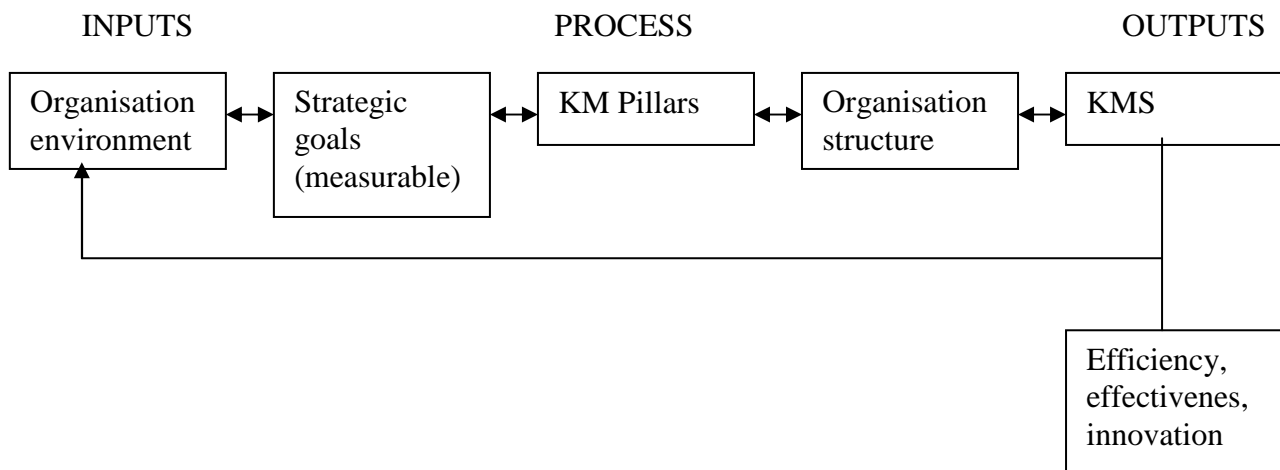


Figure 3. A system approach and methodology if KMS projects, Stankosky, Baldanza [2001]

During designing a new KMS, the first step is to analyse the environment of the organisation, both external and internal. This information helps to explore how knowledge will be extracted and passed on to the environment. The next step is to specify strategic objectives; it means needs in the field of knowledge. Furthermore, it is required to define four objectives of KM: leadership, organization, technology and learning which help with balancing and integration of the KMS in an enterprise setting. The organisational structure should be designed in the fourth step, with respect to the four objectives of KM and measurable objectives of the organisation. Through such design process, the new KMS meets organisation culture and supports its strategic aims. Moreover, it must support the desired benefits and expectations of the company and recognize the requirements and conditions for

success. The KM has a higher chance for success if the organizational structure is streamlined (Cheseborough, 2004).

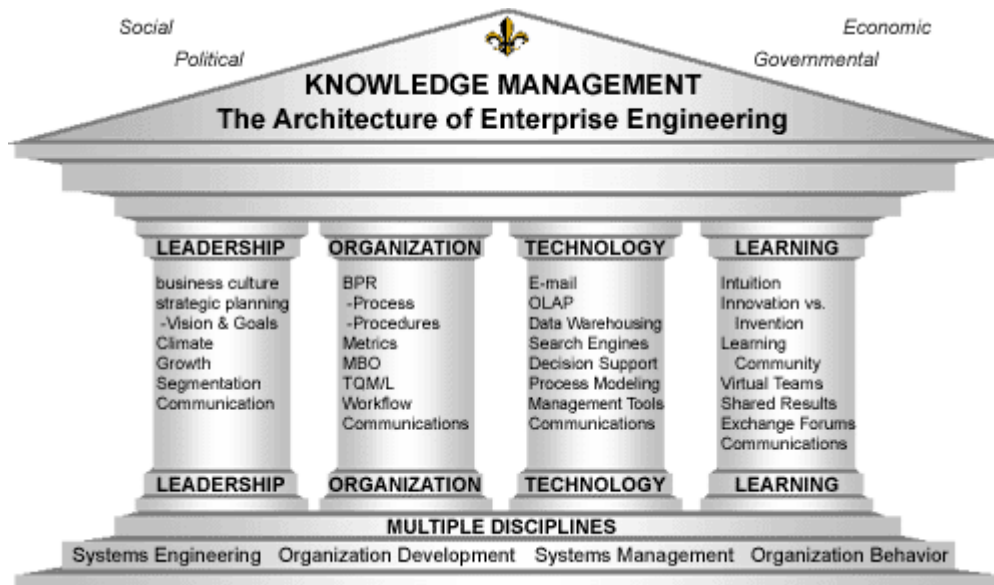


Figure 4. KM Pillars, Stankosky, Calabrese, Baldanza [1999]

Four pillars of KM help with designing the right KMS. According to Stankosky and Calabrese, Baldanza [1999] *leadership* deals with the environmental, strategic and enterprise – level decision-making processes involving the values, objectives, knowledge requirements, knowledge sources, prioritisation and resource allocation of the organization’s knowledge assets. It stresses the need for integrative management principles and techniques, primarily based on systems thinking approaches. Further *organization* deals with the operational aspects of knowledge assets, including functions, processes, formal and informal organizational structures, control, measures, process improvement and business process reengineering. *Technology* deals with the various information technologies peculiar to supporting and/or enabling KM strategies and operations. There is one way used relates to technologies that support the collaboration and codification of KM. Finally, *learning* deals with organizational behavioural aspects and social engineering. The learning pillar focuses on the principles and practices to ensure that individuals collaborate and share knowledge to the maximum. Emphasis is given to identifying and applying the attributes necessary for a “learning organization.” All four pillars must be balanced in order to avoid failing the whole system [Stankosky, 2001]. The KM four pillars also clearly provide the need of architecture, which must be implemented for the efficient implementation of KM [Bixler, 2002]. The

implementation of the four pillars brings balance in the company during introducing KMS. This helps with proper management of knowledge.

Łobejko [2004] designed the scheme of KMS consisting of all above-mentioned elements (see figure 5). The schematic KMS is drawn below.

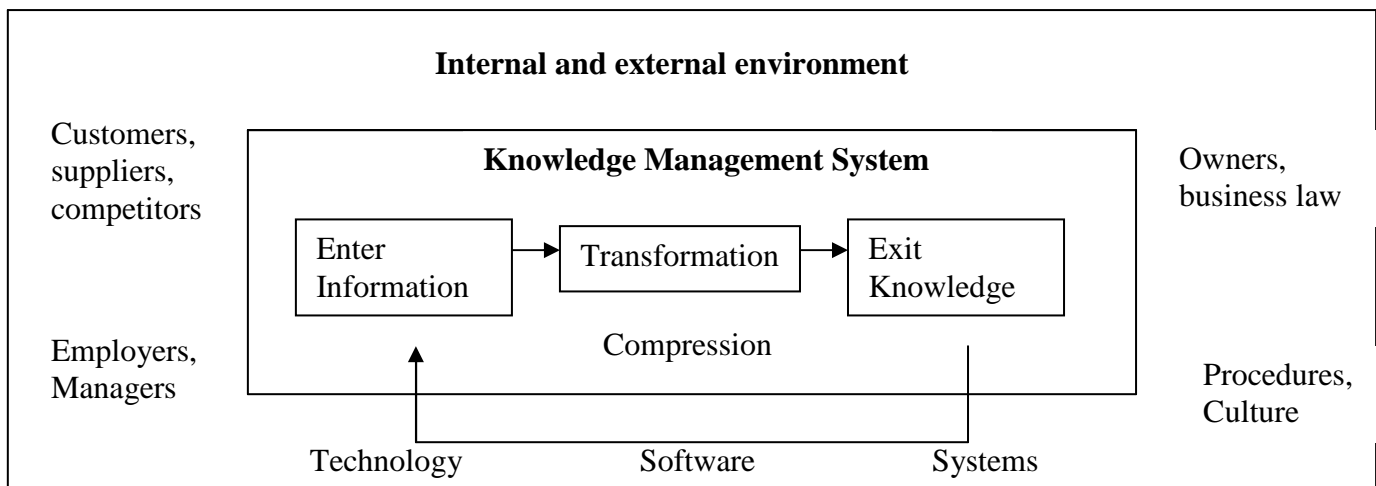


Figure 5. Scheme of KMS, Łobejko S. [2004]

In this scheme, KMS the input is information that is then transformed and after the context addition, is possible to create knowledge about specific entrance topic. The information might come from both the internal and external environment of the organisation, its employees and IT systems. The factors of the internal and external environment in the Łobejko model connect with the first step of Stankosky and Baldanza [2001] model. Those factors strongly influence KMS and partly are transferred to the external environment of the organization through new technologies, ideas, patents, etc. [Łobejko, 2004]. The transformed knowledge may be used further both by workers and as new quality information that enriches the existed information system. Figure 5 is a continuation of Figure 3 and gives the outlook of the new KMS.

## 2.6. KMS implementation in small consulting companies

The Hungarian scientist Feher [2004] argued that the knowledge management requires always changes in the daily routines, behaviour, and processes and organisational structures. Moreover, he proved that employees resist changes because they have to give up the process

of working and behaviour and have to form a new contract with the organization. Feher [2004] made also researches with respect to the consulting companies by comparing two organizations, IT-Consult and MR Consulting. Both companies had problems with organisational and IT solutions. Elements of the solution for those problems can be used in MMA case as well. According to Feher “the managers are not committed, not really leaders of changes, not involving employees. Leadership and cultural change are basic factors of change processes that are also basic enablers of KM activities. Without good change management, there are also problems with knowledge management activities: factors, that are important to change the organisation, later are required to support KM activities.” Feher [2004] stated also that spending time with formalisation of the documents was seen among employees as a kind of punishment, instead of accepted and honoured work. He pointed out the benefits of e-learning, where consultants were developed by group trainings.

Fernandez et al [2004] show the benefits of a web-based system. According to them, the web-based companies are expecting to discover all this knowledge in the logs maintained by their web servers. Furthermore, e-business provides a fertile ground for learning market trends. All companies must follow it and the competitors are up to. Fernandez [2004] proved also the need for constant changes, because all web-based information is doubled every nine months. All these points must be considered before implementation of the new KMS in small consulting companies.

## **2.7. Knowledge transformation**

Nonaka and Takeuchi [1995] distinguished two different kinds of knowledge: *tacit* and *explicit*. The first one comes from the experience of the knowledge owner, his beliefs and values. It is seen as the most valuable knowledge, because it is not fully shared with other people. Explicit knowledge is drawn from physical and formal sources like books, documents, reports and is easy to articulate. Moreover, knowledge transformation is enlarging the first step of Stankosky and Baldanza model [2001] where the current use of knowledge and transformation must be analyzed.

The transformation of knowledge is a process where explicit and tacit knowledge change in view of society interactions. Some authors like Anderson [1983] or succeeding him Nickols [2003] persist that next to tacit and explicit knowledge, also declarative and

procedural knowledge exist. Declarative knowledge is more similar to explicit, as a way of description of facts and things and tasks and methods. As they say, sometimes declarative and explicit knowledge may be used as synonyms. The reason for that is that both may be articulated. On the other hand, procedural knowledge is similar to tacit one which is reflected in mental skills. It is a way of doing something and knowing how to do that. Procedural knowledge is difficult to articulate.

According Nonaka and Takeuchi [1995] the process of transformation tacit and explicit knowledge consists of four approaches:

1. From tacit to tacit knowledge – socialisation,
2. From tacit to explicit knowledge – externalisation,
3. From explicit to explicit knowledge – combination,
4. From explicit to tacit knowledge – internalisation.

### **2.7.1. Socialisation**

Knowledge transformation from tacit to tacit, so-called socialisation consists of sharing experiences between workers during face-to-face meetings. However nowadays the virtual technology is well-developed and personal meetings are replaced by online tools like chats, videoconferences, Internet calls, etc. Sharing experience is the most important activity during socialisation. Workers can learn not only through verbal contact, but also through observation, followed by practice. Interactions with clients is also a process of sharing tacit knowledge among each other what brings much better ideas for diversification or differentiation business. The most well known socialisation's technologies are e-meetings and synchronous collaboration (chat).

### **2.7.2. Externalisation**

Transformation from tacit to explicit knowledge is called externalisation and as Nonaka [1995] wrote, it is a process of expressing tacit knowledge, involving mental model, then articulating it through dialog. In this complex process, tacit knowledge is expressed as metaphors, analogies, concepts, hypothesis, and models. Other people can reuse all those judgements or insights. Externalisation is a key concept of knowledge creation because it

gives new ideas based on tacit knowledge. Newsgroups and other free discussions are the most proper way of externalisation. People participating in such meetings are more willing to share the knowledge, give advice, answer on appearing questions, and annotations.

