

## NEED FOR TECHNOLOGY MANAGEMENT IN SMALL AND MEDIUM ENTERPRISES (SME) KNOWLEDGE BASE

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### ABSTRACT

Today technology is the most important source of competitive advantage, the knowledge base is small and medium enterprises, for small and medium enterprise resource mobilization manpower that is, Technology enables rapid response to changing needs of the market and provides entry into new markets. Technology, the interaction between people, society and nature plays a vital role. Advancement of technology has a significant impact on each of these elements and turn them take effect. Technology management requires an understanding of this relationship is effective and reasonable way to deal with them. The main unifying rhythm management, technology has certainly looked to technology as a factor of wealth creation. Among the places that are the basis for wealth creation is through the acquisition of technology, small and medium enterprises are the foundation of knowledge. Due to the technology management services that meet the threats that threaten the small companies, mostly young as well as creating opportunities through technology management can occur for these companies this paper explores the need for technology management, during the company's growth, and face all the challenges that are involved with it somehow, Has been the result of several years of management experience in technology development center.

**KEYWORDS:** Technology Management, Company foundation of knowledge, technological development, competitive advantage

Today, technology is one of the most important sources of competitive advantage in the knowledge base is small and medium enterprises, as furnishing labor, which is another resource for small and medium organizations ,Ability to respond quickly to the changing needs of the market and provides entry into new markets. However, there are significant challenges in the integration process and other processes related to IT business environment, such as finance, marketing and more. Because of issues such as rising costs, complexity and resolution technology to achieve technological blind spots found in path technical knowledge of technology and the pace of technological progress in the world, and the most important competition in the globalization of business are issues that, this type of large energy companies that have limited resources are spent. However, if these challenges are solved for companies that cannot find a solution that provides a good opportunity. Therefore, the most important step in solving the challenges of technology management is one of the requirements of small and medium-sized companies will be considered. However, the managers of these organizations have found it necessary; however, implementing this, one of the weaknesses of small and medium enterprises is considered. Hence the importance of the issue, the present paper is that, to the necessity of

knowledge management Technology Company founded to be addressed. Studies show that a high percentage of companies that shaped the early years (3 years) with the success they will continue to operate in the future. Considering the importance of the development of society and knowledge based companies consider that the most important asset of this type of companies, knowledge and technology generated, that is, the need to address technology management in small companies than ever before to the knowledge base. As regards science and technology as the foundation of knowledge gained by participating organizations can be defined as: Technology, know-how needed to make goods, better service and better manage resources that are limited and valuable. The advance of technology, the expansion of knowledge will follow. So there's also a Knowledge Management Technology Management, one of the major issues is the foundation of knowledge. Developments in information technology in the second half of the twentieth century, the world has increased the volume of information available. This has led to an explosion of knowledge and developments in technology are enormous.

Small company size also leads to issues that are lost in round-offs for large companies. In large companies, results are measured over an aggregated

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period of time, whereas liquidity is often crucial in smaller companies. There is a considerable difference between “money now” and “money in two months. (Welsh et al, 1981).

A new type of knowledge based companies is businesses, their approach to wealth creation through knowledge-based technology, Therefore the relationship between technology and business, in turn, is important. Thus, an organization can be thought of as a machine that, in one or more technology to society offers.

Resource complementarity is important for several reasons. First, due to reciprocal commitment, partners with complementary resources are less likely to be opportunistic with each other and learn more from the relationship. (Sarkar et al. 2001).

The goal is to achieve certain goals and technologies used are also different levels. Nonprofit or profit organizations can also be. Business firms have been created for profit and knowledge of the community, the main cause of the formation of business enterprises. Technology not only how to create goods and services, but also on what can be produced or even the potential for the production of what exists, has a significant role.

For the research presented in this thesis, the important notion is SME characteristics. Quantitative definitions are not appropriate to target this. For example, some companies with thousands of employees are still run in a personalized manner. (Storey, 1994).

Every business technologies, as technological assets of the business are made, Today, the actual value of the organizers, more than the value of its physical assets or net worth. Technology for the assets, value added created, it can be seen once more use to the poor financial status of the company's founders launched at the beginning, they are trying to attract investors and shareholder. At this stage, small organizations with access to a knowledge base by which technology can have one or more products technology and high added value created by the investment process, many financial growth experience.

And the formation of a team that is a prelude to launch a knowledge base, which fall into the first category however, having this level of knowledge is required, however, to set up a commercial business whose purpose is to generate wealth, So inadequate that some of these organizations in the form of technology incubators, with

material and moral support that it occurs assets to the next level, which is the acquisition of technical knowledge they acquire is that their introduction for the next generation of technology and answering the causal relationships in the technical areas of your business that is conducive to achieving the new solutions to meet market needs The result of processes, services and products that the company's assets to the next level, that they acquire.

Due to analogous reasoning, it might be appropriate to exclude start-ups, and to some extent microenterprises, where research may be more focused through the entrepreneurial field. Empirical evidence suggests natural breakpoints for this, with organizations that use more than one organizational unit, at about 15 employees. (Turner, et al, 2009).

