Ikujiro Nonaka: A KM Guru

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Abstract

This theoretical paper traces Ikujiro Nonaka's managerial writings over a period of 25 years from 1984 to 2009. It highlights that Nonaka had no intention of discovering a separate field by the name of Knowledge Management. From the very outset he was only highlighting the philosophical differences between Japanese and Western ways of managing the work. It was during this discourse that he developed the SECI Model which formed the backbone of the KM field.

Key Words: Knowledge Management, SECI Model, Ikujiro Nonaka, Hypertext Organizations,

Middle-Up-Down Managing

Introduction

Gurus are the wise men or expert or legends of an area, field or domain. Before choosing a KM guru it is pertinent to ask the question: what would make someone a guru in the field of KM? A quick survey of the literature revealed some characteristics of KM gurus which include being in the KM spotlight for quite long, being 'leading edge' thinker of KM, number of publications (at least two books) to his/her credit, conference appearances, blog establishment, having first-hand corporate experience in a big company, ability to develop own language/jargon and, originality of ideas (Burton, 2007). Ikujiro Nonaka far exceeded all of these criteria than any other authority in KM.. We therefore picked him as our KM guru.

As a child he lived through the Japanese defeat in World War II. These years probably left a lasting nationalistic impression on him which was later reflected in his passion for highlighting differences between Japanese and American ways of managing work (http://en.wikipedia.org). Nonaka is Professor Emeritus of Hitotsubashi University Graduate School of International Corporate Strategy since April 2000 (www.investing.businessweek.com, 2012). He earned his PhD in Business Administration from University of California Berkeley in 1972 (www.jaims.org, 2012).

This paper has two aims: firstly to capture the KM related thought progression of Nonaka over a period of 25 years (1984 to 2009) and secondly to demonstrate that Nonaka was not trying to develop a separate academic field intentionally but only highlighting the foundational differences

in cultural and philosophical assumptions between Japanese and American discourses which have resulted in different managerial practices over the years.

This paper has three sections. The first section captures Nonaka's thought progression through Literature Survey spanning his major published articles in the time period 1984- -2009. The second section briefly spells out the major limitations of this study while the third section, a brief Conclusion section, depicts Nonaka's comparative thought progression through Figure 1.

Section 1: Literature Survey

In his early writings Nonaka focuses on the difference between two management styles: traditional sequential and non-traditional holistic approach. He and Takeuchi (1984) explain new product development in organizations under these two approaches by employing two metaphors. In the traditional sequential approach to product development the process moves from one group of specialists to another and from the phase of concept development to testing to design and then pilot production. The metaphor of 'relay race' best fits with this approach. The holistic non-traditional approach is depicted through 'rugby' metaphor because the process of product development emerges as loosely controlled interplay among diverse team members.

From his research on Japanese companies he learnt that such product development teams exhibit six characteristics: built-in instability, self-organizing project teams, overlapping development

phases, 'multilearning', subtle control, and organizational transfer of learning. These notions are briefly explained below.

The teams show built-in instability because they are not given clear cut goals or new product concept. The teams are self-organizing because they operate like start-up companies surrounded by ambiguity and uncertainty. Since the project structure is loosely built its phases show considerable overlap and each member in his/her quest to know more and more merges with the whole in such a way that the two become inseparable. The holistic team members acquire broad knowledge and skills through trial and error and therefore learn by doing. The learning occurs at both dimensions of multiple levels and across multiple functions. This bi-dimensional learning is termed multilearning by Nonaka. These teams are largely on their own but not totally uncontrolled. Subtle controls in the form of selecting right people, encouraging learning by doing, tolerating mistakes and encouraging suppliers to be part of the team are applied throughout the project life. Nonaka uses the 'osmosis' metaphor to capture the spirit of learning transfer which occurs from the project team to other divisions of a company in the form of organizational routines and to suppliers who learn by being a part of the team.

It is of interest to note that none of the six characteristics of 'rugby' way of work are taught formally to Japanese workers and managers. They come naturally to them because they are rooted in the Japanese cultural value system. The 'relay race' sequential way of managing work however claims to be value-neutral and universal and is acquired through formal education and training.

It is important to note that the managerial implications of Nonaka's product development approach would demand extensive changes in the anatomy and physiology of traditional management styles and approaches. It is obvious that 'rugby' styled project management cannot be accomplished through traditional sequential and functional processes embedded in vertical hierarchical and top-down management styles.