### **2.7.3. Combination**

Transformation from explicit to explicit knowledge is known as combination. This process is based on classification and selection of information. It is also sorting out and making conception in usable system of knowledge [Nonaka, 1995]. Moreover, within this process different elements of explicit knowledge are put together. Through the selection and categorization of existing knowledge, it might contribute to arise new knowledge. It is based on document categorization, e-mails, text searching. It is the best supported by IT tools, which are available to all company's workers. Through making presentations, sending e-mails, writing softcopy reports workers share knowledge with colleagues. Document categorization is highly required as data collection of the company. One of the most important technologies in transformation technology is searching skill. Searching documents via a searching browser brings plenty of useless information for the searcher. Moreover, all this information is growing rapidly and it is getting harder and harder to find proper information.

### **2.7.4. Internalisation**

Internalisation is a term describing explicit to tacit knowledge transformation. Most of the time it is learning from reports through visualization and making presentations more workable as video/audio conversation. Workers recognizing relationships between reports, learn by exploring information there included. Visualization creates better understanding of available information. In other words, internalisation is a process of learning by doing. Internalisation brings also so called operational knowledge usually in project management and production processes.

The transformation of tacit and explicit knowledge brings to the company new views of its way of working and technology use. Socialisation is tied with group theories and organisational culture; combination with information transformation; internalisation with organisational learning, and further Nonaka and Takeuchi [1995] stated that externalisation is often neglected. The whole process may bring a company a continuously access to the newest



technological solutions, what is the part of improved KMS. The reason for knowledge transformation at the consulting company is better understanding the need for changes and finding and extracting the best technology tools. Moreover, knowledge transformation emphasizes personal contacts between workers as a necessity for an efficient way of working.

To conclude, the practical application of the above-mentioned models should bring an answer to the first research question together with sub-questions. The models of Nonaka and Takeuchi [1995] and Marvick [2001] will explain the transformation of knowledge, with respect to the tacit and explicit knowledge, used by MMA. Furthermore it will also show points, where knowledge may be used in a more effective and efficient way. The comparison with other companies and their views on the tacit and explicit knowledge will be used for benchmarking and improving the way of working at MMA.

## ***2.8. Knowledge Management Technology***

The technology of knowledge management is a broad topic. It has a special place in the Stankosky and Baldanza's four pillar's model [2001]. Since computer networks, Internet and telecommunication have entered organisations, KM developed more and more. Storing and sharing knowledge is now much easier and faster, especially in big corporations that are dispersed all over the world. This technology makes knowledge management far easier. Thanks to technology, knowledge sharing can be done fast, reliable and with constant quality.

An important point here is personal contact. Many companies make special "talking rooms" where new experiences are shared between workers. Emphasizing personal contact helps to build trust and reliability among workers in the company. Nothing can replace face-to-face meetings, which help with sharing tacit knowledge. Nevertheless, in the globalize world it is sometimes impossible to meet and discuss important points. Technology gives plenty of possibilities to get, store and share knowledge.

The first option of the KM technology is portal [Łobejko, 2004], which is arranged in the way of personification. This means that the receiver gets only information that is connected with his/her interests from all available data. Even better are business portals that are installed in the company and automatically download only targeted information from the Internet. Each worker after logging in only gets relevant information for him/her. The worker

profile may be changed in the way as demanded. In addition, activities such as discussion groups and e-mails create the required culture and the interpersonal relationships. It helps to understand different situations on the market in a faster way. The administrator can put some useful information and advertisements for third parties on the internet.

Recently quite common became the so-called e-learning. The whole idea is based on online learning, computer-based training and web-based training. Through Internet, it is possible to attend courses without leaving the office. It forces workers to be very active during the course. The place of giving such lectures may be thousands kilometres away from the participant. E-learning should not replace personal meetings, only completes the whole training system. Connecting e-learning with working causes no delays in production and problems with orders.

From the consulting companies' point of view, KM technologies bring competitiveness and give possibilities to broaden consulting activities. Consequently, the technology allows consulting companies to share and store any knowledge they possess. This brings an easier and faster way of working. Technology portals are especially important for getting proper information from the Internet. Other KM technologies like online learning may save time with respect to training and knowledge exchange. New KM technologies, used in companies all over the world will show MMA the possibilities of diversifying its services using IT systems.

## **2.9. Framework**

The main framework that will be used for the implementation of a new KMS at MMA is the Stankosky and Baldanza model [2001] enlarged with Łobejko model [2004], and Nonaka and Takeuchi's [1995] knowledge transformation. This model, presented in the *Figure 6*, consists of inputs and processes where the output is a proper KMS. MMA as a small consulting company must plan each step of introducing the KMS very carefully. All steps are important and missing one could cause the whole system to fail.

In the first step the description of the organization environment is made consisting of the current situation of the company and the knowledge transformation. Data for the first step

will be found during analysis of MMA and its interrelations with the market. The knowledge transformation will suggest the need for changes and the technological possibilities.

The second step is used for the description of strategic goals at MMA and comparisons with other consulting companies, according to survey that was done in the Netherlands and Tanzania (appendix 10). Benchmarking is an ongoing process of searching for the best practices that leads to the best performance. This allows organizations to develop plans on how to adapt the best practices. However benchmarking provides only the short-term competitive advantage to the benchmarking organisation. By making these comparisons, MMA has the opportunity to know the best practices and avoid potential mistakes in the field of KM. The reason for visiting Dutch companies was to find solutions for some problems appearing at MMA. The reason for visiting Tanzanian companies was to adapt to the situation on the market in the less developed country. According to Matzans et al. [2003] the goal of strategic planning is to focus on knowledge that counts and delivers value to the company. So MMA needs to set its strategic goals in case of setting the criteria for choosing the knowledge assets that it plans to pursue and how it will go about capturing, sharing and using them.

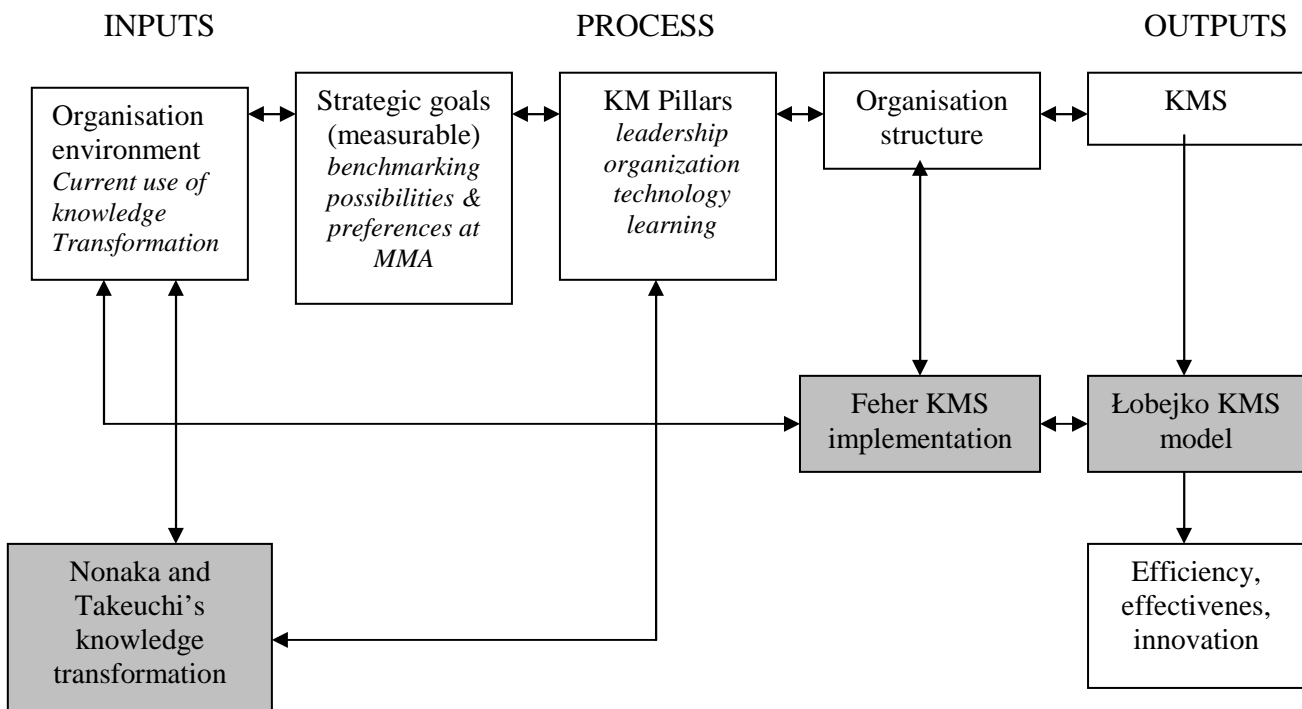
The integration of each organization depends on the interactions between people, processes and technology. The four KM pillars described in the third step and presented in the *Figure 4*, point out the places where changes within KM should be emphasized for improvement. It shows the sense of knowledge management changes at the consulting company. The model of transformation of Nonaka and Takeuchi [1995] completes the third pillar of knowledge management where especially proposals of technology changes at MMA can be used as technology recommendations for a consulting company during designing KMS.

The organization structure shows the new KMS. Through Łobejko's model [2004], the new KMS is easier to understand and visualize. That model gives an answer, on how the new KMS must look like and is a peculiar extension of the Stankosky and Baldanza model [2001], explaining appearance of the KMS. Furthermore, it shows where MMA gets the information that is further transformed. After information transformation MMA, consultants find out the best answer for the assignments and show new sources of the information on the market. The knowledge is transferred to the external environment and builds the culture of the organization.

The fifth step of Stankosky and Baldanza model [2001] will bring the efficiency, effectiveness and innovation at small consulting companies like MMA, meaning better use of scarce resources, having control over costs and doing correctly activities during the first trial.

During designing the improvement of KMS, each change must follow the model, and of course meets the expectations of MMA owners. The application of the model consists of the analysis of all steps, with respect to the MMA, and choosing the best solution for improving the KMS.

The overall framework of the research is presented below in *Figure 6*.



*Figure 6. Overall framework of the research.*

### **3. Knowledge Management System implementation at Match Makers Associates Ltd.**

#### **3.1. Introduction**

The chapter will describe MMA and its activities, which is the basis of all further steps. According to Stankosky and Baldanza [2001] the organization environment will be analysed as the first step in order to explore how knowledge will be extracted and passed on to the environment. Further, the analysis of proper use of knowledge at MMA will help the company with finding the solution for overloading the knowledge.

In this part the following research questions will be analyzed:

1. How is MMA currently using KMS in Tanzania?
  - a) To which extent does the environment influence KMS development and implementation?
  - b) How does MMA currently use existing knowledge?

#### **3.2. Match Maker Associates Ltd.**

Match Maker Associates Ltd. (MMA)<sup>2</sup> is a private company trying to develop and manage a centre of excellence in private sector development and business services consultancy, based in Tanzania. Its clients are usually private customers, public and donor agencies working on private and or small enterprise development, mainly in East, West and Southern Africa. MMA has two offices, one in Arusha in the North East of Tanzania, and another one in Dar Es Salaam the country business capital and on the coast of the Indian Ocean. MMA offers different kinds of services, such as:

- Private sector development (PSD) program development and management
- Sub sector/ value chain analysis
- Business development service, market assessment and program design

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<sup>2</sup> [www.mma-ltd.com](http://www.mma-ltd.com)

- Market linkages, and out growers scheme facilitation
- Business to business linkages
- Capacity building for small enterprise development
- Developing innovative project for emerging markets
- Mobilizing funds for joint ventures
- Promoting and sharing knowledge from best practices

MMA has a broad experience. The directors are well-educated, and have worked for many years in small enterprise promotion projects. They have successfully managed large projects in East and Southern Africa. MMA senior consultants are business economists by specialty and have undertaken a wide range of assignments within the region and internationally. MMA believes in social entrepreneurship and that business-to-business support holds the key to socio-economic development. MMA tries continuously to be on the forefront of private sector development methodologies in terms of adaptability and applicability. This is portrayed further during sharing of best practices. MMA is actively working in collaboration with consultants of high calibre within the region, in Europe and USA. MMA acknowledges and promotes mutual learning.

Because of working on projects, MMA has an excellent knowledge in exerting such methodologies as: the market linkages approach, the credit guarantee mechanism through commercial banks, economic mapping and sub sector analyses. MMA has specialized for two years in Value Chain Development.

### ***3.3. Organization environment***

MMA is the company situated in East Africa – Tanzania. Due to the low GDP per capita – 700\$ [2005], GDP real growth rate – 0,0% [2005], this country is qualified as one of the less developed. MMA has well-educated workers, with broad experience, but the development of the country where it works, slows down possibilities of fast growth.

