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Trilateral Model of Success Path from Idea to Product

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Abstract: The Category of idea to product is one of the complex, important and attention of all countries. In developing countries, discussion of applied researches, relationship between science with industry and market, and of the path`s problems from Idea to Product are more than important. In this study, numbers of successful and unsuccessful examples of the world were survey, and their successes and failures identify. Based on this knowledge and many years of managerial experience of authors, Trilateral model of success path from idea to product is presented; The 3 sides of this model are management support (navigate and coordinate), intellectual support (education and research) and operational support (execution and production). Although, authors do not claim, the model is complete, even suggest other researchers can complete or modify it, but they believe this model can be used by managers, organizations, companies, governmental -non-governmental producers in the world.

Keywords: Management Support, Intellectual Support, Operational Support, Trilateral Model.

Introduction

The evidences show, in some developing countries, movement of science with industry and market has not been equal. Although science and research is gradually updating itself in some areas, but in the current conditions, it is more reasonable to expect, applied researches lead to production in all areas. Vis-a-vis, the production and implementation sectors have become outdated, due to the lack of strong intellectual, operational and management support. Also, they face barriers due to problems in management, policy, budget, support and cultural structures. Specialists and scientists have always tried to clarify the place of information and knowledge directly in models and theories of economic growth; In other words, in new theories, they explain the role of information, knowledge and technology in productivity and economic growth; Because they consider knowledge to be the most important element of progress and decision-making, and know, information and knowledge are the only way to be productive and use scarce resources for progress. If the elites are supported and the right path from idea to product is managed. Also, Science and technology parks in the world are considered important centers that have realized the importance of using information and knowledge in economic growth and ultimately providing social welfare. Science and technology parks have the role of a bridge between universities and companies, and countries, especially developed countries, have tried to reduce the gap between the industry and university sectors by creating such centers, and as a result, increase the level of employment and public welfare. When societies are faced decreasing income, increasing unemployment and having a young and educated population, by improving the skill level of the workforce and increasing the income of universities, they can improve the psychological conditions of workers and university graduates by supporting new companies in creating business. There are a places as titled Sciences and technology parks that have a pivotal role and a fundamental pillar in the development of technology, production and distribution of science and knowledge, and if their initial structure is well defined, after the production of basic and applied knowledge, the synchronization of knowledge with the needs of society. And the opportunities will include turning it into an invention and then transferring the invention to the market and turning it into innovation and finally increasing wealth and economic growth.

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In this Survey, Authors attempt to study the role of knowledge management in successful projects should, as well as the examples of successful and unsuccessful manufactured products in the world are presented, in order to identify reasons for their success and failure. Based on this knowledge and several years of management experience, Authors have presented the model of success path from idea to product. This current model can be used by managers, organizations, companies, governmental -non-governmental producers in the world.

Knowledge management (KM) in Products Progress

The theory of KM with a commercial orientation has been proposed since 1990 and has caused tremendous changes in the last decade. The origin of KM is the knowledge-based economy and the identification of knowledge as the main asset of the parent organization in the field of global competition The basic belief of KM is the level of recognition and sufficient knowledge about customers, processes, products and services available at all levels of organization. The connection and interaction between them is directly related to more production, success and progress of an organization. Understanding this reality, Most of world's largest institutions have adopted knowledge management. Big companies such as Ford, Kodak, Digital Environment Institute, Amoco, Dow, Texas Institute, Gartner and Arthur Anderson Group have achieved new achievements and useful experiences by harnessing knowledge management. Organizations with databases such as Bowes, Anderson Knowledge Exchange, Knowledge Online and Hamilton, Knowledge Galaxy Gaming Cap, Ernst & Young Business Center, Monsanto KM Architecture, have facilitated enable information sharing between their organization's forces (users) and access to common information materials. (Gandhi, 2004). The origin of KM was in the field of economics and business with the aim of increasing profits (Sarafzadeh, 2014: 26).

What is knowledge management (KM)?

There are many definitions of knowledge management. Its simple definition is the organization of knowledge. In fact, the emphasis of KM is on knowledge sharing, the knowledge that is not shared by all the people of the organization is not very useful for the organization. KM emphasizes on storing and reusing specialized information (Perez, 1999: 76). KM is actually a collective effort, the result of which will include understanding and reaching critical knowledge, sharing information within an organization, and investing in the organization's collective memory in order to improve decisions, increase productivity, and creativity. This definition includes knowledge, wisdom, understanding the added value of the experiences of human resources within the organization, facilitating re-access to information and protecting it as the capital of the organization. KM is an effort, the result of which will be the transformation of the intellectual capital of human resources into the common capital of an organization. The ultimate goal of KM is to create a learning, collaborative and flow organization between the information reservoirs created by people in different departments of the organization and finally linking them with each other in order to achieve the ultimate goals of the parent organization (Gandhi, 2004: 368).