Keeping his focus on product development, Nonaka stressed in mid-1980s that difference in country of origin impacts the process of product development and evaluation (Nonaka *et al*., 1985). He echoed the concerns of industrial marketers that country of origin shapes the perception of both buyers and sellers. He conducted an empirical study of attributes of consumer attitudes in three countries Germany, Japan and United States. Findings of this study were non-conclusive but that is not the point I am trying to highlight here. The important issue is the thought tilt of Nonaka during this period which clearly had a focus toward highlighting the cultural and national 'differences'. It was a sort of challenge to the claims of universality of Western management theories and practices which is important to note. This challenge seems continuous with the differences depicted in managing projects as described through the above mentioned metaphors of 'relay race' and 'rugby'.

During the late 1980s Nonaka continued to focus on the dysfunctional aspects of Western scientific management theory. He presented the emergent and chaotic nature of organizational process as more appropriate to align with the environment which was thought to be inherently chaotic. He linked Ilya Prigogine's arguments that non equilibrium was source of order and organization to organizational strategy making process. The equating of organizational order

with creation of information was a critical milestone in the thought development of Nonaka. But his focus was more on the semantic rather than syntactic nature of information and meaning had a much larger role to play than mere transfer of information through routine processes. Stress on semantic and not syntactical aspects of language and emergent and chaotic style of management is again rooted in Japanese linguistic and cultural norms. It is in sharp contrast to syntactical preference of most of Western languages and their affinity for order, predictability and control which are the outcomes of Western project of Modernity. As opposed to contemporary theories of that time, Nonaka placed middle management in the center seat of strategy making and information creation:

"Middle management occupies a key position, equipped with its ability to combine strategic macro (context-free) information and hands-on micro (context specific) information. Middle management is able to most effectively eliminate the fluctuation and chaos within the organization's information creation structure by serving as the starting point for action to be taken by upper and lower levels" (Nonaka, 1988).

Nonaka sharply differentiated between information processing and information creation within organizations. He observed that Simon's recognition of cognitive limits of human being explain why Weberian styles bureaucracy and supremacy of the system was deemed essential for organizations: simply to make the information processing easy and digestible for cognitively limited organizational members. He challenged this kind of information-processing paradigm by developing the information-creating paradigm where human beings, though limited in terms of cognition, were able to create meaningful (semantic) information. He termed this paradigm as

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the self-organizing paradigm which demanded the conditions of instability through chaos and fluctuation, allowing a certain fluctuation to amplify to create information through self-organizing teams and creation of a new order where organizational information is created and converted into knowledge (Nonaka, 1985; 1988, Nonaka & Johansson, 1985; Nonaka & Sullivan, 1986).

During the 1980s Nonaka found his place among a group of Japanese management scholars developing a frame of reference strikingly different from that of American scholars writing about business administration. He presented a stiff challenge to the prevalent management styles based on top-down and bottoms-up approaches by coining the philosophy of 'middle-up-down' management in his 1988 article 'Toward Middle-Up-Down Management: Accelerating Information Creation" which was published in the Spring 1988 issue of *Sloan Management Review*. The basis for his challenge was rooted in theory of information processing. Top-down approach assumes that information belongs to the elite group of management from where it trickles down in the form of strategy, directives and procedural orders. Bottoms-up approach on the other hand assumes a reverse direction of information flow. Both of these approaches are centered on information processing and not its creation. In this article he used the example of 'Honda City' to illustrate the 'middle-up-down' approach of management.

It was during the late 1970s that the top management of Honda decided to cater to younger generation of Japanese car users. A young engineering team with an average age of 27 was selected to develop a new concept which was later called Honda City. Instability and chaos were interjected in the team from the beginning when it was left entirely on its own to develop and

finalize the concept of the new car. The team came up with 'automobile evolution theory' which in nutshell called for maximizing human space and minimizing the machine parts while developing the automobile. The diverse group did not purely consist of engineers but also sales, production and development personnel who were 'genuine car maniacs'. They had autonomy and freedom to make their decisions. The group created information through informal meetings held at different time and places and usually lasted from morning to mid-night.