When small business knowledge base to reach this level of assets to a level of sophistication and technology have reached expect any creativity and innovation in their organizations out there that it can be considered as the next level of assets in small companies, Because due to the high level of agility and innovation in these enterprises can respond quickly to market needs to bring these are your greatest competitive advantage compared to other competing organizations are solely dependent on their financial resources.

Research shows that because the information and communication technologies are converging, firms in these industries tend to seek R&D alliances with firms having complementary resources (Palmberg et al, 2006).

Commensurate with their academic ability and market knowledge, established companies who have chosen as the target market, one or more technologies from different levels in your organization will create.

The company that manufactured coatings for Nano-tech look to it as a possible construction of agricultural fertilizers and animal waste using plant waste an average of technology is included also, in order to put the same thing in the end, a fertilizer with high efficiency based on Nano technology will become competitive advantage over other competitors has created high. This is an example of successful knowledge based companies located in the center of town development and scientific research. Therefore, there is no requirement for a company to choose only one of the levels of technology, Of course, different levels of technology in a small company with limited resources has led to fragmentation

if does not can be useful, otherwise it looks better than that, The company put its focus, to achieve a level of technology that is proportional to the energy, resources and business models.

The suggests that a definition based on the number of employees is unreliable. Another example is companies whose ownership structure is heavily dependent on other companies, while still functioning independently. (Carter et al, 2006).

Technology must be related to customer needs, therefore, to satisfy these needs and to achieve social goals. Technology is driving economic growth. Operational management of the various components of the technology including research & development, design, production, marketing, personnel and information to influence strategic and operational activities of the firm are included. The world is changing, as we have entered the 21st century, the rate of change has increased, new technologies have emerged and trade mechanism has changed. Management systems also need to change their patterns. These changes, entirely new business models are introduced, the most important difference between today and the days after World War II, the pace of technological change. This trend has been associated with a variety of technological applications. Size and speed of technological change in recent years has been remarkable. Technology has caused technology to be considered as a factor affecting economic growth and national power. Technology changes so extensive and widespread that it is pursuing individuals and organizations sometimes very difficult.

**Technological Convergence.** Technological convergence refers to the presence of a vast array of different types of technologies to perform similar tasks and the trend of technologies to merge into new technologies that bring together a myriad of media. Game theory (Brandenburger et al, 1996)

Technological changes of the 21st century, patterns of employment and social change are severely affected. Along with the rapid rate of technological change, we are witnessing the changing market behavior. Now customers have the right choices, and expect to be provided with quality products. High level of service today due to advances in technology it is possible. Technology changes rapidly with new customers' behavior, the motion of the fixed lines has provided a new perspective. Flexibility and ability to respond quickly to

changes, the new thinking has produced. Relatively new competitive world, every day is intense. Germany and Japan after World War reconstruction. Today, new nations have entered the competition from countries such as Taiwan, Korea, Singapore and China have emerged as strong contenders.

## **FACTORS AFFECTING TECHNOLOGY MANAGEMENT**

- Innovation: Technology is a sign of human creativity. Technology management requires continuous effort in creating technology to deliver new products and services and successful marketing them.

- Invention: technological change arises when the subject of creativity, invention and innovation are two words often arise. Invention means an idea or making a new technology. Invention is the result of human thought and intelligence. Invention, only irregular and unplanned happens.

- Of innovation: creating a product, service or process innovation in an organization is called. Innovation, the concept offers a new product or process to market. Innovation is not necessarily the whole world, not new, but it is an idea that has been used for the first time in the organization.

Inventions and innovations directly linked, but are not the same. Invention is more of an event, while of innovation is a process. Invention inventions seldom occur but usually lead to several of innovation. Of innovation achieved significant relationship between an idea and its application.

- Price: the firm has a technological advantage, can increase the price of their technology. The price increase will depend on the value of technology to our customers.

- Operating time: One of the most critical factors in management.

Technology, appropriate timing to create and supply technology to the market. The timing is right, is of key importance. If a company wants to be successful in a competitive market, you have the right to take appropriate action. These factors are among those which, by their nature, small business knowledge base to deal with it, and that can also be confirmed on the necessity of technology management at these companies and, on the management of technology is looking to achieve high performance and productivity. Productivity is the ratio of output to input

sources. Input each company resources, capital, raw materials, labor and energy are included. Its output is also something that the company will produce, and due to resource constraints in small and medium enterprises, high productivity, reduce overhead costs, and increasing profits is very important.

