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Perspectives on Knowledge Management – A Literature Review

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Abstract
This paper is a study of theoretical perspectives on knowledge and Knowledge Management. Business organisations in the 21st century need effective Knowledge Management practices in order to enhance the performance and growth of their businesses and ensure long-term sustainability and competitive advantage. An understanding and appreciation of knowledge as a strategic resource is critical for organisational decision-makers so that they can take Knowledge Management more seriously. This paper outlines the views of Knowledge Management experts on what knowledge is and what it is not. It distinguishes data, information, and knowledge and explains their link. The paper also highlights alternative views of knowledge and discusses the different types of knowledge. It then espouses on the Knowledge Management processes of discovery, capture, sharing, and application.
Keywords: Knowledge, Knowledge Management, knowledge discovery, knowledge capture, knowledge sharing, knowledge application

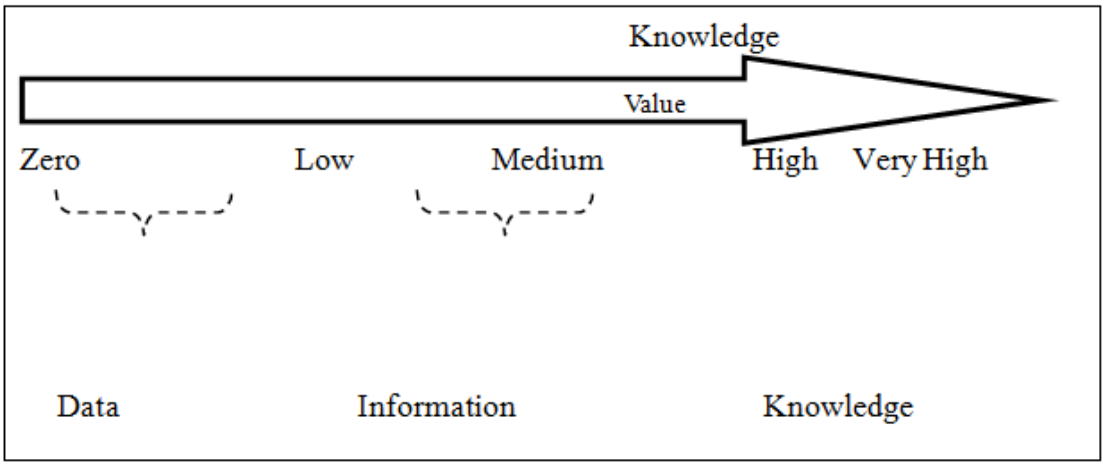
1. Introduction

According to Halawi, Aronson, and McCarthy (2005), the world economy is fast becoming a knowledge-based economy. Knowledge has suddenly become a strategic resource surpassing capital as a source of an organisation's competitive advantage if properly managed. Because organisations' business situations and challenges differ, adhoc and standard solutions to challenges have become grossly inappropriate. Unique knowledge management solutions are imperative to address unique challenges and strategies for sustainable competitive advantage. Organisations need effective means of harnessing knowledge as well as effective knowledge management initiatives and practices. For business organisations to succeed in a knowledge economy there is need for them to understand and appreciate what knowledge is, and effectively manage the Knowledge Management processes of discovery, sharing, and application.

2. The concept of knowledge

According to Beccera-Fernandez (2004), knowledge in an area is justified beliefs about relationships among concepts relevant to that particular area. It is information that enables action and decisions or information with direction. Ranked with data and information, knowledge is the richest, deepest and most sophisticated yet the most valuable. Knowledge helps produce information from data or more valuable information from less valuable information. The diagram below illustrates how data, information and knowledge relate to each other (Beccera-Fernandez, 2004).

