Knowledge leadership cycles: an approach from Nonaka’s viewpoint

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Abstract
Purpose – The aim of this paper is to analyse leadership cycles based on knowledge creation, with learning and culture as key elements for reaching leadership. Following Ikujiro Nonaka’s viewpoint about knowledge creation in Japanese firms, this paper seeks to provide a link between knowledge management and change in leaders.

Design/methodology/approach – The developed analysis is theoretical and it links the real case of Hoshiden Electronics’ homemade breadmaking machine to knowledge distribution in order to attain leadership and using Nonaka’s knowledge interplay.

Findings – The paper provides a fresh look on leadership, presenting two types according to how change in leaders is handled and how every leader establishes his/her own knowledge cycle: knowledge amplification and knowledge modulation cycle.

Originality/value – Knowledge leadership cycles establish an insight for future studies and provide a theoretical framework for researchers and managers, identifying how a successful leader is developed.

Keywords Knowledge creation, Learning, Culture, Leadership

Paper type Conceptual paper

Introduction

Around the 1980s, Nonaka and Takeuchi (1995) studied 20 Japanese companies that were enjoying a moment of international success (Honda, Kao, NEC, Fujitsu, etc.) That research generated a five-step model of organisational knowledge creation:

1. sharing the tacit knowledge: it lies within the individuals;
2. creating concepts: tacit into explicit;
3. justifying the concepts: to verify their viability;
4. building an archetype: possibly from prototype to model; and
5. expanding the knowledge: interactive distribution and in hairspring.

The hairspring of the homemade breadmaking machine of Hoshiden Electronics Co. is a practical example of Japanese knowledge creation (Figure 1). The question began with the exchange of experiences among the workers, which generated a failed prototype. In a second cycle, a software programmer, Tanaka, struck up a relationship with the baker so as to be able to introduce the know-how into the system (“stretch-twist”) and, in this way, to get an “easy and tasty” bread. In the third cycle there was only efficient manufacture left. For this reason, the “Chumen” concept was invented as an innovative form of controlling bread fermentation by introducing yeast into the kneading process. This hairspring represents the process of knowledge distribution inside the organisation (Nonaka and Takeuchi, 1995). Japanese companies enjoy an aura of mystery, which makes them particularly attractive because they have greatly improved their competitive position within the international
market. This is due in great part to the creation of organisational knowledge. We are facing a type of company that is particularly capable of continuous innovation (Nonaka, 1990), and which has generated new concepts and processes.

In this paper, Japanese knowledge creation offers a fresh look at knowledge cycles, identifying two kinds of firms according to the way in which each one handles its leadership changes. The paper proceeds as follows: we explain the Japanese knowledge creation model for building knowledge cycles; in the next section, cycle changes are defined thanks to three elements for attaining leadership (knowledge, learning and culture); immediately after, leadership cycles are presented and, finally, the discussion is generated.

Differences in Japanese knowledge creation

Japanese knowledge is a tacit knowledge that possesses two dimensions: a technical dimension, called know-how (what competitors want to know but cannot buy); and a cognitive dimension, composed of mental models (Johnson-Laird, 1983; Senge, 1990), beliefs and perceptions which subjectively define the environment that surrounds us (Nonaka and Takeuchi, 1995). The knowledge of Western analysts in the 1990s was an explicit and formal knowledge. So, in 1993, Drucker explained how Frederick Taylor's productivity began to increase when he applied knowledge to work, but that knowledge made reference to the use of empirical data for production optimisation (Sarabia et al., 2004).

Tacit and explicit knowledge are two faces of the same coin. The Japanese and Westerners each had only a single face of the coin: tacit and explicit, respectively. Nonaka and Takeuchi (1995), explained the four ways of conversion or interaction of tacit and explicit knowledge (Figure 2):

1. Socialisation: tacit to tacit. An example is tama dashi kai, or brainstorming, which was established in Honda. We would, then, be talking about shared mental models or harmonised knowledge.

2. Externalisation: tacit to explicit, which is generated from dialogue or from collective reflection. This is conceptual knowledge.

3. Combination: explicit to explicit. It generates systemic knowledge, as in the case of a prototype.
4. **Internalisation: explicit to tacit.** “Learning by doing” is the essence of operational knowledge.

**Building knowledge cycles**

Nonaka (1994) summarises the current importance of the knowledge: “in an economy whose only certainty is uncertainty, knowledge is the best source to gain competitive advantage”.

Knowledge is perceived as very significant information (Zeleny, 2000) that we can get from a consecutive process of data, information, knowledge and wisdom (Bierly et al., 2000). If we want to solidify this concept we should not only ask what knowledge is, but also how knowledge arises.

Drucker’s (1993) *Knowledge Society* refers to the new prevailing economy that displaced the traditional production factors in order to bring about knowledge as an indispensable resource for survival. But other authors had already focused on the need for new tools to create business inside the new paradigm, such as Toffler’s (1990) case, where he postulated that knowledge is the source of greater quality power and the key which provides the power. Quinn (1992) joined the knowledge club and laid the foundations for the configuration of intangible values (technological know-how) as a part of Porter’s (1980) core competence.