The overall managerial continuum of Honda example encompassed the individual, group and organizational levels. The individuals came up with actionable ideas, the group with deliberations and dialogue and, the organization allocated resources in highly competitive manner. Nonaka highlights the difference between this compressed or middle-up-down management and the two traditional management styles by using four key elements: resource allocation, interaction, knowledge and how problems are addressed. In compressed management style the key resource is time which is managed through challenging deadlines given to self-organizing teams. The interactions view top management as catalyst by interacting with designated members of the team. The direction of these interactions are therefore middle-up-down as opposed to traditional management styles. The knowledge generated is neither purely explicit (as in top-down approach) nor tacit (as in bottoms-up approach) but a combination of the two through constant conversion from one state to another. The problems are identified and solved in an exhaustive manner free of much analytical details and ambiguity (Nonaka & Takeuchi, 1986).

The dominant paradigm in organization theory assumes that organizational information and decisions are carried out in an 'input-process-output' linear sequence. Nonaka's 1991 and 1994 papers however presented a theory of organizational knowledge creation based on a different paradigm underpinned by tacit and explicit epistemological and extent of social interaction (individual, group, organization, society) ontological dimensions of knowledge creation. Based on these sets of assumptions four modes Socialization, Combination, Internalization and Externalization (SECI model) convert and create organizational knowledge. The conversion of knowledge through SECI was wonderfully captured with a vivid illustration (Externalization) of Matsushita Electric example which strived to build a better bread-making machine and tapped the unarticulated tacit knowledge of workers to explicit and verbal knowledge which enabled the concept to be converted to a tangible product.

According to Nonaka, the process of organizational knowledge creation starts at the individual level and 'spirals' out and enlarges across organization depending on variety, high quality and depth of individual thoughts. Knowledge sharing and conceptualization occurs through autopoietic and self-referencing system which are managed through creating dialectic. The shared knowledge is crystallized or internalized to form further tacit knowledge at individual level in a perpetual way. The whole process of organizational knowledge creation requires enabling conditions of creative chaos, information redundancy interjected through creating information overlaps and, requisite variety whereby organizations create parallels between its structural and information processing capacity complexity and diversity. The 1994 paper revisited the earlier presented 'middle-up-down management' model to lead and manage parallel processes. The practical implication of 'middle-up-down', through 'hypertext' design (non-

heirarchical and heterarchical) with the ability to carry out tasks of Socialization and

Externalization in addition to the traditionally used ways of Combination and Internalization in

creating organizational knowledge was a new insight in the 1994 article 'A Dynamic Theory of

Organizational Knowledge Creation'. .

These papers proved to be pivotal for KM field and drew from multiple perspectives of

organization theory. Internalization, for example, drew from the theory of organizational

learning, Socialization from theories of culture and, Combination from information processing.

These writings advanced the KM field by providing sound model of knowledge creation and

dissemination (Spiral Model), spelling out the conditions required to sustain the spiral and, by

providing a unique combination of management style and hypertext structure to manage the

created knowledge. So far the mainstream debate about knowledge had missed organizational

structural and design contexts. The suggestion of hypertext design (which is closely related with

traditional matrix organizational structure) however filled this vacuum and aligned the emerging

field of KM with hardcore issues of organization theory. That was a major step forward.

Once more these papers used hands-on and practical experience-based research in the context of

Japanese companies and their work philosophy of 'experiencism'. These works were highly

relevant with other areas of management research like cognitivist and humanist psychology,

linguistics, artificial intelligence, transformative learning, critical premise reflection, chaos

theory, autopoietic systems theory, organizational development, organizational learning, culture

and design and, philosophy of thought and mind.

During 1990s Nonaka used the Japanese concept Ba (Nonaka & Konno, 1998) which is

translated as 'place' or 'space' in English language in the context of knowledge management. In

case of knowledge creation Nonaka defined ba as shared space for emerging relationships within

organizations. This space could be physical (office, environment), virtual (internet) and mental

(ideas, perspectives, shared experience). Ba was considered as shared space or context among

various stakeholders of organizational knowledge. Without shared context knowledge becomes

merely information. The SECI model entailed the concept of ba in the ontological forms of

individual, group and organization because all levels needed a space (physical, mental and

virtual) for interaction and 'spiraling' out of knowledge. Nonaka identified four types of ba in

tandem with the four modes of knowledge conversion within SECI model. The four types of ba

were embedded in existential, reflective, synthetic and systemic organizational philosophies

which fed on face-to-face, peer-to-peer, on-the-site and group-to-group modes of communicating

and acquiring knowledge. Nonaka also linked the concept of ba with organizational design

through three vivid company examples.

