ALIGNING ORGANIZATIONAL DYNAMIC CAPABILITIES:
ACHIEVING ORGANIZATIONAL TRANSFORMATION IN
KNOWLEDGE INTENSIVE FIRMS

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Abstract

The transformation required of organizations in the knowledge-based economy is radical. While the need for change is clear, most businesses are unsure of how to proceed with the required change. This paper proposes the Ken-OT Model as a conceptual tool that potentially provides an integrated explanatory system for organizational transformation. The model draws on both the existing literatures of knowledge management and organizational change and uses Eastern thought as a framework. The four perspectives of the Ken-OT Model are: (1) The organizational learning capability (2) The e-Enterprise capability (3) The knowledge innovation capability and (4) The value migration capability. More generally, the model is based on the change logic of I-Ching and specifically proposes the alignment of dynamic capabilities via the principles of: Yin /Yang, Wu-Hsing, and harmonization. These principles provide a means of guiding an organization to recognize and respond appropriately to internal and external conditions. At this stage, the model is propositional. It is unusual in that it attempts to blend traditional eastern thinking with modern business practices.

Key Words: Knowledge-intensive firms, Organizational transformation, Dynamic capabilities, I-Ching, Creative evolution

Introduction

The management of organizational transformation is becoming more of an imperative as knowledge management gains acceptance as the basis of sustainable competitive advantage. Knowledge management requires the development of core competences and dynamic capabilities which reflect the organization’s ability to manage within an ever changing environment. However, according to Benjamin & Blunt (1992) most organizations do not have the ‘capability’ to execute the process of transformation. The reason proposed is that organizational transformation is actually a very complex phenomenon and the detail is perhaps beyond human
rationality. Existing models of transformation do not assume complexity, rather the opposite.

Naturally enough, there has been an enduring research interest in organizational transformation but in the past most focus has been on understanding the cause-and-effect relationships (why), or to identifying key success factors. Western models of organization transformation have emerged mostly from data collection and observation of key organizational attributes so as to develop a characterization of the organization’s essence and meaning (Scott Morton, 1991; Allen & Scott Morton, 1994). Notwithstanding, their basis in data, it can be argued that all of our conceptual models of organizations and organizational change must be subjective and bounded. The models are unconsciously fashioned by beliefs and assumptions. Furthermore, there is a tendency, or perhaps even a pressure in our society, to accept traditional prescriptions of organizations, including the notion that managers are ‘in control’. In actual fact, there is a perpetual tension between the simplicity imposed by bounded rationality and the enormous complexity inherent in human action systems. Further, while organizations are indisputably complex, they are also now posited as being in a state of constant change and that this constant evolution is the source of vitality and advantage. The notion of an equilibrium state is thus an idealization, something that is at odds with adaptability in complexity (Stacey, 1996; 2001). It seems that traditional mechanical, deterministic or equilibrium based theories are unlikely to produce adequate conceptualizations of organisations (Guba, 1985; Gleick, 1988; Watkins, 1991; Waldrop, 1992). From this it follows that more encompassing perspectives on managing transformation are needed.

However, if it is accepted that more encompassing perspectives are required, where might they come from? With regard to management science, which is heavily dominated by western thought, an intriguing possibility is that some traditional eastern thought might greatly inform current Western approaches. This last point goes to the heart of the purpose of this paper. The significant contribution made here is the development of a theoretical framework that has potential usefulness in terms of conceptualizing the process of organizational transformation, and which, hopefully, will ultimately have an application. The model represents a confluence of existing literatures about organizational transformation, especially with regard to knowledge intensive contexts, and long established Eastern thought, specifically *I-Ching* and its better known derivative *Tai-Chi*.

This research circumspectly tries to map out I-Ching’s philosophic logic thinking with a configuration of dynamic capabilities and aligning principles, to show that ‘change’ is not a problem to be solved today, but is an indispensable source of energy, growth and value that can
be used by organization to transform themselves into a new type of organization. This is an exploratory research in academic domain as well as a journey with learning and courage.

I-Ching’s link with transformational change

A logical starting point is a brief introduction to the origins and fundamental philosophy of I-Ching so as to identify its paradigmatic relevance to a discussion of transformational change. A more in-depth discussion of I-Ching is provided progressively through the paper.

The book of “I-Ching” written around 2300 years ago, is considered to be one of the most important and influential philosophical literature in Chinese culture. It was called the “Book of Changes” and is the cornerstone of all Confucian classical literature. Also, it is unquestionably that it is one of the most important books in the world’s literature (Wilhelm, 1967).

One I-Ching master Chu-Hsi (1130-1200) had pointed out that I-Ching treats the universe as a well-coordinated system and covers all changes of the nature. There are thousands of phenomena in the universe, but the only verity is Tai-Chi (Chu-His, 1130-1200). I-Ching is important because it has been recognized and practiced continuously since ancient Chinese times and has been developed and configured to be a basic philosophy for people to recognize the universe and also to transform the universe (Chu, 2002). The concept embodies the value propositions; the category embodies the relationship between classification; and the model embodies a system of a specific network (Lin,1997; Chang,2002). This concept, category and model in hierarchy are I-Ching’s logistic structure; and it constructs the fundamental thinking logic of this research. This three layers construct the universe in I-Ching’s thinking (Chang, 2002).