The success of organizations strongly depends on the role of effective KM (Kim, 2003). Knowledge management is an excellent opportunity to improve the conditions of the mother organization and raise the skills of employees (Pearl, 2002: 281). Most managers in organizations use KM for one of the following reasons:

- Increasing participation and cooperation;
- improving Productivity;
- Saving time;
- Encouraging creativity and innovation;
- Identifying additional (inappropriate) information and determining appropriate and required information materials;
- facilitating the process of accessing knowledge from producers to consumers without time and place limitations;
- Recording and recording the knowledge of human resources before their mission in cooperation with the relevant organization is completed and ensuring that the value of their knowledge is preserved even after leaving the organization;

- Avoid repeating mistakes;
- Increasing the organization's awareness of organizational knowledge gaps;
- Contributing to the sustainability of organizations by increasing the level of recognition of competitors' strategies, policies, products and new functions;
- Improving customer service and increasing their satisfaction.

KM has two parts: first) data and information management. 2) Manpower management that has special expertise, necessary ability and relevant knowledge. These two parts (content and human resources) along with specific processes and technologies are considered as the goal of knowledge management. The two terms that make up KM (knowledge and management) are combined with two elements of technology and organizational culture as a collective memory structure of organizations. (Gandhi, 2004: 369). For a better understanding of knowledge management, it seems very necessary to study the following points. Continuity of knowledge and distinction between data, information, knowledge and wisdom; The role of the four elements of KM (knowledge, management, technology and organizational culture in relation to participation);

Four elements of KM

KM consists of four building elements (Knowledge, Management, Technology and Participation culture), which plays a special role in the success or failure of a Product.

Knowledge in KM

Successful managers are not only looking for access to information, because enough information is available through networks and databases and various media. Managers need access to relevant and appropriate information that has been processed, organized and formed, so it can be said that managers need knowledge (Hassanzadeh, 2014: 14). There are always people who have knowledge that they use all the time. But what is knowledge in reality? Knowledge is knowledge that emerges in the experiences, skills, expertise, abilities, talents, minds, opinions, work methods, guesses and imaginations of people in the form of analysis of current affairs, work processes and visible and tangible artifacts in an organization. There are two basic types of knowledge: explicit knowledge and hidden knowledge. Open knowledge is knowledge that has been compiled or explained or recorded in different ways, and its access and retrieval is very simple and easy for users. Explicit knowledge may be compiled and presented in the form of manuscripts, writing methods, publications, magazines, books, web pages, information bases, networks, electronic mail, notes, graphic images, audio-visual materials. By compiling and recording this type of knowledge, an artificial knowledge appears that can be managed.
Hidden knowledge: It is a person's personal and unrevealed knowledge that flows in his mind. This knowledge refers to a person's awareness of a certain phenomenon, subtle tricks and people's insight. In simpler words, it is the personal knowledge that a person has experienced through years of interaction with others.

Implicit knowledge exists only in people's minds, personal writings, computer files or desk drawers. This knowledge has never been fully expressed, recorded, documented or presented in a written form that can be understood by others. It is estimated that about 80% of knowledge is tacit knowledge. For example, a reference librarian may have a lot of hidden knowledge to answer difficult reference questions and be able to ask questions like: What substance is there in a living insect that causes its paint to fall off when it sticks to the car body? Or what is the size of an egg compared to a pumpkin worm? to answer But this knowledge is understandable to others when the reference librarian uses his knowledge through formal and informal conversations with his colleagues, detailed notes, or by writing an article or book, his skills in implementing the reference process and retrieving the best sources to answer Ask questions. In almost all activities that people engage in. There is a need to combine open and hidden knowledge. In effective knowledge management, the interaction of these two knowledges with each other seems very necessary. The main challenge in the field of KM is the ability to identify implicit knowledge and to take it when needed. Although it is very easy to register and spread knowledge. On the other hand, identifying, recording and disseminating hidden knowledge is not an easy task. For this reason, some organizations instead of hidden knowledge are focused on the

management of accessible open knowledge, which includes only 20% of the organization's total knowledge. However, the passage of time shows that as long as organizations pay more attention to the implicit knowledge of their user community, they have also had more impressive success.
Despite this, although it is very difficult to transfer and transform hidden knowledge into open knowledge, it is not impossible. Hidden knowledge in organizations is usually presented in the form of a description of experiences that are often recorded and covered on the network and then used by all employees for training, learning and improving processes (Gandhi, 2004: 370).