When building a melody of success in firms, we suppose that knowledge is the fundamental frequency that is able to generate a success melody. Organisational elements which arise from knowledge, its harmonics, must be also identified. Nonaka and Takeuchi (1995) define an analogy as being halfway between imagination and logical thought. In this way, we will study the analogy that exists between knowledge and its harmonics, starting from the case of the knowledge hairspring of a homemade baking machine (Figure 1).

Let us suppose that the fundamental frequency of the knowledge has some harmonics: learning, culture and leadership (Figure 3). Each harmonic is based on the fundamental frequency; that is to say, knowledge is what develops the successful melody listened to inside the organisation and which culminates in its leader’s managerial activity. The concept of harmony is very representative in Asia, and in Confucian countries in particular. For example in Japan, harmony defines ritualised business negotiations (Leung et al., 2002), but...
in this paper, harmony describes the relationship between knowledge (fundamental) and its harmonics (learning, culture and leadership), making different leadership cycles. This paper tries to explain why learning, culture and leadership harmonics stem from knowledge.

Relationship between knowledge and learning

Garvin (2003) was able to establish a clear relationship between both concepts:

[...] an organization that learns is an expert organization in creating, acquiring and transmitting knowledge, and in modifying its behaviour to self-adapt.

An organisation learns when the knowledge of each individual who is part of the group is shared beyond temporal, spatial or structural limits (Yeung et al., 1999). Thus, in the same way as the individuals, the organisation must face the changes of its circumstances (Cohen and Sproull, 1991) and for that reason learning is presented as the key tool in the management of companies in turbulent environments. According to Huber (1991), learning can be defined as the capacity of the organisation to self-adapt to the changes of the environment, to be flexible and to generate quick response actions, thus controlling the internal changes of the organisation.

Garvin (2003) explains that an organisation which learns is expert in five activities: systematic resolution of problems, experimentation of new focuses, use of their own experience and past in order to learn, learning from the experiences and more appropriate practices of other companies (benchmarking), and transmitting the knowledge to the whole organisation, all quickly and efficiently.

Relationship between knowledge, learning and culture

Harzing and Hofstede (1996), with regard to Korea, Japan and Taiwan, write: “These three countries are very innovative, and innovation certainly requires change. So one would expect these countries to show up in the weak resistance-to-change clusters . . .” and yet they do not “a partial explanation for this contradiction can be found by introducing the . . . fifth dimension, long-term orientation”.

Culture defines how man is identified within the organisation, and how the organisation has learned from prior problems. “From previous organizations we acquire knowledge in culture form” (Nonaka and Takeuchi, 1995).
According to Delong and Fahey (2000), the relationship between culture and organisational learning can be identified in:

- culture defines what knowledge is outstanding;
- the relationships between the levels of individual and organisational knowledge need culture for their viability;
- the context of social interaction that learning requires is formed through culture; and
- cultural behavioural forms hinder the adoption of new knowledge.

**Knowledge stack**

Knowledge interplay helps us to understand the relationship between the elements of the stack (Figure 2). The hairspring stems from knowledge (Figure 4), goes to learning (tacit to tacit), from learning to culture (tacit to explicit), from culture to leadership (explicit to explicit) and, when we arrive at leadership, the stack culminates. By going from one stack to another, and starting from knowledge, we have moved from explicit to tacit.

The hairspring of Nonaka and Takeuchi’s (1995) knowledge interplay explains how knowledge combines the tacit-explicit step so that harmonic figures of knowledge are born. Thus, Japanese learning is characterised by the fact that its main process in tacit knowledge acquisition is via the direct path of personal experience (Easterby-Smith, 1998).

From knowledge to learning is the first step of the knowledge stack and from learning to culture is the second that represents the step from tacit to explicit. Culture indicates what knowledge stands out above the rest (Delong and Fahey, 2000); culture is the externalisation

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*Figure 4  Knowledge stack from knowledge interplay viewpoint*

![Knowledge Stack Diagram](image)
of the tacitly extracted knowledge. The third step of the stack, going from explicit to explicit, from culture to learning, is combination, a process of systematising concepts. Leadership takes place when the firm combines a product concept with a concept of corporate vision (Nonaka and Takeuchi, 1995).

According to Nonaka and Takeuchi (1995), the nexus of union between the four quadrants of the knowledge stack and the four steps of the knowledge hairspring is:

1. **Sharing knowledge.** The organisation does not create knowledge, but its individuals create it in an atmosphere of appropriate dialogue.
2. **Creating concepts.** The initial dialogue becomes an exchange of experiences (learning).
3. **Justifying the concepts.** The concepts which the learning generates are selected by the culture, which justifies the viability of each one.
4. **Building an archetype.** The justified concept becomes tangible and specific, where the necessary leadership is obtained from the sum of knowledge + learning + culture (Sarabia et al., 2004).