Figure 1: Data, Information and Knowledge

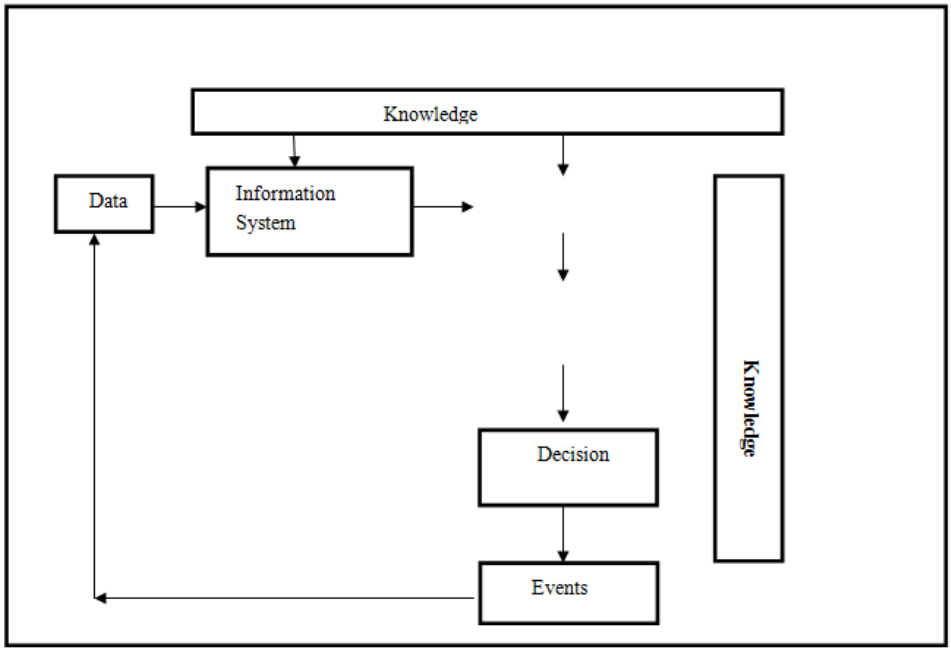


Source: Beccera-Fernandez (2004: 13)

Beccera-Fernandez (2004) further argues that Knowledge consists of truths and beliefs, perspectives and concepts, judgments and expectations, methodologies and know- how and is possessed by people, their

agents or other active entities and it is used to collect information and to recognize and identify, scrutinize, give meaning, and evaluate, synthesize and make decisions, plan, implement, monitor the plan, and adapt to the situation. It enables people to act in an intelligent manner. This means knowledge allows one to determine what a specific situation demands and the best way of handling it. Therefore data feeds into information which in turn feeds into wise decisions which enable humans to find solutions to more sophisticated situations. Managers of organisations are therefore not able to make good decisions that promote organisational effectiveness not because of data but because they are able to use data to create knowledge. The diagram below illustrates this process of turning data to knowledge and their relationship to events (Beccera-Fernandez, 2004).

Figure 2: Relating data, information and knowledge to events



Source: Beccera-Fernandez (2004:15)

Myers (2006) gives a broader perspective of organisational knowledge. He views it as information embedded in routine and process that enable relevant action. It is an innately human quality that resides in the living mind because a person should identify, interpret and internalise knowledge. This means a person should act more intelligently because of the prevalence of knowledge.

According to Davenport and Prusak Davenport (1998), knowledge is a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of "the knower". This means not every person in an organisation is able to apply himself correctly to organisational processes because of lack of knowledge. In organisations, knowledge often becomes embedded in documents or repositories as well as in organisational routines, processes, practices and norms.

Polanyi (1998) defines knowledge as "that which is known," that is, knowledge being embedded in individuals. He further postulates that only people can know and convert knowing into action, and it is the act of thinking that can transform information into knowledge and create new knowledge. Knowledge involves the link people make between information and its potential application hence knowledge is closer to action than either information or data (Davenport and Prusak, 1998).

Uriarte (2008) posits that when information is further processed, it has the potential for becoming knowledge. Information is further processed when one finds a pattern showing a relationship between data and information. And when one is able to realise and understand the patterns and their implications, then this collection of data and information becomes knowledge. He further posits that whereas mere information is context dependent, knowledge has a tendency to create its own context, that is, the patterns representing knowledge have a tendency to be self-contextualizing. The patterns are complete unlike mere information. This means that knowledge is context-specific unlike information.

Boisot (1999) refers to knowledge as assets just like a firm's current and fixed assets. Knowledge assets are stocks of knowledge from which services are expected to flow for a period of time that may be hard to specify in advance just like services flow from current and fixed assets in Accounting. In most cases, however,

knowledge assets last forever, for example, how to treat malaria unless malaria itself changes. Boisot (1999) further posits that knowledge builds on information that is extracted from data. Data is discrimination between physical states that may or may not convey information to an agent. Whether it does so or not depends on an agent's prior stock of knowledge. Thus, whereas data can be characterised as a property of things, knowledge is a property of agents predisposing them to act in particular circumstances (Boisot, 1999). In contrast to information, knowledge cannot be directly observed. Its existence can only be inferred from the action of agents.