From the perspective of I-Ching, everything is an indivisible and integrated whole, where the whole is not the total sum of the individual pieces but a composite system based on certain structural relationships. Based upon this, organizational transformation should not only be understood as the joint outcome of managerial and environmental effects (Lewin & Volberda, 1999) but the result of the combination of behavioral patterns. It will be argued that this perspective provides a conceptual framework for understanding and integrating the capabilities that give rise to organizational transformation.
In order to understand the basic capabilities of organizational transformation from the perspective of I-Ching, a certain chain of logic needs to be followed and perhaps more importantly, must be accepted. To unfamiliar readers this may be a challenge, but one which serves as an essential basis for the remainder of the paper. Importantly, it is not the intent here to analyze or question the logic of Tai-Chi but merely to make explicit its nature as it has been accepted over the eons.

Tai-Chi is representative of I-Ching’s logic, and the basic system of the Tai-Chi is the yin/yang system (Karcher, 2004). Tai-Chi means all matters, phenomena, and processes (Shchutskii, 1960). Therefore, all sensible and systematic, orderly, and structural scenarios can be expressed through the symbolic logic of yin and yang with words (See Figure 1) (Lin, 1992, 1997).

Leibniz (1646-1716), the father of symbolic and mathematical logic recognized in his book “Monadology” (1714) the duality of knowledge and its integration via I-Ching. (Needham, 1998). He distinguished between perception and conceptual imagination with perception being basically an inductive process based on current cognitive schema while imagination is mainly deductive (Bertalanffy, 1965). In I-Ching perception is yin and the ‘imagination/concept’ is yang; and knowledge is the result of recognition (Teng, 1996; Fong, 1992).

It is necessary to further elaborate the nature of yin and yang. The symbol of yang is ‘━’ (or ‘+’), and represents all abstract matters that can not be concretely touched, but which can be felt (e.g. heat). The symbol of yin is ‘—’ (or ‘−’) and it represents all concrete matters that can be concretely touched or felt through the human senses, (e.g. a rock).

In the knowledge-based economy, a firm is a knowledge institution and the dynamic capability emphasized by the firm is knowledge resource (Leonard Barton, 1995). This paper is in the purpose to map the already known criteria of OT to I-Ching principle. Therefore, the concrete knowledge leverage and abstract value creation are the implication of yin and yang, and in OT,
they can be termed as knowledge leverage and value creation. This two opposite conscious of yin and yang constructed the hologram of model. (See figure 2).

Furthermore, conceptually yin/yang is not a dichotomy but rather a duality (Lin, 1992a,b&1997). In other words, yin/yang are relative, interdependent, and unified. They exist at the same time and are not mutually exclusive. Therefore, Yin and Yang could also be represented by p and q. q represents that which is not p (~p). And the union of P and Q is: P U(~P)=1. The meaning of the above is that the union of P and Q is a whole, and the whole is Tai-Chi (Figure 2).

**Figure 2**

**Basic perspectives of dynamic capability**

![Diagram showing basic perspectives of dynamic capability](image)

Another important characteristic of I-Ching is that it is based on the interactive evolution of the ‘same’ and the ‘different’. This is the iteration between perception and imagination. The nature of Tai-Chi can be expressed mathematically as a whole ($2^0$) and then successively subdivided to yin and yang ($2^1$) which in turn can be subdivided to yield four scenarios ($2^2$) and these scenarios divided again to form eight ($2^3$)(See fig. 3). Importantly, each pairing forms a dialectic depicted by positive and negative signs in the figure. It may also be of interest to some that the application of I-Ching’s symbolic logic has parallels with the dialectic of Kant, and Hegel as described by Wang (1983)

The mathematical expression of I-Ching suggests a multi-configurational status as it is simultaneously configured through ongoing reciprocal relationships. As such, depending upon the circumstance, I-Ching can be thought of as being unidirectional and bi-directional, passive and active, and giving rise to cause-and-effect. The Yin/Yang system ($2^n$) is able to express all relationships and corresponds to the principle of ‘exhaustion’(Lin,1999c). Furthermore, yin and yang can be generalized to all matters in the universe. Figure 3 is a depiction of the duality of P and ~P which make up Tai-Chi.

**Figure 3**

**Tai-Chi System**
By following the same system, subsequent layers of the yin/yang system also have meaning and a proposed allocation is presented. Layer 1 is about the essence. Layer 2 is about dominance. In layer 2, yang (‘+’) represents active and it emphasizes the concrete and abstract while yin (‘-’) represents passive and it emphasizes the implication. Therefore, the configuration of layer 1/layer 2 could be expressed by Table 1 and Figure 4.

