

Drivers of Dynamic Learning Mechanism and Dynamic Knowledge Articulation in Alliance Organizations

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Abstract: This study demonstrates that resource-based view (RBV) misidentifies the locus of dynamic knowledge articulation and long-term dynamic competitive capabilities, and focuses on the distinctive role of drivers of dynamic learning mechanism in the evolution of dynamic knowledge articulation and dynamic competitiveness. Five drivers of dynamic learning mechanism such as the integration power of managers, external linkages, previous experience, repeated practice, and codification of experience play important roles on developing dynamic knowledge articulation, and ambiguity is a negative driver impact on developing dynamic knowledge articulation. Dynamic knowledge articulation is a positive impact on dynamic competitiveness in alliance organizations. The purpose of this paper is to contribute to a more complete understanding on developing dynamic knowledge articulation via the dynamic learning mechanism. The paper defines a clear theoretical model for the tautological animadversion of past research on RBV that can be complemented.

Keywords: dynamic learning mechanism, knowledge articulation, dynamic capabilities, alliance organization

1. Introduction

A fundamental problem in a firm's strategic management is to sustain long-term competitive advantage. In the past, RBV provided a preliminary explanation of competitive heterogeneity based on a firm possessing exclusive capabilities and resources, but how to acquire the exclusive capabilities and resources has always been a "black box" problem. Thus RBV studies frequently suffered tautological animadversion and failed to provide clear theoretical model, and could not reasonably explain why firms can maintain competitive advantages in varied and fast paced competitive environments. Several studies (Teece 1976; Teece 1980; Dierckx and Cool 1989) suggest that exclusive capabilities and resources generally cannot be obtained from the transaction market, and exclusive capabilities must be produced by a distinctive organizational mechanism. A number of researchers have acknowledged that competitive competencies are decided based on organizational routines given an isolating mechanism, and the isolating mechanism is always a knowledge articulation routine (Penrose 1959; Teece 1984; Wernerfelt 1984). Organizational learning mechanism is the root for firm development of knowledge articulation and dynamic competitive capabilities, and through organizational learning mechanism creates competitive capabilities that are real advantages that cannot be duplicated by competitors. Most prior studies on dynamic capabilities have failed to focus on the role of knowledge articulation (Williamson 1999; Priem and Butler 2000). Indeed, recent research on the evolution of dynamic competitive capabilities shows the promise of organization dynamic learning mechanisms (Zollo and Winter 2002; Winter 2003). Several scholars agreed that an organization's competitive capability derives from the knowledge articulation routines by which organization dynamic learning mechanism is a key point. Winter (2003) has already noted the existence of dynamic learning mechanisms, but his research does not clearly explain how firms can generate dynamic competitive competence. In fact, currently just few related studies on this area, and thus the area is truly worthy of study (Williamson 1999; Priem and Butler 2000).

Strategic alliance is a flexible strategic option that can improve firm competitiveness by leading external competitive resources. Helfat and Peteraf (2003) showed that strategic alliance is a selection effect that can enhance a firm's dynamic capability and provide the firm with new opportunities. Thus alliances are a rapid method of obtaining knowledge resources and learning special know-how, and can produce new dynamic capabilities. Dynamic capabilities can be derived from alliances and acquisitions, and alliance can contribute new and useful resources to firm organization (Powell, Koput et al. 1996; Lane and Lubatkin 1998; Ranft and Zeithaml 1998; Zollo and Singh 1998; Gulati 1999). Eisenhardt and Martin (2000) also agree that dynamic capabilities can be derived from specific strategic management and organizational processes, such as by alliance operation. Powell, Koput et al. (1996) strongly believe that dynamic capabilities derive from the process of alliance, particularly when the external enterprise possesses knowledge resources. Alliances thus are an extremely useful strategy for cooperative partners, and enable firm to rapidly launch new competitive capabilities. Previous studies on developing competitive capabilities via the dynamic learning mechanism have always lacked a clear theoretical model. Thus, this study employs the literature induced and case study methods to demonstrate how the factors of the dynamic learning mechanism drive the dynamic knowledge

articulation and the evolution of dynamic competitive capabilities. We set out to provide a theoretical model of the implications among drivers of dynamic learning mechanisms, dynamic knowledge articulation, and dynamic competitive capabilities development in alliance organizations.

