

Model for Knowledge Management in Small Companies: Case Study

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POMS 20th Annual Conference
Orlando, Florida, U.S.A.
May 1 to May 4, 2009

1. Abstract

The search for competitive advantage in a global environment must consider the use of tacit and explicit knowledge circulating inside companies. Differential factors can be easily replicated nowadays. Due the great volume of knowledge and information, it is necessary to create a system that allows the management of important knowledge.

Existing models for Knowledge Management are based in large companies' reality. In Brazil, most of the companies are smaller ones. This work presents a simplified model to implement Knowledge Management in Brazilian Small and Medium Companies, based in a unique case study with limited scope.

Despite some human and financial restrictions, Knowledge Management can help smaller companies, preserving organizational memory and increasing processes efficiency. To observe a unique case prevented the generalization of the model. But the recommendations can be references to other companies, because projects like this must approach particular issues of each organization.

2. Introduction

Large corporations search better conditions to become competitive. Smaller companies don't have the same economic potential and cannot compete in the same conditions.

In the past, competitive advantage could be reached through price, brand or differential factors. There are few definitive ways to prevent that these competitive factors are duplicated by competitors.

The only resource that cannot be duplicated is tacit knowledge embedded in process and in the minds of the employees.

The objective of this study is to present, with a unique case study, a simplified model to plan the implementation of Knowledge Management in small companies in Brazil, considering their restrictions and searching competitive advantage. Human aspects are very important in Knowledge Management, but they are not the focus of this case study. The model was conceived presuming the full participation of all involved people.

3. Theory references

Economical environment is characterized by volatility, high turnover, international changes, global competition, according to Bergeron (2003). As a result, according to the author, it is impossible to compete without efficient employees and without method to manage people knowledge, beyond all processes and technologies involved.

Many Brazilian companies survive, even without these requirements presented by Bergeron (2003). But they could have benefits from managing tacit and explicit knowledge. They are "surviving" but they could act with strategy and surpass their competitors by using corporate knowledge. To stay in the market, Davenport e Prusak (2000) say that organizations must turn their attention to knowledge embedded in routines and processes.

In the studied company, many important details in processes are known only by the operational workers, it means the person that works in daily operations. These details are not registered anywhere and, most of the time, are retained in people's mind.

This also happens with knowledge related to market and clients. Representatives and workers from sales department accumulate information and specific knowledge that are important and that not always are registered or expressed communicated to others. How to get useful knowledge to a company that helps it to define an adequate strategy and to be different from its competitors? How to make workers understand clients needs when they rarely have contact with the market?

To translate customer's wishes and to surpass competitors is not easy. Marketing or sales department are main responsible to this job – understand the market – since, normally, manufacture does not have contact with the market (KOTLER; ARMSTRONG, 1995).

The studied company have trouble to define performance objective priorities, because each state and each branch have its own value scale – and can change according to season circumstances or context alteration.

Competitive advantage can be reached in many ways, through manufacture, product differentiation, brand, prices and technology. But what prevents competitors to also reach this advantage? How to get this differentiation in a sustainable way? When others can reach a competitive advantage, it loses its strength and forces the company to search for another differential.

In the past, quality and client focus were great differentials. Although these factors are still very important, they are no longer a differential, since the concept is already largely disseminated. The lack of these requirements disqualifies a company, but their presence does not guarantee and sustainable advantage.

Davenport and Prusak (2000) say that it is virtually impossible to prevent competitors to copy or improve new products, methods and processes, due the large mobility of ideas and availability of technology. Technology, low prices and quality are no longer significant protections to companies. According to the authors, the only sustainable advantage would come from the intelligent use of corporate knowledge.

To manage the great amount of information and knowledge that circulate every day in the companies, it is necessary to create a system that allows their storage, retrieval and reuse. This is one of the study contents of Knowledge Management (KM). This process should be supported by the use of technology, to help capture, distribute and share knowledge through the organization, bounding human specialists with documented knowledge in a unique and integrated system.

Although technology is a very important tool, KM process depends mostly in people that should use it to help the company to reach its objectives. The most important factor is the human factor, because knowledge resides in people's mind. And if they are not motivated and trained to share it, nothing can make a KM project works. A KM project should also consider the type of business, culture and budget limits. Other issues include time necessary to the project, workers responsibilities and roles.

All KM project must start with clear and defined objectives. Expected results be measured and provide positive financial incomes, even indirectly. To do this, it is necessary that the project is aligned with the company's strategy objectives and the definition of performance indicators is very important.