Table 1
The basic description of four scenarios

<table>
<thead>
<tr>
<th>Nominated capabilities</th>
<th>Layer1 (Essence)</th>
<th>Layer2 (Dominance)</th>
<th>Meanings</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value migration capability</td>
<td>Value creation (+)</td>
<td>(+)</td>
<td>Active/Explication</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>To create the organizational value in an aggressive and active way.</td>
<td></td>
</tr>
<tr>
<td>e-Enterprise capability</td>
<td>Value creation (+)</td>
<td>(-)</td>
<td>Passive/Implication</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>To reinforce or integrate the internal resources of the organization in a passive way</td>
<td>-</td>
</tr>
<tr>
<td>Knowledge Innovation capability</td>
<td>Knowledge leverage (-)</td>
<td>(+)</td>
<td>Active/Explication</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>By using knowledge to fully develop the value of creation.</td>
<td>-</td>
</tr>
<tr>
<td>Organizational learning capability</td>
<td>Knowledge leverage (-)</td>
<td>(-)</td>
<td>Passive/Implication</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>By using knowledge to form the internal capability inside the organization.</td>
<td></td>
</tr>
</tbody>
</table>

The allocations made below in Figure 4 are a remapping of the structures in Table 1 and represent a significant conceptual step in the argument presented. It is important to note that the capabilities are nominated and arbitrary. Here they are based on logical suppositions within the field of knowledge management and organizational transformation.
The four scenarios of dynamic capabilities

Based on Table 1 and Figure 4 four perspectives are nominated as:
1) Organizational learning, 2) e-Enterprise, 3) Knowledge innovation, and 4) Value migration.

From the view point of organizational configuration (Meyer, Tsui & Hinings, 1993), indicated that these four individual perspectives and their alignment could be synthesized to form an integrated organizational model and could be expressed by four quadrants (Figure 5).

Figure 5
The four quadrants of dynamic capabilities

In addition, based on the four scenarios \(2^2\) and the Tai-Chi’ evolving, the change of yin and yang could be developed to be 8 scenarios \(2^3\) by adding a further layer. In Tai Chi these eight scenarios are called the eight-trigrams (Figure 6). This third layer is about “human” consciousness. In layer 3, the yang (‘+’) represent abstract phenomena and the yin (‘-’) represents concrete phenomena. (Chang, 1990). The eight-trigrams are not only eight independent categories that have their own respective characteristic, but also a primary system that developed from yin-yang concept. The eight-trigrams represent the holistic plain system of the universe. Since there is structural framework in the three layers, these inter-relationships can then form the creative evolution among the eight-trigrams. Therefore, the eight-trigrams can be said to be a micro intelligent system that possesses integrated, unified and structural nature.

Figure 6
Eight-trigrams
Dynamic Capabilities in Knowledge Intensive Firms

The abstract symbolic logic of I-Ching is derived from experience. By using the symbolic logic and the recursive evolution, an induction of theoretical thinking is obtained. Therefore, a process of thinking from concrete facts to abstract logic and then from abstract logic to concrete facts is implied below. This thinking is illustrated in relation to the dynamic capabilities nominated above. In so doing, a case is made for their appropriateness. Based on the logic structure of I-Ching, the organizational capability can be classified into four scenarios. And then according to yin/yang’s interleave, the four scenarios can be further classified into eight scenarios (eight-trigrams). Then, referring the dynamic capabilities mentioned in literatures, the capabilities were mapped into the eight categories and become their system components.

1. Organizational Learning

Organizational learning is a process that uses knowledge to solve internal and external problems (Fiol & Lyles, 1985; Teece et al., 1997; Tripsas, 1997). The purpose of organizational learning is to transform the knowledge into the organization’s core capability (Stafa, 1989). The nature of this transformation is an elusive concept, and the provision of some insight as to its nature is part of purpose of this paper.

If the duality of Tai-Chi is applied to the notion of organizational learning, a reasonable separation might be on the basis of activities versus existing or inventoried knowledge. Such a separation has some parallels with the conceptualization of learning offered by Revans (1982), a pioneer of action learning, who proposed learning as a function of formal learning (information giving) and the active gaining of experience. An organizational learning capability thus might be treated as the function of a knowledge inventory and knowledge activity. If one accepts this proposal, activities such as knowledge use, sharing, transformation and re-creation, might logically be represented by the active Yang while inventoried knowledge would be represented as the passive Yin.
Below, a further, but brief, discussion of both inventoried knowledge (passive) and knowledge activities (active) as the essential components of an organizational learning capability is presented before moving onto a consideration of a second capability.

**Yin (passive)**

For the purposes of this discussion, this form of knowledge may be further subdivided into knowledge acquisition and organizational memory. Both of these terms are the subject of considerable discussion in the literature but it is beyond the scope of this paper to review this debate in depth. The following synopses are provided.

Knowledge Acquisition: This is the process of obtaining both tacit and explicit knowledge to discover, develop, utilize, deliver and absorb internal and external knowledge to satisfy the requirements of the organization (Huber, 1991).