Direct clients are seen as external environment of the company. Among this group are also institutional clients – other companies, ministries, and schools. MMA gets knowledge from other consulting companies, published reports of the Ministry of Agriculture, sources of agriculture knowledge, like statistical books, forums, and libraries. Indirect clients (also called

final clients) are also seen as part of the external environment. At MMA, clients are all those customers, who use the final version of MMA assignments, its reports and collections. MMA uses also national and international sources of knowledge, such as libraries, publications of ministries, and forums.

Direct and indirect competition is also seen as external. Plenty of companies, not only from Tanzania, are ready to start and develop the consulting activities. Most of MMA competitors have their roots in Europe. Due to the fact, that the market, where MMA operates, is not saturated, it is possible for other consulting companies to settle. After thorough researching the services, which MMA offers, it was recognized that MMA is one of the best companies in Tanzania. The country development forces MMA to look for new ideas and competitiveness.

Institutions, which have direct impact on the company, are also seen as an element of external environment. MMA has a very good name among public institutions, banks, research institutions, and certification offices. MMA uses services of all those organisations, which has a direct influence on its way of working. Moreover, MMA is well known among other research institutions, what is supporting its competitiveness, and development. Therefore, MMA takes knowledge from external environment, and uses it for improving and developing its services.

Internal environment is as important as the external environment for the company. Internal environment consists of employers and their families, directors, managers, and advisers. MMA is a small company. It has three workers, two of them are managers/directors, and one is employee. Due to the fact, that MMA has a mixed culture (one Dutch and two Tanzanian workers) the internal environment is diverse. MMA uses also advisers, especially in the field of IT systems and solutions. The knowledge extraction comes from the close cooperation between MMA and all above-mentioned participators of the internal environment.

MMA with its international character uses a KMS. The current way of working gives, however possibility of improving the system used. The environment determines the KMS and influences the development and implementation. The market, in which MMA operates, is situated in the one of the poorest area of the world, so the development is limited in the technology, infrastructure, and services side. The company struggles with corruption, discrimination, lack of infrastructure, and low technology. These inconveniences slow down the development of MMA and its KMS. For implementing KMS, it is important to consider

that the environment can be characterized as follows: international, competitive, consisting of the huge group of institutional clients, final clients, technical and infrastructure limited.

### **3.4. Use of knowledge at MMA**

Knowledge transformation helps with conversion of the tacit and explicit knowledge, and gives new views on that. Knowledge can be transformed from tacit to tacit, tacit to explicit, explicit to explicit and explicit to tacit. MMA has four years of experience, and the way that the consultants use knowledge is on a very high level, but still can be improved. The implementation of knowledge transformation also should be done. Issues of the knowledge transformation, according to the researches done by Nonaka and Takeuchi [1995] and Marvick [2001] are described in the next subsections.

#### **3.4.1. Socialisation at MMA**

Tacit to tacit knowledge transformation is difficult to formalise and share with other people. It is rooted to a person and his skills. Mostly such knowledge consists of personal meetings and exchanging experiences. However, with a high-developed IT system this transformation becomes to be less personal and more online based. As Marvick [2001] said thanks to the chat programs like MSN, Skype, Microsoft NetMeetings, more and more workers meet each other in virtual reality.

The technology progress has plenty of benefits, when the company has departments in different countries or continents. MMA is not a local company; it has two offices, 700km far from each other. Travelling along Tanzania I recognized that the infrastructure is poor and moving between those two offices is sometimes very difficult. Therefore, the latest IT solutions are a necessity for the company. Until June 2006, MMA used limited solution for sharing knowledge. Each data was saved on the company's server. From the server, each consultant could have downloaded important news for him. Communication between employees was still limited. The reason for that were mainly the consultants' way of working (out of the office) and costs of the phone calls. For consultants being out of the office, without the Internet connection causes often delays in the assignment's executing. For the small company cutting off the costs of the phone calls, brings many savings.



MMA consultants make appointments as often as possible to discuss all urgent issues, progress and plans for the next weeks. It is indeed important to be always informed about the way of working of each employee and finding a solution for the appearing problems.

### **3.4.2. Externalisation at MMA**

Tacit to explicit knowledge transformation is based on dialog within team, and answering appearing questions, annotations. Newsgroups and other free discussions are the most popular way of externalisation. People participating in such meetings are more willing to share the knowledge and give advice. MMA was once subscribed in forum and newsletters. During this time, the directors recognized that it was a good way of sharing knowledge with other consulting companies. Thanks to that activity, MMA got the knowledge and ideas how other companies struggle with their businesses.

### **3.4.3. Combination at MMA**

Combination is a transformation explicit to explicit knowledge. It is based on the document categorization, e-mails, text searching. It is the best supported by IT tools, which are available to all company's workers. Through making presentations, sending e-mails, writing softcopy reports, workers share knowledge with colleagues. Document categorization is highly required as a data set of the company. One of the most important technologies in transformation technology is searching skill. Currently MMA was going through all documents. Often it was frustrating for the consultants, especially when they wanted to find quickly proper information. Moreover, all those information are growing rapidly and it was getting harder and harder to find the required information. MMA needs new software to make searching easier and more effective. The system, which MMA is going to introduce, consists of Google Desktop Search Engine and the latest version of synchronization all computers. It is also possible to write summarization of each report, in order to find proper information faster. The proposed IT system for MMA avoids extra work and works even without such short description of the documents.

#### **3.4.4. Internalisation at MMA**

Internalisation is the phase where explicit knowledge is transformed into tacit knowledge. Most of the time it is taken from reports through visualization, and making presentations more workable as video/audio conversation. MMA workers during discovering some relationships between reports, learn by exploring information included. Visualization creates better understanding of available information. In other words, internalisation is a process of learning by doing.

Transformation has, as each activity, advantages and disadvantages. The main disadvantage is relying on the technology more than on humans. Virtual meetings are preferable, instead of personal contact, which brings trust and reliability on co-workers. Next disadvantage is that the use of the technology is sometimes not possible, especially when the team is not susceptible to high-tech changes. A young team can learn almost everything, but older workers sometimes have problems with proper use of computer tools. As a disadvantage may be also seen the technology in less developed countries, where Internet is still not very advanced. Transformation including technology has also advantages as assisting teams, who meet only few times per year, and there are no possibilities to have personal interactions. Technology helps also people to share knowledge, not only from the same organization, but also from the whole world. New ideas and experiences may be supported by other cultures and seen as an opportunity for other people. The advantage of knowledge transformation is helping with categorization of information. So knowledge transformation will enable MMA to use proper knowledge, and work with the problem of overloading. The four kinds of the knowledge transformation by Nonaka [1995] help with passing the knowledge to the environment via the newest technology solution. The way of working at MMA and following it limited personal meetings, may be solved also by using the newest technological solutions. Problem with the Internet connection is already solved at MMA (the office in Arusha has a reliable Internet provider, the Internet in the office in Dar es Salaam must be still improved), so there is no disadvantage of using this technology. Only the problem may appear with workers preparation for using computer tools and software. This can be solved through special training.

#### **3.5. Conclusion**

The conclusion is that knowledge management system is a tool. MMA uses KMS for a longer time, but it needs improvements to work better on the Tanzanian market. MMA has a specific way of getting information for its assignments, and transforming them into solutions. Nevertheless, after analysis of the knowledge possessed by MMA, and comparing it with the Nonaka and Takeuchi [1995] model and Marvick [2001] solutions, it appeared that consultants do not work as efficient as possible. It requires also a change in the way of thinking of workers and adapting new technologies.

The present KMS that was designed a few years ago did not evolve with the company and the market. The extraction of knowledge from the environment is currently done at a high level. MMA gets the most important information from its surrounding (external and internal). Afterwards this information is transformed and passed again to the environment. The way of extracting the knowledge from the environment is based on the close cooperation between the subjects (participants) of the internal environment. The passing of knowledge to the environment goes via the newest technology solutions, which is based on the four kinds of the knowledge transformation. To sum up, MMA uses KMS in a high level and in order to work better and more efficient, the owners want to improve this system and adapt to the current situation on the market.

MMA is a small company existing in one of the least developed countries in the world, but it operates very well. It is the merit of well-educated and dynamic workers. The condition of the Tanzanian market, its infrastructure and technological possibilities are still a big problem. The company must accept that, and adapt as much as possible, to stay competitive on the market. Although Tanzania is a country with huge development potential, the social, political, economic and governmental situation is very difficult. Corruption is a major problem, and companies, which want to give reliable and good information, must work under social pressure. MMA's workers are two Tanzanian men and one Dutch man, so the culture is mixed, what brings the success of the company. Taking into consideration that MMA owners avoid to employ new consultants until the new business warrants expansion (except one with fluent French knowledge, for broaden activities within old French colonies in Africa), the leader function may be divided between MMA's workers. In such small company, all workers create the business culture, the organization climate, growth and strategy (vision and goals). The division of the leadership involves workers in all company's problems, bringing loyalty for the organization. The development and implementation of new KMS is to a large degree

influenced by the environment. However, MMA tries to work independently and uses different aspects of tacit and explicit knowledge to improve its services.

Analyzing the second sub question, it was recognized that MMA uses knowledge at the moment of executing assignment. Afterwards it is set aside and hardly ever used again. Like each company MMA should emphasize on development. Reducing time of executing assignments is desired. This is possible by involving third parties. Other consulting companies that work on similar topic may be very helpful with collecting information. MMA uses those sources of knowledge very often. Also communication is a problem between workers. The huge doze of discipline and goodwill will surely improve this activity. Positive point here is that MMA owners realize the necessity of reliable Internet connection. Due to this fact it is possible to schedule meetings once per week, to stay in touch and get informed about problems appearing during working for clients. Nowadays the basis of KMS is technology. MMA uses it in a high-developed way. E-mails, forums, data warehousing and search engines – all those tools are familiar to MMA workers.

MMA tries to full use the knowledge, which it possesses, but there are still plenty of activities where it can be improved. However, the way of working of MMA consultants and the possibilities of development on the Tanzanian market may slow down the whole process of knowledge transformation and adaptation.

Using Nonaka [1995] and Marvick [2001] points of view, the following potential of improvements for MMA can be formulated:

- With respect to socialization – the latest IT solutions are a necessity for MMA, due to the fact, that its offices are 700km away from each other;
- With respect to externalization – newsgroups and free discussions are seen as the most proper way of externalization; video conferences will be helpful in sharing experience between MMA workers and other third parties
- With respect to combination – introducing new IT system designed by Jonathan Reeve (IT specialist at MMA office in Arusha); making presentation and writing softcopy reports for each MMA workers will help with full sharing of knowledge,

- With respect to internalization – MMA should make as visible as possible its reports through presentations, video conferences, visualization. Workers then explore the information included in reports;
- “talking rooms” may be helpful for MMA to share knowledge with other employees; emphasizing on personal contact helps to build trust and reliability on all workers in the same company

## **4. Strategic goals**

### **4.1. Introduction**

The next step for the right implementation KMS for MMA is specifying strategic goals, needs in the field of knowledge. In this chapter first MMA strategic goals will be analyzed. Secondly the result of a survey on similar consulting companies will be concluded, leading to the best practices. Finally the KMS preferences and possibilities at MMA will be analyzed to make a peculiar combination of the strategic goals with possibilities of the company.

Next section analysis shall bring answers for the following questions:

2. What is the desired KMS at MMA?
  - a) What are the relevant strategic goals at MMA?
  - b) What can be learned from similar companies?
  - c) What are the possibilities and preferences at MMA?

### **4.2. Strategic goals at MMA**

Strategic goals are seen as an overall accomplishment, and should be Specific, Measurable, Achievable, Realistic, and Timely (SMART). Strategic goals are for becoming more efficient. The first goal is the establishment of a proper filing system that supports a full use of knowledge. The research done in Tanzania, with respect to the filing system gave the opportunity to find out which system is required. The IT specialist J. Reece, introducing the IT solutions at MMA, recommended using a web-based system where MMA directors can use the Internet webpage as a server and store all data on the server of the web host. Such a system is easy to update and can synchronize the server with every company-laptop.

The second goal is an easy access to all available data. This is also a point where MMA wants to make improvements. The way of doing that is updating the data on the server with all new information. MMA should create strategic alliances with other companies to get the knowledge, better absorb information which is already possessed by others, and use it as a source of knowledge [Gils, Zwart, 2004]. Strategic alliances are created with clients, suppliers and competitors. Alliances with competitors are often made for improving quality and speed up innovation. It can be said that MMA is involved in alliances with customers,

since they use customer-employees in their assignments. This means that MMA should consider setting up strategic alliances. Strategic alliances might be seen as a threat of losing competitiveness. Strategic alliances between not-for-profit organizations and MMA however may bring only profits without the risk of losing competitiveness.

To avoid the human resources problems, MMA does not want to employ new consultants, unless the new business requires that. The goal is employing the new employee with fluent knowledge of French. That worker will help to expand MMA in West Africa.