Management in KM
KM says that one should have a broader view of the parent organization. The main goal of KM is organizing implicit and explicit knowledge within the organization. To organize implicit and explicit knowledge, organizations should pay attention to the following points:

- Creating, creating and acquiring knowledge;
- Compilation and organization of knowledge in order to facilitate accessibility;
- Making knowledge available to others through communications or publications;
- Facilitating access and retrieval of knowledge;
- Using and applying knowledge to solve problems, support decisions, education, analysis of conditions and processes in order to support work activities.

Implicit knowledge can be managed in two ways. A) Through written communication, interviews, oral histories, implicit knowledge can be converted into explicit knowledge; b) Also, by creating scientific groups in face-to-face interaction, oral communication, conversations, continuous education, interactive problem solving, education and training, counseling and personal growth opportunities, they can provide the possibility of turning implicit knowledge into explicit knowledge. In traditional environments, tacit knowledge usually turns into explicit knowledge through scientific groups (Gandhi, 2004: 371).

Technology in KM
Technology is a powerful element that is able to provide all the tools and equipment needed for each of the KM processes, including registration, sharing and application of knowledge. The achievements of information technology by providing facilities such as searching, indexing, sorting, archiving, and transferring information can greatly help the growth of information collection, organization, classification, and dissemination.
The ability of technology in the aforementioned cases is undeniable. Technology achievements are not considered KM. Technology plays the role of support, also does not provide knowledge, but helps people in providing information.

Participation Culture in KM
One of the important elements of KM is open organizational culture. Which encourages the user community to interact with each other and exchange ideas, experiences and points of view. It also provides an environment for them to speak to each other without fear. Therefore, another feature of KM is establishing interaction between customers in order to exchange and exchange their written or unwritten ideas and reject or modify them and finally apply approved ideas (knowledge) in line with the ultimate goals of the organization. As it was said, the emphasis of KM is on knowledge sharing, so the lack of a participation culture that encourages cooperation, trust, knowledge sharing, listening, learning and creativity will be a huge barrier to the growth and realization of a successful KM project. Davenport and others stated: If the cultural ground of the KM project is not fertile, technology, knowledge, and management will not develop successfully. In organizations; if the participation cultureis not understood as the best method, it will certainly not be accepted.

Without the sincere communication of high-level managers with personnel, innovations and initiatives of KM will remain confused and ultimately face failure. Guman believes: "Knowledge management achievements often face failure because in most cases, managers refuse to spread and distribute information and only provide information to people (employees) as needed." In such cases, the managers

respond to the information sharing request when it does not conflict with the decisions that have already been made. Meanwhile, employees are not willing to share their knowledge with others due to various personnel and organizational obstacles. However, the success of KM projects depends on the cooperation and sharing of knowledge between all people. All people should practically participate in the collection and dissemination of the content of the projects. If human resources are punished for sharing their knowledge instead of being encouraged. They will not show any effort to develop knowledge management. Guman, O. Dell and Grayson believe: "People refuse to share their knowledge for the following reasons:

- People think that their personal knowledge is not important enough to be expressed;
- Too busy;
- They don't want to be burdened with additional responsibilities by sharing knowledge;
- Fear that their talents and abilities will not be used in projects. - The feeling that knowledge sharing may hinder their individual progress;
- The feeling of panic in group discussions based on the mentality that they have nothing to say;
- They do not trust the knowledge of others to share their knowledge with them;
- They are afraid that their opinions will be ridiculed or criticized and this will cause them to be punished;
- Or they work under the supervision of managers who hide information.
- Knowledge sharing is not part of the organizational culture, so there is no sense of obligation for it; (Bagheri, 2005, 74).

Obstacles & Barriers in the path from Idea to Product

Based on results, scientific and managerial structures; Political, executive and cultural-social issues in some developing countries are among the most important obstacles in the path from Idea to Product.

In general, the failure is caused by complex structures, cumbersome laws and regulations and the absence of laws and regulations governing production activities, worn-out executive system, weakness in the administrative structure and lack of meritocracy, lack of an appropriate and targeted support system in relation to infrastructure development, non-applied education and research, productivity reduction, production cost increase, tool wear and tear.

Also in development programs, there is no sufficient attention to issues such as, duration of development plans, capacities of the executive system, facilitating factors in implementation of strategy and time structure of political and executive system, lack of a specific long-term plan has made it difficult to prioritize the selection and implementation of policies.

