

Innovation And Tacit Knowledge

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INTRODUCTION

Innovation refers to finding new and better ways of doing existing tasks by converting new knowledge into new products and services. The new knowledge can be technical or market related. Technical knowledge refers to the inputs like components, processes, and know-how that contribute to output. Market knowledge means the innovative /new designs, presentation techniques, distribution and customer service methods as well as new forms of differentiation, positioning and advertising. Knowledge, on the other hand, is defined by Davenport and Prusak as, “A fluid mix of framed experiences, values, contextual information and expert insight that provides a framework for evaluating and incorporating new experiences and information.” It is not only by chance that knowledge is used so heavily in the description of innovation.

Knowledge management includes two aspects-‘managing’ the information that already exists in the organization as well as creating ‘new knowledge’. Knowledge Management is the process of gathering a firm’s collective expertise, wherever it resides-in databases, on paper, or in people’s head in the form of memory, skills, experience, education, imagination and creativity and distributing it to where it can be beneficial. KM deals with two types of knowledge-

- ♦ **Explicit Knowledge-** It is codified and documented, therefore, it is easy to capture, process and disseminate.
- ♦ **Implicit / Tacit Knowledge-** It resides in an individual’s mind and is difficult to capture but is of more significance to an organization. It is highly pragmatic and situation-specific; subconsciously understood and applied; difficult to articulate and usually shared through highly interactive conversation and shared experience. The generation of tacit knowledge is being targeted as a critical part of organizational knowledge in many firms. With its roots in the experience of individuals, tacit knowledge is difficult to process and hard to transfer. One of Polanyi’s famous *aphorisms* is: “We know more than we can tell.” Companies are realizing that their competitive edge is mostly the brainpower or intellectual capital of their employees and management. The organizations have come to realize that, in addition to tangible assets, intangible assets, which include staff skills, expertise, capabilities and experiences are the driving force for the growth, innovation, sustainability and success. It is the fuel or raw material for innovation - the only competitive advantage that can sustain a company in an unpredictable business environment. Innovation practices aim to draw out the tacit knowledge people have, what they carry around them, what they observe and learn from experience, rather than what is explicitly stated.

The following **innovation mechanisms** can help in developing and sharing tacit knowledge within an organization: -

MOTIVATIONAL INCENTIVES

Its purpose is to motivate employees to act intelligently, i.e. to be innovative, share knowledge, and expend efforts to capture knowledge and ask for assistance when meeting unfamiliar or difficult situations. It seeks to make individuals to take personal responsibility for knowledge vigilance.

According to Quinn, Baruch and Zien, in order to encourage innovation, the following evaluations are needed-

- Individual performance (by peers) ▪ Customer performance (by customers) ▪ Collaborative performance (by group members) ▪ Enterprise performance (by value added means)

They suggest that innovators respond most to a mix of financial and non-financial incentives and that most talented people, to feel fulfilled, need an appreciation for hard work, concrete sense of adventure and recognition for success achieved. These incentives help the employees to think creatively and discover new knowledge through research and experimentation. Incentives may take many forms including money, recognition, empowerment, advancement and selection. The management should not reward loyalty to boss, internal competition, bureaucratic & controlling behavior, power grabbing and turf battles.

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ENCOURAGE IDEA SHARING

It refers to the distribution of knowledge automatically to the users based on interest and work. Ideas, if only generated, would serve no purpose. Efforts should be made to transfer the ideas from the knowledge developers to the knowledge seekers. Factors that encourage or retard idea sharing like personality, attitude, work norms and vocational reinforcers like recognition, job security, creativity, good work environment, advancement, achievement, social status, etc. should be duly considered. Cultural and hierarchical barriers need to be overcome to facilitate knowledge sharing and its application. Free and smooth flow of communication should be ensured to connect those that know with those that need to know. It would facilitate the employees to think new ideas and share them freely. Johnson & Johnson, for example, has knowledge fairs and knowledge exchanges within their organization to promote a culture that encourages knowledge sharing among its employees. Expert systems, if selected, can be a viable technology to assist in these knowledge management endeavors.

