IDEAS FOR CREATION OF KNOWLEDGE: STRATEGIC OPTIONS FOR THE ORGANIZATION

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บทคัดย่อ

งานวิจัยนี้ศึกษาแนวความคิดเชิงกลยุทธ์ในการสร้างองค์ความรู้เพื่อให้บรรลุถึงความ
ได้เปรียบในเชิงการแข่งขันขององค์กร องค์ความรู้ (ทั้งแบบนัยและแบบประจักษ์) จะได้รับการสร้าง
ผ่านปฏิสัมพันธ์พลวัตในหมู่ปัจเจกชน องค์กร และสภาพแวดล้อม องค์ประกอบสำคัญ
สร้างความรู้แฝงหรือความรู้เชิงนัยและกลายเป็นประสบการณ์ของการประยุกต์ใช้ศักยภาพ
การเปลี่ยนแปลงที่เกิดจากการสนทนา การสังเกตและการประเมินของผู้มีบทบาทเกี่ยวข้องและ
แรงขับเคลื่อนต่างๆ ในสถานการณ์เฉพาะซึ่งฝังตัวอยู่ในเรื่องราวและการเล่าเรื่องต่างๆ และก่อ
ให้เกิดความเข้าใจและการตัดสินใจผ่านการทดลอง โดยใช้ความเข้าใจอันลึกซึ้งของปัจเจกชน
และการตัดสินใจของเขาเหล่านั้น ดึงความรู้ที่มีอยู่ในลูกจ้าง การสร้างวัฒนธรรมความรู้
ปฏิสัมพันธ์ในหมู่ทีมงาน ความสัมพันธ์ระหว่างความรู้และการเรียนรู้ขององค์กร การส่งเสริม
การสื่อสาร และการสนทนาแบบตัวต่อตัวและแบบพร้อมกัน การฝึกปฏิบัติและฝึกอบรม
การติดต่อผู้เชี่ยวชาญ การส่งอี-เมล์ การถอดความการพูดคุยและการมีส่วนร่วมของทีมงาน
ล้วนเป็นทางเลือกสำคัญสำหรับการสร้างองค์ความรู้แบบประจักษ์ อย่างไรก็ตามการใช้กลยุทธ์
เหล่านี้ ผู้จัดการควรยึดความเชื่อมโยงระหว่างตัวแปรทั้งหลายและพิจารณาสิ่งที่อาจเกิดขึ้นใน
อนาคตที่จะทำให้กระบวนการสร้างองค์ความรู้ประสบผลสำเร็จ

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Abstract

This paper traces various strategic ideas for creation of knowledge to attain competitive advantage by organization. Knowledge (both implicit and explicit) is created through dynamic interactions among individuals, the organization, and the environment. The key factors create tacit or implicit knowledge and are practical experience through application of talents, transformation through conversation, escapes observation and evaluation of various actors and forces in a particular situation, embedded in stories and narratives, held within self through understanding and judgments, through experiment, using insights and understandings of individuals and their judgments and so on. Extracting knowledge from within the employees, creation of knowledge culture, interaction among virtual teams, connection between knowledge and organizational learning, encouraging communication, face-to-face and synchronous conversation, apprenticeship and training, contacting expert, sending e-mail, transcribing talks, team intersection are the major options for the creation of explicit knowledge. However, in utilizing these strategic options, manager should maintain cohesion among all the variables and a consideration of contingency to make the knowledge creation process a fruitful one.

INTRODUCTION

At the organizational level, knowledge has gained an increasing importance for its incremental contribution to organizational success. By creating and utilizing proper knowledge, organizations can development their competences on different fields of operation. The intention of this article is to present various strategic ideas for knowledge creation for the organization. To this end some of the key ideas about knowledge creation will be explored. The first part of the paper represents a brief description on the importance of knowledge creation for the organization and on some relevant terms of knowledge and knowledge management. It goes on to show the nature and understanding of each option of knowledge creation for the organization. Some critical aspects are also discussed on which knowledge manager should pay their due attention to get best results from the knowledge creation process.