## MANAGEMENT OF TECHNOLOGY

So far the definition of the technology, its management and the need for efficiency in the firm foundation of knowledge is important, have been discussed. Technology, the interaction between people, society and nature plays a vital role. Advancement of technology has a significant impact on each of these elements and turn them take effect. Technology management requires an understanding of this relationship is effective and reasonable way to deal with them. The main unifying rhythm management, technology has certainly looked to technology as a factor of wealth creation, Effective use of technological resources, an important feature for managing the technical - economic. In life, technology-based, efficient and rational use of tools, equipment, supplies, materials, software, skilled labor, information, intellectual property and financial resources will play an important role in getting the appropriate power competitive. In discussing technology management major technological factors, activities and programs are directed, providing technology innovation to the market, with different impacts on society, economy and the natural environment, rather than affects. The ultimate measure of success or survival of any organization depends on how well the products and services in the market, other important environmental factors that can impact on business strategy, competition in the market.

Investment pay-offs are also less continuous with a small company size: even though a small department or set of machine needs additional resources, one more full unit might not be worth the extra cost. (Bridge, et al., 2003).

Technology management, seed and seed technology for wealth creation system knows. This is the company motto Libyan foundation of knowledge, the creation of wealth through the production of knowledge. So will result in knowledge management Technology Company founded entirely consistent with the nature and necessity of the companies is undeniable. Technology management, science, engineering and management and

seeks to tie together undermines human well-being and create wealth. Technology Management has a national dimension, industry and firm-wide coverage includes the following items: Technology strategy, technology foresight and forecasting, management, research and development management, technology transfer, intellectual property management, technology audit, technology assessment, technology, policy, management, technology of innovation and entrepreneurship. Each of the above is important to turn up. In a knowledge base to address each of these categories can be involve the creation of a competitive advantage.

As noted earlier, the nature of knowledge based companies, venture capital firms to achieve a technology that most small and medium knowledge base is considered. But an important question that arises here is that on which technology should be invested? To answer this question, several issues need to be examined, such as the attractiveness of a technology directly related to the extent of its use of technology. The broader application of more charismatic and attractive also is reduced by limiting its application. Fact positive growth rates of competitors can also represent an attractive technology. The amount of technology can also be a barrier to copy attraction of a lead technology. Emerging technologies because they are new, they are attractive as well as the growth potential of technology and technology performance against competing technologies and the risk of being replaced by other technologies, all Issues that attractiveness a technology-evaluation puts. Issues such as the authenticity of indigenous technology or related degree with major work of foreign companies, the research team, Laboratory Equipment Company amounts and quality of the internal relations of things which, in response to the question on what technologies should be invested lay? Must be investigated except that it is not possible to establish knowledge management technology in small business inthis paper, we underline the importance and necessity of technology management in small and medium organizations knowledge base pay, because any changes without the need to understand the motivation fiat necessary the organization of this, respectively.

## CONCLUSIONS

Given the above, the necessity of managing technology in organizations where managers seem obvious that the need of small and medium enterprise

knowledge base, which is more the neglect of this issue due to the nature of the corporate structure, financial strength and organizational capital can lead to irreparable damage. Since financial management, human resources management and organization is essential necessary technology management position in the firm foundation of knowledge than it is, and also should be noted that most of the organizations to be successful under the guidance of top thereby increase the success rate, to guide the management of this technology should be done directly by the organization's key people and key stakeholders and where resources are limited, it is important to invest in technology selection, The choice of technology management can be effective, because the foundation of knowledge in selected technologies that have reproductive technology can make a significant and sustainable competitive advantage. Therefore, it is recommended that administrators of organizations willing to engage in technology management, Should be required to have a close look at it this way, would be reason enough for the costs associated with managing technology.

## REFERENCES

- Brandenburg, A. M. & B. J. Nalebuff. (1996). *Co-opetition*. New York: Doubleday
- Bridge, S., O'Neill, K., & Cromie, S. (2003). *Understanding enterprise, entrepreneurship, and small business*: Palgrave Macmillan.
- Carter, S., & Jones-Evans, D. (2006). *Enterprise and small business : principles, practice and policy* , Harlow: FT Prentice Hall.
- Palmberg, C., & O. Martikinen. (2006). *Diversification in Response to ICT Convergence Indigenous Capabilities versus R&D Alliances of the Finnish Telecom Industry,*” *Info: The Journal of Policy, Regulation and Strategy for Telecommunications, Information and Media* 8(4), 67–84.
- Sarkar, M. B., R. Echambadi, S. T. Cavusgil, & P. S. Aulakh. (2001). *the Influence of Complementarity, Compatibility, and Relationship Capital on Alliance Performance,*” *Journal of the Academy of Marketing Science* 29(4), 358–373.
- Storey, D. (1994). *Understanding the small business sector*: Thomson Learning.
- Struebing, L., & Klaus, L. A. (1997). *Small businesses thinking big*. *Quality Progress*, 30(2), 23.
- Turner, R., Ledwith, A., & Kelly, J. (2009). *Project Management in Small to Medium-sized Enterprises: adopting simplified processes*. Paper presented at the Irish Academy of Management 12th Annual Conference, Conference Proceedings.
- Welsh, J. A., & White, J. F. (1981). *A small business is not a little big business*. *Harvard Business Review*, 59, 18-27.