Structure of model

In this section, according to the approximate understanding of obstacles, aspects and dimensions of economic, managerial, executive and operational, structural and cultural, Trilateral model was designed.

A) Management Support (Navigate and Coordinate)

The goal of manager is lead, make decisions and support in order to advance of organization landscapes. The presence of committed manager, coordinator, navigator, decision-maker and supporter is essential with maximum authority for inter-departmental and trans-departmental coordination, monitoring the path, removing financial and bureaucratic obstacles, challenges and Production problems at the head of process.

B) Intellectual Support (Education and Research)

Intellectual support consists of two key elements, Universities and elites. Normally, universities have the potential of education and research to create ideas by elites. The University Features are up-to-date, targeted, subject-oriented and forward-looking with full understanding of industry and the market needs, and the characteristics of elites include, applied researches, practical ideas with pay attention to industry and market needs.

C) **Operational Support (execution and production)**
The most important mission and program in the operational support sector includes human resources with skilled, expert, motivated and Perseverance characterizes and other necessary Tools for production. Suppliers should attempt to create the necessary coordination and systematic thinking between all sectors to realize and increase quality production.

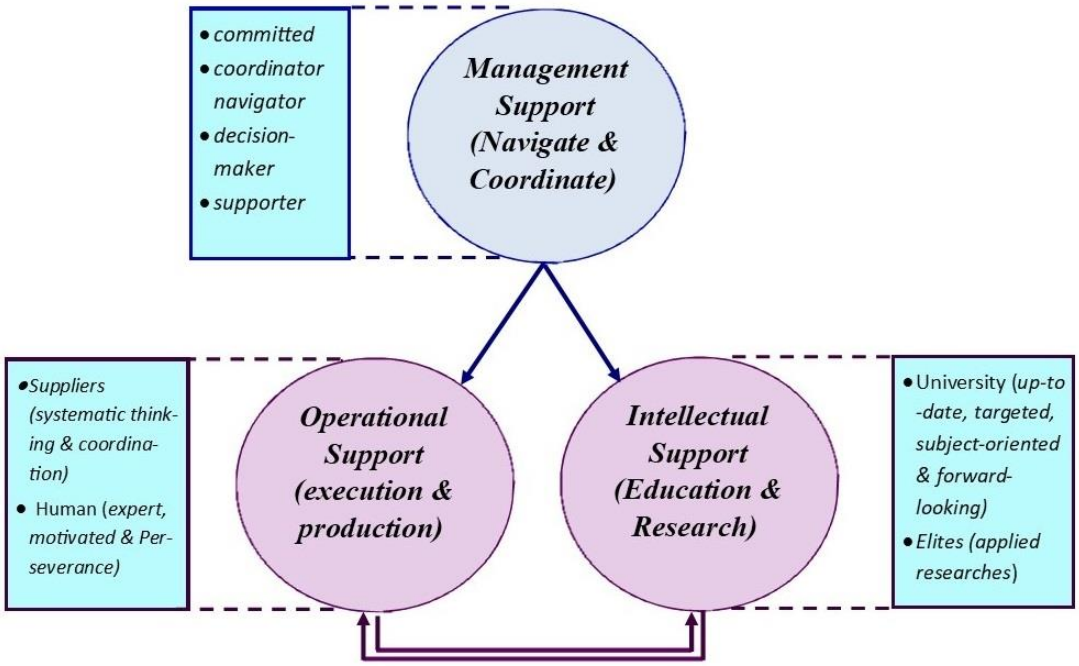

Fig (1): Trilateral Model of success path from Idea to Product Source: Authors, 2024

As the pattern shows, includes three sections of Management Support (Navigate and Coordinate) Intellectual Support (Education and Research) Operational Support (execution and production) with special characteristics to presents the path of success from idea to product.
At the top of model, presence of a committed manager, coordinator, Navigator, decision-maker and supporter plays a key role in linking two departments of "intellectual support" and "operational support" and removing production obstacles.

Result
In present century, all developing countries have increased the amount of their research investments in an effort to improve their position and increase their advantage in international competition scenes. Developing countries have also realized that they have no other way to achieve growth and development and to solve their economic and social problems except by investing in research. In the first step, Path from idea to product will not take place without serious all-round support from the public and private departments to change the society's thoughts in accepting and prioritizing the category of Knowledge & science in all its dimensions of life, paying attention to the role of ideas and applied research, allocating appropriate resources, finally presence of Commitment manager and navigator from the beginning to the end. In the second step, in order for the universities to be able fulfill their main mission in this direction for focusing on categories of elites, problem solving, applied research, interaction between University with market and industry is essential to establish an independent department under the title of "Path from Idea to product".

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