THE IMPORTANCE OF KNOWLEDGE FOR THE ORGANIZATION: SKETCH FROM THE LITERATURE

In the age of globalization, knowledge has been considered as the important resource for the organization which is influencing all the spheres of organizational operations. Organizations can use knowledge as intellectual resources for competitive advantage in the business field and can differentiate themselves from others on market offerings, research and development, market serve, managerial efficiency etc. Knowledge is considered to be resource which is valuable, rare and unique and is seen as a potential source of competitive advantage (Løwendahl and Revang, 2001).

Proper usage of knowledge can help the organization to create and deliver superior value to the target markets. Barney (1991) stated that with the usage of knowledge resource a firm can generate and deliver superior value to its target group. In the business field knowledge contribute to corporate competitiveness. A proper knowledge management and utilization helps the organizations to uplift their core competences, use them as strategic weapons in the business environment. While explaining the importance of knowledge and knowledge management in the organizational context Bergeron (2003) stated:

"*To compete successfully in today's economy, organizations have to treat the knowledge that contributes to their core competences just as they would any other strategy, irreplaceable asset*".

Therefore, it is evident that in the business arena organization should create and manage knowledge in such a fashion so that it can capitalize its interests fruitfully and make its position impregnable in the industry it is operating. And for this proper isolation of knowledge creation, mechanisms are inevitable for the organization in today's volatile business environment.

KEY TERMS AND CONCEPTS

Knowledge: The organized, synthesized, or summarized information is called knowledge. Knowledge is a combination of descriptive summaries of data and information and an awareness of context in which the information can be used successfully (Bergeron, 2003). Knowledge is used to enhance comprehension, awareness or understanding about something. With proper knowledge organization can realize the realities, identify the interactive forces for a particular problems and can select the options for problem solution.

Knowledge Artifacts: The "items" or "things" that represent the knowledge in the knowledge capturing and sharing systems are known as knowledge artifacts (Seiner, 2000) or knowledge units (Zack, 1999) which come in a variety of forms, including documents, files, papers, conversations, pictures, thoughts, software, databases, e-mail messages, data sets, winks and nods, and whatever else can be used to represent meaning and understanding. Knowledge artifacts also vary in their degree of articulation; simple knowledge artifacts can be explicit, implicit or tacit. Most artifacts, however, are not simple but complex, and contain a combination of explicit, implicit and tacit components (Newman, 1999).

Intellectual Capital: When individual and organizational knowledge is used as commodity or asset then it is expressed as "intellectual capital". The essence is that an organizational knowledge can be used as asset when it is developed through experience in the organization, through learning programs, conferences, meetings, and other learning opportunities. Constituent components of intellectual capital includes Human Capital-the knowledge, skills, competencies of the people in the organization, *Customer Capital*- the value of the organization's relationships with its customers and *Structural Capital*- the process, structures, information systems, and intellectual properties that are independent of the employees and managers who created them (Bergeron, 2003).

Knowledge Management: knowl-

edge management is the capability of the organization to carefully collect, store and use the best practice of work-related knowledge and decisions from managers and employees for the organization to serve the individual and group purposes. Bergeron (2003) defines knowledge management as "a business optimization strategy that identifies, selects, organizes, distils, and packages information essential to the business of the company in a way that improves employee performance and corporate competitiveness". He also opined that to compete successfully in today's economy, organization should treat the knowledge that contributes to their core competencies just as they would any other strategy, irreplaceable asset. Thus knowledge management is a systematic approach of obtaining the needed information suitable for the organizational purposes and a business optimization tool that will provide organization a competitive advantage.

Process Reengineering: Process reengineering is result oriented that defines "what should be". It is concerned with benchmarking and best practices, implementing alternative business models and process optimization. The opt of process reengineering is to gain the competitiveness through best practice, following the methods of successful companies, eliminating the low value elements from operational field and reducing unnecessary employees through intellectual downsizing (Bergeron, 2003).

Knowledge Workers: Knowledge workers involve in occupations that involve more thought than physical labor. In literary terms they are the employees and managers who contribute significantly to the intellectual capital of the company. Typically knowledge workers work in marketing, intellectual property, engineering, programming and other white collar related jobs. They add value to the corporate knowledge assets by documenting problems solving activities, by reporting best practices, by disseminating information in different forms to different concerned individuals and groups which helps to ensure the organizational excellence. Knowledge workers are primarily hired for what they know. Knowledge workers who represent a positive value multiplier, providing consistent supportive feedback through the corporation's touch points, investing in knowledge worker education when economically feasible and maintaining the process associated with knowledge worker loyalty all maximize the value that the knowledge worker can bring to the corporation (Bergeron, 2003).