Organizational Memory: From the perspective of the organization, one method of managing its intellectual resources is to attempt to augment its organizational memory. Intuitively, we know that an organization of people should retain some knowledge of its past efforts and environmental conditions. Information technology can support organizational memory in two ways, either by making recorded knowledge retrievable or by making individuals with knowledge accessible. The deliberate goal of stored learning and knowledge is to support the organization’s processes of adjustment to cope with changes in the environment (Hult & Ferrell, 1997).

**Yang (active)**

As above, two broad categories of activity have been identified in the literature. These are knowledge distribution and knowledge interpretation.

Knowledge Distribution: This is the process of delivering information inside an organization through different media and tools (Huber, 1991). It requires the sharing of information from different sources as part of a process of generating new knowledge. It has been called information dissemination (Sinkula, 1994) and sharing (Nevis, DiBellag and Gould, 1995).

Knowledge Interpretation: This is the process of giving meaning to the information via explaining events, developing the understanding of sharing, and giving a conceptual framework (Huber, 1991). Argyris and Schon, (1978) describe it as the general assessment of past experience.
integrated into the organizational policy, routines and norms. At the level of organizational learning, Helleloid & Simonin, (1994) and Jordan & Jones, (1997) argue that the integration process should be through the process of problem solving and information interpretation so as to establish a consensus. The need for a collective interpretation process emphasizes that knowledge gained through organizational learning is more than merely the passing on of information.

2. e-Enterprise

The e-Enterprise capability supports the organization’s ability to manage and reorganize information or to utilize information technology to innovate business models or processes. The result of this capability is to develop new opportunities and create new value. The core capability of the company can be upgraded only if the information process formed through organization and knowledge can be interacted with and integrated (Malhotra, 1997). The impact of Information Technology (IT) development is not only in the essence of the information, but also in its business application that may create major changes for the organization. Keen (1991) pointed out that IT can reduce the complexity of organizational operation through the simplifying of operational procedures, organizational structure, communications and collaboration methods. In short, the information exists throughout the organization. A natural duality can be applied to the e-Enterprise capability. The information infrastructure and information operations structure could be represented as the concrete $yin$ and the information value system could be represented as the abstract $yang$.

Following is a further, but again brief discussion of both IT related hardware and its operational system as the concrete $yin$ (passive) and knowledge activities as the abstract $yang$ (active) as the essential components of an organizational learning capability before moving onto a consideration of a third capability.

The three systematic components required to develop e-Enterprise capability are elaborated below.

$Yin$ (passive)
Information infrastructure: This component of the e-Enterprise capability includes software, hardware, network systems, and management systems etc which support decision making in the organization. That is, it involves on the one the infrastructure that achieves the basic target of information transformation, delivery, exchange and access.
Information operations structure: This component involves the structure and operations model for the various information operations in the organization. It also involves the systematized mechanisms that enable the creation of the information and its practical application to business operations to form the basic ability and even competitive weapons of the organization. In other words, the contents of the information and the method and direction of the information’s connection and delivery specifies the organization’s structure and its management style (Davenport, 1998). The information hierarchy forms new power structures and also affects new organization structures.

Yang (active)
Information value system: This is the change and reformation of information, and implies the utilization and creation of knowledge. It also creates new value for the organization. The new value includes change of organizational paradigms and business models. Both the form and content of the information are important components. Evans & Wurster (2000), describe the value in terms of “richness” and “reach”. Richness means the information quality and the range and delicate degree of service rendered. Reach means the percentage of acceptance or sharing of information in the organization.

3. Knowledge innovation

Knowledge innovation is a key success factor in a knowledge-based economy (Smith, 2000). Knowledge innovation involves the interactive interpretation and transformation of tacit and explicit knowledge. This is a kind of mind activity and is a continuously repeated procedure of socialization, externalization, combination and internalization (Nonaka & Konno, 1995). It is seen as the way knowledge changes from formality to actual application. That is, the process of knowledge application is actually part of the process of innovation (Amidon, 1997).

According to Sage (2000), there are four main tendencies that lead the enterprise to innovate. These are: globalization, electronic commerce, the decreasing value of the supply chain, and the catalyzing effect of networks. Innovation characteristically extends or expands on original knowledge and technology to produce a richer array of applications while also causing the creation of knowledge and improved technologies. Innovation includes the development of multiple capabilities, and the sharing of tacit knowledge (Nonaka and Takeachi, 1995; Von Krogh, 2000). Leonard-Barton (1995) emphasized that innovation should include problem solving or knowledge application, while Grant (1996) emphasized that innovation may mean
flexibility to meet competitive requirements and the accumulation and transfer of intelligence through norms and routine activities to extend its past capability and knowledge to build new knowledge.

The binary application of Tai-Chi thinking could logically conclude that a knowledge innovation capability could be represented as the combination of knowledge integration (concrete / yin) and the mechanism of innovation could be represented as the abstract yang. A short elaboration of the nature of knowledge integration and the mechanism of innovation follows to explain this further.