Nonaka presented the SECI model in his earlier papers (1994). His later work built on the

concept further and linked it with notions of Japanese philosophy ba and bashido to provide

further ontological context to the sublime SECI model. The issue raised in these writings were

grounded in the context of Japanese way of working and managing and further extended the

Japanese face of KM.

Nonaka continued to lay his stress on the difference between Western and Japanese perception of

knowledge in the fast emerging 'knowledge society' of the 1990s. In Western view knowledge

was an already given and existed in the organization whereas the Japanese believed it was 'a meaningful set of information that constitutes a justified true belief and/or an embodied technical skill' (Nonaka *et al*., 1996). The Japanese stance was that knowledge was largely 'embodied technical skill' or unarticulated mental models or tacit in nature.

Nonaka continued to 'test' the SECI model and knowledge spiral concept in different settings. In 1996 he studied 'Seven-Eleven' the largest convenience store chain in Japan as a knowledge creating company. He explored how IT can facilitate in producing the 'enabling conditions' which a company needs to create organizational knowledge. He observed that top management could conveniently disseminate messages across organization through using email messages and hence create an *organizational intent*. Advances in IT had also provided *autonomy to individual and groups* through more user friendly personal computers, development of networks and increase in rate of computer literacy. Internet, on-line services and commercial database enable a company to introduce *fluctuation/creative chaos* in its systems by picking up signals and clues from environment which challenge their traditional ways of work and forces them to break their routines. *Information redundancy* is another enabling condition for creating organizational knowledge where IT plays its part by exposing employees to more and more information. IT also has the potential to create *requisite variety* in an organization through possible changes in its structure and integration mechanisms. This how Nonaka transformed the role of IT in organizations from mere information processing to that of knowledge creation.

There is an important distinction which Nonaka draws between the Western and Japanese use of IT. In West IT is used at the cost of laying people off but this does not happen in Japan. This is

because Western organizational knowledge is more explicit in nature and hence conducive to IT whereas Japanese Organizational knowledge is more inclined towards the tacit element and therefore the companies cannot sacrifice human embodied knowledge for the sake of IT. According to Nonaka "every business organization that wants to prosper in the knowledge society should fuse synergistically IT as knowledge-creation tools and human beings with collaborative knowledge creation capabilities to become a knowledge creating company" (Nonaka, 1995).

According to Nonaka the knowledge-based-view of the firm is the firm's ability to create knowledge. Knowledge also becomes source of its competitive advantage because of the isolating mechanisms as detailed by RBV literature. Firms can create knowledge through the SECI process through which the tacit knowledge of individuals in converted and converged through socialization, combination, externalization and internalization of knowledge. The rate of knowledge conversion is not an independent process but contingent upon certain organizational variables such as vision, organizational structure, incentive and reward systems, company culture and routines and leadership. The knowledge-creating-view of the firm looks inside the company for creating knowledge and liberates the firm from neoclassical transaction cost economics burdens of creating a fit between external environment and internal strengths through a 'black-box' process (Nonaka *et al*., 2000).

Nonaka visualized a firm as a dialectical being because it faced so many contradictions such as the tension of globalization versus the need to adapt locally, meeting stakeholders' diverse and competing expectations, simultaneous need for efficiency and creativity, exploitation and

