Conceptualization of Tacit Knowledge Dimension

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Abstract

The phrase "tacit knowledge" has been widely used in the knowledge management and organization studies areas. There are many definitions and approaches that have been used in explaining and examining tacit knowledge. This paper intends to further elaborate the nature and attributes of tacit knowledge by comparing the works done by distinguish authors on tacit knowledge. The study found that basically there are two issues concerning tacit knowledge. First, whether tacit knowledge is individually-owned or is it collectively-owned and secondly can tacit knowledge becomes explicit. Many authors seem to agree on the definition of tacit knowledge, but in conflicting views of the scope of tacit knowledge. However, three basic attributes of tacit knowledge has some agreement between the authors. The three attributes are tacit knowledge is experientially acquired, difficult to articulate and plays an important role in the attainment of goal of an individual. Tacit knowledge is potentially the most valuable asset in an organization, if it can be elicited and used efficiently and effectively in an organization. The findings for this study are the nature and attributes of tacit knowledge, categorization of tacit knowledge, and a conceptualization framework of tacit knowledge.

Keywords : tacit knowledge, tacit knowledge attributes, collectively-owned tacit knowledge, individually-owned tacit knowledge, categories of tacit knowledge

Introduction

The economic history has shown the evolution of the dominant source of wealth from land to labor to capital. Drucker(1991) predicted the rise of a new economic era, where the primary source of wealth is knowledge. The new economy era is knowledge economy. Every organization in the knowledge economy era has to manage the "knowledge" in its organization for competitive advantage. The definition of knowledge management leads to debates from scholars from different perspectives such as economic, organization theory and philosophy. Among the disciplines that influence knowledge management perspective are philosophy which focuses on defining knowledge, cognitive science which focuses on understanding knowledge workers, social science which focuses on understanding motivation, people, interaction, culture, environment, management science focuses on optimizing operations and integrating them within enterprise, information science focuses on building knowledge-related capabilities, knowledge engineering focuses on eliciting and codifying knowledge, artificial intelligence focuses on automating routine and knowledge-intensive work, and economics focuses on determining priorities (Kakabadse et al., 2003).

There were also various knowledge management models developed, the prominent ones are philosophy-based model, cognitive model,

network model, community of practice model and quantum model. Philosophical model is concerned with the epistemology of knowledge. This model treats knowledge as a justified true belief. This model is much influenced by Polanyi's idea that all knowledge is either tacit or rooted in tacit knowledge (Kakabadse et al., 2003).

Cognitive model is conceptualized by organizational theorist, focuses on the concept of knowledge as a valuable strategic asset which must be efficiently and effectively created, located, captured and shared for competitive advantage. For cognitive model, knowledge is objectively defined and codified as concepts and facts. Among the scholars whose writings influencing the cognitive models are Nonaka, Wiig, Edvinsson and Malone, Johnson and Blumentritt and Snowden (Kakabadse et al., 2003).

Network model acknowledges that individuals have social and economic motives and their actions are influenced by networks and relationships in which they are embedded, socialization of knowledge. This model focuses on knowledge acquisition, sharing and transfer. Heavy emphasis is on information technology related activities such as web-based technology. (Kakabadse et al., 2003).

Community of practice model builds on historical and sociological perspective. For community of practice, knowledge is constructed socially and based on the experience. The main focus is knowledge creation and application. Among the scholars that influence this model are Wagner, Heron and Nonaka and Takeuchi (Kakabadse et al., 2003).

Quantum perspective assumes the current information and communication technology will fundamentally change when built using quantum principles. Quantum model treats knowledge as a system of possibilities. The main focus of this model is to solve paradox and complex issues for learning system (Kakabadse et al., 2003).

All the discipline and model of knowledge management contribute to a better understanding of types of knowledge.

Methodology

The objectives of this paper are to elaborate the nature and attributes of the tacit knowledge. For the first objective, literature reviews from various scholars writing are analyzed to determine the nature and types of tacit knowledge. Twelve scholars' writings are studied, representing various perspectives, such as organizational theorist, Nonaka, Baumard and Choo, philosophical views such as Polanyi and Collins, and behaviorist views such as Sternberg and Wagner, Aadne and Van Krogh. Besides the different perspective, these literature reviews are chosen based on the author's contribution on the scholarly work on tacit knowledge. Polanyi is the first person who coined the word tacit knowledge. Collins and Wagner and Sternberg started the empirical research in tacit knowledge, Nonaka did an extensive research in knowledge creation, and popularized the SECI model. Baumard researched on knowledge in an organization context and introduce the concept of implicit knowledge. Choo, extends the work of Nonaka. Aadne started the research on social tacit knowledge, where as Van Krogh researched on tacit knowledge in relationship but maintains tacit knowledge is embedded in individual. Davenport and Prusak discusses knowledge in organizations.