3. Alternative views of knowledge

3.1 The subjective view

This stance views knowledge as an ongoing accomplishment which is influenced by social practices and hence cannot be placed at a single location because it has no existence independent of social practices and human experiences. There are two perspectives to the subjective view (Jashapara, 2004):

a. Knowledge as a state of mind

This perspective views knowledge as determined by an individual hence organisational knowledge as comprising beliefs of the individuals who constitute that organisation. Because these individuals have varying experiences, backgrounds, beliefs and so on, it is expected that their knowledge would differ from one another.

b. Knowledge as practice

This view regards knowledge as neither possessed by one person nor contained in one repository. It resides in practices. The beliefs are collective and not individual and are better seen through the organisational activities than in the behaviour of the organisation's individuals.(3)

3.2 Objective View

According to Schultze, cited by Jashapara (2004), reality is independent of human perception and can be structured in terms of prior categories and concepts. Knowledge can therefore be located in the form of an object or a capability that can be discovered or improved by human agents. The objective view has three possibilities (Uriarte, 2008):

a. Knowledge as Objects

Knowledge is an asset that can be stored, transferred and manipulated and exists in a variety of locations.

b. Knowledge as access to Information

This view regards knowledge as implying a situation enabling access and utilisation of information, that is, objects that constitute knowledge facilitate access to useful information in the organisation.

c. Knowledge as capability

This perspective dovetails with the philosophy of knowledge as objects and knowledge as access to information but goes further to postulate that the focus is on how these two can be applied to influence action which constitutes sound decision-making which in turn leads to organisational effectiveness that gives a firm competitive advantage over its rivals.

4. Types of knowledge

Just as there are so many different definitions and perspectives of knowledge, there are many different classifications or categorisations of knowledge. This literature review will examine the most important categorisations of knowledge that are relevant to this study.

4.1 Tacit Knowledge

Polanyi (1996) argues that people may know a lot more than they can say. This implies that knowledge is expressed more through actions than in words. He further goes on to describe tacit knowledge as knowledge that a person possesses and is embedded in the individual's experience. It has a personal quality which makes it hard to formalise and communicate. It "indwells" in a comprehensive cognisance of the human mind and body. This experience can be communicated and exchanged in a direct and effective way in the socialization process (Nonaka and Takeuchi, 1995).

According to Henczel (2000), tacit knowledge resides in the heads of an organisation's employees hence is more difficult to capture and communicate. It also includes the lessons learned by doing a job and is made up of gathered experience and understanding. It is of no value to the organisation until it can be applied as the knowledge held by an employee is of no value until that employee can use it for the benefit of the organisation. Organisations lose the tacit knowledge that is created during this process easily as people assist in the transformation and experience unless methods can be developed to identify and capture it and then enable access to it so that it can be applied. Tacit knowledge also includes cumulated wisdom and understanding, institutional knowledge, organisational lore, and basic orientations. It also incorporates personal knowledge embedded in individual experience in the form of rules of thumb, values, preferences, intuitions and insights (Nonaka and Takeuchi, 1995).

Uriarte (2008) further argues that the very first hurdle most organisations face in managing tacit knowledge is identifying the tacit knowledge useful to the organisation. Once this is successfully done, this form of knowledge becomes extremely valuable to the organisation possessing it since it is a unique asset that is difficult for other organisations to replicate giving the organisation immense competitive advantage.