CREATE KNOWLEDGE REPOSITORIES

The main feature of tacit knowledge is that it resides in people's minds, ideas or experiences, but for its development, knowledge repositories or corporate memories should be created. It would include the lessons learned, best and worst practices, and other pertinent information.

According to **Tobin**, "A knowledge repository organizes, and makes available, to all knowledge seekers, basic information on the company products, services, customers and business processes." Whenever ideas are generated, they should be stored for their reuse.

Collecting and editing of knowledge into a repository involves selecting the appropriate knowledge and verifying and validating that it is complete and correct. These knowledge repositories focus mainly on the storing of the knowledge, under the notion that it will benefit the employees of an organization in a cost effective manner.

ESTABLISH CORPORATE CULTURE AND INITIATE CHANGE

Change is necessary for the growth and survival of the business. Incorporating an appropriate corporate culture and changing the existing norms as well as the mindsets of people is essential so that they are receptive, supportive and committed to the practice of innovation. The underlying values and beliefs should be redesigned to create an innovation-supporting environment within an organization. The conservative and traditional thinking and methodologies should be replaced by new and innovative ones so as to create new knowledge. Some thought should also be given to how best to encourage the sharing of knowledge in the organization and build a supportive culture for the purpose.

In the words of **Quinn, Baruch, and Zien**, "Healthy culture is a major requirement to encourage innovation. Unless the culture is strong, those with exiting positions can subvert progress by refusing to undertake change or refuse to provide need expertise for a new venture." As long as the culture is fundamentally competitive, there will be an incentive for the individuals to withhold knowledge.

LOOK OUTSIDE THE BOX

The interlocking of unrelated skills and ideas is also important to innovation. It would result in an out-of-the-box perspective available for selection. Hearing a different perspective challenges the mindset of others sufficiently that they will search beyond what initially appears to be an obvious solution. This is the reason that intellectually heterogeneous cross-functional teams are more innovative than homogenous functional ones. Incorporating a knowledge portal into the system can also be helpful in this context. The system could be employed on an extranet. This knowledge portal could be used to obtain important information from suppliers and key customers.

ENCOURAGE KNOWLEDGE ACQUISITION THROUGH EDUCATION AND LEARNING

Individuals and enterprises have practiced many types of knowledge acquisition techniques. Acquiring / obtaining knowledge through training, education, apprenticeships or licensing should be encouraged so as to stimulate and refresh the human brains to think something new. This knowledge-acquisition becomes the basis for transferring the ideas and knowledge from experts in knowledge-intensive positions to others who need to be equipped to perform at similar levels of excellence. Companies like Caterpillar, are looking at KM strategies to

acquire/collect their knowledge and make it available in an interactive mode to those at the company who could be benefited from this knowledge.

ENCOURAGE EXPERIMENTATION

Excessive reliance on experts only results into dead ideas and resistance, as employees may not be ready to apply 'other's' knowledge. Tacit knowledge is well developed when the process of experimentation is encouraged. People are allowed to manipulate the situations and make experiments so that existing problems come to their mind. It would enhance the knowledge base of the organization. The help of subject-matter experts can also be sought for.

ENSURE COLLABORATIVE, NOT COMPETITIVE ADVANTAGE

Competitive strategies within an organization create win-lose scenarios, often competing for a share of the same pie. Collaborative strategies, on the other hand, encourage win-win situations resulting into development of knowledge.

According to Nonaka, tacit knowledge in any organization is the most valuable knowledge. The key to such knowledge creation lies in the way it is mobilized and converted through technology. Conversion and development between tacit and explicit knowledge is shown in the figure:

Tacit to Tacit(Socialization)	Tacit to Explicit(Externalization)
Explicit to Tacit(Internalization)	Explicit to Explicit(Communication)

Thus, it requires that the most effective approaches and techniques are selected and utilized to support innovation, develop new knowledge, transforming it to be used, and the like. Some of the main **innovative techniques** that can help the creation and development of tacit knowledge within an organization are discussed as follows:

• BRAIN STORMING

This technique was developed by an advertising executive Alex F.Osborn and is considered to be the oldest technique for stimulating creative thinking. Under it, a group of employees or outside experts are formed. A problem is put before the experts and the members are asked to develop as many potential solutions as possible. It is assumed that when people interact in a free and uninhibited atmosphere, they will generate innovative ideas. As some persons generate an idea, it stimulates the thinking of others. The aim is to generate as many ideas as possible so that the chances of finding out an acceptable solution are high.