Knowledge Organization: Knowledge organization is involved to create, acquire, transfer and retain information for the organization to attain the competitive advantage. To this end corporate senior management must take the responsibility to make the knowledge management as organizational theme. In this regard chief executives act as chief knowledge officer who change the corporate culture into knowledge culture all over the organization and exercise their responsibilities through gaining knowledge from customers, creating new avenues of knowledge from existing knowledge and capturing individual's tacit knowledge for reuse.

KNOWLEDGE TYPOLOGIES

Power of nations in the future world will be determined by the possession of knowledge resources that they can generate, enhance, utilize and innovate for the betterment of the society and to fulfill the individual and contemporary social needs. Knowledge creation starts with a requirement specification that provides the acquiring agent with a description of the information needed where concerned parties interact with each other following a particular process. Knowledge creation is a dialectical process, in which various contradictions are synthesized through dynamic interactions among individuals, the organization, and the environment (Nonaka & Toyama, 2002). Although Davenport and Prussic (1998) and others write about knowledge processes operating in the mind, in such phrases as "knowledge originates . . . in the minds of knowers", this concept is problematic because it restricts knowledge to being exclusively an intellectual activity. Knowledge goes beyond mind activity; it is based on sensory experience and physical activity, as well as mindful cognition. As D.H. Lawrence (1928, 1980) said, "Real knowledge comes out of the whole corpus of consciousness . . . the mind can only analyze and rationalize". Knowing involves the whole person, as mind and body; emotion, cognition, and physicality together create what is known.

A famous physical chemist Michael Polanyi (1958) has created an exhaustive catalog of knowledge categories in his signature project Personal Knowledge that include tacit or implicit knowledge and explicit knowledge which are discussed below.

Implicit or Tacit Knowledge: Tacit knowledge, sometimes known as implicit knowledge, is unspoken and hidden. It is the expertise and assumptions that individuals develop over the years that may never have been recorded or documented (McInerney, 2002). Necessarily, this tacit knowledge is subjective and personal, but it can be shared to some extent, and passing on the knowledge in a process that can be helpful to others and ultimately valuable to the organization necessary for carry on and complete its work successfully. By "fixing" the knowledge or attempting to represent it in a format such as a manual, a step-by-step video guide, or a graphic schematic, a knowledge artifact is created. Hood (2002) opined that tacit knowledge is personal and context-specific. It involves cognitive aspects such as mental models, scripts, and schemata. It also includes subjective, intangible factors such as beliefs, perspectives and values, as well as hunches, intuitions, and insights. It may be tied to the senses, related to skills in body movement, or embedded in personal perceptions or physical experiences. Tacit knowledge is thus often very difficult to describe to others.

Explicit Knowledge: Explicit knowledge is objective. It is knowledge that has been explained, recorded, or documented. Explicit knowledge is organizational which can be stored in repositories like databases, files, etc. It can be viewed or heard from sources which can be shared with others for generating outputs. Explicit knowledge is formal in character that can be expressed in words, numbers, symbols and graphics. It can be easily communicated through print and digital media and shared in the form of

data, formulas, pictures, drawings, codified procedures or general principles (Hood, 2002), Table 1.

STRATEGIC OPTIONS FOR CREATING IMPLICIT OR TACIT KNOWLEDGE

Implicit or tacit knowledge can be created through the application of the following strategies by the organizations.

Practical Experience through the Application of Talents: Henry David Thoreau (1849) described that: "knowledge is to be acquired by a corresponding experience". It is the experience of those in the organization that creates the knowledge that, if used and shared, gives one organization advantages over another. Using the talents of the organization's employees is a prime source of novel knowledge. In this regard organization should facilitate the employees with the supportive evidences like options for utilizing talents in the working life, freedom of thinking, using them etc. and this will inspire the employees to help the organization to generate knowledge.

Transformation through conversation: People possess different knowledge and their conversation helps a lot to transfer the knowledge to one another. A well planned discussion on contemporary issues(s) generates knowledge which bears immense importance for the participants. Here planners of conversation session should ensure the two-way conversation so that monopoly dialogue can be avoided and mutuality can be ensured and the assurance of mutuality will add more value to the existing knowledge base of the organization.