For the categorization of tacit knowledge, a total of thirteen scholarly writings are reviewed. Among the writers are Boisot, Choo, Nonaka, Blackler, Buementritt and Johnston, Scharmer, Gore and Gore, Henderson and Clark, Stewart, Spender, Wiig, and Edvinsson and Malone. The topologies are greatly influenced by author's perspectives.

Findings

Nonaka and Takeuchi (1995) elobrates from Polanyi's concept of knowledge as "justified true belief" and most knowledge are made of tacit knowledge, which cannot be articulated. Nonaka and Takuechi's model of knowledge creation (SECI model) suggested that tacit knowledge can be communicated. Aadne et al.(1996) argues that tacit knowledge is personal but resides in individual and social relationship within the organization. This view is supported y Van Krogh(1996) but added it is the characteristics of individual, embedded in individual's action in specific context. According to Baumard (1999),

tacit knowledge is the source of competitive advantage and critical to daily management activities. Tacit knowledge is also divided into two types, cannot be articulated and implicit knowledge, knowledge we know but do not want to express. The division of tacit knowledge into individual and collective is elaborated by Choo (1998). Collins (2001) from the sociology perspective argues that tacit knowledge can be passed through personal contact. Tacit knowledge is an attribute of an individual, unspeakable and unteachable is the definition given by Wagner and Sternberg (1999), from the behaviorist view point. Stenmark (2000) believes that tacit knowledge resides in individuals. Tacit knowledge is valuable and a source of competitive advantage for organizations. Although it resides in individual, organizations must identify and capture the tacit knowledge (Davenport and Prusak, 1997).

All the concepts of tacit knowledge based on the definitions given are tabulated. Nine concepts, personal, context bounded, informal, experientially acquired, practical, action oriented, goal attainment values, individual and collective, are extracted. Table 1 shows the elements/concepts of tacit knowledge based on the definitions of tacit knowledge given by respective writers. The concepts of personal, experientially acquired, goal attainment values and collective have been quoted more often than the other concepts by the respective writers. Looking deeper in the concept of contextual bounded, Aager (1991) argues that all knowledge is contextualised by its historical and culture nature. Therefore it is not uniquely associated with tacit knowledge. The concept of informal and practical/action-oriented can be incorporated in the concept of experientially acquired. Therefore, the only contradiction is whether tacit knowledge is personal/individual or is it collective.

Table 1: Attributes of Tacit Knowledge According to Authors

CONCEPTS OF TACIT KNOWLEDGE								
	Personal	Context Bounded	Informal	Experientially acquired	Practical (Action-oriented)	Goal Attainment Values	Individual	Collective
Nonaka	/	/		/	/	/		
Aadne	/						/	/
Van Krogh	/							/
Baumard	/					/		/
Collins								/
Wagner/ Sternberg			/	/	/	/		
Polanyi	/			/		/		
Stenmark	/							
Davenport and Prusak	/					/		/
Choo	/			/	/	/		/
Suchman		/						/
Koskinen		/		/				/

For the purpose of this paper, the conceptualization of the nature of the tacit knowledge is it is personal, experientially acquired, has goal-attainments values and can be collective by proper methodology.

Literature reviews on the topologies of knowledge are done to determine the types of tacit knowledge. Boisot's(1995) topology of knowledge consists of proprietory, public, personal and commonsense knowledge, is further

developed by Choo (1998) to have 3 types of knowledge, tacit, explicit and cultural knowledge,have commonsense knowledge. Blackler(1995) listed 6 categories of knowledge, embodied, embedded, embrained, encultured and encoded knowledge. Two types of knowledge , tacit and explicit are suggested by Nonaka (1995). Four types of knowledge, codified knowledge, common knowledge, social knowledge and embodied knowledge is suggested by Blumentritt and Johnston (1998).

Scharmer (2000)argues that there are three types of knowledge, explicit, tacit and self-transcending knowledge. Gore and Gore (1999) divided knowledge into three types, truly tacit knowledge, technical tacit knowledge and cognitive tacit knowledge. For Spender (1994) knowledge can be classify into four types, individual tacit knowledge, individual explicit knowledge, explicit collective knowledge and collective tacit knowledge. Architectural and component knowledge are two types of knowledge, according to Henderson and Clark (1990). Stewart (1997) views knowledge to be cognitive knowledge, advance skills and self-motivated creativity. Nickols in Gourlay (2001) divided knowledge into implicit knowledge, declarative knowledge and procedural knowledge. Goal-setting/Idealistic knowledge, pragmatic knowledge, systematic knowledge and automatic knowledge are the categories of knowledge by Wiig (1993). Edvinsson and Malone(1997) have product knowledge, process knowledge and routine knowledge. Lundvall and Johnson(2002) have four categories of knowledge, know-what, know-how, know-why and know-who. Baumard (1999) have implicit and tacit knowledge.