### **4.3. Benchmarking**

Many consulting companies have departments in different countries for better knowledge exchange and experience. Most of them cooperate in the execution of an assignment (appendices, p. 68). During the research the following consulting companies, working on the Dutch and Tanzanian market, were visited in order to analyse their KMS. The interview protocols and the questionnaire can be found in the appendices:

Table 1. Companies visited during research.

<b>Company name</b>	<b>Location</b>	<b>Interviewee</b>	<b>Position of the interviewee</b>
AgroEco (AE NL)	The Netherlands	Bo van Elzakker	Director
AgroEco (AE TZ)	Tanzania	Marg Leijdens	Country Manager
Ernst & Young (E&Y)	Tanzania		
Advance Consulting (AC)	The Netherlands	Peter Bleeker	Consultant
Management for Development Foundation (MDF)	The Netherlands	Eline Weijers	Trainer/Consultant
Royal Tropical Institute (Koninklijk Instituut voor de Tropen, KIT)	The Netherlands	Hugo Verkuijl	Senior Advisor

All of them are consulting companies, working on the international market. AgroEco NL is an international company, employing around 25 people, and has offices in countries like Tanzania, Ghana, Zambia, Uganda and Hungary. For better understanding the Tanzanian market, I visited the department of AgroEco in Tanzania, employing 10 people. Ernst&Young

is a global company, which operates also in the developing countries. Advance Consulting is an international company, working mainly in Africa and South-East Europe. Similar to Advance Consulting, MDF is an international company, being 22 years on the market. The last company visited was KIT, and this one is different from previous, because it is not-for-profit organization.

#### 4.3.1. Process of the consulting activities

To check the way of executing the assignment, the companies were asked to give a short description of the process of the consulting activities, from project initiation until completing the report. The answers to this question are presented in the table 2.

Table 2. Process of the consulting activities.

Company	Description
<b>AgroEco NL</b>	At the very beginning the company subscribes for the assignment, then put into standard AE format, afterwards begins with searching for potential donors, what brings the filling of project proposal, then comes signing a contract, and sending it to the company status and progress of project,
<b>AgroEco TZ</b>	Finds a project, and makes market studies, but sometimes it requires searching the exporter, and training him, then the company brings the whole farm to be certified in quality, in the meantime makes regular visits, solves problems, searches for added values, if needed invited specialists
<b>Ernst&amp;Young TZ</b>	At the very beginning winning an assignment is the most important thing, it comes usually from newspaper, the company tries to involve some people from the customer in case of appearing problems, such decisions causes long discussions, after some time the consultant shows progress, and gives the draft report, afterwards makes presentation and gets evaluation,
<b>Advance Consulting</b>	At the beginning consultants identify lead (consortium of partners + business case), then assess business case in its potential for acquiring financing, afterwards contract client for further development of business



	case and acquiring financing, assist client or consortium in developing business case and finance acquisition, the decision made by finance provider most of the times results in completion of the assignment
<b>MDF</b>	Usually contacts are searched by clients, after the decision of cooperation the questions are prepared, and further logistic preparations are made, there are three steps of making assignment at the company – getting in touch, execution and results of assignment, working out in NL
<b>KIT</b>	Prohibited to share,
<b>MMA</b>	The company is choosing or being chosen by a client, and then come meetings to discuss the assignment with customers, afterwards consultants searches information on the websites, make interviews, visit potential producers, after collecting those information a draft copy is made, this activity causes discussions on the topic, if everything is done as expected, the assignment given back to the client

All companies are working in a standardized way. After acquisition of the assignment, consultants meet with the customer to discuss the details. Then consultants search for the information needed. Afterwards the draft copy is made and presented to the customer, what often brings discussions on the topic. When the customer's expectations are met, the final versions of the assignment are given to the customers.

#### **4.3.2. Knowledge sharing and exchange**

Due to the fact, that MMA faces problem with proper sharing and exchanging knowledge, the companies were asked how the share and exchange knowledge in the company. The answers are presented in table 3.

Table 3. Knowledge sharing and exchange.

Company	Description
<b>AgroEco NL</b>	shares knowledge through reporting all assignments, meetings with other employees, emailing to each worker, open space offices, fast internet connection is also available, well-designed intranet network, for reducing costs of callings they use Internet calling software (Skype),
<b>AgroEco TZ</b>	scheduled team meetings once per week with all workers, emailing to each one, they have well-designed web-site and service site, for constantly contact between offices there are meetings three-four times per year with other departments of AE,
<b>Ernst&amp;Young TZ</b>	as a global company uses its own web databases, they scheduled weekly meetings with Tanzanian team, emailing to each workers all over the world
<b>Advance Consulting NL</b>	emphasizes verbal (physical, telephone), send emails to each worker, and to a limited extend written procedures, circulation of magazines where the company is subscribed, scheduled weekly meetings, bilateral (daily) talks (both ad hoc and through partnering in a team) and updates; physical filing / archiving; filing on common accessible exchange server,
<b>MDF NL</b>	mission reports sent to all workers, syllabuses made for each topic, monthly meetings with all workers, scheduled internal days, emailing – but preferably personal meetings with all other employees,
<b>KIT NL</b>	as a non profit organization makes launches, meetings within organization, presentation, writing a book, planning days, the whole knowledge is available for everyone
<b>MMA</b>	shares the internal knowledge through server, emailing between all workers, meetings, but not scheduled, they discuss everything with other employee, rely on teams, making trainings, participating on the discussion forums, and consultant associations on the basis of benchmarking, they borrow materials from other companies,

The conclusion at this point is that MMA shares and exchanges knowledge in almost the same way as other consulting companies. Activities, which MMA could use to improve its system are: Intranet network (AE NL, AE TZ, E&Y TZ), team meetings scheduled once per week (AE TZ, E&Y TZ, AC NL), subscription for thematic magazines (AE NL, AE TZ, AC NL), syllabuses from each assignment (MDF), writing a book with the farmers about assignments, as KIT did.

### 4.3.3. External and internal sources of knowledge

Next question which appeared during researches was about sources of knowledge used. The answers are presented in table 4.

Table 4. External and internal sources of knowledge.

Company	Description
<b>AgroEco NL</b>	uses mostly its own library, Internet sources, own intranet network, reports written by other employees, they subscribed for thematically magazines, if needed they employ additional specialist from other companies, still one of the most important is physical contact, knowledge is exchanged between workers during meetings, for better understanding the topic assignment are made with third parties
<b>AgroEco TZ</b>	emphasized team meetings, during executing assignment there are made interviews with farmers, traditional source of knowledge as Internet, intranet side of AE NL, employees are obliged to read newspapers, magazines, other reports,
<b>Ernst&amp;Young TZ</b>	gets knowledge form other people, reports written by other consultants, Internet sources of knowledge, company evaluation, the strong point are worldwide databases, where the company has unlimited access, daily newspapers, thematically magazines,
<b>Advance Consulting</b>	gets knowledge from personal info, staff (associates) management, also from (potential) clients and financiers, they have electronic databases, also subscribed for magazines; from internal sources of knowledge the company uses staff, management,

	database; external sources of knowledge are: associates, (potential clients), databases, magazines,
<b>MDF</b>	uses traditionally Internet, and mostly own experience, they get also newsletters, magazines, it has its own library, through trainings they learn from other people's experiences,
<b>KIT</b>	as a governmental company uses own library, wide-used Internet, Dutch national statistics, the most important is tacit knowledge from own experience, also they get newsletters. Program called Virtual Learning Community helps with exchanging knowledge among participants, trainings, and joint learning have similar advantages with sharing and storing knowledge,
<b>MMA</b>	takes information from national macroeconomic data, regional statistics, sub sector specific data, other reports, interviews with customers, trainings are seen as a place for exchanging knowledge,

The sources of knowledge used are mostly the same for each company. MMA may add to its sources of knowledge the following sources: libraries (AE NL, MDF, KIT), thematic magazines (AE NL, AE TZ, E&Y TZ, AC, MDF), joint learning – blended learning (KIT), Virtual Learning Community – e-learning (KIT).

#### 4.3.4. KMS and its organization

The main problem at MMA is a proper KMS. Therefore the companies were asked about their Knowledge Management System (KMS) and how it is organized. The results are presented in table 5.

Table 5. KMS and its organization.

<b>Company</b>	<b>Description</b>
<b>AgroEco NL</b>	KMS at the company consists of project reports, workshop manuals, training materials, they let people work by their own, but help also with connections some facts, it also uses internet connection for brainstorming to get new ideas, but the problem is

	lack of well-updated system,
<b>AgroEco TZ</b>	No KMS at all, but there are trials for building new system,
<b>Ernst&amp;Young TZ</b>	as a global company has the system based on the worldwide data, which is very useful, they get around 80-90% of information from that system, it is also updated once per quarter,
<b>Advance Consulting</b>	No KMS,
<b>MDF</b>	according to the consultant KM is one of the product and it must be well done,
<b>KIT</b>	makes “writeshop” trainings, Virtual Learning Community, learning alliances, which help to use KMS, share and store knowledge in the most efficient way,

Some companies do not use any KMS, and some built it on own needs and experience. Proposed KMS for MMA includes elements from other consulting companies, like Virtual Learning Community (KIT), worldwide data, web-based system. All companies use Microsoft System tools and Intranet site. MMA is missing Intranet, and in my opinion it will be very useful for sharing and storing knowledge, as well for more effective using knowledge.

#### ***4.4. KMS preferences and possibilities at MMA***

MMA is a specific company due to the fact, that the owners are one Tanzanian and one Dutch man. So the culture is mixed, and the possibilities and preferences are also divided into European and African wishes. The results of the survey show that all companies, especially those working international (AgroEco, Ernst&Young) work in the similar way compared to MMA. MMA has established strategic goals, and wants to achieve them. The proper filling system is a preference at MMA. The company’s aim is to share and properly store the possessed knowledge. Furthermore MMA wants to have an easy access to all data available. This helps MMA to find information required for the executing assignment. MMA prefers to have a web based system, which is in fact the most efficient (Fernandez, 2004). After required training, consultants will be able to use all available functions of the software. Employing new workers only when the market requires it, belongs as well to the

MMA preferences. When market demands new services, the company should adjust its services.

There are plenty of possibilities for MMA to work better. Taking into consideration other companies working on the Tanzanian market, MMA has the chance to improve its services. First of all the collection of information can be improved. According to the results of the research, the information for MMA can be found in the national macroeconomic data that are used if the sector is not very certain. Geographical data and economic data such as economic development, the policy and national agriculture and information from other countries are seen also as the source of information at MMA. More updated information, so the new possibilities of getting the knowledge, MMA will find through the cooperation with other non-profit organization. If there is no threat of competition MMA can start cooperation with other consulting companies. The possibility of the subscription for the magazines gives MMA the chance to find the most recent news and important issues for the consulting activities. The possibility for MMA to improve its services and data availability is writing syllabuses from each topic of the assignment (MDF). A time-consuming, but useful possibility of sharing knowledge is writing a book with all advice for the farmers (KIT). The next possibilities for MMA where it can find the information are the regional statistics. Sub sector specific data MMA is searching for include supply and demand on the global market, main producers, exporters, importers and trends. The main source of such information is other downloaded reports, giving plenty of information. Positive thing of all those reports is that the companies are willing to share with MMA according to the interviews that were done (p.69-75). The possibility of getting information is the collecting data of production what is available and what exists by visiting Ministry of Agriculture. Data is collected but not all of it is fully reliable. The fourth possibility to get the certain knowledge is interviews with other people. MMA took training in the field of how to teach adults, which was very useful and helped to understand adults' way of thinking and working. All MMA workers are up to date in their field of work, however they do not use libraries and they would like to subscribe for some magazines about consultancy.

The possibility for exchanging the knowledge and experience between workers is establishing "talking rooms" [Łobejko, 2004]. As MMA consists only of three workers, such "talking rooms" might be useless, but if the company wants to grow, it will be a good option for consultants, who are dispersed on the world. Personal contact helps to build trust and reliability on all workers in the same company. Face-to-face meetings help with sharing tacit knowledge among workers, but it is sometimes impossible to meet and discuss important

points. For MMA it is important to schedule meetings for sharing new knowledge and experience, what will help to use, in the most effective and efficient way, tacit and explicit knowledge among workers.

#### **4.5. Conclusion**

On the basis of survey new options for MMA were found, methods of using the existing knowledge, its preferences and possibilities. The authors like Becarra-Fernandez et al [2004], Nonaka and Takeuchi [1995], Jashapara [2004], Marvick [2001], proposed solutions for small companies that want to improve their KMS. Becara-Fernandez et al [2004] speak about the discovering knowledge in the web. Nonaka and Takeuchi [1995] focused on the knowledge transformation and Marvick [2001] followed them. Jashapara [2004] speaks about the sharing and storing the knowledge. The survey was done in the Netherlands and Tanzania, to compare MMA with similar companies. Possibilities of implementing new KMS should consist of different way of sharing and exchanging knowledge, that were found at other consulting companies Intranet web site, team meetings scheduled once per week, subscription for thematic magazines, syllabuses from each topic, and writing a book (KIT).