Embedded in Stories and Narratives: Engaging one-self in the stories of successful personalities and organizations can be a great source of new knowledge. Success stories of persons and organizations help the thinkers to think strategically and help them to find out the path they followed, strategies they used, problems they encountered, solution options they consid-

Table1: Characteristics of tacit and explicit knowledge.

Implicit or tacit knowledge	Explicit knowledge
Subconscious	Formally articulated
Perceived	Elucidated
Unaware	Aware
Difficult to articulate or unspoken	Fixed
Experienced based	Codified
Transferred through conversation	Documented (written, taped, recorded,
Embedded in stories and narratives	digitized, etc.)
Escapes observation	Stored in repositories (databases, files,
	etc.)
Held within self	Can be viewed or heard
Personal	Shared with others
Insights and understandings	Organizational
Judgments	Pushed or pulled
Assumptions	Reports, lessons lerned

ered fruitful among alternatives, ways they used to overcome them, usage pattern of the available opportunities in the complex competitive environment. Thinkers will also able and try to relate their perspective with the existing one, find out the option to use them to generate knowledge and use them to capitalize their interests. Wisely written narrations are the rich source of new knowledge for the concerned. Going through them can generate sound knowledge for the organization.

Escapes Observation and Evaluation: Nature is the best source of knowledge to acquire and use for attaining success. In the natural environment various actors and forces are interacting with each other and by this way they are moving forewords. Observing the interplays taking place in the environment is a sound source of knowledge. Evaluation of something depicts the underlying causes of effects generated through the interactions of various agents. In this regard proper observation of facts and factors and evaluating then with objective manner will generate a sound knowledge for the organization.

Held Within Self through Understanding and Judgments: Every individual has potentiality to contribute for the betterment of the society. The internal growth as well as what has taken place within human brain with the passes of time and interaction with various actors and forces in the environment is a vital source of knowledge. As people grown-up their individual cognitive development ensured and with this cognitive power people can understand the complexity of the society, can generalize them to find out the suitable solution and utilize them for the betterment of

the society as a whole. Thus individual self development plays a vital role in creating knowledge within the organization.

Through Experiment: For knowledge creation we can use the experimental design. Experiment is used to find out cause and effect relationship by controlling some other extraneous variables in a particular context.

In addition to the given strategies we can use Insights and understandings of individuals, their judgments, assumptions, listening, using intuition and emotions to create knowledge for the organizational excellence.

STRATEGIES FOR CREATING EXPLICIT KNOWLEDGE

The following discussion represents various strategic options for creating explicit knowledge for the organization.

Extract Knowledge from Within the Employees: To create new explicit knowledge artifacts, employees can be a great source for the company. Employees are the human capital for the organization. Organization can engage them in brainstorming, solicit ideas from them and so on to generate knowledge. For an organization to be successful, different know-how categories like technical, non-technical etc. are needed. With a spontaneous participation of employees in the knowledge creation process organization can get the diverse knowledge from its internal source (employees). To ensure the spontaneous involvement congenial environment must be created that will act as a prime motivating factor for the participants.

Creation of Knowledge Culture: Creating a knowledge culture in the organization means an organization that offers opportunities to create knowledge and one that encourages learning and the sharing of what is known. Encouragement can come in the form of establishing small group meeting rooms, conducting seminars, rewarding those who pursue learning and who teach others what they know. Thus creating a knowledge culture ensures the continual creation and sharing of knowledge through an environment of trust and dialogue (McInerney, 2002).

Virtual Teams: In Virtual Teams members are separated from each other and use technology for interaction where they do not see each other face to face, and work is completed by individuals who may never meet each other. To share knowledge there has to be a good communication infrastructure, but there also has to be an environment where trust allows the responsible transfer of individual and organizational knowledge. (Jarvenpaa, Knoll, & Leidner, 1998) opined trust as a fundamentally necessary matter in .building a knowledge sharing culture who may never meet each other.

