Research on Dimensionality Relationship of Dynamic Capability Generation of OEM Enterprises Under Internet Perspective

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Abstract. Dynamic capabilities cultivation is the fundamental power for Chinese manufacturing enterprises to transformation and upgrading. Base on the internet thinking, the paper analyzing the motivation of the dynamic capabilities cultivation of the OEM enterprises, we found that the organizational learning ability, the relation ability of social network and resource integration ability are three important fulcrum for the OEM enterprises to achieve the dynamic capabilities. In addition there have close inner relationship among the three pivots, forming the key abilities system for local subcontracting enterprises, positive role in their upgrade performance as well. Combining with the current development situation of OEM enterprises as well as the characteristics of the current internet economic environment, the paper put forward countermeasures and the suggestions for the OEM enterprises to acquire the dynamic capabilities.

Introduction

The disappearance of demographic dividend leads to the continuous rise of production cost. The deficiency of strong self-owned brands, insufficient innovation ability, frequent exchange rate fluctuation, weak demand in domestic and overseas markets, order transfer and trade barrier aggravation have made export-oriented economy of China suffer serious setbacks in recent two years. American President Trump will adopt loose finance, capital construction, tax reduction and other measures to encourage domestic manufacturing industry after coming into power. Experts predict that China’s manufacturing cost may be higher than that of US in one or two years, which undoubtedly aggravates competition pressure of China’s manufacturing industry. Meanwhile, in the economy sharing era based on internet idea, business mode, innovation mode, production mode and consumer demand are changing, so manufacturing enterprises will be eliminated if they do not reform. For current OEM (original equipment manufacturer) enterprises in China, they should first consider how to achieve transformation and upgrading under the challenges of global value chain change and weakening of original comparative advantage. Cultivating dynamic capacity in the wave of internet economy undoubtedly becomes the optimal strategy to solve the development bottleneck.

Dynamic Capability Generation of Local OEM Enterprises under Internet Idea Thinking

Features of Internet Era Drive Local OEM Enterprises to Generate Dynamic Capacity

Dynamic capability of enterprises was first proposed by Teece & Pisano (1997)[1]. Its core meaning is that enterprises based on original capacity cope with ever-changing external environment through cultivating the ability to change capacity so as to form the new capacity system and gain lasting competitive edge. As the era of internet economy arrives, “internet+” has gone deep into each link of the while value chain of manufacturing industry. The integration degree of internet and manufacturing industry deepens continuously. Traditional and static management
ability and production capacity of local OEM enterprises are difficult to adapt to current competition features in the era with internet idea and trans-boundary integration. The new era features require strong learning ability to receive and digest new knowledge so as to transform it into new production capacity. With internet technology and idea, enterprises can create more valuable business ecological circle. Thus, local manufacturing enterprises must own strong network relationship ability and resource integration ability. Organizational learning ability, network relationship ability and resource integration ability belong to the category of dynamic capability, and these abilities are required for local OEM enterprises to achieve transformation and upgrading in the era of internet economy. These dynamic capacities are beneficial for local OEM enterprises to conduct disruptive innovation so as to gain lasting and dynamic competitive edge in current internet information era.

**Cultivate Dynamic Capacity of Local OEM Enterprise by Internet**

**Construct Late-mover Advantage of Competition and Cooperation Game.** The endogenous comparative disadvantages such as no brand, no technology and no market make OEM enterprises severely depend on outsourcers. The research conclusion of Humphrey (2003)[2] indicate that the power structure of subject of the contract depends on dependence degree of abilities of both parties in international OEM trade relations. Based on Humphrey’s research, the power of OEM enterprises in the contract can be expressed as follows:

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P = \frac{(E_1 + S_2)}{(E_2 + S_1)}
\]