The strategic goals mentioned in the first sub question, must follow the general framework based on the acronym “SMART” and be Specific, Measurable, Achievable, Realistic and Timely. Strategic goals as new IT solutions are the necessity, and assist MMA’s development. Easy access the information possessed by MMA determines the success of the organization. Strategic alliances with non-profit organizations are helpful with proper using the information, and at the same time do not compete with MMA. For the current situation, the needs in the field of knowledge are connected with improving sharing and storing of knowledge. Proper filling system based on the Internet is highly desired. Access to all available data (proper updating system, strategic alliances) will make easier and faster searching of the information. The need of employing French-speaking consultant is an option in case of business requirements. Setting more strategic goals will have sense after introducing the new KMS at MMA.

Comparing other consulting companies with MMA had the aim to find better solution for KMS, already applied at other consulting companies. Answering the second sub question related to the benchmarking, MMA should improve its service for staying competitive on both

the international and Tanzanian market. Examples of different consulting companies and their way of solving problems with sharing and exchanging knowledge shows MMA which parts of the sharing and storing possibilities can be adapted. MMA should search for information and knowledge in different sources used at the analyzed companies. However KMS can not be copied from other companies, because each one is different. It is not always possible to implement the whole system from other companies. The standardized way of executing assignment is similar to all other companies' way of working.

Within the third sub question MMA preferences and possibilities were analyzed. The conclusion is that MMA is very open for new solutions and proposals. MMA preferences have the character of improving their IT system. The only one thing, which the company would like to avoid, but still prefer, is employing new consultants unless the business that requires, with the exception of a French-speaking employee, for broadening the services to the West African markets. The possibilities of fast company's development on the Tanzanian market are still limited. Therefore MMA tries to make the full use of all possible solution of the development. The research on the visits in other companies working on the Tanzanian market showed that the solutions which they use are also possible to implement at MMA. *Outsourcing* is a possibility, where MMA can improve its services, and work much more efficient. This topic needs to be more investigated with respect to market's conditions in Tanzania.



## 5. Knowledge Management Four Pillars

### 5.1. Introduction

The third step in the Stankosky and Baldanza [2001] model are four pillars of KM, which help with the right implementation KMS. In this chapter, the analysis of those pillars will be made together with the recommendation for MMA. The four pillars bring us to the following question.

3. Which objectives are formulated for the desired KMS with respect to the KM pillars

- a) leadership
- b) organization
- c) technology
- d) learning?

### 5.2. Leadership

*Leadership* as the first pillar of KM improves business for competitiveness and success. It requires the leader, who can stay at the top of the organization, and provide leadership needed for cultural changes in the company. MMA is a small company and choosing the leader may be difficult. Due to the fact, that the company consists of three workers, leaders at MMA should be all workers. This situation concerns business culture, strategic planning, climate, growth, segmentation, and communication. However it will be also possible to divide those elements between workers, but problems with communication services in Tanzania may cause discrepancy of company's goals. According to researches done by Chesebrough [2006], Stankosky and Baldanza [2001] division of elements in the first pillar is highly recommended for medium and large companies, so not for MMA. The knowledge management must be taken from the top [Chesborough, 2004]. MMA's directors are both well-educated and with long years of experience. Choosing between two directors who should be a leader will bring unwanted misunderstandings and inner competition. Undesirable behavior may cause failing of the whole company. The *leadership* supports MMA with getting the knowledge from the top of the organization. The executives must not

only support, but also endorse, enforce and participate [Cheseborough, 2006]. All employees should be involved with creating the knowledge.

### **5.3. Organization**

Second pillar of KM is *organization*. The whole operational process of KM must be combined with redesigning the organization. This is also mentioned by Bixler [2002] and Feher [2004]. New KM changes the culture of the company and workers responsible for these changes should be highly capable and open for new experience. At MMA such changes are also required because the fast developing and changing Tanzanian market is a driving force for all companies in East Africa. MMA has already worked out a knowledge management system which is good for consulting companies. However it could have been better, especially the time of process of executing assignment is sometimes too long. A slow way of working is caused by bad infrastructure and inadequate technologies and due to this fact it will be very hard to change. MMA is now on track of changing towards a more reliable Internet connection that will bring faster workflow and better communication. As said before, for communication the best would be scheduling meetings once per week virtual or in reality. Then information flow will be smooth and continuous. But changes in the organization require responsibility and discipline, because in general the character of workers is hard to change and may meet a lot of resistance especially in small companies. The *organization* pillar supports MMA with designing the new way of working. It consists of improving the workflow. The increasing value of the company is based on highly capable people, rising job complexity and the universal availability of information on the Internet. Those changes are fundamental, contributing to the move by organizations to leverage KM solutions [Bixler, 2002].

### **5.4. Technology**

*Technology* as the third pillar of KM consists of all technological tools, which may lead the organization to success. Earlier analyzed tacit and explicit knowledge (chapter 3) bring also some ideas about the technology, which may be used at MMA. The company uses quite a lot of technology, especially now that they have created a new information system. A technological solution must answer the company needs [Stankosky, 2002]. Before

implementation MMA must know its scope and requirements. Eventually the IT specialist must design technological products that eventually answer the MMA needs. MMA has a problem with proper filing system, which is instrumental for upgrading the knowledge management and acquisition in the company. This filing system can be used to provide easy access to all available data in the company. This data consists not only of internal reports in the area of sub sector selection, sub sector analysis and value chain development, but also lots of general information like demographic, socio-economic and regulatory information. Proper implementation of the technology tools will help MMA to solve problems with sharing and storing knowledge. MMA uses different kinds of technologies, for example e-mails, search engines, data warehousing, and communications. MMA sends also all information to all workers, which is then structured and stored. Each assignment should have its own catalogue and there all documents should be stored. After that information is structured and personalized. At the end of assignment recommendations are written and solutions to problems are formulated. With using Internet and Microsoft Office software MMA has no problems, but introducing new tools brings some misunderstandings, and slows down the way of working.

Since MMA is a company that gives different kinds of training, it is useful to introduce e-learning [Feher, 2004; Fernandez, 2004, Łobejko, 2004]. Its idea is based on online learning, computer-based training, and web-based training. Good and reliable Internet connection is required, and since it is installed at MMA, consultants may start working with e-learning. Unfortunately, East African internet conditions are not very good. This will pose some problems. Nevertheless introducing online learning is possible, because the Internet is available almost in each office. In addition, there are plenty of Internet cafes. For a small charge, it is possible to use Internet, with quite good speed and reliability. Such trainings will save a lot of time for both trainees and trainers. It forces workers to be very active during the course, and the place of giving such lectures is up to the trainer. It also requires the discipline of both the lecturer and participant. Costs of such trainings are much lower than costs of traditional trainings. Proper software, based on the web site solutions, must be introduced.

E-learning however should not replace personal meetings, it is only a way to complete the whole training system. The alternative solution is blended learning, where traditional training is combined with e-learning. MMA consultants can give a traditional course for example a week long, and complete it through Internet meetings. Personal meetings can encourage participants to absorb knowledge faster and in a more effective way. The choice which kind of training is better should be left for MMA directors and further research. E-

learning is a very useful tool for consulting companies that have the training activity in their offer. It helps with transferring knowledge between clients and consultants in a smooth way. Everything connected with the training may be transferred fast, and the explicit knowledge is spread wide. At the same time visualisation, video conferences, on-line meetings help with better understanding the way of executing an assignment.

MMA is a consulting company and a tool like Decision Support Software would not be very useful. On the market decision tree software (useful for sales companies), Monte Carlo simulations (helps to characterize potential outcomes), forecasting (uses historical data and applies trends and other techniques) and general business modeling are available. Consulting companies, like MMA have small risk with their business, so Decision Support Systems are not needed for them. Moreover the DSS is an unnecessary cost for MMA. Process modeling which is also mentioned in Stankosky's four pillars is used by MMA. All its assignments are executed in the same way, and solve in many cases the same problems. Due to the infrastructure problems in Tanzania, communication is a huge problem. Mobile phones are almost everywhere available, but the costs of calls are very high. MMA investing in new and reliable Internet connection makes a big step in improving communication. VoIP software is broadly available, and often used by companies in West Europe, to reduce costs of business calls.

Another possibility for MMA are portals [Łobejko, 2004], which after good implementation of the IT system may create most of the knowledge. Personalisation, what is the basis of portals, causes that the receiver only gets the information that is connected with his/her interests from all available data. The advice for MMA is to install business portals, automatically downloading important information from the Internet. Each MMA worker after logging in only gets information interesting for him/her. The consultant profile may be changed according to demand. Discussion groups and e-mails create the peculiar culture of the organisation. MMA should emphasize the exchange of information in that way, because it helps to understand in a faster way different situations on the market. Moreover, it prevents a search for information that somebody else already has done. The efficiency of going back to the sources of information is very high and reliable.

To put the different kinds of technologies briefly the technology implementation, recommendations for MMA are:

- Scheduling meetings at least once per week between MMA workers, and if not possible personal meeting, then with using computer tools,
- Portals with personification, where MMA workers will get only information which are interesting for him/her,
- E-learning, the more efficient and effective way of carrying out trainings, without leaving the office,
- Blended learning, traditional trainings combined with e-learning,

### **5.5. Learning**

The fourth and the last pillar is *learning*. Without learning, all technology and processes are useless. Workers through learning begin to share knowledge, build social culture, and by using each other's ideas solve problems and get new ideas. Within this pillar companies use their tacit and explicit knowledge with respect of learning process. MMA as a consultant company must use intuition next to the market research. Innovation and invention is highly recommended for companies like MMA that can be achieved through sharing knowledge via forums (MMA is a member of consultant companies' forum), subscription of magazines, newsletters, discussion groups. During forum sessions new ideas and experiences are shared with other interested consultants. Magazines bring the newest results of research to MMA, and help with using innovative solutions for customers. The *learning* pillar supports MMA with better sharing knowledge. It is necessary for creating helpful KMS for the company. The knowledge is created through social interaction and learning [Bixler, 2002].

### **5.6. Conclusion**

The third step helps with designing proper KMS. This requires some changes at MMA, which may be seen as recommendation for changes in the existing system. All aspects of the four pillars are relevant and applicable to MMA. The architecture of those pillars is to provide better implementation of KMS. In order to implement KMS a balance between all pillars is required.

With regard to all pillars, the following conclusions are formulated:

- Leadership – since MMA is small company, there is no need to appoint somebody to pose as the leader (Bixler [2002], Feher [2004]) However good solution for overloading information is the division the elements (business culture, strategic planning, climate, growth, segmentation, and communication) between workers,
- Organization – MMA should speed up the process of executing assignment; communication problems may be solved by scheduling regular meetings; workflow the same as communication should be more reliable and faster,
- Technology – the introduction of e-learning or blended learning is recommended; Decision Support System is not a necessity; MMA should invest in new, reliable Internet connection; external storing system is necessity,
- Learning – innovation and invention may be achieved by MMA through sharing knowledge via forums, subscription of magazines, newsletters, and discussion groups; during forum sessions new ideas and experiences may be shared within other interested consultants; magazines may bring the newest results of researches into MMA, and help with using innovative solutions for customers.

## **6. Organization structure**

### **6.1. Introduction**

After analyzing the strategic objectives and the four KM pillars for MMA, it is possible to design the organizational structure known as the prototype of KMS. This element of the Stankosky and Baldanza [2001] model is the main subject of this chapter. According to Feher [2004] most of the consulting companies have a project-oriented organisational structure. Although the hierarchical structure of them builds up as the carrier way of employees (junior and senior consultant, manager and partner – or similar equivalent positions) the project structure is temporary, and partly independent. The organization structure must involve organization environment, strategic goals, and four pillars of KM.