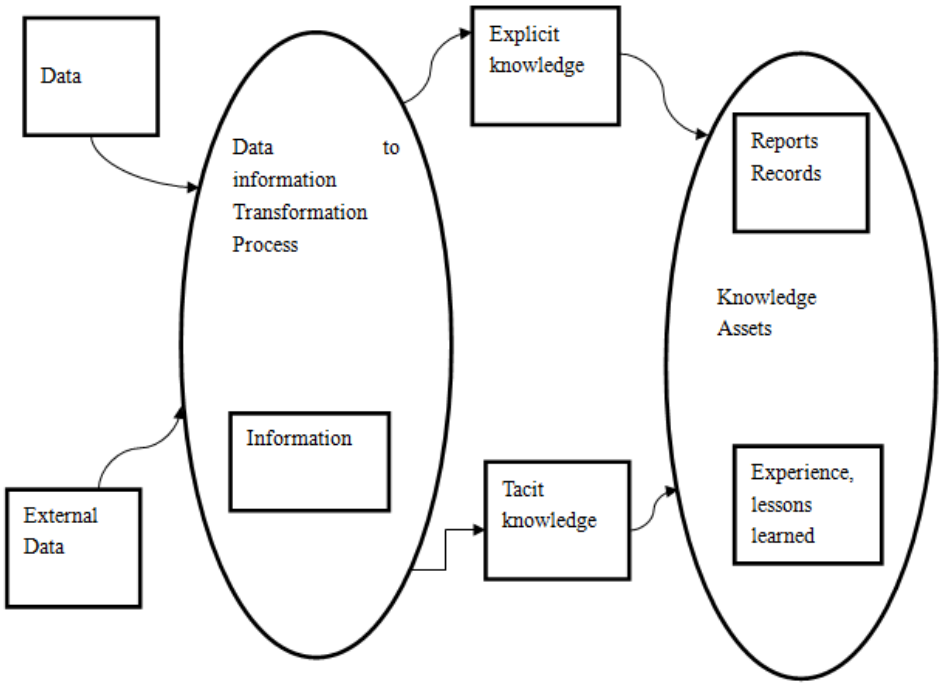
4.2 Explicit Knowledge

According to Perez-Soltero, Barcelo-Varenzuela, Sanchez-Schmitz, Martin-Rubio, and Palma- Mendez (2008), explicit knowledge is the knowledge that is transferrable in a formal systematic way, by means of a language, since it can be easily articulated and interchanged, because it is independent of the individual's mind. Henczel (2000) views explicit knowledge as the output of tasks and activities that can be documented as reports, databases, and procedures and so on. It is easily captured, stored and communicated. Nonaka and Takeuchi (1995) view explicit knowledge as intellectual artifacts comprising books, documents, manuals, theories, models, simulations and their interpretations, mathematical expressions, tables, graphs, databases and so on, that is, all levels of cognition that can be put into visual presentations, words, or numbers.

According to Uriarte (2008), unlike tacit knowledge, explicit knowledge is codified through documents, databases, websites, emails and so on hence can be readily made available to others and transmitted or shared in the form of systematic and formal languages. Knowledge assets such as reports, memos, business plans, drawings, patents, trademarks, customer's lists, methodologies and so on can easily be documented and archived for retrieval and use by employees in the organisation when it becomes necessary. They represent an accumulation of the organisation's experience kept in a form that can readily be accessed by stakeholders in times of need. Computers and IT tools are used to facilitate storage and quick retrieval of such knowledge assets.

Figure 3 below illustrates the transformation process of data to information to knowledge (Henczel, 2000). Henczel (2000) argues that the process of creating information, the data to information transfer process, is a knowledge-creating process that creates both explicit and tacit knowledge. These are the knowledge assets that an organisation needs to manage well.

Figure 3: From data to knowledge



Source: Henczel (2000: 212)

4.3 Declarative knowledge

According to Vasconcelos, Kimble, and Gouveialos (2000) declarative knowledge is related with the physical aspects of the knowledge and responds to the questions: "what?", "who?", "where?", and "when?" It is that kind of knowledge which serves to describe specific actions to perform certain tasks.

According to Beccera-Fernandez (2004), declarative knowledge (or substantive knowledge) focuses on beliefs about relationships among variables. It can be stated in the form of propositions, expected correlations or formulas relating concepts represented as variables. If employees of an organisation possess declarative

knowledge, it means they are aware of the effects of altering certain variables on other variables.

4.4 Procedural knowledge

According to Beccera-Fernandez (2004), procedural knowledge describes actions for step-by-step processes and responds to the question- How? It implies "know how". It focuses on beliefs relating to sequences of steps in carrying out actions with a desired outcome.

5. What is knowledge management?

Paramasivan (2003) postulates that Knowledge Management focuses on doing the "right thing" instead of "doing things right." It is a framework within which the organisation views all its processes as knowledge processes. In this view, all business processes involve creation, dissemination, renewal and application of knowledge for organisational nourishment and survival.

