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Abstract Using the case study methodology, firm’s competition behavior in strategic network and strategic ecosystems are analyzed. With the ecology view, there is consistency between strategic network and strategic ecosystem. Enterprise should pursue for suitable ecological niche to hold a strategic competitive power.

Key words strategy; ecological network; GPS; co-evolution

Today, with the accelerating changes in technology and more frequent market turnover, enterprises are facing increasingly complex environment. In this fierce competition, it is crucial for firms to choose a suited strategic vision and approach. Based on the ecological network of strategic theory, this article analyzes how to achieve competitive advantages through strategic networks in emerging markets.

How to meet customers’ requirement is a prerequisite in the emerging market competition. However, because of the complexity and uncertainty of environment, the resources and conditions for creating and satisfying demands are often unavailable for enterprises. Therefore, achieving competitive advantage through external network must be taken into their consideration.

Based on the ecological network competition perspective, this paper provides the new competition paradigm in the emerging technology and emerging markets. We explain the theory with a case from a GPS system and integration service provider in Shenzhen. The full text is structured as follows.

First, we analyze the reasons why the strategy network forms theoretically. Second, based on the ecology theory, we analyze the status and role of enterprises in strategic ecological network. Especially we put forward a thought about “ecological niche” thinking, and focus on explaining the value of core firm in ecological network. Once again, we discuss the sustainable development of strategic ecological network. Network structure, competition model, institutional arrangements all affect the survival of the network strategy. At the same time this is also a coevolving process. Third, we use a case of GPS system provider in Shenzhen to validate the above theory, and explain how to achieve competitive advantage through strategic networks. These processes are consistent with theoretical explanations.

1 Strategic Ecological Network Theory

1.1 The Formation of Strategic Ecological Network

The strategic theory before 1990’s, such as Chandler, Ansoff, Porter, and Prahalad, are made from industrial enterprises and their conditions, which ignores external enterprises related organizations. When the competitive environment is complex, dynamic and uncertain, the original strategic theories are difficult to apply. Enterprises need a broader strategic vision. A new theory represented by strategic network and strategic ecology has emerged.

Jarill first proposed the concept of a strategic network, and defined it as “a long-term, purposeful arrangements among distinct but related for profit organizations that allow those firms in them to gain or sustain competitive advantage vis-à-vis their competitors outside the network”[1]. Strategic network constitutes by linkages between the organization and their relations, which include cross-industry network nodes, cross-country suppliers, consumers, competitors, partners or other entities.

There are several theories to explain the formation of strategic networks.

Resource dependence theory thinks that organizations have no all the resources and conditions to meet demand, they can not satisfy the market by
their own strength, and organizations can amend, manipulate and then control other organizations to maintain this balance under the environment[2].

Stakeholder theory thinks that the enterprise can not develop without the input and participation of various stakeholders; enterprises pursue for the whole interest of stakeholders, not just a single profit. Stakeholders include various main bodies, and they have a major impact on the organizational forms and the mode of operation.

The value chain theory expounds the value of the business activities, and thinks competition coming from the links in value chain. Later, value chain theory expands continually—the value constellation, value network is the natural extension of value activities. Correspondingly, academia pays more attention to the research of supply chain and industry chain. The complex value patterns are precondition of formation and existence for strategic ecological network. The strategic ecological network is horizontal and longitudinal extension of value chain.

The strategic network provides opportunities for enterprises to embed it, for example, protecting enterprises from competitor’s attack, strengthening up resources capacity to enhance competitiveness. At the same time, it also restricts the firm’s behavior embedded among it.

Enterprises are “life bodies” embedded in the enterprise ecosystem. Moore defined strategic ecosystems as: the economic union based on the interaction with organizations and individuals[3]. This economic union produces available products and services to consumers. Consumers are one member of ecosystem; the members also include suppliers, the major producers, competitors and other risks. Strategic ecosystem is a huge open system, and its structure can be explained through the food chain theory and the note of strategy network.