**Leadership cycles**

Let us introduce noise into the melody of success, which is listened to in firms. That noise represents a leader’s change, as a consequence of generational questions or due to bad expectations of the company, which urges us to make the decision to dismiss the leader of the first stack in order to get a second stack (Sarabia et al., 2004). It should represent a knowledge cycle change. This phenomenon is defined by some authors as “creating knowledge starting from the noise” or “order starting from chaos” (Nonaka, 1988).

The knowledge amplification cycle (Figure 5) is characterised by the non-generation of a second leadership stack. The new leader does not create knowledge in order to create learning and thus culture.

This knowledge amplification cycle possesses a structure that amplifies the prior leadership, that is to say, it tries to stretch or to amplify the duration of the predecessor’s successful melody thanks to his knowledge. It is due to that the new leader not being able to handle the change and why he cannot build his own leadership (sum of knowledge, learning and culture).

**Figure 5** The knowledge hairspring on leadership cycles: knowledge amplification cycle

Source: Adapted from Nonaka and Takeuchi (1995); Sarabia et al. (2004)
The amplification leadership cycle is characterised by a person’s taking over the leader’s position. This case of the amplification leadership cycle shares similarities with Western organisation that Nonaka and Takeuchi (1995) define as: the explicit knowledge prevails and it could suffer “paralysis by analysis.”

On the other hand, the knowledge modulation cycle (Figure 6), handles the noise creating a second knowledge stack. This kind of firm survives because the second leader is able to generate new knowledge, thereby establishing his own leadership. The second leader makes use of the prior leadership and knowledge as a temporary survival platform while he generates a second stack.

This leadership cycle shares characteristics with the Japanese organisation that Nonaka and Takeuchi (1995) explain as: tacit knowledge and leaders’ fluctuation thanks to an appropriate crisis management. Nevertheless, we can find Japanese companies that are amplifiers and Western companies that are modulators, and vice versa.

Noise represents a leader’s change without specifying its leadership period. A company can be an amplifier in one cycle and a modulator in the next. In this way, a company amplifies or modulates the knowledge according to the leadership cycle. For example, if we study three cycles or three leaders (one cycle, one leader in each one) it is possible to recognise four business behaviours (Figure 7).

We assume that the leader 1 in the first cycle is able to modulate his knowledge and he can attain his leadership thanks to his stack of knowledge, learning and culture. It is not possible to find an amplifier company in the first cycle because knowledge is the fundamental element for reaching successful leadership, so the amplifier cycle can only be defined from the second cycle. In this way, we can define two leadership cycles: amplification and modulation.

Figure 6 The knowledge hairspring on leadership cycles: knowledge modulation cycle

Source: Adapted from Nonaka and Takeuchi (1995); Sarabia et al. (2004)
It is possible to identify a fundamental knowledge level too, which shows when knowledge starts to disappear. So, the deadlock between two knowledge modulation cycles tries to explain a transitional leadership, which is not really bad for business. In this case the deadlock helps the company to find its weakness because, in the third cycle, the company is over the worst and it is able to create a new leadership thanks to its knowledge modulation.

The deadlock can appear from the second cycle onwards and if it appears again in the third cycle, the company will have survival problems. In this case, it is very difficult to create knowledge because the leader is trying to amplify it when it is diminishing. On the other hand, if the deadlock appears after two knowledge modulation cycles, we can suppose that the company will be able to survive with the knowledge of the two prior leaderships and with the identified weakness in the amplification cycle.

Finally, the last case with three consecutive knowledge modulation cycles is apparently an ideal behaviour. Three leaderships with knowledge creation increase the probability for business survival, but because there has been no deadlock in the past, the problems have not yet appeared. And so, the company is not aware of its own weaknesses.

Discussion

The innovative character of the Japanese companies presents a new knowledge creation model, which is characterised as being informal, holistic and tacit (Easterby-Smith, 1998). In spite of the setback suffered by the Japanese companies, subjected to a long recession, the organisational knowledge creation has served as an efficient tool to handle the crisis with, to forget the past and to find new opportunities (Nonaka and Takeuchi, 1995).

The stack structure of each cycle is generated thanks to the knowledge hairspring from Japanese knowledge management. This stack is the result of compiling knowledge + learning + culture + leadership. Knowledge is defined as the fundamental element, and the learning, culture and leadership, as the harmonics of the knowledge.
If there is clearly noise inside the melody that the fundamental frequency and its harmonics generate, we can assume there to be a crisis inside the knowledge stack that will culminate in a new leader. In this way, the noise generates two types of leadership cycles: amplification and modulation. So, a company can amplify or modulate the knowledge, as consequence of different leaderships, a lot of times during its life.

However, it is very important for a company to be aware of how those kinds of leadership cycles are repeated. If there are too many amplification cycles together, the company’s knowledge might well be below that of the fundamental level and if so, maybe the knowledge of success will not be listened to again.

For instance, knowledge modulation cycles define the future growth of the company thanks to a stack that is both harmonic and well built from knowledge. So, the modulation cycles must be maximised, but without forgetting the utility of knowledge amplification cycles in discovering weaknesses. In short: knowledge modulation cycles should be made use of and knowledge amplification cycles should be used to minimise weaknesses.

References


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