According to Griffiths and Lemenyi (2008), Knowledge Management is a business process through which firms create, synthesize and share their collective information, insights and experience and combine them with knowledge from external sources, and put all this knowledge to use in solving business problems. Knowledge is not easily measured or audited, so organisations must manage knowledge effectively in order to take full advantage of the skills and experience inherent in their systems and structures as well as the tacit knowledge belonging to the employees of the organisation. Knowledge management is regarded as a managerial activity which develops, transfers, transmits, stores and applies knowledge, as well as providing members of the organisation with real information to act wisely and make right decisions, enabling them to fulfill organisational goals (Halawi, et al. 2005).

Various authors have given varying definitions of knowledge management as depicted in table 1 below:

Table 1: Definitions of Knowledge Management

Author	Definition of knowledge management
Orinates et al 1997	Knowledge management is to discover, develop, utilize, deliver, and absorb knowledge inside and outside the organisation through an appropriate management process to meet current and future needs.
Allee, 1997., Davernport 1998., Alavi and Leidner 2001	Knowledge management is managing the corporation's knowledge through a systematically and organisationally specific process for acquiring, organising, sustaining, applying, sharing and renewing both the tacit and explicit knowledge of employees to enhance organisational performance and create value
Crupta et al. 2000	Knowledge management is a process that helps organisations find, select, organize, disseminate and transfer important information and expertise necessary for activities of the organisation
Bhatt, 2001	Knowledge management is a process of knowledge creation, validation, presentation, distribution and application
Holm, 2001	Knowledge management is getting the right information to the right people at the right time, helping people create knowledge and sharing and acting on information
Horwitch and Armacost, 2002	Knowledge management is the creation, extraction, transformation and storage of the correct knowledge and information in order to design better policies that modify action and deliver results

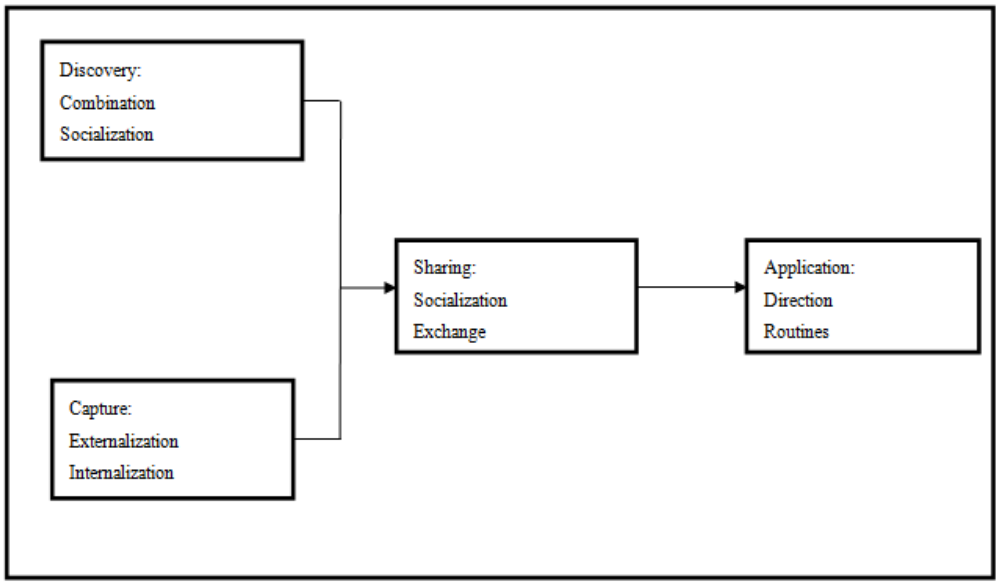
Source: Alavi and Leidner (2001: 83)

The widely considered father of knowledge management, Peter Drucker, posits that Knowledge has become the key resource for a nation's economic and military strength and is crucially different from the traditional economist's key resources namely land, labour and capital. There is therefore need for systematic work on the quality and productivity of knowledge since the performance capacity and survival of any organisation in the knowledge society have increasingly come to depend on those two aspects (Drucker, 1994).

6. Knowledge Management processes

These are the broad processes that help in discovering, capturing, sharing and applying knowledge. These processes are supported by an integration of technologies and mechanisms (knowledge management systems). Knowledge management relies on four main processes as depicted in the diagram below (Beccera-Fernandez, 2004).