A brainstorming group usually consists of four to eight participants. One session lasts from thirty minutes to an hour. A one hour session is likely to generate 50 to 150 ideas. Most of the ideas will be impractical, but some will be worth considering. The emphasis is on the frequency of responses during the session. Anything related to the topic can be brought up, and everything is valued. Questions can be raised for clarification, but no evaluation is made at this point.

• NOMINAL GROUPING TECHNIQUE

In this technique, the panel of experts becomes a "nominal" grouping, whose meetings are structured in order to effectively pool individual judgment. NGT is an idea writing or idea generation technique. Ideawriting is a structured grouping approach used to develop ideas and explore their meaning for clarity and specificity; the result is a written report. It is not based on free association of ideas, and it purposely attempts to reduce verbal interaction. That is why it is a grouping in name only.

NGT is ideal in situations of uncertainty regarding the nature of the problem domain. It is also effective in multiple expert knowledge capture, especially when minimizing the differences in status among experts is important. Every member has to generate his own ideas and copy the ideas of others. The technique is particularly effective in situations requiring a high degree of innovation and idea generation.

• SYNECTICS

It was developed by William J.J.Gordan and is considered to be a more recent technique for creative thinking. Synectics attempts to stimulate novel ideas by joining together distinct and apparently irrelevant ideas. Here also,

a group comprising of experts with different backgrounds and training is formed. An experienced person is appointed as the leader of the group. He states a problem for the group to consider. The group members react by stating the problem, as they understand it. Once the problem is thoroughly revised and analyzed, the group discussion forces group members to deviate from their traditional way of thinking. The final solution is derived from this complex set of interactions. A technical expert generally helps the group in evaluating the feasibility of different ideas. Syntectics differs from brain storming in as much as the judgment of ideas is not withheld until all ideas are generated. Syntectics is more appropriate for complex and technical problems. But it is also time consuming and expensive. It is a difficult technique for churning the mind so that novel visions and insights rise to its surface.

• **PROTOCOL ANALYSIS**

In protocol analysis, protocols (also known as scenarios) are collected by asking experts to solve a problem and verbalize what goes through their heads, stating directly what they think. In other words, the expert keeps talking, speaking out loud whatever thoughts come to mind, while they answer a question or solve a problem. Here, knowledge developers do not interrupt or ask questions in the interim. The solving process is carried out in an automatic fashion while the expert talks. Structuring the information collected occurs later, when the knowledge developer analyzes the protocol.

A protocol involves individuals, objects, and courses of events. The purpose of scenario / protocol is to provide an explicit concrete vision of how some human activity could be supported by technology. A think-aloud protocol provides a clear insight as to how each expert arrived at the solution through the individual expert's verbalizations. The think-aloud method avoids interpretation by the knowledge experts.

• **ON-SITE OBSERVATION**

In this technique, the knowledge developer observes the daily work of an expert. It is a process of observing, interpreting and recording an expert's problem-solving behavior while it takes place. Also, the knowledge developer may ask the expert questions about the problem-solving process. This technique helps the knowledge developer to seek knowledge within the working world of the expert. Moreover, observation places the knowledge closer to the actual steps and procedures used by the expert to solve the problem. One problem with this knowledge developing technique is that some experts do not like to be observed. They prefer to talk about their thought process rather than show them in practice.