exploration, speed and time-consuming resource building, are all examples of positing the firm as a being acted upon by multiple, multidirectional and diverse forces. Nonaka & Toyama (2002) argue that a firm can survive this challenge only through its synthesizing capability which is developed by its visionary distributed leadership, creative routine, incentive systems and above all correctly creating, understanding and utilizing its ba. Ba makes a firm boundary less in the sense that it transcends legal boundaries and includes the 'space' or domain within which a firm operates and functions. This space not only includes the firm itself but also its suppliers, customers and all other stakeholders joined seamlessly to synthesize a collective ba for all (Nonaka *et al*., 1996; Nonaka *et al*., 1994; Nonaka & Reinmoellor, 2002; Nonaka *et al*., 2000; Nonaka *et al*., 2001).
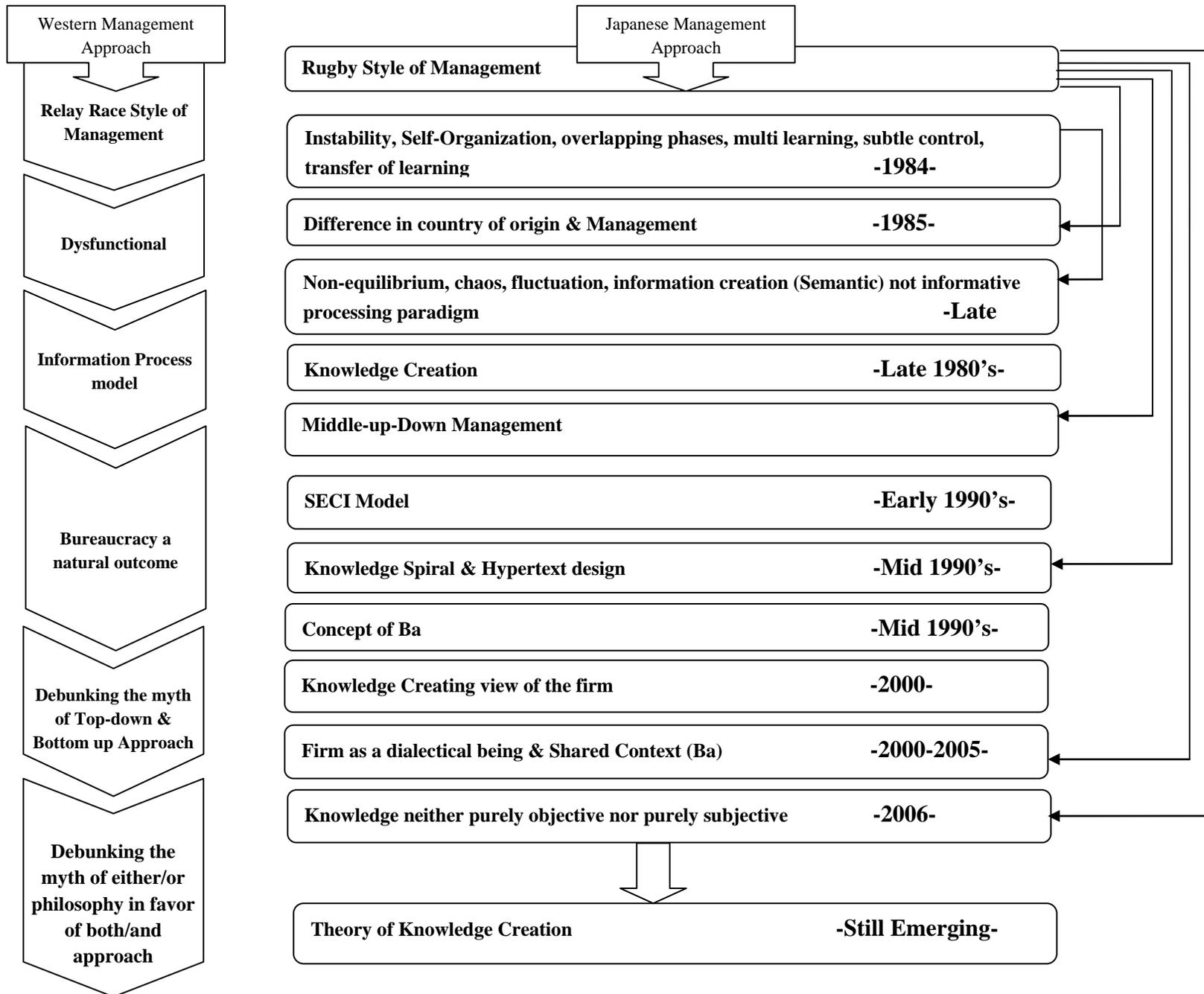
Nonaka and Toyama (2003; 2005) further built on their initial work to build a new knowledge-based theory of the firm and organization and explained the dynamic process of knowledge creation and utilization by revisiting the theory of knowledge creation through SECI process and ba. They highlighted the entity of a firm as a dialectical being in the earlier paper and attempted reconciliation by incorporating the notion of dialectic thinking and dynamic interactions among individuals, the organization, and the environment. They attacked the general understanding of a firm as an information-processing machine where small tasks are carried out in isolation to achieve bigger tasks and functions. Their work conceptualized organizations as shared contexts (organic configuration of ba) which transcend time and space and artificial boundaries to create knowledge in tandem with suppliers, customers, competitors and other stakeholders.