4. Small company's characteristics

Brazil has peculiar characteristics in business administration. According to SEBRAE (Serviço Brasileiro de Apoio a Pequenas e Médias Empresas – Brazilian Service to Support

Small Companies), 98% of Brazilian companies are small, reaching a total of over 4 million companies. These data consider only formal companies, and do not count thousands of informal business, that exists all over the country.

According to Terra (1999), in Brazil it is observed increase in company's productivity, although this index is lower than in rich countries. It is also observed a switch in strategy, changing focus from reduce price and rationalize manufacture to satisfy client's needs (like improve in quality and delivery time).

In the other hand, the low index of productivity is related with average Brazilian worker low level of formal education. Brazil needs to raise its investments in technology capability, because it has high knowledge degree, which is difficult to transfer (TERRA, 1999).

Brazilian managers have to administrate their companies facing different situations from large company's reality (LAS CASAS, 2006). The owner makes all main decisions and takes care of many administrative operations. Although some aspects of the administration are centralized, this allows a more wide view of the business.

According to Las Casas (2006), Brazilian manager is very versatile and their main difficulty is the lack of financial resources, this prevents the company to have a more professional approach, because it cannot hire high level professional workers, and forcing to improvise with the existing structure.

Torres (2003) says that small companies have focus in tasks efficiency and are not worried to manage knowledge. These companies are concern in satisfying client's needs and maintaining product quality, but are not focused in knowledge. To them, a KM project should not only create a database, but also search a way to facilitate knowledge flow.

Smaller companies are more flexible but excessive informality can become a problem. Most of the times, processes and rules are not registered, allowing loss of corporate knowledge and organizational memory (KRUGLIANKAS; TERRA, 1999).

The main issues of KM projects in small companies are budget limitations, tasks overload and lack of time to dedicate to the project. To face these problems, it is necessary to start with a small project, with limited content and that shows concrete results.

5. Field research

According to Yin (1989) a case study is an empirical investigation that verifies actual phenomena in a real life context. The purpose is to research when boundary between phenomena and context is not clear and multiple evidences are used. The case can be unique (a single organization is studied) or multiple (more than one organizations is studied). According to the author, case study should be used when relevant behavior cannot be manipulated and when is possible to make direct observations.

The chosen methodology was a case study, unique, exploratory and qualitative. The used techniques were direct observation of the study object, non-structured interviews with key people and informal interactions with clients, representatives, suppliers and workers. Data were collected between September, 2006 and September 2008. Participants were: company's managers and directors (commercial, financial, administrative and manufacture departments), commercial representatives that participated in the Annual Sales Reunion (August, 26th and 27th, 2008, in Sao Paulo city) and also clients that visited the company's *stand* In the Exhibit Fair Escolar 2008 (Sao Paulo city).

Case study was chosen because of KM characteristics. There are any methods established to implement KM, especially in small companies. Authors show that each project has unique characteristics, because it must be linked to intrinsic aspects of the company. So,

each KM project is a unique case, although they all have similar basis. It is an actual problem in a real context, without formal theory.

5.1. Model proposal

Based in recommendations in bibliography references, a set of recommendations to plan a KM project was proposed. Besides, a model of a knowledge database was also proposed. The model was not applied in case study object. So, to test its real efficiency, it is necessary to apply the model in a real context. It cannot be generalized, because it is based in a unique case study, with a limited scope. The recommendations can be used as references to other models.

In the model, the general steps bellow are proposed:

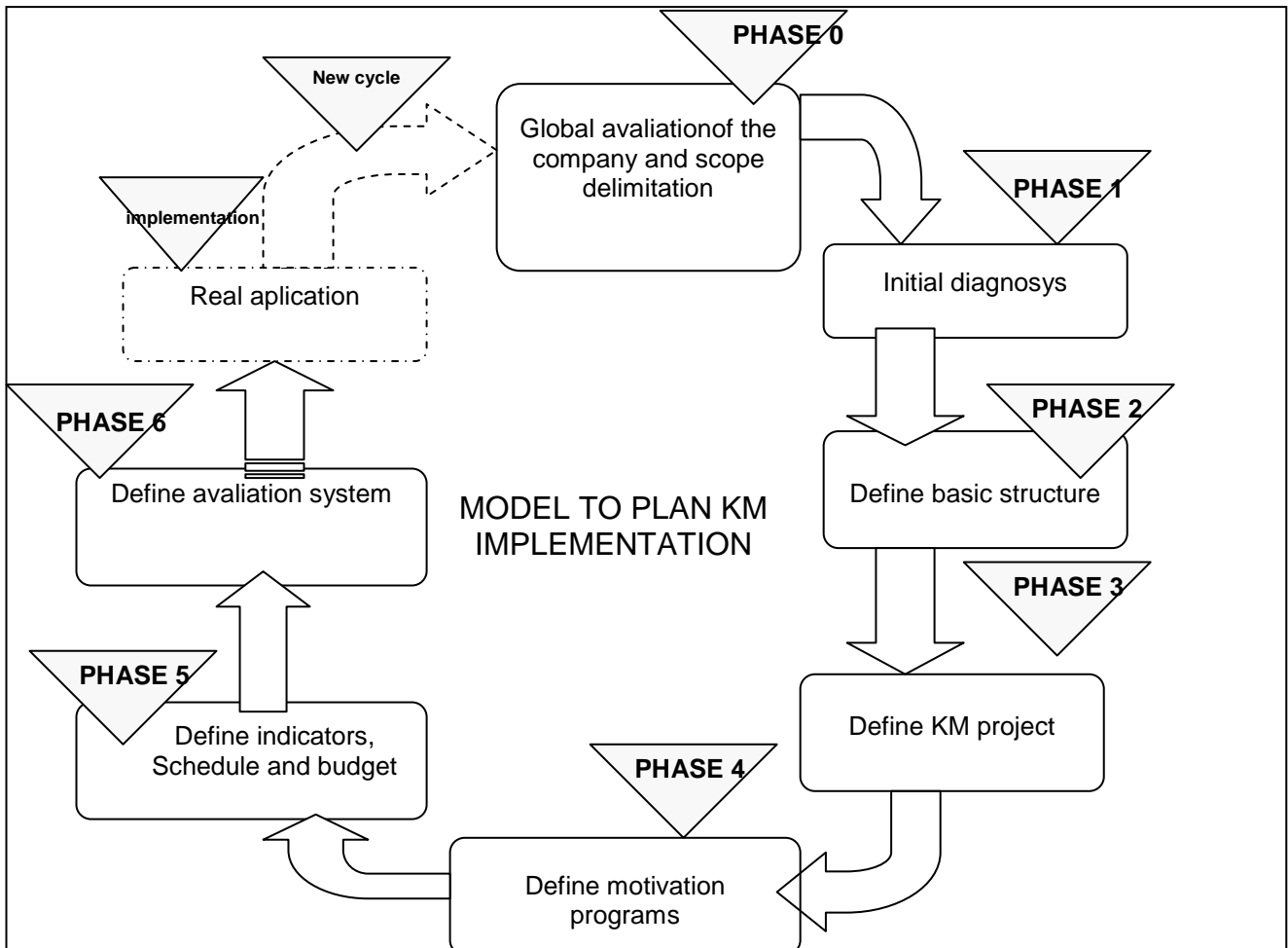


FIGURE 1: Model to plan KM implementation

Source: Researcher

It must be observed that the project focus here was to register and communicate tacit and explicit knowledge from sales department to manufacture department, to help it in strategically performance. The questions have the purpose to search information source related to this limited scope and possible KM practices.

5.2. Company description

To the empirical application, it was used as study object an industry that manufacture stationery, toys and school furniture articles, in Bauru city, interior of Sao Paulo state, Brazil. The company lives a moment of deep restructuration due intense grown during last years and due change in the administration style.

Bauru region had a significant economical improvement in the last years. According to Jornal de Cidade (2008), the city annual internal production is around R\$ 4,9 billion and expected increase to 2008 should surpass national average; the city is 49th in exportation volume in Sao Paulo state and has 15.851 companies, 1.147 industries. The economy does is distributed in many branches, and most of the companies are small.

The studied company is a family business and administration is passing to the second generation. Besides, it searches for ISO certification and has an intense restructuration process due intense grown in the last years. The company is trying to leave habits of small companies and to act more as a large company, with more formalized procedures and redefining its identity.

The company obtains expressive and constant market participation, its products can be found all over the country, and it has 65 sales representatives. It is a medium company, according to SEBRAE's classification, with around 100 workers annual sales amount over R\$ 10 millions. The company has 400 products in its mix and also exports to Mexico, Bolivia, Uruguay and Panama.

It was observed that, due sales increase, the company is losing important knowledge. When it was smaller, informal communication of process and decisions were not a problem. But with more workers, some knowledge and information do not flow to the right people in the right time. So, to develop a KM project in this moment could be important. The limited scope (*marketing* – manufacture) can use KM techniques to leverage even more the company's improvement.

5.3. Model exemplification

Assuming that phases 1 and 2 were executed successfully and that the company considers a KM project viable, it is presented an example of the model use:

Phase 3: Define KM project

- **Define objective**

The project intends to capture strategical information and knowledge from sales department and market and that could be accessed by manufacture workers, trying to spread client's needs.