2. Developing dynamic capabilities is based on dynamic learning mechanism

Organizations face a changing business environment and an industry structure characterized by unpredictability and strong competition. Previous RBV explanation of distinctive capability is just a temporary. However, modern organizations need a dynamic competitive capability for handling high-velocity dynamic competitive environments. A number of studies (Barney 1992; Lado and Wilson 1994; Teece, Pisano et al. 1997) support the importance of dynamic capabilities, which recently has been acknowledged by RBV. Dynamic capabilities are strategic routines by which firms achieve new resource configurations (Kogut and Zander 1992; Eisenhardt and Martin 2000); dynamic capabilities are organizational routines that can accumulate knowledge via learning processes (Nelson and Winter 1982). Earlier research (Clark and Fujimoto 1991; Zollo and Winter 2002) has portrayed dynamic capabilities as existing in special operating routines and arising from learning. Argote (1999) and Eisenhardt and Martin (2000) have identified the path of dynamic capabilities as being more accurately described as a learning mechanism that guides dynamic capability evolution.

Organizational dynamic capabilities are a type of competitiveness derived from an organization's dynamic learning mechanism, and knowledge articulation advantages generally offer the greatest sustainable value (Prahalad and Hamel 1990; Senge 1990; Stalk, Evans et al. 1992). Earlier research (Kogut and Zander 1992; Eisenhardt and Martin 2000) recognizes that a dynamic learning mechanism is an important interface driving the creation, evolution, and recombination of other resources. It can also assist in renewing organizational knowledge resources and shaping operating routines directly, as well as by the intermediate step of dynamic capabilities development. Indeed, this study integrates the dynamic capabilities standpoints of several scholars (Teece, Pisano et al. 1997; Argote 1999; Eisenhardt and Martin 2000; Zollo and Winter 2002) and organizational learning standpoints of several scholars (Nelson and Winter 1982; Clark and Fujimoto 1991; Zollo and Winter 2002) which defines dynamic learning mechanism is a learning and systematical routine by which organizational knowledge articulation allows leading organizational members to learn solving problem, improved decision making, stimulating creative ideals, effectively implementing organizational objectives, and then assisting in renewing organizational capabilities.

3. Drivers of dynamic learning mechanism driving dynamic knowledge articulation

Examining the term "dynamic capabilities" from a strategic perspective, dynamic capabilities can be seen as an exclusive firm property. Whether a firm possesses such exclusive property is determined by whether it possesses a fundamental and distinctive mechanism (Penrose 1959; Teece 1984; Wernerfelt 1984). An organizational learning mechanism is a fundamental mechanism for firms, as well as being a most distinctive and dynamic mechanism (Clark and Fujimoto 1991; Zollo and Winter 2002). Earlier work (Argote 1999; Eisenhardt and Martin 2000) identified the evolutional path of dynamic capabilities as being more accurately described in the learning mechanism. Clark and Fujimoto (1991) and Zollo and Winter (2002) viewed dynamic learning mechanism as a knowledge articulation routine. A dynamic learning mechanism is explicitly promised as a key to competitiveness and is a significant identifier for altering knowledge articulation (Williamson 1999; Priem and Butler 2000). Thus, a dynamic learning mechanism is an important system of knowledge articulation and competitive capability to a firm. An effective driver of dynamic learning mechanism can gather knowledge resources to produce a dynamic advantage, particularly when knowledge resources are viewed as the core of the firm's competitiveness. Therefore, knowledge articulation, through drivers of a dynamic learning mechanism, also contributes useful knowledge to the organizational evolution system. Thus, understanding the drivers of the dynamic learning mechanism is important, because good drivers tend to make knowledge evolve toward a more visible articulation.