Strategic networks and strategic ecosystems are interactive and consistent. Strategic ecosystems is a form of network, the network also has the characteristics of ecosystems. Therefore, Xie advanced to analyze the behavior in network by ecosystems theory, and use network theory and methodology to understand strategic ecosystems, then analyze firm’s competitive behavior and guide the sustainable development of enterprises[4].

Some authors also regard business ecological systems and strategic network systems as the two branches of Ecosystem concept[5]. Therefore, we combined strategic network and strategic ecosystems with strategic ecological network (SEN) to express the concept of consistency, and research the competition in this organizational form.

1.2 Enterprise Niche and Strategy Solution

One of important concepts in SEN is “ecological niche”. Baum thought enterprises ecological niche is intersection of enterprise’s resource demand and production capacity, it depended on firm’s location and firm’s action[6-7]. Different ecological niche make enterprises to face with different competition space.

Domestically, Liang thought ecological niche is a clear position which a firm and an industry hold; it is a sign of competition strength for enterprise within the industry[8]. The environmental characteristics of ecological niche may include geographical location, resource requirements, technology, institution, customer characteristics, and competitive situation and so on. Technical factor is an important aspect of the enterprise ecological niche. Firms with different technical niche will form alliances easily, and high-technology enterprises can become the core body of the League and network. Market niche is another important factor, which demonstrates through customer characteristics, geographical location and so on.

After entering ecosystems, enterprises can occupy certain key nodes, thereby strengthening the role of nodes; enhance the competition of enterprises and ecological niche. Generally, the core firm in strategic ecological network obtains leading status through holding critical ecological niche. It does this by controlling the value stream.

More expatiation about ecological niche of enterprise can be seen in Refs.[9] and [10].

1.3 Development of Strategic Ecological Network

The development of SEN is an evolution process. Moore divided it into four phases: exploration, growth, maturity, and decline. Each phase have crucial problem to resolve[3]. A SEN is reluctant to withdraw from the market competition, so the enterprises in it try to make it develop continuously and healthy.

Intergrowth and coordinated evolution are important factors of development of ecological network, the thought of coordinated evolution has extended from internal population to out of the
population\cite{11}.

The evolution of SEN is a process involving different actors. Li and Han empirically studied the collaborative evolution between the computer hardware and software industry\cite{12}.

Moreover, the rational interest’s allocation and mutual trust has also affected the strategic ecological network. SEN has the nature of virtual organizations and what firms should do is to change ecological network performance or participate in a more advanced ecological network. There has little material study about the development of strategic ecological network.

2 Methodology

This paper adopts the single-case study approach. Our analyzing unit is a GPS system enterprise. In both 2004 and 2005, the authors visited Saige Navigation Technology Co. (Shenzhen). We contacted with the company-wide members. On the survey basis, we referred the relevant literatures and sought for various sources of evidence. Through exploratory and descriptive analysis, we intend to explain the following theories: 1) The formation of strategic networks; 2) the role of the core business; 3) The existence and development of strategic ecological network.

3 Case Study

3.1 Basic Information

Shenzhen Saige Navigation Technology Co., Ltd. (hereinafter referred to as the “Saige”) is the first domestic application of GPS for vehicle navigation pioneer in the field. From the study and application of GPS technology 1994, it forge “Saige Devices Car” brand successfully. Currently, Saige’s products have been firmly ahead of national sales, and become the country’s national science and technology enterprises.

Satellite navigation industry value chain includes electronic map publishers, navigation device manufacturers and vehicle-mounted terminals dealers, Business Center, positioning platform providers and so on, as shown in Tab.1. At present, satellite navigation applications has developed into a global high-tech industries, and are experiencing unprecedented three changes: from a single system GPS to the constellation coexist global navigation satellite system (GNSS) era; from the application for vehicles to personal consumption patterns; from products selling to the service providing. This industry has a rapid development in China and is an emerging market and attracting a lot of enterprises.