**Yin** (passive)

Knowledge integration: By reinforcing the consistency of a firm’s internal culture and values, and improving the coordination of operational efficiency, internal and external knowledge can be interfused to create a range of organizational intellectual capabilities (Volberda, et al, 1999; Nonaka and Takeuchi, 1995). Although some authors emphasize the importance of absorbing new information into the firm (Davenport & Prusak, 1998; Leonard-Barton, 1995), others emphasize internalizing the external information (Nonaka et al, 1998). There is an essential process of integration that must take place before there is knowledge.

**Yang** (active)

Knowledge innovation: This involves the combination of a number of capabilities including: a dynamic systemic capability, socialization capability and cooperation capability (Hansen, et al, 1999; Volberda, et al, 1999). Some scholars discuss the relationships among the degree of systematization, socialization and collaboration as they affect scope, flexibility, and efficiency (Demsetz, 1991; Smith & Zeithaml, 1996; Grant, 1996). The higher the degree of systematization of knowledge innovation, the higher the innovation efficiency will be, but the lower the scope and flexibility. The higher the degree of socialization in knowledge innovation, the higher the innovation efficiency will be, but uniform rules and system compatibility will reduce the scope and flexibility of the innovation. The higher the degree of the coordination and cooperation on knowledge innovation, the greater the negotiation required for complementarities and dependencies between the resources involved, so the innovation efficiency will be lower, but the scope and flexibility of the innovation will both be higher (Hansen, et al, 1999; Volberda, et al, 1999).
4. Value migration

Value migration is the change of business value and innovation of business design (Slywotzky, 1996). Value migration is the shifting of value-creating forces. Value migrates from outmoded business models to business designs that are better able to satisfy customers' priorities. There are three general types of value migrations: Value flows between industries, companies and within a company. Value will vary according to customer requirements, business activities, and business design. Changes in these interdependencies will directly or indirectly alter the organization’s internal and external relationships, the organizational framework (organization structure and operation model), and finally affect the organization’s value system.

In a traditional economy, the circulation of information, the mechanism of information delivery and the value of specific information is functionally determined. In a knowledge-based economy, information is freed from a physical transmission process so the physical value chain becomes disaggregated. The firm then has considerable freedom with regard to the way in which it aggregates the new value (Evans & Wurster, 1997).

For the three capabilities above, it is possible to propose a division of value migration. This could take the form of concrete value realization as *yin* and abstract value conception as *yang*. A logical basis for the three systematic components required to develop a value migration capability are elaborated below.

**Yin (passive)**
Value Realization: The organization needs to have the capability to realize or embody the value concept formed by itself, or by other people (such as clients or consignors). That is, it must have the capability to successfully undertake problem solving and practical activities in areas such as manufacturing, commercialization, execution, tool operation and so on. (Leonard-Barton, 1995).

**Yang (active)**
Value Conception: Value conception describes the way in which the organization transforms and restructures its explicate/tacit individualized knowledge (Von Krogh, 2000). Valuable new concepts or perspectives may be created through the use of metaphor and analogy (Nonaka & Takeuchi, 1995).

Value Delivery: After the organization has achieved value realization, it still has to have the capability to deliver this value to clients. The purpose of value delivery is to build up the
business’s core competitive capability (Barney & Zajac, 1994), through capabilities in marketing, communication, logistics, information integration or transformation.

Value migration in knowledge intensive organizations is different in that they optimize the trade-off between richness and reach in knowledge and information delivery. This has a huge impact on responses to industry competitors and to its own business design (Slywotzky, 1996).

A summary of all of the proposed distinctions that have been presented and argued for above is provided in Table 2. This table presents the holistic structure and contents of dynamic capabilities to construct the Ken-OT model. The Figure 7, which follows immediately afterwards is based on Table 2 and may be a preferred alternative schematic for some readers.

Table 2

<table>
<thead>
<tr>
<th>Dynamic capability</th>
<th>System components</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Value migration</td>
<td>Yang (+)</td>
</tr>
<tr>
<td></td>
<td>Value Conception (D1)</td>
</tr>
<tr>
<td></td>
<td>Value Delivery (D3)</td>
</tr>
<tr>
<td>2 Yin (-)</td>
<td>Value Realization (D2)</td>
</tr>
<tr>
<td>3 e-Enterprise</td>
<td>Yang (+)</td>
</tr>
<tr>
<td></td>
<td>Information value system (B3)</td>
</tr>
<tr>
<td>4 Yin (-)</td>
<td>Information infrastructure (B1)</td>
</tr>
<tr>
<td></td>
<td>Information operations structure (B2)</td>
</tr>
<tr>
<td>5 Knowledge innovation</td>
<td>Yang (+)</td>
</tr>
<tr>
<td></td>
<td>Knowledge innovation (C2)</td>
</tr>
<tr>
<td>6 Yin (-)</td>
<td>Knowledge Integration (C1)</td>
</tr>
<tr>
<td>7 Organizational learning</td>
<td>Yang (+)</td>
</tr>
<tr>
<td></td>
<td>Knowledge Distribution (A2)</td>
</tr>
<tr>
<td></td>
<td>Knowledge Interpretation (A3)</td>
</tr>
<tr>
<td>8 Yin (-)</td>
<td>Organizational Memory (A4)</td>
</tr>
<tr>
<td></td>
<td>Knowledge Acquisition (A1)</td>
</tr>
</tbody>
</table>
I-Ching and the alignment of dynamic capabilities

Clearly, the presentation in Figure 7 is a reconstruction of the current literature on knowledge management, but one based on the duality principles inherent in Tai-Chi. However, this is not the end of the re-conceptualization for there are other ideas from Tai-Chi which become relevant once the basic conceptualization presented Table 2 above is accepted.