The power of integration (Graebner 2000) and the strategic redeployment of exclusive routines (Capron, Dussauge et al. 1998; Graebner 1999; Graebner 2000) significantly impact the development of dynamic capabilities. According to earlier research (Pisano 1994; Grant 1996), dynamic capabilities always derive by which managers alter their knowledge resources for integration and recombination, thereby creating new value competences. In particular, since managers must deal with complicated organizational problems in the processes of alliance collaboration, manager integration power is always a key issue in driving organization knowledge articulation. Managers possess very strong integration power, and they can thus easily resolve numerous internal and external problems, determining the most efficient ways for the organization to accumulate knowledge, and quickly implementing organizational activities. Conversely, if managers lack

strong integration power to integrate useful knowledge resources, thereby negatively impacting organizational performance, members of allied organizations can easily lose confidence, which undermines the usefulness of the alliance. Eisenhardt and Martin (2000) posited that if managers have enough integration power to elaborate organizational knowledge resources, then managers will easily consolidate and expand the organizational knowledge to related or new areas. Organization will enter the stage of renewed knowledge, thus invisibly promoting organizational competitiveness. Thus, managers possessing very strong integration power can develop alliance organizations' dynamic knowledge. Notably, several scholars (Clark and Fujimoto 1991; Ancona and Caldwell 1992) have recognized that if managers have very strong integration power, then organizational capabilities development can result.

Proposition 1: When a dynamic learning mechanism underlies the driver of manager integration power, it is a positively related influence on dynamic knowledge articulation.

It is necessary to reform organizational operating routines by performing the steps of integration, reconfiguration and establishment to develop a new knowledge resource, a process which can be said to be a kind of trial-and-error process involving numerous external links. Zollo and Winter (2002) employing a cognitive perspective, claim that effective learning can be defined as follows: organization members can share their experience, compare their experience, discuss with other team colleagues, and exchange opinions. Thus organizational members use communication links to enhance the exchange of messages and opinions, and these can collect irregular knowledge and special experience very quickly. Ancona and Caldwell (1992) demonstrated that plentiful information linkages are very important driver for alliance organization cooperation and are also advantageous for creating knowledge articulation. Henderson and Cockburn (1994) claimed an external linkage process as an effective method of knowledge articulation and competitiveness promotion. Powell, Koput et al. (1996) also confirmed that external linkages are significant for alliance relationships in improving organizational knowledge creation. If an organization increases its competitive advantage via alliances, its success depends primarily on the external organization possessing very useful knowledge. Thus, the external linkages, of which can be used to promote organizational dynamic knowledge articulation.

Proposition 2: When a dynamic learning mechanism underlies the driver of external linkages, it is a positively related influence on dynamic knowledge articulation.

Organizational experience helps to quickly transfer previously learned effects to a new orientation. Experience can not only help members rapidly familiarize organizational operation, but can also help them overcome unfamiliar and difficult environments. Experience is a major factor in increasing decision accuracy and efficiency, as well as in producing latent contributions to organizational knowledge articulation. If organizational members have previous experience in the process of alliance collaboration, this experience will provide them with superior skills for reinforcing the excellent ability in organizational routines, and to incorporate improved knowledge and experience into organizational routines. Haleblian and Finkelstein (1999) agree that members with extensive experience are superior to those with moderate experience, for they can discern the similarities and differences between current and previous routines, as well as being able to more easily acquire and operate valuable knowledge resources, thereby promoting capability renewal and growth. Thus, previous experience can be said to more easily display organizational learning, identify learning obstacles that influence organizational members, and as well as provide more efficient association among members. Argote (1999) confirmed the significant effect of previous experience, based on research on learning curves in the manufacturing industry. Eisenhardt and Martin (2000) also note that within alliances, previous experience is likely to be a key influence on the product development process, and can promote knowledge accumulation. Previous experiences thus can promote alliance organization learning, primarily because the organization of alliances involves substantial challenges in coordination. So when a dynamic learning mechanism incorporates previous experience, not only can it overcome numerous obstacles, but it is also possible to accelerate knowledge competence and avoid friction among members. Thus, previous experience positively promotes dynamic knowledge articulation.

Proposition 3: When a dynamic learning mechanism underlies the driver of previous experience, it is a positively related influence on dynamic knowledge articulation.