Connection between Knowledge and Organizational Learning: The connection between knowledge and organizational learning is inevitable because knowledge is what has been learned (Kofman & Senge, 1993). Organizational learning is to learn about the employees in the organization and how they work together to accomplish the individual and collective goals. The intersection of learning and knowledge management will create the new useful knowledge for the organization. Meaningful communication among the concerned parties, open learning process, opportunities for learning are vital in this regard. McInerney (2002) opined that encouraging communication, offering opportunities to learn, and promoting the sharing of appropriate knowledge artifacts are vital in creating and increasing useful knowledge within the organization.

Encouraging Communication: Communication is the formal as well as informal sharing of meaningful and timely information between firms (Anderson and Narus, 1990). Knowledge can be carried, flowed, transferred and digested by personal relationships over time. As a process knowledge-creating is context-specific in terms of relationship with others. Intense communication between or among the employees are essential to create and develop new knowledge and the sharing of tacit knowledge. A proper communication between the actors in the organization gives the information proper meaning, develop the trust among them, build the relationship, ensure mutual learning through knowledge development, and ensure the adaptation of the organization with the changing situations. Thus improving communication and encouraging for it, therefore, is essential for successful collaboration which is pivotal for knowledge generation.

Face-to-Face and Synchronous Conversation: Knowledge has social dimensions within an organization, and it is very difficult to share without opportunities for people to work together. Conversation is the key to sharing knowledge (Davenport & Prusak, 1998), and people to people communication and face-to face meetings are necessary to stimulate innovation of new knowledge. To share knowledge there has to be a good communication infrastructure,

but there also has to be an environment where trust allows the responsible transfer of individual and organizational knowledge. Thus organizations should be committed to earmark resources that allow and encourage conversation.

Apprenticeship and Training: Initial academic qualification is not the sufficient contributory factor in the achievement of generating suitable knowledge for the organization unless employees receive facilities to work together with experts on different fields, and of training and education for further development. Thus, the institutions should assure sufficient facilities in achieving the creation of new knowledge. Apprenticeship and training work ensure self development of employees, can improve their knowledge level, update themselves in the specific field, and attain new ideas for innovations in the knowledge world.

Contacting Experts: Coming into contact with experts can be a great source of knowledge for the organization. Experts' opinion on different contemporary issues, their essays on different concerns, their speeches on special areas under discussion are resourceful enough to generate knowledge. In this regard maintaining close contact with them can be a fruitful endeavor to extract new knowledge. Passing time with them, making discussion on different issues, following their daily routines, reading their previous stories of success, informing them about various problems for suggestions, asking them questions on different matters are some ways that can be appropriate here to generate knowledge for the organization.

Sending e-mail: External environment can be a suitable source for knowledge in this age of information and communication technology. Authority can collect the e-mail address of different users and send the e-mail with several questions of interest and request them to return with answer. Organization should send the convincing message relating to their individual as well as social interest. In this regard some incentives can be provided so that it acts as inspiration for the respondents to send the e-mail with answer.

Transcribing Talks: Recording talking of scholars can generate explicit knowledge. In various public functions scholars from different disciplines provide their valuable speeches on contemporary issues of the society, business and other developmental areas. Taking notes on key issues and how they describe and propose prospective solutions and guidelines can be a new basis of knowledge creation. Here key consideration is to find out the relevance of the recorded information so that they can be used as knowledge for organization purpose and development.

Team Intersection: All organization has various teams and working groups which are responsible for various jobs to perform. As authority we can use their individual and collective efforts and thinking and at the same time we can encourage to and make a junction among the teams working in the organization. On the one hand, their individual efforts will generate the new ideas of knowledge and on the other hand their team intersection will make the ideas more fruitful and new vista of knowledge will be generated. For knowledge organization should facilitates the organization members with congenial environment where they will able to take the opportunities to share knowledge among work groups.

CONCEPTUAL FRAMEWORKS

This paper integrated different determinants which are acting as force creating factor in the knowledge creation continuum. The given ideas for creating knowledge are divided into two broad categories relating to tacit and explicit knowledge. The internal interactions between these two broad categories are given in two way directions in the framework indicating their interdependency. For creating the tacit or implicit knowledge practical experience through application of talents, transformation through conversation, escapes observation and evaluation of various actors and forces in a particular situation, embedded in stories and narratives, held within self through understanding and judgments, through experiment, using insights and understandings of individuals and their judgments are prominent . Extracting knowledge from within the employees, creation of knowledge culture, interaction among virtual teams, connection between knowledge and organizational learning, encouraging communication, face-to-face and synchronous conversation, apprenticeship and training, contacting expert, sending e-mail, transcribing talks, team intersection are the major options for the creation of explicit knowledge (Figure-1).