In this section the following research question will be analyzed:

4. What will be the most proper organization structure for MMA, as a prototype of KMS?

### **6.2. Organization structure at MMA**

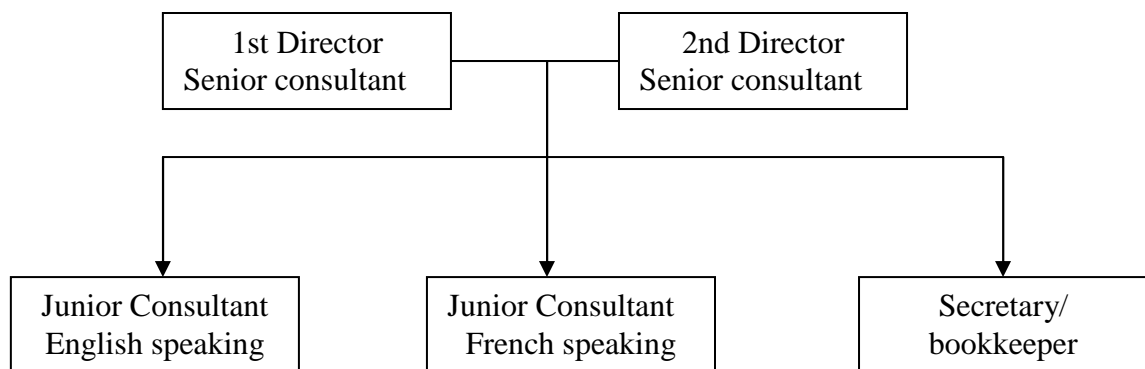
The research made by Feher [2004] shows that MMA as a typical consulting company must strive for organisational solutions (culture, behaviour, HRM) in order to support existing practice leading to stronger communication and cooperation between employees. Then MMA needs to develop IT solutions in order to support geographically dispersed employees. The rule of socio-technical system is true in these cases: even if a company concentrates on technological solutions, it has to create the organisational background of usability [Feher, 2004].

MMA needs to reorganize its structure to the hierarchical one. Two MMA directors should stay on the position of the presidents (senior consultants) and one employee should be engaged as a junior consultant. According to senior consultants wishes a French speaking worker must be employed, to expand to the West Africa. It is recommended to employ somebody who will be responsible for the activities like: looking for new assignments, searching information needed for executing assignment, reading subscribed magazines,

participate in conferences, forum's discussions, meetings. That person may be also a bookkeeper to ease the senior consultants. Moreover he/she must know fluently English, French and Swahili language.

The hierarchical structure of MMA, recommended by Feher [2004], brings the senior consultants more time to execute assignment, leading trainings, and be occupied with other services, than information searching, reading magazines, and searching new customers. However the MMA directors need support especially from IT specialists and a bookkeeper. That supports will lead the directors to an efficient and effective way of working, and use of time.

The organizational structure is presented in the Figure 7.



*Figure 7. Proposal of organization structure at MMA.*

### **6.3. Conclusion**

The outcome is that MMA should employ two new workers, one junior consultant, and another secretary, who will be responsible for all tasks connected with information searching. It is also possible to employ the secretary with an accounting background. MMA directors should not avoid employing new workers; otherwise they stop the company development. On the Tanzanian market the development is a necessity and the companies following changes will stay on the market in a competitive position.



## **7. A New Knowledge Management System at MMA**

The new KMS will be analyzed in this section together with strengths and weaknesses of the system.

The output is the prototype of well-organized KMS, with respect to organization's culture and its strategic objectives. After implementing this system MMA can work better, faster, cheaper and more innovative. The analysis of the organization environment described the market where MMA operates and the way how MMA uses the possessed knowledge. Nonaka and Takeuchi [1995] and Marvick [2001] provide solutions regarding tacit and explicit knowledge. This requires changes in the way of thinking of MMA consultants, for example being more open for new technological tools (Feher, 2004; Fernandez, 2004). The connection between Nonaka and Takeuchi [1995] and Stankosky [1999] is clear if we look at the company from the technology point of view. The first model emphasizes the need of introducing technology and the second one connects system engineering (leadership), organization development (organization), system management (learning) and organization behavior (technology). The new KMS must follow the strategic goals of MMA. Through the proper filling system MMA will make a full use of the knowledge possessed. The established web-based system will be easy to update and access to all data will be simplified. The basis of the architecture of the KMS is the four pillars. The lack of balance between them will cause the failing of the whole system. The improvement of each element of the pillars gives a better foundation of the KMS. Reorganizing the structure of the company is an important activity. MMA is open for the proposals of the restructuring. The additional employees will enlarge the possibilities of the activities offered by MMA. The organization structure at MMA must be well designed to implement new KMS and the model of Łobejko [2004] reflects that.

At this stage, the scheme is called the prototype of KMS, where information is an essential element for MMA. The information appearing on the entry to the system can be stored in the information base. If the information is only collected, the searching for them can be done by using for example the search engine [Łobejko, 2007]. Such information's collection is still treated as a database and not the knowledge management system. There is no one specified solution for the KMS creation. In the MMA case, the knowledge is extracted from the information about the already existing projects (descriptions, reports). It has the aim to get the most from the explored knowledge. The possessed knowledge at MMA reached the

position, when finding proper information became a difficult task. According to Łobejko, MMA is too small company and introducing new knowledge management tools has no sense. There should be introduced already existing system, for example knowledge portal. The idea of portals was already discussed in the chapter 5.

At the beginning of the process of the executing an assignment, consultants at MMA collect all kind of information from different sources. Collected information is analyzed and transformed for the needs of MMA. These information concerns the basic data, which MMA consultants collect to start the execution of the assignment. The collection of the information is done in the internal and external environment of the company [see chapter 3.3.]. Within the transformation the context to the information is added. The information coming from the external and internal environment is transformed in the way, that MMA consultants can use it as a basis of the assignment. The whole transformation depends highly on the type of assignment, so each transformation is different. Afterwards the consultants should search for the solution, which will be relevant to the information found. The knowledge about the searched topic arises and MMA consultants will use it for their assignment. The result of that activity is simply knowledge. According to Łobejko [2004] the information comes from the company's internal and external environment, its employees and its IT systems. The transformation of information must be made with the purpose of providing the future actions and guiding the consultants in performing and completing the task. The knowledge appearing after the transformation should be used by both workers and as new quality information, which enriches existing information system, and creates the organization culture. The knowledge coming out after the information transformation should have the influence on the new information coming into the system. The prototype of KMS based on the Łobejko model [2004], explains the meaning of information and knowledge transformation in the knowledge management system. The developed system makes clear and available for other companies explored technologies and patents. The invention of the different kinds of technologies brings MMA's competitive position on the market.

After the knowledge transformation a part of it is transferred to the external environment of the organization, through new technologies, ideas and patents. Those items are used during the communication between the company and the external and internal environment. They are used in the context of sharing, storing and creating the knowledge. Using such a system, MMA will be able to create specific organisational culture and procedures. Especially the procedures and processes of the assignment's executing should be systematized and

structured. Fully explored tasks for assignments and proper structure make the efficiency of MMA much higher. The scheme of the prototype of KMS may be found in section 2.5.

Before implementing the new knowledge management system, it is important to analyse strengths and weaknesses of such a system. Undoubtedly, the strengths of the KMS are improving the working system and reducing time of executing assignments. Learning by doing with respect to IT tools and working according to the West European Economies is seen as a positive point of introducing the new system. Furthermore, well-designed KMS will bring for MMA better way of working, faster adaptation of new market conditions, cheaper executing of the assignment and innovation of tools used at work. Surely, the strength of KMS in the small consulting company is becoming an important competitor on both the Tanzanian market and international market, working in a more proper way by using the latest technology tools, winning international customers wanted to invest in Tanzania and broaden an offer of trainings. MMA introducing new KMS system may expect also some inconveniences. As weakness may be seen failing business because of too fast implementing and changing strategic goals of the company. The misunderstandings or another point of view of KMS may cause problems, as well the consultants' resistance with implementing new system. As a weaknesses of the new KMS are also seen the slow way of adjusting to Tanzanian market conditions, problems with proper implementing the system because of weak infrastructure in Tanzania, different way of adjusting the system in the West European Economy and in the Less Developed Economy.

KMS implementation is a process requiring well-designed steps, and success of the company depends highly on the correct way of working. KMS helps to use technology and human resource capital, for working efficiently and effectively. Because MMA wants to introduce a new KMS, it can be more competitive on both Tanzanian and international market. The implementation is a long process. Sometimes it requires changes in the way of thinking and working. MMA is a small company and introducing new system will not bring serious problems. The goodwill of workers is also a determinant of implementation of KMS. All above mentioned recommendations for MMA make the view of the new KMS clear. Consultants will have the feeling that the executing assignment proceeds properly, and all steps are fulfilled.

## **8. Conclusions and recommendations**

Match Makers Associates Ltd. is a small company, working in Tanzania, willing to stay competitive on the market. It wants to use possessed knowledge in the most efficient and effective way. The implementation of KMS requires the deep analysis of the company's character, its external and internal environment, scientific literature, other consulting companies, and adjusting and adding missing points.

### **8.1. Conclusions**

Benefits of Knowledge Management System for small consulting companies like MMA are usually seen as a better decisions' process. Proper implementation of KMS determines success or failure of the company. It depends on the time of the implementation of the new system and the goodwill of employees. Continuous changes on the market, forces MMA to improve its way of working in order to stay competitive. Working out the new system requires priority. A suitable KMS at MMA connects the environment of the company, and strategic goals. Using the Stankosky and Baldanza [2001] model the most suitable system for MMA has been designed. The system after implementation gives an answer to the main MMA problems regarding knowledge management. Better decision-making process, faster responding on the market demands, better knowledge transformation, improved way of working and communication are the main benefits of the new KMS at MMA.

The implementation of the new KMS consists of a number of phases. At the beginning, MMA must use tacit and explicit knowledge. Better usage of that, together with transformation, brings a competitive edge. Afterwards, MMA should implement the KMS, based on the proposals of Feher [2004] and the framework of Łobejko [2004], Stankosky and Baldanza [2001]. Within those models, the basis is tacit and explicit knowledge transformation. Comparison with other companies indicates differences and proposals of changes to the system of working at MMA.

This research was aimed to develop and propose a proper KMS for small consulting company, like MMA in order to enable them to improve their operations. Research consisted of familiarizing with the way of working in Tanzania, at MMA offices in Arusha and Dar es

Salaam (staying in Tanzania for six weeks), finding out the character of the company and recognizing the external and internal environment.

Interviewing similar consulting companies in the Netherlands and Tanzania (AgroEco NL, AgroEco TZ, Erns&Young TZ, Advance Consulting NL, MDF NL, KIT), showed where MMA is better, and where the system of working is missing some important points. Moreover the analysis of other consulting companies helped with finding the KMS which is already used by others, and may be implemented in case of MMA. It also brought the conclusion that the way of working at MMA has lot of similarities with others. MMA is a quite resilient company, adapting new technologies and ideas very fast and following economic trends. The new KMS will bring MMA competitive edge and further growth. MMA should schedule the regular meetings, where current problems will be discussed, then subscribe for the thematically magazines, implement the newest technologies, which are available on the Tanzanian market, insist on personal meetings and making summaries in the form of booklets. All above mentioned solutions are the basis of the new KMS, what gives the chance for full use it at MMA.

## **8.2. Recommendations**

Proceeding research questions I can give briefly recommendations for MMA for their new KMS. Regarding the tacit and explicit knowledge [Chapter 3.4.], MMA has already collection of that, where the first one comes from experience and is difficult to share with other people. The second one is drawn from physical sources. MMA can use already created knowledge during executing assignment what brings deep analysis of the problem. The experience, which consultants collect, is one of the most important tools, giving MMA competitive edge. Possibilities of transformation of tacit and explicit knowledge bring ideas about better using information at the company and help to understand the real value of tacit and explicit knowledge. Technology development gives MMA opportunity for introducing new tools, assisting assignment's executing. It requires installing the new IT system (appendix, p. 77) and training the consultants in the IT field. The transformation of the possessed knowledge brings especially the categorization of information. So this will surely assist MMA with proper use of knowledge and the problem with overloading of it. The out of the office way of working at MMA and less personal meeting may be solved by using proposed technology solutions. All in all, MMA is a young company, managing by well-

educated directors, the growth potential is huge and implementing proposed knowledge management system will keep the company on the stage of very competitive, on both Tanzanian and international market.

Decision Support System (DSS) is a possibility but not a necessity at MMA. Consulting companies work without the risk of failing the new venture. Forecasting, simulations, decisions trees are not required here. But together with the company growth it will be good to research the possibilities of forecasting and simulations. A very good solution for training, which MMA does and can save time for other activities like executing assignment, is e-learning or blended learning. It does not matter where participant is for the training to be carried out. Combination of e- and traditional learning is called blended learning and is very useful when participants must practice. It is recommended to make researches on that new technology possibility. The uniform of assignment is a good solution which is already done at MMA. All projects are in the same version and make easier searching information for consultants. Data warehousing must also be improved. MMA stores its data only on computer server and in case of unexpected events, getting them back might be impossible. External hard drive is recommended by computer specialists - Abdallah, who were interviewed during research time in Tanzania. This hard drive must be kept out of the office. MMA should also improve sharing data and search engine. This can be done by, already designed and implemented new system by Jonathan Reeve (IT specialist at MMA office in Arusha). To stay competitive on the market MMA must use innovation and invention. The newest solutions for consulting companies can be found in the Internet or thematic magazines. MMA is subscribed to different kinds of forums and for the newest information it shall refer to magazines. Only by being well-informed can help MMA to stay on the market. Communication is the main problem in each company. Due to this fact MMA should avoid mistakes, made by others. Each problem or new ideas must be discussed with all MMA workers. Only regular meetings and reports can protect company against misunderstandings.