Another essential principle underpinning the dynamic capabilities derived from Tai-Chi is integration. Within the integrative perspective of Tai-Chi, the four dynamic capabilities discussed above, should not be considered as summative, nor separate. The overall dynamic capability of the organisation is the consequence of the interweaving of different dynamic capabilities. So, the overall structure suggested might be a complex multi-layer function as is depicted in Figure 7. This function should be seen as dynamic such that relationships have an infinite potential to rearrange themselves. The overall process could be described as one of creative evolution (Lin, 1999c).

In terms of organizational transformation, the concept of creative evolution implies that organizations have an ongoing and infinite array of choices available to them depending on the process they choose to configure and align their dynamic capabilities (Meyer, Tsui & Hinings, 1993). As has been discussed above, this is in turn based on abilities such as obtaining, accumulating, transferring, integrating, relocating, and recreating knowledge.
Thus far, the model under development in this paper has evolved to the point where the essence of an organization’s ability to transform itself is dependent on the configurational arrangement of dynamic capabilities. Configuration has been described as the relationship between reciprocal concepts with two or more system components. The basis of the development of the Ken-OT model has thus far only drawn on concepts from Tai-Chi at a somewhat superficial level. In order to discuss the alignment process between the dynamic capabilities in more detail, the next section will discuss the underlying principles of Tai-Chi in more detail.

The Alignment Principles

There are three principles inherent to Tai Chi that have relevance to the way the dynamic capabilities might be aligned. These principles are:

- Yin and Yang
- Wu-Hsing, and
- Equilibrium

Each of these principles is simultaneously operational (Lin, 2003) and provides interpretable and operational meaning to the process of organizational creative evolution. The formation of the integrated concept of this three principles could be traced back to the “Discussion in the White Tiger Hall” written by Ban-gu in the year of 79 A.C.

(1) The Yin/Yang Principle from the Creational view:

The yin-yang is a holistic way of thinking. It is different from the either/or thinking; it is a both/and thinking. To date in this paper, Yin/Yang has been presented essentially as a bi-directional cause and effect logic that is fundamental to the basic operational regulation of all matters in the world. The black color in the Tai Chi symbol represents Yin and white color represents Yang. (See figure 8). This symbol describes two ways of thinking in one diagram instead of putting them into an either-or dichotomy. Yin and Yang should also be regarded as complimentary rather than contradictory or opposing. As such Yin and Yang can be seen as having a reciprocal cause and effect relationship which is bi-directional (See figure 8).

Figure 8
Tai Chi’s Yin (black) and Yang (white)
This thinking emphasizes in finding ways to re-frame issues so that yin may become yang so as to open a new avenue for development. In an organizational context, the playing out of the yin and yang requires people to think at the most generic way of ‘how’ rather than ‘what’ of the specific action (Lin, 1997).

Some specific operational characteristics of the Yin-Yang alignment principle are:
• The interleaving of Yin and Yang represents mutual creation and evolution (Lin, 1997).
• There is difference in similarity. Even while differences exist, similarity is still possible (Chang, 2002).
• In some situations, Yin and Yang may swap with each other (Chou, 1017-1073).
• There is no stable state. A corresponding related balance is actually dynamic (Chang, 2002).

(2) The Wu-Hsing (Five agents) principle from a transforming view:

According to Chou (1017-1073), the yin/yang perspective could extend into the realm of dynamic thought and ability is called ‘Wu-Hsing’. The combination of wu-hsing and yin/yang is through the symbolic logic to combine the social phenomena and natural phenomena to form a complete structured thinking system. This is just like the covalent bond in chemical structure (Chang, 2002). The concept of Wu-Hsing uses the co-existence of creation and destruction and their transformation as its operational definition. It works via unidirectional causality and according to Lin (1997; 2003) is the isomorphic law of natural order. Its five agents are represented symbolically by Water, Fire, Wood, Metal and Earth. The nature and implication of the five agents is shown in Table 3. Creative relationships are typically denoted by positive coefficients and destructive relationships by negative coefficients.

<table>
<thead>
<tr>
<th>Wu-Hsing</th>
<th>Abbreviation</th>
<th>Symbolic meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wood</td>
<td>Wd</td>
<td>Gives vitality, Creates</td>
</tr>
<tr>
<td>Fire</td>
<td>Fi</td>
<td>Changes/energy, Grow</td>
</tr>
<tr>
<td>Earth</td>
<td>Ea</td>
<td>Conceives, Cultivate</td>
</tr>
<tr>
<td>Metal</td>
<td>Me</td>
<td>Changes accordingly, Harvest</td>
</tr>
<tr>
<td>Water</td>
<td>Wa</td>
<td>Execution, latency</td>
</tr>
</tbody>
</table>

The eight-trigram system and the wu-hsing system were combined in Tai-Ching thinking and had relationships as shown in figure 9 (Chou, 1017-1073).