Figure 4: Knowledge Management processes

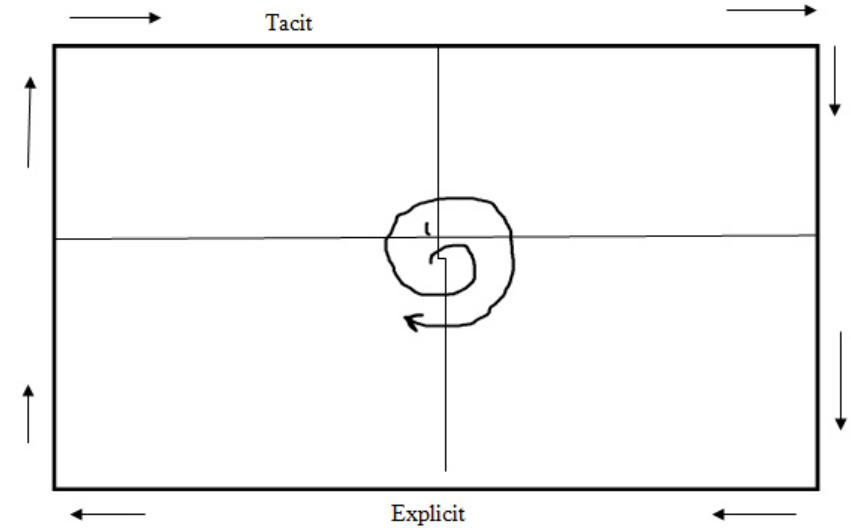


Source: Beccera-Fernandez (2004: 32)

6.1 Knowledge discovery

Beccera-Fernandez (2004) defines knowledge discovery as the development of new tacit or explicit knowledge from data and information or from the synthesis of prior knowledge. The discovery of new explicit knowledge relies most directly on combination, whereas the discovery of new tacit knowledge relies most directly on socialization. The process of creation of new knowledge is emphasized by Nonaka and Takeuchi through a unified model of dynamic organisational knowledge creation (the SECI model) as shown in the diagram below (Nonaka, and Takeuchi, 1995).

Figure 5: The SECI Model



Source: Nonaka and Takeuchi (1996: 88)

SECI Model

These are the four modes of knowledge conversion that interact in the spiral of knowledge creation to continuously create new knowledge. The two modes relevant to knowledge creation are:

Socialisation

According to Davernport and Prusak (1998), socialisation is the sharing of tacit knowledge through face to face communication or shared experience, for example apprenticeship. Socialization is the synthesis of tacit knowledge across individuals usually through joint activities' instead of written or verbal instructions. For