Practice can help organizational members better understand organizational operating processes and more efficiently develop operating patterns, and thus practice can help in experience accumulation and knowledge articulation. Repeated practice help to accelerate knowledge experience, particularly in firms involved in alliances, thus making organizational operations smoother. Eisenhardt and Martin (2000) posit that repeated practice is an important dynamic learning mechanism and is advantageous to the development of dynamic capabilities. Argote (1999) also believes that repeated practice can help organizational members develop better operating methods, as well as assisting in the development of the manufacturing learning curve. However, alliance members all present different fields of professional knowledge and they must cooperate within a single organizational structure to execute projects and missions together. Thus, mistakes and

failures are a kind of unavoidable learning process, which clearly holds considerable potential for conflicts and failures. If organizations cannot accept repeated practice, this makes it difficult for organizations to learn from experience, and preventing the evolution of dynamic capabilities. Zollo and Singh (1998) confirm that repeated practice helps in the accumulation of implicit and explicit knowledge, boosting the performance of alliances or acquisitions. This study thus clearly defines repeated practice as an important driver of dynamic knowledge articulation.

Proposition 4: When a dynamic learning mechanism underlies the driver of repeated practice, it is a positively related influence on dynamic knowledge articulation.

Codification of experience can facilitate routine accumulation and establishment in formal organizational operations (Zander and Kogut 1995; Zollo and Kogut 1995; Argote 1999). Winter (1987) and Nonaka (1994) have stressed that experience codification can enhance the spread of organization knowledge; since the codification of experience can let organization members with codified experience help new members to quickly learn and reduce mistakes. Given full experience codification can be rapidly integrated into established knowledge routines and can quickly influence organization performance, thus avoiding big mistakes and failures. Therefore, Experience codification which occurs the knowledge articulation in rapid competition and environmental change.

Proposition 5: When a dynamic learning mechanism underlies the driver of codification of experience, it is a positively related influence on dynamic knowledge articulation.

Dynamic capabilities exhibit embedded characteristics during the development process (Nelson and Winter 1982; Barney 1986), thus dynamic capabilities should be embedded in routines that can be produced via system operation. This study uses a formal mechanism to extradite the learning results; actual experience accumulation and knowledge articulation always exhibit a clear embedded influence that is particularly obvious in learning of tacit knowledge and tacit experience. Several studies (Kogut and Zander 1992; Hedlund and Zander 1993) have also observed that knowledge acquisition always faces barriers, and thus it is necessary to consider its ambiguity during implementation. Lippman and Rummelt (1982) also agree that ambiguity impacts organizational learning and influences achievement of organizational targets. Crossan and Inkpen (1995) proposed that successful strategic alliance learning must overcome the impact of ambiguity on partner collaboration. Ambiguity thus creates an obstacle and negatively impacts alliance dynamic knowledge articulation.

Proposition 6: When a dynamic learning mechanism underlies the driver of ambiguity, it is a negatively related influence on dynamic knowledge articulation.

4. Dynamic knowledge articulation enhancing dynamic competitiveness of alliance organizations

Kogut and Zander (1992) claim knowledge articulation is the core of the firm's competitive advantage, especially if one takes knowledge as the core of competition in industrial structure. Argote (1999) and Eisenhardt and Martin (2000) view the evolutional path of dynamic capabilities as being more accurately described in the knowledge articulation process. Dynamic knowledge articulation play a distinctive role inverting dynamic learning mechanism into dynamic competitiveness, and it enhancing competitive capabilities development. Simonin (1997) and Luo (1999) held that knowledge management made a significant impact upon an alliance's success and plays an important role. Zollo and Winter (2002) maintained that dynamic capabilities development must be a dynamic knowledge articulation process. Thus, dynamic knowledge articulation is a real guide for dynamic capabilities evolution.