From the topologies listed, they overlapped with one another. However, certain knowledge which has similar name, have different concepts. Rather than looking into the names of knowledge, the concepts discussed by the authors are compared. The knowledge in the explicit category is excluded and the tacit knowledge are grouped according to their concepts. The outcomes are ten groups of tacit knowledge.

The first group consists of the commonsense knowledge (Boisot), encultured knowledge (Blackler), Social Knowledge/Encultured Knowledge/Know who (Blumetritt and Johnston), know-who (Lundvall and Johnson, collective tacit knowledge (Spender). This type of knowledge has the common concepts of social, based on relationship, depends heavily on language, socially constructed and highly context dependent. Among the examples of this type of knowledge are culture, cultural matters, and corporate mind set.

The second group of tacit knowledge consists of embodied knowledge (Blackler), embodied knowledge/ know how/ process knowledge (Blumentritt and Johnston), process knowledge (Edvinsson and Malone), know-how (Lundvall and Johnson) and automatic knowledge (Wiig). The characteristics are action oriented, experiential, ability to do something, non-analytical behavior, insights, intuition, and inspirations.

The third group are technical tacit knowledge/ know how (Gore and Gore), technical tacit knowledge /know how (Nonaka), procedural knowledge (Nickols) and advance skills/know how (Stewart). The concepts for this group are expertise in relation to know how, skill, practical know how and motor skill.

The fourth group are cognitive tacit knowledge (Gore and Gore), cognitive tacit knowledge (Nonaka), cognitive knowledge/know what (Stewart) and Idealistic knowledge/Knowledge why (Wiig). The concepts are mental models, beliefs, values, ideals, schemata, vision, and goal.

The fifth group are system understanding / know why (Stewart), know-why (Lundvall and Johnson) and goal-setting/ Systematic knowledge/Knowledge that (Wiig). Concepts for this group are know-why, knowledge on principles of motion, universe law, systems, schema and reference methodology.

The sixth group are self-transcending knowledge (Scharmer) and self-motivated creativity/care why (Stewart). The concepts are imagination, aesthetic experience and initiative for improvement.

Group seventh consists of embedded knowledge (Blackler) and architectural knowledge (Henderson and Clark). Their concepts are organizing routines and shared norms, relation-specific, submerged within an organization's taken-for-granted routines and interactions.

The other types of tacit knowledge, implicit knowledge (Baumard), personal knowledge (Boisot), tacit (Scharmer), individual tacit knowledge (Spender), tacit knowledge (Baumard), component knowledge (Henderson and Clark), truly tacit knowledge (Gore and Gore) are not included in any of the groups above as they only provide the general dimension of tacit knowledge. They do not however have unique concepts that suit any of the groups.

The seven categories of tacit knowledge is sorted in a framework, based on the extent of abstraction (abstract to concrete) according to Bloom's taxonomy of knowledge, and the .

diffusion of tacit knowledge (individual to collective). Table 5 reflected the framework of all seven categories of tacit knowledge discussed.

Table 5: Framework of tacit knowledge

Collective	**Encultured/know-who** (culture, shared understanding, relationship, corporate mind set)	**Embedded/architectural** (organizing routines, shared norms, taken-for-granted routines and interactions)	
			System understanding/know-why (know-why,knowledge on principles of motion, universe law, systems, schema, reference methodology)
Individual	**Cognitive/know-what** (mental models, beliefs, values, schemata, vision, goal, paradigm knowledge) **Self-transcending/self motivated** (imagination, aesthetic experience, improvement)	**Embodied/know-how** (action-oriented, context specific, experiential, lifetime accumulation of skills, training and competencies, ability, skill to do something, automated working knowledge (non analytic behavior, inspirations, insights, intuition))	Technical/know-how (expertise, skill, practical "know-how", motor skill)

Abstract   Concrete

Conclusion

There is no clear separation between tacit knowledge and explicit knowledge. More so, it is very difficult to find the boundaries between one types of tacit knowledge with the others. This paper acknowledges the thin line dividing each category of knowledge. Nevertheless, the effort of trying to find a clear construct of knowledge, especially tacit knowledge, provides potential wider application for further study. The need for a enhance understanding of how tacit knowledge (valuable but difficult to articulate) can facilitate organizations especially education institutions in knowledge generation.

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