<table>
<thead>
<tr>
<th>Application level</th>
<th>Consumer groups</th>
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<tbody>
<tr>
<td>Sever ice providing</td>
<td>Business centers value-added information suppliers</td>
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<td>Circulation</td>
<td>Communications platform provider</td>
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<tr>
<td>Vehicle terminals dealer</td>
<td>Navigation system suppliers</td>
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<tr>
<td>Vehicle manufactures</td>
<td>Insurance Companies</td>
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<tr>
<td>Navigation device / related hardware / software navigation</td>
<td>Gps chip suppliers / other hardware suppliers</td>
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<td>Integration technology suppliers</td>
<td>Software enterprises</td>
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<td>Navigation device operating system suppliers</td>
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<td>Electronic map publishers</td>
<td>Standard map production technology suppliers</td>
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<tr>
<td>Basic geographic information providers</td>
<td>Geographic information management unit</td>
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3.2 Formation of Strategic Ecological Network

The growth of Saige is a process of exploration. In October of 1999, Saige began to operate the business of vehicle electronic devices. Initially, its unit product price is as high as more than 4000 Yuan. The users’ demand was little and the market could not be developed. After analyzing, the company redefined the product. It claimed that its product not only played the role of GPS navigation, but also gave security to customer. Saige started to provide complete security services, which the unit price increased to more than 6000 Yuan as expected. Consumers came in swarms and product sold well. However, Saige didn’t satisfy with becoming auto electronic producer, it constantly explored a better profit model. This was a process to look for ecological niche. Saige thought service firstly. In the era of knowledge economy, service is comprehensive; relying on its own strength alone can
not provide competitive electronic services. Saige enjoying a model everyone will profit and integrate all parties’ resources to form a “Saige vehicles Saint Union”. Its business model has been upgraded from services providing to network operating. The company has begun a national network of business, and plans to become a national brand in two years.

3.3 The Operation of SEN

It is compliment for Saige’s integrating resources. Based on the core of Saige, the “Saige vehicles Saint Union” involves the users, security, insurance, telecommunications providers and other participants. They realize the development and expansion of the network through sharing profits, as shown in Fig.1.

As leader of the union, Saige control the initiative. The network expansion is a geometric progression of growth and network operating brings huge profits for these enterprises. Because of this business model, there is accumulation effect in customers and the market is gradually expanding. Moreover, Saige has thought of the future products expanding and the specific network operation.

Saige is a small company, its status has been challenged by firms inter and outer the ecological network. The later firms form a strategic network too. Saige has a monopoly in certain areas and the competition increases.

In the network, the great amount of profit rate has not made each party coexist peacefully. On one hand, it is difficult to reach unanimity with cooperator at distribution of interests. For example, in arrears with the supplier’s payment for goods, in arrears with the advertising expenses, and the supplier’s prestige degree is not good in the trade, these are very unfavorable to long-term development and the continuous managing of the network.

4 Conclusions

Strategic network is a kind of network constituted by organizations and their interlink age, in which the network nodes comprise the cross-industry or multinational suppliers, consumers, competitors, partners or other entities. The enterprise’s competitive advantages are derived from its leading advantage of business ecosystems. Strategy making should focus on use of ecosystem resources and relationship resources. The traditional competition model relies on individual enterprise and the new mode of competition for enterprises relies on the ecosystem.

Using the case study, this paper thinks that the business strategy should fully consider the ecological network where it locates. Once enter the network system and control the network system, enterprises can obtain the competitive advantage. But the strategic ecology view is still lack of study deeply; many scholars and managers have already paid more attention to it. We believe that there must be its seat in future strategic theories.

References


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XIAO Lei (肖磊) was born in Liaoning Province, China, in 1979. He graduated from UESTC in 2002. He studied for master in University of Electronic Science and Technology of China (UESTC) from 2002 to 2004. Now he is pursuing the Ph.D and engages in the field of technology innovation and value management. As is an instructor of UESTC, he had published several papers in recent years.

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