During the same period Nonaka's paper with Peltokorpi (2006) described the evolution of KM from the theoretical traditions of philosophy, computer science and economics. Their rebuttal of transaction cost economics and information-processing paradigm of knowledge creation in organizations is already described above. In 2006 Nonaka focused on the philosophical basis of KM and suggested that Western philosophical (epistemological and ontological) assumptions of either/or need to be replaced by and/both approach which is embedded in the SECI process and knowledge spiral framework of knowledge conversion rather than treating explicit and tacit knowledge as separate and static entities. They challenged the traditional view of knowledge either as an objective asset (RBV and KBV of the firm) or as pure subjective contextual process as proposed by the interpretative view of philosophy. The way to achieve synthesis between the two opposing and contrasting views was proposed through SECI and knowledge spiral framework where both epistemological and ontological progression occurs in tandem as knowledge gets converted through SECI and spirals out from individual to group, organizational and ultimately societal levels (Nonaka et al., 2006). .

Since his 1994 paper which contributed to the concepts of tacit knowledge and knowledge conversion in organization theory science Nonaka's thoughts have shaped the development of organizational knowledge creation theory and identified two premises upon which more than 15 years of extensive academic work has been conducted. These premises are that tacit and explicit knowledge can be conceptually distinguished along a continuum and that knowledge conversion explains the interaction between tacit and explicit knowledge. His current work (Nonaka & Krogh, 2009) has continued to comment on the debate about organizational knowledge creation

theory. He has raised several important future research questions to continue building on his theory of knowledge creation.

The following Figure presents the thought progression of Nonaka on both Japanese and American management perspectives from 1984 to 2009.

Western Management Approach	Japanese Management Approach

Relay Race Style of Management

Rugby Style of Management

Instability, Self-Organization, overlapping phases, multi learning, subtle control, transfer of learning   **-1984-**

Dysfunctional

Difference in country of origin & Management   **-1985-**

Non-equilibrium, chaos, fluctuation, information creation (Semantic) not informative processing paradigm   **-Late**

Information Process model

Knowledge Creation   **-Late 1980's-**

Middle-up-Down Management

SECI Model   **-Early 1990's-**

Bureaucracy a natural outcome

Knowledge Spiral & Hypertext design   **-Mid 1990's-**

Concept of Ba   **-Mid 1990's-**

Knowledge Creating view of the firm   **-2000-**

Debunking the myth of Top-down & Bottom up Approach

Firm as a dialectical being & Shared Context (Ba)   **-2000-2005-**

Knowledge neither purely objective nor purely subjective   **-2006-**

Debunking the myth of either/or philosophy in favor of both/and approach

Theory of Knowledge Creation   **-Still Emerging-**

Figure 1: Nonaka's Thought Progression (1984 to 2009)

Section Two: Limitations

The study is not an exhaustive meta-analysis covering all the published articles of Nonaka. It however covers about 20 of his articles published between 1984 and 2009. This study also does not cover more than 21of his books written in the same period and another 30 books in which he contributed book chapters (www.jaims.org).

Section Three: Conclusion

As shown in Figure 1 the major departure point of Nonaka's writing from an early stage has been to highlight the differences between Japanese and Western (mainly American) style of management. His earliest articles use the metaphor of 'relay race' and rugby' to differentiate between two distinct cultural-based managing styles. Relay race metaphor aptly describes the sequential, input-output orientation, either/or underpinning philosophy and top-down or bottoms-up objectivist management approaches of the West. The Rugby metaphor on the other hand captures the in-built instability, fluctuations, chaos, information redundancy, middle-up-down management style and hypertext organization design, dialectical nature of firm, and/both philosophical approach, information creation, knowledge creation and knowledge conversion approaches of Japanese ways of management.

Throughout the span of 25 years Nonaka's thoughts have centered round differentiating between Western and Japanese managing styles. In the process of doing so he has been able to develop a full-

fledged theory of organizational knowledge creation along with providing KM paradigm the required

philosophical and theoretical support.

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