HOW DOES A FRAMEWORK OPERATE IN THE INTEGRATED SYSTEM OF KNOWLEDGE CREATION?

Knowledge creation is a process where various factors act as contributing factors. It is the complex combination of various factors within the overall socio-cultural environmental systems of the organization which again consists of many sub factors that specify the systematic and logical relationship among the variables. The relationship among the relevant constituents is spontaneous rather than imposed from the outside constraints. Furthermore, for appropriate execution of the total knowledge creation processes the reverse is also true. For example the creation of tacit and explicit knowledge is influenced by diverse factors. After a certain period of time all the created knowledge become established and permanent in an organizational or a societal setup. After that establishment, this knowledge determines the appropriate sub factors for generating the knowledge suitable in a particular environment. Due to inherent characteristics of the changes of environmental variables the knowledge creation process is influenced. Thus, in such consequences the system needs to consider the influences of constraining factors to bring the unity among the interactions of all the factors altogether. In fine, the relationship and functioning among the variables with that two way directions constitute the cohesive whole for long run operations of the framework to achieve the proper knowledge creation in the organizational level.

CONCLUSION

Knowledge is one of the potent intellectual assets for the organization where its creation and proper utilization in the organizational level is the important issue that helps to meet the needs of corporate organization as well as society. In this paper, knowledge creation has been considered as
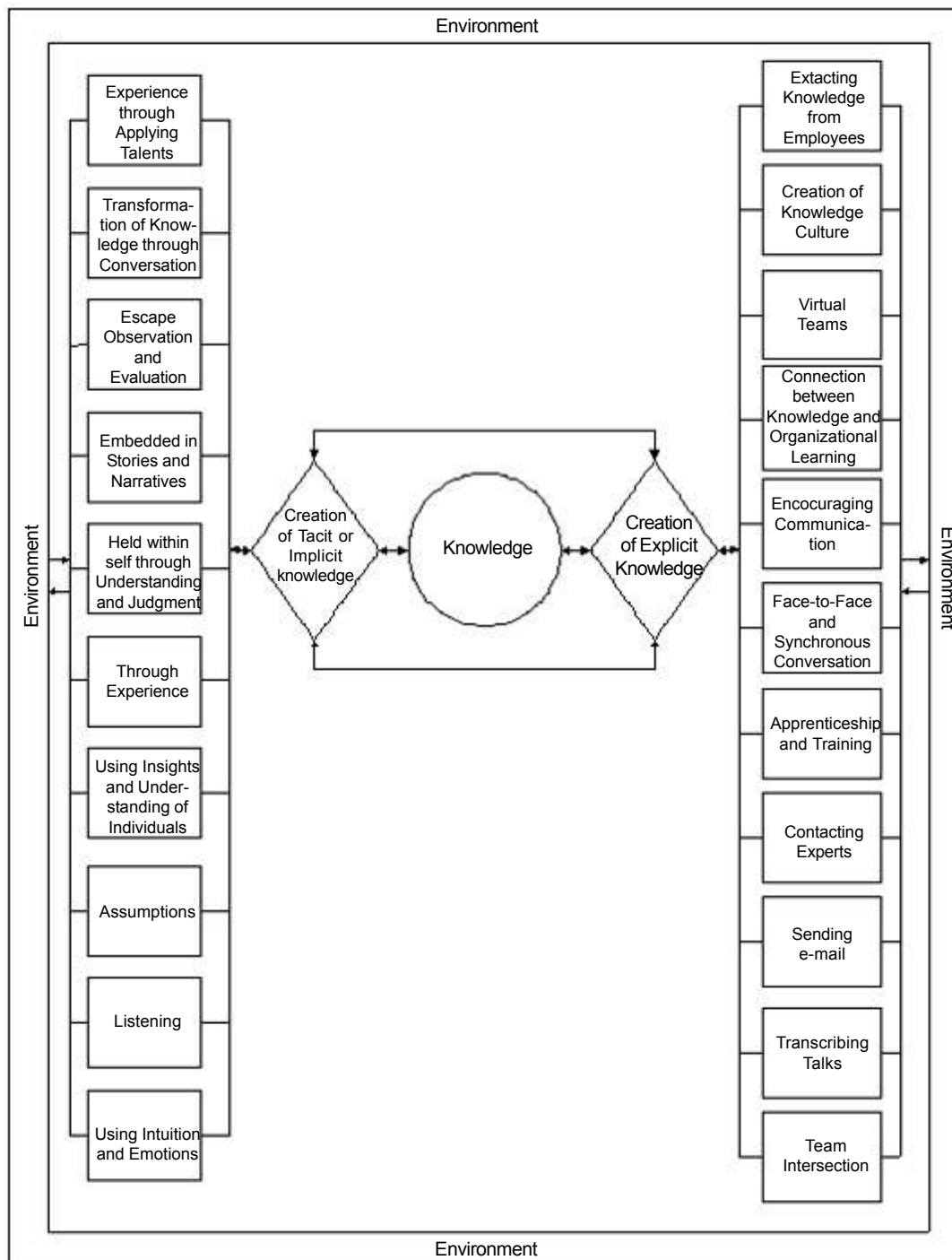
Figure 1: A Conceptual Framework for Knowledge Creation.