Dynamic competitive capability is a set of organizational process and a collection of principles; it also leads a firm to achieve its strategic goals by deploying knowledge resources in the organization (Kogut and Zander 1992; Grant 2002). Although dynamic competitive capabilities are similar to a lifecycle which is articulated by patterns and paths based on three stages -- foundation, development, and maturity. But not all capabilities will reach maturity, provided there are external selection events that can influence abilities to evolve a new and effective dynamic competitive capabilities lifecycle, thus enabling the continued maintenance of sustained advantage (Helfat and Peteraf 2003). Strategic alliances appear to constitute an external selection event. They guide new resources into the organizational internal knowledge articulation system and produce new routines; these then evolve into new dynamic competitive capabilities, preventing the organization from entering a mature lifecycle. Research by several scholars (Kogut and Zander 1992; Zollo and Winter 2002) has suggested that organizational dynamic capabilities involved in the alliance process include adaptation and changing components, through the adaptation and change processes integrate valid knowledge to drive dynamic capabilities development, creating firm strategic value (Eisenhardt and Martin 2000). So alliances are a good strategic option for obtaining knowledge articulation, and can produce new dynamic competitive

capabilities. Eisenhardt and Martin (2000) also point out that dynamic capabilities development comprise knowledge articulation processes.

Proposition 7: dynamic knowledge articulation would have a stronger positive impact on the dynamic competitive capabilities development of alliance organizations.

5. Research methods

This study aims to investigate the drivers of dynamic learning mechanisms in knowledge articulation of alliance organizations; we thus employed case study methodology to gather data. We conducted six interviews with high level managers to collect data, a purposeful sample of six participants from Taiwan firms. All of the participants had been with their firms for ten years or more, and most managers had rich and successful management experience in alliance organizations. Thus, the participants not only had an in-depth understanding of their alliance organization's operation and management routines but also probably were the most qualified to provide information on this study. We directly interviewed high level managers. The six high level managers were invited to discuss and answer questions involving organizational operations and strategic management activities relating to their routines, and were invited to focus on the drivers of the dynamic learning mechanism of the alliance operation. The interview questions of this study are as follows:

1. What are the important drivers in a dynamic learning system in alliance organization?
2. Do you think the exhibit embedded characteristics in formal knowledge articulation system or not? Why?
3. Do you think that ambiguity impacts organizational learning implementation and dynamic knowledge articulation?
4. Do you think the dynamic knowledge articulation system benefits dynamic competitive capabilities development or not? Why?

All interviews were recorded for further analysis and interpretation. During the qualitative research process, the data collection and analyses were processed simultaneously, and results of data analysis led to further theoretical deduction. In our study, six high level managers participated in the interview and provided useful information to achieve the current theoretical proposition, that is, to identify critical dimensions for drivers of dynamic learning mechanisms and to distill implications.

Table 1: Summary of participants' information

No.	Name	Gender	Age	Appointment	Alliance organization management experience/ years
1	Rick Chu	M	42	Management manager	10 years
2	Hihwa Ho	M	47	Marketing manager	10 years
3	Lisa Chen	F	52	Management manager	15 years
4	Eric Ho	M	53	General manager	11 years
5	Kevin Wang	M	48	General manager	10 years
6	Sanny Liao	F	50	Marketing manager	12 years

6. Theoretical model

The conclusion of the six case studies supported our current theoretical proposition, and the theoretical model is as bellow:

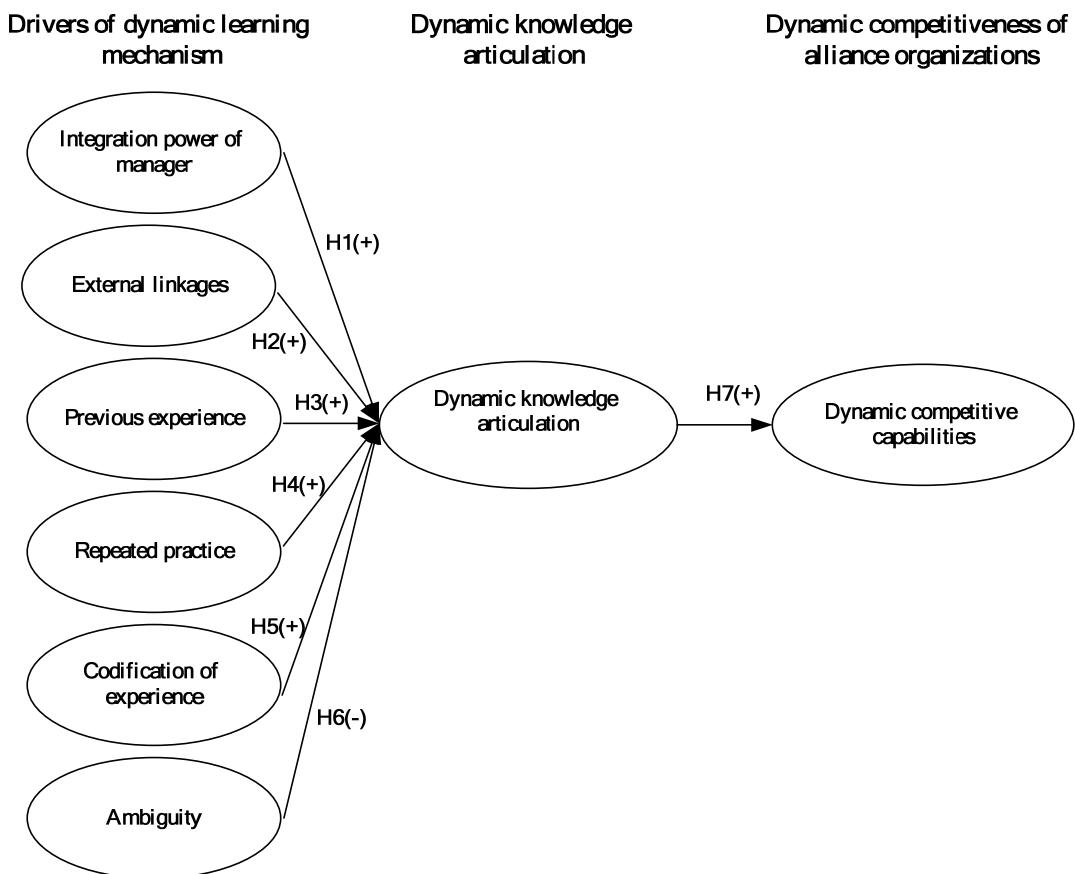


Figure 1: Theoretical model of dynamic learning mechanism and dynamic knowledge articulation in alliance organizations

7. Conclusion

Knowledge articulation has been increasingly recognized as a key mechanism for developing dynamic capabilities in organizational routines (Zollo and Winter 2002). Teece, Pisano et al. (1997) believe that dynamic capabilities must be developed based on the process of organizational learning, and by means of knowledge articulation. Thus knowledge articulation is also a key path for the evolution of a firm's dynamic competitiveness (Argote 1999). Eisenhardt and Martin (2000) claim that organizational learning mechanism can promote competitive capabilities, and that the organizational learning mechanism can evolve into unique advantages, as well as being a type of dynamic knowledge articulation.

The creation and development of dynamic competitive capabilities includes well-known organizational and strategic process like alliances, the strategic value of which primarily lies in allowing organizations to manipulate resources and enter a process of creative value, notably, dynamic learning mechanism plays a decisive role in this evolutional process. This research studied the drivers of dynamic capabilities using the concept of dynamic learning mechanism. From the review of the past literature and case study this study proposes that the integration power of managers, external linkages, previous experience, repeated practice, and codification of experience play important roles on development of dynamic knowledge articulation, and ambiguity is a negative impact on developing dynamic knowledge articulation. Dynamic knowledge articulation is a positive impact on developing dynamic competitive capabilities in alliance organizations. Thus, this research proposes dynamic knowledge articulation and dynamic competitive capabilities evolve from a dynamic learning mechanism just is a real dynamic competitiveness. This purpose of this research was performed to gain an understanding of most dependable dynamic capabilities related to firm dynamic learning mechanism. Thus this research primarily defines a clear theoretical model for developing dynamic capabilities via the dynamic learning mechanism, and the vagueness of past research on RBV can be primarily complemented for tautological.

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