Figure 9
Corresponding relationship of eight-trigrams and wu-hsing
Although Senge (1990) has proposed that systems-thinking is an interactive relationship of circular causality, his conceptualization doesn’t cover destructive relationships and can be considered as incomplete. In contrast, the dynamic system of Wu-Hsing allows the representation of a stable and integrated causal chain of unidirectional circulation for both creation and destruction (See figure 10).

Fig. 10  A schematic representation of the operation of Wu-Hsing

\[ \text{\small Wu-Hsing’s operational functioning displays the following characteristics:} \]

The creation and destruction relationship of the Wu-Hsing is a kind of abstract logic. From a statistical point of view, a correlative coefficient that is positive means there exists a creative relationship; while a correlative coefficient that is negative means there exists a destructive relationship. Therefore, two relationships exist in the same time. So, Wu-Hsing principle can be applied to an organization in order to construct a complex adaptation of organizational transformation (Lin, 1996c).

• Its management cycle has the relationship of Creation and Destruction. In other words, it is a kind of conversion function as described in table 3. The complementarity of their differences must be well utilized, and a strategic consensus formed by communication and co-ordination

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1 Note: In Figure 10, along with the outer circumferential arrows forming a circle, shows the adjacent mutually creative relationship. The arrows inside the circles show the mutually destructive relationship. The five elements not only create each other but also destroy one another to keep an internal state of coordination and equilibrium. This discordant phenomenon is the existence of paradox (Casti, 1995).
(Tsai, 2003). The activity should be unified to achieve the organisations strategic goals.

• The equilibrium of Yin and Yang’s interaction is a relative stability but the dynamic equilibrium of Wu-Hsing’s formulated relationship is an absolute stability. So, the creative relationship in outer circumferential exists in a sequenced normal situation, and the destructive relationship in inside arrows exists in a not usual situation. (Cheng, 1994).

(3) The equilibrium principle from harmony perspective:

The equilibrium principle provides for the creation of synergy among the dynamic capabilities in the organization to build an organic system. This dynamic mechanism will not happen automatically (Chander, 1992). The equilibrium principle integrates the logical relationship between organizational intention, structure and behaviors (Xi, 2002).

The equilibrium means to achieve harmony between effectiveness and collaboration and to pursue synergy in the entire organization. There are two meanings for the word ‘equilibrium’(Chang, 2002; Lin, 1994, 1997, 2003)(See figure 11). The equilibrium principle focuses on harmony and pursues a dynamic equilibrium of respective dynamic capabilities in the organization in order to construct an organic system. There are two meanings for the equilibrium principle, one is that vertically it pursues the effectiveness of the concordant yin and yang of the respective dynamic capability. The other is that horizontally it pursues the synergy of the creation and destruction of the respective dynamic capability.

Some additional notes about the equilibrium principle may add to an understanding of its nature and operation.
• The pursuit of equilibrium depends on a compromise of satisfying both horizontal and vertical dimensions, that is appropriateness (Confucius, BC551-BC479; Dong 2002).

• Timely action is important for the achievement of equilibrium. This implies mastery of the objective situation and change as it is always easier to do things that comply with surroundings than working against them. Coordination harmoniousness is thus important (Confucius, BC551-BC479; Dong 2002).

• Equilibrium should be conceptualised as activated by human endeavour (Lin, 1994). That is, it can be done through some planned activities. Therefore, it is an active system. The supreme state of harmony is a situation when time, space and people are harmony coordinated (Lin, 1994).

In summary, the ultimate goal of organizational transformation is creative evolution. The contribution of the *I-Ching* to organizational transformation is through the interweaving of Yin and Yang’s interaction, the dynamic balance of *Wu-Hsing* shifting, and equilibrium to absorb the characteristics of nonlinear, non-equilibrium, and tactics into its domain.

The significant theoretical contribution implied in the combinatory thinking described above is that the conceptualization of organizational change presented breaks away from traditional organizational transformation theory. It does this by moving from simple mechanistic thinking to a dynamic model dealing with complexity. It is argued that such a model is more appropriate to the myriad of changes that occur to an organization’s internal operation and running mechanisms.

**A new organizational transformation model - The Ken-OT Model**

The purpose of all discussion above, in all its complexity, has been to establish an adequate foundation for a new model of organizational transformation (OT). This section presents such a model that has been called the **Ken-OT** model.

Before presenting the model, a word about its name is appropriate. Although not a particularly common word, the term ‘ken’ is fitting in this case. It has a meaning that is about knowing and understanding and which combines history and vision, respects the difficulty in discovering the unknown, and paints the picture of ‘having perspective’ (Amidon, 1997).
In Webster’s New World Dictionary: Third Edition, 2000 the word Ken is defined as both a verb and a noun:

**Ken** v. 1. To know (a person or thing). 2. To recognize. 3. To descry (i.e., discern something difficult to catch sight of; discover through careful observation or investigation); to have an understanding of something.

n. 1. Perception; understanding. 2. a. Range of vision, b. View; sight; to make known.