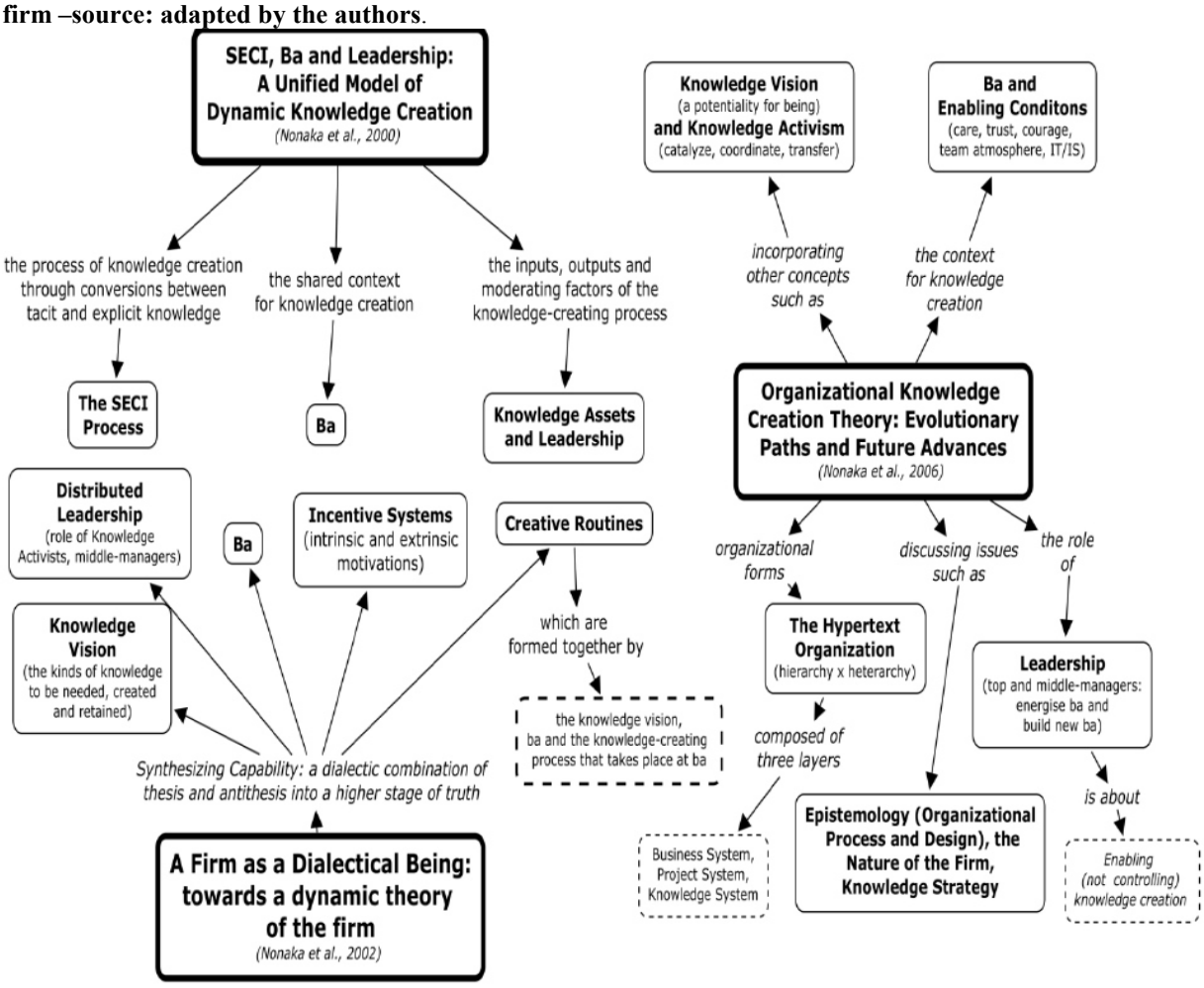
example, by transferring ideas and images, apprenticeships help newcomers to see how others think and do things.

Combination

Nonaka (1994) and Nonaka and Konno (1998) argue that combination involves bringing together various elements of explicit knowledge discovering new knowledge wherein the multiple bodies of explicit knowledge (also data or information) are synthesized to create new, more complex sets of explicit knowledge. Through communication, integration and systemization of multiple streams of explicit knowledge, new explicit knowledge is created. Existing explicit knowledge, data and information are reconfigured, re-categorized and re-contextualized to produce new explicit knowledge.

Knowledge is created through the interactions amongst individuals or between individuals and their environments. The environment or place where knowledge is created is the concept of ba - the place where information is interpreted to become knowledge as depicted below (Nonaka and Konno, 1998; Nonaka, Toyama, and Konno, 2000).

Figure 6: Synthesis of Nonaka et al. (2000, 2002, 2006) propositions towards a knowledge-based theory of the firm –source: adapted by the authors.



Source: Nonaka et al. (2000: 101)

According to Nonaka et al.(2000), the context for knowledge creation is ba and a central purpose of organisational knowledge creating theory is to identify conditions enabling knowledge creation in order to improve innovation and learning.

6.2. Knowledge capture

Beccera-Fernandez (2004) argues that knowledge exists in many different repositories such as within people (individuals and groups/teams), artifacts (practices, technologies), organisational entities (organisational units, organisations or inter organisational networks) and so on. Knowledge may exist in the tacit form – where it is in

the mind of an individual without that individual being aware of it and not able to share it with other employees in the organisation, or in the explicit form – where it is in the form of manuals, handbooks and so on yet very few people are aware of the existence of such documents.