• **COMMUNITIES-OF-PRACTICE**

The CoP's are considered to be the benchmark studies in the process of innovation within a company. The Communities-of-Practice are defined as the networks of the people with a shared concern or passion regarding a specific topic, and who expand their knowledge and expertise in their area of interest through continuous interaction. These communities have existed for many years in organizations, big or small, and have become a significant force in sharing knowledge and transferring expertise. In such communities, the employees exchange information informally on a regular basis. They come together because their interactions provide value. They gain information, insight and most importantly, knowledge. They can apply their learning to their jobs and make them better and efficient. But most importantly, they collaborate and contribute to create value for an organization. Therefore, CoP's emerge as people get united in a common enterprise and develop a shared history as well as particular values, beliefs, ways of talking, ways of learning and ways of doing things. They come together not so much on the basis of formal memberships or job descriptions, but by being involved with one another in action.

• **SHADOWING**

It is a good practice for transferring or recreating tacit knowledge inside an organization. With shadowing, less experienced staff observes more experienced staff in their activities to learn how their more experienced counterparts approach their work.

Dorothy Leonard and Walter Swap, two knowledge management experts, stress the importance of having the "protégé" discuss their observations with the "expert" in order to deepen their dialogue and crystallize the knowledge transfer.

• **JOINT PROBLEM SOLVING BY EXPERT AND NOVICE**

Some people are often unaware, of how they approach problems or do their work and therefore, can't automatically generate step-by-step instructions for doing whatever they want; having them work together on a project will bring the expert's approach to light.

The difference between shadowing and joint problem solving is that shadowing is more passive. With joint problem solving, the “expert” and the “novice” work hand-in-hand on a task.

• INTERVIEWING EXPERTS

It can be done in the form of structured interviewing or by recording organized stories. Structured interviewing of experts in a particular subject is the most commonly used technique to capture pertinent implicit knowledge. An example of a structured interview would be an exit interview.

• STORYTELLING

Storytelling is the conveying of events in words, images and sounds, often by improvisation or embellishment. The crucial elements of stories and story telling include plot and characters as well as the narrative point of view. The use of stories in organizations is made in order to convey tacit knowledge that might be difficult to express. Knowledge is transferred in informal language and in a narrative form that people enjoy.

• KNOWLEDGE WORKSHOPS

Knowledge workshops are the gatherings where employees aim to identify important organizational knowledge regarding products and processes. The workshops aim to identify knowledge gaps and to promote organizational learning. Sometimes, knowledge workshops are transformed into Communities of Practice.

• KNOWLEDGE MAPPING

It is an ongoing joint quest to help discover the constraints, assumptions, location, ownership, value and use of knowledge assets, artifacts, people and their expertise, uncover blocks to knowledge creation, and find opportunities to leverage existing knowledge. A knowledge map portrays a perspective of the players, sources, flows, constraints and sinks of knowledge within an organization.

Knowledge mapping is data gathering, survey, exploring, discovery, conversation, disagreement, gap analysis, education and synthesis. It aims to track the loss and acquisition of information & knowledge, personal and group competencies and proficiencies, show knowledge flows, appreciate the influence on intellectual capital due to staff loss, assist with team selection and technology management.

RATIONALE FOR MAPPING KNOWLEDGE

- To find key sources, opportunities and constraints to knowledge creation and sharing.
- To highlight islands of expertise and suggest ways to build bridges to increase knowledge sharing and exchange.
- To discover effective and emergent communities of practice where informal learning is happening.
- To supply research for designing knowledge architecture, making key strategic choices, selecting suitable software or for building a corporate memory.
- To garner support for new knowledge initiatives designed to improve the knowledge assets.

CONCLUSION

Capturing tacit knowledge is a major economic challenge for the future. Creating, capitalizing and sharing its knowledge capital are the fundamental functions of any innovative organization. It is a long-term program starting from a strategic commitment involving a correct analysis of knowledge and know-how in the company, and integrating various and well-adapted tools. An important aspect for effective KM is the requirement to deal with the complexity of how people use their minds – that is: think- to conduct work. It concerns what they need to know and understand and how they must possess and have access to the knowledge to act intelligently. But KM cannot be imposed on an organization from above. It is the one initiative whose success depends on gaining the support of the whole organization throughout the process. It is, however, a change mechanism and can bring innovation with the full backing of the management at all levels of the organization.

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