dynamic process consisting of different variables. The space for knowledge creation evolves as the actors interact with each other and creates tendencies for interaction patterns through time and space. Thus effective knowledge creation demands an understanding of the dynamic nature of knowledge, their impact on the overall organizational performance, impact on the interests of the other stakeholders and suitability in different situations and environments.

References

Anderson, J. C. and Narus, J. A. (1990) "A Model of Distributor Firm and Manufacturer Firm Working Partnerships", *Journal of Marketing*, Vol. 54, pp.42-58.

Barney, J. B. (1991). "Firm resources and sustained competitive advantage". *Journal of Management*, 17: 99-120.

Bergeron, Bryan (2003): *Process: Essentials of knowledge Management*, John Wiley & Sons, Inc. Hoboken, New Jersey. P. 8-100, *ISBN 0-471-28113-1*.

Davenport, T.H., & Prussic, L. (1998). *Working knowledge: How organizations manage what they know*. Boston, MA: Harvard Business School Press.

Hood, Paul (2002): "Perspectives on Knowledge Utilization in Education", *WestEd*, San Francisco, CA. p.8.

Jarvenpaa, S.L., Knoll, K., & Leidner, D.E. (1998, Spring). "Is anybody out there: Antecedents of trust in global virtual teams". *Journal of Management Information Systems*, 14(4), 29-64.

Kofman, F., & Senge, P.M. (1993). "Communities of commitment: The heart of learning organizations". *Organization Dynamics*, 22(2), 5-23.

Lawrence, D.H. (1928, 1980). *Lady Chatterly's lover*. New York: Bantam Books.

Løwendahl, B.R. & Revang, Ø. (2001) "Organizing for Knowledge-Based Value Creation". Working paper presented at the *Annual Strategic Management Society Conference*, San Francisco, Fall.

McInerney, C. (2002) "Knowledge Management and the Dynamic Nature of Knowledge". *Journal of the American Society for Information Science and technology*, 1011-14.

Newman, B. and Conrad, K. W. (1999), "A Framework for Characterizing Knowledge Management Methods, Practices, and Technologies", panel paper – *Choosing Knowledge Management Technology Panel*, Documation, Santa Clara, California. bo.newman @km-forum.org; conrad @Sagebrush Group.com.

Nonaka I and Toyama R (2002) "A firm as a dialectic being: toward the dynamic theory of the firm". *Industrial and Corporate Change* 11, 995-1109.

Polanyi, M. (1958, 1962). *Personal knowledge: Towards a post-critical philosophy*. Chicago: The University of Chicago Press.

Thoreau, H.D. (1849, 1906). *The writings of Henry David Thoreau*. New York: Houghton Mifflin Company.

Seiner, R.S. (2000). Meta data as a knowledge management enabler. Dbazine. com. http://www.dbazine.com/seiner4.

html. Accessed on November 12, 2001.

Zack, M. (1999, Summer). "Managing codified knowledge". *Sloan Management Review*, 40(4), 45-58.