What is more, MMA workers use only the basic functions of the IT system and therefore according to Abdallah, MMA IT specialist in Dar es Salaam, extra training is highly recommended. The theory should be also well analysed by MMA workers to avoid making mistakes, during introduction of a new system or improving an old one. Knowledge transformation shows where the system must be improved and in which way, according to the tacit and explicit knowledge. It explains why the company needs changes and the importance of technology in a developing world.

The recommendations with respect to the four pillars of the Stankosky [2001] model are the following:

- Leadership – the elements of MMA services should be divided into employees, in order to have better control on all tasks
- Organization – the communication problem must be solved by scheduling regular meetings, the workflow must be more reliable and faster
- Technology – introduction of e-learning or blended learning is highly recommended
- Learning – sharing knowledge is achieved via forums, subscriptions of magazines, newsletters, discussions groups, where new ideas and experiences are shared.

### **8.3. Reflections**

During making researches for Match Makers Associates Ltd., I recognized that even very small companies can work resilient and gain new customers. Tanzania is a less developed country and the company must strive for businesses. MMA had done an achievement and the result brought the company into a competitive position. However the way that the directors manage knowledge, requires improvements and small, but important changes are highly recommended. Due to the inconveniences regarding the less developed country, the method of working is rather slow and time could be used more efficient. MMA directors are very well-educated, with huge experience. In some cases the consultants are afraid of radical changes. The newest IT improvements are not fully explored, nevertheless the positive thing is that consultants are willing to change and open to new ideas. The KMS implementation requires huge doze of goodwill and surely the directors will try to change the method of working, by acceptance of the new solutions. I proposed new KMS to solve fundamental issues, with respect to knowledge storing and sharing and the efficient use of time. Thanks to the good services offered by MMA, consultants are occupied with assignments. Better managing of knowledge will allow them to work more efficient and effective. Already MMA is a competitive company on the Tanzanian and international market. Implementation of new KMS will keep it on the high level of competition. The list of the benefits may be found in the Choy [2006] paper. The most important for MMA is that the KMS implementation will be help with faster responding new business issues, better decision making, improving communication between employees, reducing costs, increasing market

shares, better knowledge transformation, better employees training, better ways of working, improved communication, and increased profit.



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MMA's internal documents

## **Appendices:**

### **1. Questionnaire**

1. What is the main strategy at.... (name of the company)?
2. Could you give a short description of the process of the consulting activities, from the project initiation till the completing of the report?
3. How is the knowledge exchanged at ..... (name of the company)?
4. How is the knowledge stored at ..... (name of the company)?
5. Which external and internal sources of knowledge do you use?
6. Where do you get the knowledge about the market?
7. Does the company use KMS, and if so in which way?
8. How do you contact with other workers?
9. What are the main problems with respect to the KMS at .....(name of the company)?

All questions were asked during interviews. All protocols from interviews are kept in their original version.

## **2. Interview with Bo van Elzakker from AgroEco Netherlands, 24<sup>th</sup> April 2006**

There are in a sense three ways of getting jobs or assignments. First of all there are the complete assignments written out by governmental organizations. AgroEco, together with other companies can subscribe for these jobs, and with that subscription tender for it, win, and implement. Next there is the possibility of writing own proposal including funds from governmental and non-governmental organization, that is either accepted or not. The last way is to come up with own project and search for money at own convenience.

When there is an idea for a new project from AgroEco, is put in a standard format, created in the AgroEco team. This project idea is used to search for potential donors. When it is quite clear that there will be enough donors to fund the project, the idea is further worked out to the full project proposal. This full project proposal is then handed over to the higher management, to get their approval. If they give the green light, the search for sponsors is concluded and deals are made. For all these deals with the sponsors AgroEco uses a standard contract.

When a project has started, once per month report has to be sent to the Dutch office about the status and progress of the project. This is done for all projects, AgroEco is involved in.

Once per month, a progress report is sent to the higher management in the Netherlands. This is therefore the reporting on management level. On project level there is, or should be, much more exchange of knowledge between the project locations and the main office in the Netherlands. The target is to have contact on a daily level, by using communication ways like email and/or Skype®. There are however big problems at AgroEco with communication between the main office and the local offices. This is mainly caused by the fact that people in countries like Africa are not used to email, and therefore simply do not reply to questions. This causes big piles of unread or not replied email in inboxes.

AgroEco has invested in a fast internet connection. In the Netherlands it works well, in other countries there are, however, still problems with the internet connection, what is often not very reliable or fast.

AgroEco also tries to stimulate the exchange of tacit knowledge. This is done by employees' open offices. Everyone can hear what is going on, and what is said for example on the telephone. Also employees enjoy their lunch together, where knowledge can be freely exchanged.

The knowledge within AgroEco consists of project reports, workshop manuals, training material and knowledge in the heads of the consultants (the tacit knowledge). All the non-tacit, or explicit knowledge, can be stored in a computer. The problem however is that once the explicit knowledge is stored, and shared on the server, nobody looks at it again.

A good example of why it is important to share all the information within the company, is given by Mr. van Elzakker. Training documentations are very limited shared between the different offices of AgroEco, while the same kinds of training are offered worldwide. This causes that every person, who is going to give a training adapts the original document to suits his own requirements. These adaptations are not shared, and therefore everyone has to do them again, or does not want to agree with earlier made changes. This causes the wheel to be invented multiple times! AgroEco has found some funds to work on these issues and to improve the use and way the KMS works.

AgroEco has an intranet, but for the employees from Tanzania, it is often not possible to access this system or to find the right information (this is also due to the bad connection in

these countries). The right formats to store and share information on the server are also available, but seldom used.

Every employee within AgroEco has the availability over a laptop. Everybody stores most of their information on their own laptop. So this is the biggest source of information for most people. All project reports are on a server, where they are stored. This server is however very slow. The most recent data is found on the internet. The server makes no use of for example keywords. The KMS at AgroEco is a development of the last two years.

The following sources of external information are used at Agro Eco:

- Technical information on the internet and from the Wageningen University Library,
- A small internal library with a budget of 1500 euros. This internal library is not used very frequently,
- Marketing information is received from experts or other contacts,
- Several subscriptions on magazines. Every employee has the assignment to read some of the magazines and to indicate the relevant articles. This information is used as background information,
- Sometimes assignments are carried out together with other companies, which can also serve as a source for knowledge.

The following sources of internal information are used at AgroEco:

- A file containing previous reports,
- Physical contact → all employees of AE meet two times per year to discuss all matters and to talk about problems,
- Since one year the use of intranet, when faster internet became available.

It has changed a lot in the way of working. People, and mainly consultants, are very stubborn. That is because they are independent. So often they start with the right formats, but then they add things which bring them off the path. So AgroEco must make a trade-off between letting people use certain formats, and letting them make full use of their personal creativity.

To know what has to be present on the intranet, AE uses brainstorm sessions. Nowadays there are a lot of main directories with lots of info, but there is no clear structure.

There was no real implementation strategy used to implement the KMS system. Also employees have had no real training to work with the new system. They only have received some manuals which should make clear how to use it in the proper way. This apparently is not enough.

### **3. Interview with Marg Leijdens from AgroEco Tanzania, 18<sup>th</sup> May 2006**

The most common and usable way of sharing knowledge is through e-mails. Mostly each kind of knowledge is shared in this way, within plenty of companies. According to Marg, AE NL has a very good library and hardware system.

Sources of internal knowledge – team meetings, which are made with AE TZ workers, mails through all departments of AE. Moreover Marg has an idea to make better sharing and storing system, but due to the fact, that she has less time and technicians problems, she has not started with it yet. On the Tanzanian market they are rather pioneers, and AE is more concentrated outside the company than inside it. AE NL has good web-site, intranet site, where all AE workers has access. The AE NL intranet according to Marg has a big mess, and is very less time updated, but indeed it is accessible, and treated as a good way of sharing and storing knowledge. The system at AE TZ is also pretty well-done, they do have e-mail, web-site, service site (something like FAQ issue). It is better to solve problems from the place where they are, instead of sending them to the Netherlands for example.

The most important source of external knowledge is the Internet. AE TZ makes also meeting, where they can exchange some remarks. Also usable are interviews with other people, like farmers, employees from other companies. Reading newspapers, magazines, other reports is not the main way of finding information, but also helpful.

Description of the cashew nuts process:

- There was a need in Europe and Asia for cashew nuts, potential importer started to look for new companies in Tanzania, made also market studies,
- Market studies which the importer did, were mostly based on recognizing the area, interviews with farmers, then making some trainings for them,
- After that the farmer, who would like to export cashew got certificates from special companies and was able to export its goods,
- The whole process of exporting require also plenty of regular visits, solving appearing problems,
- It is all the time required to look for new systems, new added value,
- If it is needed, there are also invited specialists in this field.

AE TZ do not have very good connection with other AE in Africa. If there are some problems, they try to solve them by their own, or if special knowledge, for example in the marketing field is needed, they send questions to AE NL or AE SWE.

AE TZ is also usually working on the people knowledge net. The companies and employees meet together 3-4 times per year and share knowledge, resolve problems, give own opinions, exchanging experiences.

#### **4. Interview with Ernst & Young in Tanzania, 25<sup>th</sup> May 2006**

Ernst & Young is worldwide organization. The fields where they are working are institutional organizations, human resource recruitment, middle and small enterprises, financial institutions, financial services. They do studies regarded to MSE, marketing, entrepreneurship.

The main strategy of E&Y in Tanzania is working with plenty of specialists, who are not only trained in the specific field, but they also have the wide knowledge about other specializations. E&Y is working also in a kind of pyramid like director level, manager, assistant, consultants. Director is responsible for the whole assignment.

E&Y gets the assignment through advertisements in newspapers, request from clients, new ideas, giving some services for others.

Process from the request till the solution

After winning the right to make assignment, E&Y starts preparing the data. They meet with other people, try to involve some consultants from requesting company, and discuss all different approaches of the assignment. They try to involve at least one person from the client company to work with them during the execution of the assignment. After some time they meet with the client, show the progress, discussing all other approaches and trying to give their opinion according to existing theory. After that E&Y gives the draft report, makes the presentation and show findings. They require the evaluation immediately after presentation, also all comments are welcome.

Sources of knowledge for E&Y are other people, reports, internet, company evaluations. E&Y as a worldwide company has access to all databases from other E&Y departments. But they use usually only those reports from Africa, because of the culture, economic and development similarities.

Exchange of knowledge within E&Y is based on the web database, meetings, emailing. There are made weekly meetings to discuss progress, problems, and plans for the assignment.

The KMS which they use is mainly based on the worldwide data. They have access and use it properly, through typing keywords. The system in E&Y Tanzania was established 5-6 years ago and it made their work much easier, than it was. The whole system is very useful, they take around 80-90% of information exactly from this source. Updating of Tanzanian data is made once per quarter. But unfortunately there are still some internet problems in Tanzania.

The system how E&Y Tanzania operates is based on the E&Y World system. All of departments are working in the same way, they have the same system and structure. All E&Y are standardized, and there is visible cooperation between all countries and continents. This also appear through meetings twice a year all local headmasters in the headquarter.



## **5. Interview with Peter Bleeker from Advance Consulting Netherlands, 23<sup>rd</sup> June 2006**

Due to the fact, that I had a car accident on the way to Advance Consulting, Mr. Bleeker answered on the questions per e-mail.

### *1. How is knowledge exchanged within the company?*

Means of communication: verbal (physical, telephone), email, and to a limited extend written procedures, circulation of magazines.

### *2. How is knowledge shared in Advance Consulting?*

Via weekly meetings, bilateral (daily) talks (both ad hoc and through partnering in a team) and updates.

### *3. How is knowledge stored in Advance Consulting?*

Physical filing / archiving; filing on common accessible exchange server.

### *4. Which sources of knowledge do you use?*

Personal info from staff / associates / management; info from (potential) clients and financiers; electronic databases; magazines.

### *5. What kind of internal and external sources do you use?*

Internal: staff, management, database

External: associates, (potential clients), databases, magazines.

### *6. Does Advance Consulting have Knowledge Management System? And if has, how does it work?*

No.

### *7. Could you give a short description of the process of executing assignment? From the project initiation till the completing the assignment.*

1. identifying lead (consortium of partners + business case)
2. assessing business case in its potential for acquiring financing
3. contracting client for further development of business case and acquiring financing
4. assisting client / consortium in developing business case & finance acquisition
5. decision by finance provider most of the times results in completion of the assignment.

### *8. Which IT system uses Advance Consulting?*

Microsoft Exchange, Windows XP/2000, several MS and non-MS applications.