It is therefore necessary that an organisation is able to obtain the tacit knowledge from the minds of individual employees as well as the explicit knowledge from the company documents so that every other relevant person in the organisation can access it. This is the whole gist of knowledge capture. Beccera-Fernandez (2004) defines knowledge capture as "the process of retrieving explicit or tacit knowledge that is within human beings, artifacts or organisational entities. According to Nonaka (1994), the process of knowledge capture benefits directly from two knowledge management sub processes enshrined in the SEC1 model as follows:

Externalisation

It involves converting tacit knowledge into explicit knowledge such as words, concepts, pictures, figurative language (for example metaphors, analogies, narratives and so on). It also helps translate the tacit knowledge held by individuals into explicit forms that can be more easily understood by the rest of the members. Roberts (2000) believes that the process of converting tacit knowledge to explicit knowledge is also called codification. This makes the knowledge more easily shareable around the organisation unlike tacit knowledge in an expert's head which is difficult to use when the expert is away from the office. Also, codified knowledge (explicit knowledge) becomes a permanent feature in the organisation, unlike tacit knowledge which disappears with the departure of the expert from the organisation.

Internalisation

Chua and Lam (2005) postulate that Internalisation is the conversion of explicit knowledge into tacit knowledge which is closely linked to learning by doing making the explicit knowledge part of the individual's knowledge base thus becoming an asset for the organisation. This view is supported by Nonaka (1994) who assets that explicit knowledge may be embodied in action and practice, so that the individual acquiring the knowledge can re-experience what others have gone through. An organisation's members can acquire tacit knowledge in virtual situations by reading manuals, stories written by experienced members some of whom may have left the organisation, experiential learning through doing, and experimentation (trial and error) (Chua and Lam, 2005).

6.3 Knowledge sharing

According to Hari, Egbu, and Kumar (2005), knowledge sharing is the process or activity whereby the existing knowledge in an organisation is transferred from those who hold it to those who may not have it, that is, the process of communicating both tacit and explicit knowledge. An organisation's knowledge management system should ensure that there is effective transfer of knowledge such that the recipient understands it so well to use it productively in the organisation and be able to internalise it for easier use in the future. Alavi and Leidner (2001) assert that for an organisation to benefit immensely from its knowledge, knowledge sharing must take place across individuals in an organisation as well as groups, departments, or organisations so as to enhance organisational innovativeness and performance.

Kucza (2001) believes that knowledge sharing is initiated in order to find out whether knowledge that already exists in the system can be used. This covers both the searching for knowledge by a person who needs it (knowledge pull) and the feeding of knowledge to recipients who are known to be in need of it (Knowledge push). If the needed knowledge is not available yet, creation of knowledge is initiated. Creation of knowledge and sharing may have external links. External link of sharing enables knowledge brokering such as selling knowledge to the outside world.

6.4 Knowledge Application

Grant (1996) posits that knowledge that contributes significantly to organisational performance is that which is available for use by employees in making good decisions and perform tasks that lead to achievement of organisational goals. This process of knowledge application is dependent upon the knowledge management processes of knowledge discovery, capture and sharing. If the knowledge management processes of knowledge discovery, capture, and sharing are effective there is greater chance that the knowledge available in the organisation for decision-making will be of high quality which will ultimately enhance organisational performance. Grant (1996) postulates that in the knowledge application process, it is not imperative that the party that uses the knowledge fully comprehends the knowledge, but the knowledge should only be useful in guiding decision making and action. Therefore, knowledge application comprises two processes that do not involve the actual transfer or exchange of knowledge between the concerned individuals namely direction and routines. Direction is the process through which individuals possessing the knowledge direct the action of another individual without transferring to that person the knowledge underlying the direction, while routines involve the utilisation of knowledge embedded in procedures, rules and norms that guide future behaviour

(Conner and Prahalad, 1996; Grant, 1996).

7. Conclusion

The 21st century knowledge economy has become knowledge-based hence there is need for organisations to treat knowledge as a factor of production occupying higher priority than land, labour and capital. There is also need for organisations to understand what knowledge is and determine how it can be used to give a firm competitive edge over rivals in terms of business performance. Organisations' business situations differ, hence the need for unique and customised Knowledge Management initiatives and programmes that enable the organisation to perform its processes more effectively and efficiently than its competitors.

Knowledge can only give an organisation competitive edge if it is unique to a particular organisation and other organisations can not immediately replicate it. This explains why at times it is advantageous to an organisation to keep its knowledge assets in the form of tacit rather than explicit knowledge. Again, for a firm to enjoy competitive advantage from its knowledge resource there must be a comprehensive and elaborate Knowledge Management programme that ensures that knowledge is discovered, captured, shared and used, otherwise there would be no benefits accruing to the firm if knowledge is not discovered, captured, shared and used.

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