The Ken-OT model is an organizational transformation platform that uses the *I-Ching* philosophy as its central change logic interfused with the four interactive dynamic capabilities introduced above.

It is difficult to properly express or present this model by normal linear flowcharts because:

1. There is no linear cause and effect relationship among the four dynamic capabilities;
2. There is a reciprocal relationship between the four perspectives;
3. The change logic is co-evolutionary rather than one of passive adaptation to the environment.

Figure 12 attempts to depict the Ken Organizational transformation model using an atomic structural drawing because only the interplay of different dynamic capabilities forms the creative evolution. This model is a kind of process structure instead of solid structure (Merry, 1995) and is consistent with the *I-Ching’s* philosophy of change. The change logic is the driving force that generates the organizational transformation while the four perspectives are like orbiting rings around it. The organization is a kind of system that effectively uses a portfolio of capability configurations. The quantity of the capabilities is less crucial than how the capabilities are deployed. In other words, the stretch and leverage of the capability is more important than the allocation of the capability.

Figure 12

Ken-OT Model
Figure 13 provides an alternative representation of the three dimensional model. It incorporates the influences of the aligning principles to the picture presented earlier in Figure (whatever it turns out to be.)

The Ken-OT model in Hierarchy Structure

The figure has multiple layers. The first is the goal or purpose of the model and this is simply summarized as ‘organisational transformation’. The second level indicates the operation of four ‘dynamic capabilities’. These dynamic capabilities have been selected from the existing literature on transformation in knowledge organizations and then mapped to the model on the basis of the reciprocal dualism implied by Tai-Chi. Some elaborations of the primary components of these dynamic capabilities are included. Again, these components are derived from the literature. The final level depicts the influence of three aligning forces that are part of the thinking of Tai-Chi.

The Implications of Ken-OT model

The Ken-OT model developed in this paper is a kind of creative evolution, which means the
system is treated as an evolving ecological image (Goerner, 1994). The model emphasizes the co-evolution of all interactive systems that means the essence of the evolution is a adaptive loop. Therefore, in a knowledge-based economy, organization needs to adaptive harmoniously with change, chaos, and uncertainty.

The Ken-OT model is a value system of how to convert the organization’s dynamic capabilities into energy, and it is a particular feedback system. Also, a knowledge-based firm is a kind of portfolio based on the judgments of expected value made by the various counter parties (suppliers, competitors, substitutes, etc.) of the benefits in the industry. A firm is not pursuing the maximum in terms of individual dynamic capabilities but the optimum of the firm. This model provides a certain explanation of the value equivalence of internal variables – the dynamic capabilities.

The Ken-OT model contains continuously rolling evolutionary thinking. It cognizes that the process of organizational transformation is not evolved lineally. It is a cyclical ecological awareness. That means the model is a continuous re-creation. Therefore, the direction of organizational development is definitely not a direct line. Organizational evolution must combine the cyclical development process of ‘from change gradually to a quantitative change’ and ‘from a quantitative change to a qualitative change’. And, this also verifies that the process of organizational transformation is the re-creation of all the dynamic capabilities of deep structure instead of just the process of lineal adjustment.

The structure of the ken-OT model indistinctively complies with the complicated nonlinear mechanism. The model is not only a hierarchy classification of capabilities. The nonlinear mechanism is the core implication of the model in systematic dynamics (Shapiro & Variam, 1998).

**Conclusions**

This research solve the complex issues of organizational transformation, the systemic wisdom, formed by the change logic that is inspired by the *I-Ching*, not only provides internal consistency but also allows the organizational transformation to have an organic and dynamic adjustment
mechanism. The I-Ching has encouraged people to treat the changing world as an organic integral system, to master the regulation of the changing, to simplify the complex to simple and to control the complex from simple. They will not be confused by the numerous and complicated phenomena and lose control, nor will they just see the uniting features but neglect the variety of features.

It is argued that most research into traditional organizational transformation is based on normative perspectives. This limits the potential to develop, or even explore, other ideas in regard to organizational transformation. In this paper, although a non-normative perspective has been used to propose a generalized organizational transformation model, however, this research is only as an exploratory experiment. Because there is few literatures of I-Ching applied in management, this becomes the biggest limitation in this research.

The contribution of this research in the practical issue of organizational management is that it proposes an organic thinking logic in the issues of organizational transformation for management level of knowledge-intensive firms. This organic thinking logic enables the managements to have a more durable, complex and conflicting creative thinking in the construction of their basic capabilities and aligning capabilities. So the management may seize the organization’s opportunity and direct its development direction so that the organization may continue in creating and constructing competition

The model presented is unequivocally in the realm of the propositional and obviously needs testing and validation. In particular, the cause and effect relationship between the criteria of individual dynamic capabilities and the three operational principles need further clarification. This will be attempted in future research.

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