### *9. Are any common problems, which should be solve in a short period of time?*

related to IT: yes.

## **6. Interview with Eline Weijers from MDF Netherlands, 12<sup>th</sup> June 2006**

MDF is a consulting company, which exists 22 years. It employs around 50 people. MDF has four branch offices in Brussels, Sri Lanka, Vietnam and Tanzania. The reason why they opened there offices is simple, MDF wants to be as close to clients as possible. The two main activities, which MDF does are trainings and consulting. Within training MDF is able to make it either as open entry or for specific company and train only their workers.

The steps how MDF is executing the assignment are the following:

- Usually contacts are searched by clients, who comes to MDF and asks about the specific topic. After taking the decision by the client of continuing the cooperation with MDF, the contract questions are prepared, and the preparation phase begins.
- During the preparation phase documents are read and are made logistic preparations
- Execution consists of three steps – first getting in touch with the client and his trust, second execution and third showing the results of the assignment
- After the assignment in the company is done, the consult comes back to the Netherlands and work out with other appeared questions connected with assignment

Exchange of knowledge is very important for the MDF. Without that the company might not exist. MDF all workers must write mission reports (about clients, and problems with assignment), it must be sent to all other workers and if needed also discussed. All reports are available and if somebody has some questions may direct ask the writer of the report. There are also made for each topic syllabuses, which are always on softcopies.

Once per month there are organized meetings and discussed all problems, progress and prospective assignments. Directors of branch offices have constant contact. There are also made internal days, where workers from other countries are coming and exchanging the knowledge.

Sources of knowledge for MDF are Internet, own experience, newsletters, magazines, rotated in the company. Some specific information are searched in Google, library, attending different courses. The library IT service is very well organized and search engine has all titles of the available books, reports, documents, etc. Everything should be updated and three years ago there was cleaning of all old und useless documents. There are responsible people for each product, and they must keep things updated.

Knowledge management is one of the MDF product and it must be well done.

## **7. Interview with Hugo Verkuil from KIT, the Netherlands, 12<sup>th</sup> June 2006**

KIT is a non-profit organization, which is focused especially on farmers, and helps them set own business and develop it. KIT works on strategic, tactical and operational level. Strategic level is about the learning process with multiple access. Tactical level is helping to develop and set up the business, together with developing the knowledge.

Methods which KIT is using for knowledge management:

- “writeshop” – actors who are working in certain areas write a book, they facilitate learning, kind of learning by doing
- Trainings
- Virtual Learning Community
- Learning alliance – faster learning with various organizations

KIT is exchanging the knowledge in the following way:

- Writing a book, launching it, publishing and discussion with all people who read the book, noting their comments and remarks
- Writing articles
- Classical type of disseminations – interactive type of exchanging the knowledge
- Joint learning is better than with local actors
- Internet
- Open policy – KIT has very different policy, which is called open. It means that everyone who wants to get something from KIT may do that without paying for that. They understand it in such way, that people always will come back to the source of knowledge
- Lunches, meetings within organization, presentations
- Planning days – invitation for everyone, only to share and exchange the knowledge
- Through collaboration, external practitioners, learning by doing
- Library
- Own experience
- Only Dutch statistical information
- News letters
- Virtual Learning Community

The process of executing the assignment is a secret.

## **8. Interview with IT-specialist Hussein Kitambi from Simbanet, Dar Es Salaam – Tanzania, 10<sup>th</sup> May 2006**

Mr. Hussein proposed to make a connection between the offices in Dar es Salaam and Arusha, using a Wide Area Network (WAN). Due to the high costs of such a solution this seemed not feasible. Therefore it was decided that only in Dar es Salaam a server would be installed using a Local Area Network (LAN). This server uses Windows 2000 server edition. The use of MS Exchange is not certain. The server is used to make it possible to share a printer at the office and the individual data stored at laptops. All data should be put onto the hard drive in the server to make it sharable.

Intranet was not part of the proposal of Mr. Hussein due to the high cost of this solution. It is however possible to create it. Therefore some configurations have to be made to the existing website, so that every employee can log in using a username and password.

What or how should keywords be used? That depends on how they want to do their filing system. There is software on the market that can assist MMA in creating a logical way of filing all their data. Whether such a pre-fixed filing system is worth the investment also depends on the quantity of data to be filed. If it is not much, it can also be done manually. So it comes and goes with the budget.

Is it possible to use an internet browser that also searches in databases of for example British Counsel and University of Dar es Salaam? This is technically possible, but an agreement has to be made between the two parties about the sharing of information. This will cost money, for information/knowledge is power and getting power will cost you.

Mr. Hussein will contact some people about the subject of “the intelligent browser”.

What improvements can be made in the current situation? Mr. Hussein says that there are two possibilities. Either the current server is upgraded, or an additional server will be purchased. The very big advantage of the second option is that the server they have now can be used as a back-up server. At this moment they have no back-up, and that is very dangerous for information can get lost easily. Also will the employees of MMA will have to get some basic computer training so they can tackle small problems themselves.

Documents can be scanned and then put in the computer. This is also part of the previously mentioned software package.

In Arusha and Dar es Salaam MMA uses different internet providers (Raha and ...). These do not cooperate, and therefore this is a problem.

## **9. Interview with Jonathan Reece, IT-specialist, Arusha – Tanzania, 2<sup>nd</sup> June 2006**

Anything is possible with respect to IT systems, as long as you want to pay for it. According to Jonathan there are actually two kinds of systems you can install:

1. A web-based system. With this system you use your internet webpage as a server, and you store all your data on the server of the web host. The advantage of this system is that the server (or hosting) is completely outsourced against low costs. The host of the server takes care of backups, maintenance and repair. The disadvantage of this system is that it can be slow due to the low connection speed in Tanzania.
2. A dedicated server. You buy your own (or upgrade the existing) server, and install this in one of the two offices. Then, via the internet provider in either Arusha or Dar, you give the non-server location access to the server. The advantage of this system is that you can manage your own server. The disadvantage is that it will cost a lot more money, time and effort to install a dedicated server.

Regarding the dedicated server and the web-based system, it is important that you have a good uplink, because you have to upload quite a number of fairly large documents (about 1 – 1,5mb each). MMA expects to upload something around 500mb (300 documents of around 1,5mb).

The decision is made to go for the web-based system (or at least try it and see if it works).

An interesting conclusion is that the documents should not be uploaded in PDF-format, but in word format. Otherwise you can't use the copy/paste functions. Also word-documents are easier to compress to smaller formats. When you use word-documents, it is important that everyone uses the same word-edition to prevent layout errors.

Once you have put all the documents on the server, it is very easy to synchronize the server with every company-laptop. This can be done by using off the shelf synchronization software. Jonathan does not know the names of such packages. When you use the synchronization tool for example once a week, then you are sure that you always have the latest updates on your laptop (if the information on the server is updated).

Since everyone will have the latest information on his laptop computer, it is possible to use a search program called Google desktop search. This search engine can search through all the documents that are on the computer, and therefore it is not necessary to assign key words. On the other hand, maybe it is wise to search using key words, because otherwise you may end up with an endless number of hits. This depends on the way the search engine operates.

Linux can be used instead of Microsoft Office. All Linux software is free of charge, and the programs are fully compatible with other Office programs. An other software package that can be used is "open office". This is also free of charge and fully compatible.

Websites that can be useful finding information:

- [Openoffice.org](http://Openoffice.org)
- [Testme.net](http://Testme.net)
- [Habari.co.tz](http://Habari.co.tz)
- [Afsad.net](http://Afsad.net)

The meeting with Jonathan showed different point of view on some specific items about web page and the whole data management. The conclusion of all mentioned points is the following:

- The space on the web site is 750MB, and MMA is using only 109MB of that. The web system takes about 30MB, and the rest of used space are E-mails.
- The ftp server is much better and more modern than http server. It has more function which are more usable for companies than the other one. The web server is located in USA.
- The speed is good enough, but upgrading is always good. The speed in MMA Arusha is 32kB/s. But the problem is that the speed connection in MMA Dar is far too slow (max. 2kB/s).
- Training is always required and the more workers know the better and more effective way of using it. There should be made a training for using new downloaded programs (smart ftp)
- All documents are in pdf or in doc file. The compression is also required especially for photos (Adobe Image Ready). Good idea maybe also zipping the documents. Newer version of that program is gzip, which compresses files only during sending. Before and after they were sent, it decompresses itself all files.
- Synchronization of the documents from laptop and the website
- Password will be given to all MMA members
- Logical layout of the folders is needed (photos, files). It should be made as a tree
- Storing the business cards is in the easiest way by using the special program, which saves not only the visit card, but also reads the text which is on that

The best solution is to test the whole system and improve where required

**10. Comparisons of the companies:**

	<b>MMA</b>	<b>AgroEco NL</b>	<b>AgroEco TZ</b>	<b>Ernst&amp;Young TZ</b>	<b>Advance Consulting</b>	<b>MDF</b>	<b>KIT</b>
<b>Sharing, exchanging knowledge</b>	Server, emailing, meetings, discussions, relying on teams, trainings, discussion forums, consultant associations on the basis of benchmarking, borrowing materials from other companies,	Reporting, meetings, emailing, open offices, fast internet connection, intranet web-site, Skype,	team meetings, emailing, web-site, meetings 3-4 times per year with other departments of AE, service site,	Web databases, weekly meetings, emailing,	verbal (physical, telephone), email, and to a limited extend written procedures, circulation of magazines. Via weekly meetings, bilateral (daily) talks (both ad hoc and through partnering in a team) and updates. Physical filing / archiving; filing on common accessible exchange server	Mission reports sent to all workers, syllabuses for each topic, monthly meetings with all workers, internal days, emailing – but preferably personal meetings	Launches, meetings within organization, presentation, writing a book, planning days,
<b>Sources of knowledge</b>	National macroeconomic data, regional statistics, sub sector specific data, reports, interviews, trainings, being on the top of their own field	Library, internet, intranet, reports, magazines, additional specialist knowledge from other companies, physical contact, exchanging knowledge between workers during meetings, assignment made with third parties,	team meetings, interviews with farmers, Internet, intranet side of AE NL, reading newspapers, magazines, other reports,	Other people, reports, internet, company evaluation, worldwide databases, newspapers, magazines,	Personal info from staff / associates / management; info from (potential) clients and financiers; electronic databases; magazines Internal: staff, management, database External: associates, (potential clients), databases, magazines	Internet, own experience, newsletters, magazines, library, trainings,	Library, Internet, Dutch national statistics, own experience, newsletters. Virtual Learning Community, trainings, joint learning,



<b>Knowledge Management System</b>		Project reports, workshop manuals, training materials, let people work by their own, but help with connections some facts, it uses also internet connection and brainstorming for new ideas, lack of well-updated system,	No KMS at all, trials for building new system	Based on the worldwide data, the whole system is very useful, taking around 80-90% of information, updating once per quarter	No KMS	KM is one of the product and it must be well done	“writeshop” trainings, Virtual Learning Community, learning alliances
<b>IT system</b>	MS Office software	Intranet site		Intranet site	Microsoft Exchange, Windows XP/2000, several MS and non-MS applications.	Intranet site	Intranet site
<b>Process of executing assignment</b>	Choosing or being chosen by a client, meetings to discuss the assignment, searching information on the websites, making interviews, visiting potential producers, making draft copy, discussion on that, giving back the assignment to the client	Subscription for the assignment, put into standard AE format, searching for potential donors, filling project proposal, signing a contract, sending to the company status and progress of project	Finding a project, making market studies, searching the exporter, training him, bringing the whole farm to be certified in quality, regular visits, solving problems, searching for added values, if needed invited specialists	Winning an assignment usually from newspaper, trying to involve some people from requested company, discussion, after some time showing progress, afterwards giving the draft report, making presentation and getting evaluation	Identifying lead (consortium of partners + business case). Assessing business case in its potential for acquiring financing Contracting client for further development of business case and acquiring financing Assisting client / consortium in developing business case & finance acquisition Decision by	Contacts are searched by clients, after the decision of cooperation the questions are prepared, logistic preparations, three steps of making assignment – getting in touch, execution and results of assignment, working out in NL	Prohibited to share

					finance provider most of the times results in completion of the assignment.		
<b>Problems</b>	Lack of proper IT system for searching documents, weak position of MS Office software,	Weak updated IT system, stubborn consultants, lack of replays on emails from African countries, stored information in intranet is hard to find,	Pioneer on the Tanzanian market. Bad internet connection, big mess in AE NL intranet side,	Some internet connection problems	related to IT	No specific problems	No specific problems
<b>Company</b>	Small but international, involving 3 people	International company, employing 20-25 people	A department of AE NL, employing 10 people	Global company, employing in TZ 70 people		Medium, international, 50 employees, 22 years of existence	Non-profit organization