In the case study, it would promote an improvement in communication between all sales team. Besides, others (clients and workers) could use these informations to help the company in competitive advantage strategies.

- **Define KM tools and codification**

The project could use a knowledge database with cases, associated with an Electronic Document Management Toll. This structure is intuitive and simple, and so users would not spend much time with training. Cases would be evaluated, according to the company's criteria. Managing cases is also simple. It is important to observe: cases content relevance, manage base grow and case update.

In the studied company, external knowledge (from clients and representatives) is very important, because internal workers hardly have contact with these external agents. Internal knowledge is also important, but it is easier to capture. CBR (Case Based Reasoning), recommended by Awad e Ghaziri (2003) must be used when there are similar situations with rules hard to define. These are characteristics of client relationship, which is the project focus. These cases would be linked to client or regions, and would be inputted by internal workers, representatives or clients.

Clients have different behaviors in different regions. To measure what is important is difficult, because clients have different perceptions and values. Database focus would be to try to capture the different perspectives and clients values and transmit this knowledge to the internal team. This would allow the entire company to analyze peculiar aspects of each client or region. The database could be accessed from the company's website, and could have the structure bellow:

Item	Description
Author	User that inputted case.
Client or region	Client, group of clients or region related to the case.
Aspect	Key word or subject
Problem	Situation description
Solutions	Solutions description
Evaluation	New context or results that were reached with presented solution
Classification of important aspects	Classification of which performance value (according to Slack (1999) or other classification) were more important in the case.
Observations	Additional data
Access number	How many people accessed the case (automatically inputted)
Last access	Last date of case access (automatically inputted)

Board 1: Knowledge Database items

Source: Researcher

It would be necessary a search engine, through key-words, to access the cases and to show related cases. If the company had management software, like an ERP (Enterprise Resource Planning), which is true in the case study, the cases could be linked to other

information in the ERP. Once the database has a great amount of cases, the incidence of cases per client or per region could be calculated. Bellow, it is presented an example of a register in the database:

Author	José Representative
Client or region	Color Paper Stationery
Aspect	Damaged Products
Problem	Product X arrived to the client with damages. After investigation, it was concluded that the damage happened due inadequate transportation, and the company was not responsible.
Solutions	Reinforce and improve product X's package, making sure that transportation will no longer damage the product.
Evaluation	New package cost was not significant comparing with client satisfaction. Due the damages in product X, He was buying from a local competitor. The company's image was recovered, because, beyond proofing that the problem was not from bad quality, it offered an adequate solution to the client.
Classification of important aspects	Flexibility to adapt to a new situation.
Observations	--
Access number	--
Last access	--
Author	

Board 2: Example of knowledge database register.
Source: Researcher.

- **Define performance indicators:**

Indicators in the case study could be:

- Increase of average sale order;
- Client satisfaction;
- Increase of clients;
- Increase (%) of contribution and accesses to database;
- Workers satisfaction;
- Number of benefits implemented by ideas from database;

After an initial application, this model could be reviewed and improved, according to user's observations.

These indicators show aspects considered important by the company: quality and fast delivery. Price is also important, but not essential in all regions. The indicators are easy to understand, which helps in monitoring. Other items in the model were not described here, because it depends on a real application.

6. Conclusions

Many particular factors of a company must be considered in a KM project. Not all companies will be able to implement a KM program because it depends on the redefinition of processes, budget and dedicated teams. In the studied organization this redefinition is already happening, due an ERP implementation and ISO certification process.

Formalization, organization, storage and strategical use of some organizational knowledge could be the differential that companies need to surpass competitors. To implement KM, even partially, is important to help the company with its strategy. The company must have a minimum technological structure, organization and define processes to make the implementation possible. In the studied context, the technological structure is adequate, but the company should move forward with its internal reorganization.

In the proposed model, competitive advantage would be obtained through manufacture. However, to help manufacture understand how to get this advantage, it is necessary to capture, codify and communicate knowledge from sales department, because it has contact with market. This means that, to reach sustainable competitive advantage in manufacture, it is important to manage knowledge that would help in this strategy.

Competitive advantage would be reached through intelligent use of knowledge and organizational memory applied to manufacture.

The proposed model did not approach a very important issue in KM Project> human and organizational aspects, which include, besides other questions, motivation and reward aspects. They could be developed in future works. Because it is based in a unique case study, the model cannot be generalized. Recommendations can be references to other projects and contribute to identify a use method of KM initiatives in smaller companies. Due the lack of Standards in KM, each case is unique and companies should search for other experiences and adapt existing models.

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