Wherein, P represents the power of OEM enterprises in the contract; \(E_1\) refers to exclusive ability of OEM enterprises; \(E_2\) refers to specific ability of outsourcers; \(S_1\) refers to specificity ability of OEM enterprises; \(S_2\) refers to specificity ability of outsourcers. It is known from the formula that, the larger the numerator, the smaller the denominator. This means the power (P value) of local manufacturing enterprises in OEN contract is larger. In other words, specificity level of OEM enterprises is lower, and specific ability is higher; specificity level of outsourcers is higher, and specific ability is lower. Under such conditions, it is more beneficial to form such cooperative relations as competition and cooperation game, and both-way dependence, establish an efficient organizational learning transmission mechanism, improve knowledge spillover degree and construct the late-mover advantage of competition and cooperation game with international outsourcers. Such late-mover advantage is reflected as follows: firstly, OEM enterprises can integrate internet technology in processing and manufacturing links, fully utilize internet idea to mine heterogeneous resources of the value network and achieve disruptive innovation of technology. Secondly, OEM enterprises can follow up the terminal market with the help of internet e-commerce platform, and cultivate their own channel exploitation ability and brand marketing ability. Thirdly, OEM enterprises can establish internet-based strategic thinking of manufacturing industry and create the enterprise operation mode which conforms to era features so as to reduce degree of dependence on outsourcers and enhance the right of speech in the negotiation process. Thus, with the help of internet, local OEM enterprises can cultivate dynamic capability more easily, get rid of the constraints of ability rigidity and resource viscos ity, and construct the late-mover advantage of competition and cooperation game.

**Construct Multi-value Network.** International buyers are the major value distributor and knowledge transfer of OEM enterprises, and the binary relation with international buyers largely influences ability construction and rent acquisition of OEM enterprises. However, different natures of international buyers have diverse influence on the reputation, rent and knowledge acquisition of OEM enterprises. Some international clients can bring significant short-term profits for OEM enterprises, but learning value and reputation are limited. Although some international clients have limited learning value and rent, they own good reputation value. The rend value and reputation value of some international clients are low, but they own high learning value. Therefore, OEM enterprises should assess the value and risk of potential international buyers in an all-round and dynamic way, and carry out multi-level, wide-field and selective global value chain imbedding strategy. OEM enterprises can have the ability to dynamically update and optimize client structure.
and optimize upgrading performance of each contract only when they continuously improve influence and specific ability in OEM field. In the new business civilization era, OEM enterprises can more easily utilize the accumulative experience and ability to expand the business field to multi-element network structure of establishment of strategic alliance or cooperative relation with client, supplier, complementor and platform operator from “dual structure”. The closed, chain-type, standardized and large-scale traditional production mode is transformed to integrating online and offline resources to set up a new value eco-system which is oriented to terminal demand and based on internet information platform[3]. This is beneficial for OEM enterprises to extend to acquisition of multi-element network rent based on network embedded learning from acquisition of binary relation rent based on embedded learning of binary relation, to form interactions among OEM ability, OEM relations and multi-element value network and dynamic evolution pattern of multiple upgrading, and to improve the chance and success rate of PEM enterprise transformation and upgrading, as shown in Fig.1. In one word, constructing multi-element value network by applying internet idea is inevitably based on dynamic capabilities such as certain learning ability, network relation ability and integration ability of OEM enterprises.

![Figure 1. Evolution and Upgrading of Dual Structure of OEM Relationship to Multi-element Value Network.](image)

Data source: drawn by the author

“Trinitarian” Dynamic Capability Formation Mechanism of Local OEM Enterprises

Based on the above analysis, it is found that, learning ability, resource integration capability and network relation ability of OEM enterprises are the most important three constitutional dimensions of their dynamic capability. The three capability dimensions supplement each other and depend on each other. Without any capability dimension, it is difficult to form competitive dynamic capability[4]. Thus, “trinity” of organizational learning ability - social network relation capability - resource integration capability makes dynamic capability present the most stable triangle structure.

Fig.2 shows the logic thought of dynamic capability cultivation by OEM enterprises. The dynamic capability cultivation mechanism of OEM enterprises will be studied from the internal relation among “trinitarian” abilities in this paper.
Interaction between Learning Absorption Ability and Social Network Relation Capability of OEM Enterprises

Innovation is the core element of transformation and upgrading of OEM enterprises, while innovation inevitably needs continuous and efficient learning of organizations. Besides, organizations need to absorb and transform the acquired information and knowledge to driving force of enterprise development. The up-rising star Huawei grows against the trend under the condition of sluggish domestic and overseas demand. In the third quarter of 2016, the profit of Huawei reached USD 200 million, exceeding Samsung. Hence, Huawei becomes the most profitable Android mobile phone brand. The achievement of Huawei results from continuous learning and innovation, said by Ren Zhengfei. Enterprises’ practical experience shows learning absorption ability refers to organizational ability to screen, internalize and apply external knowledge and information as well as make it form the new knowledge required by the organization and create new value. Obvious knowledge spillover exists in the binary cooperation relation between international buyers and OEM enterprises. But since most OEM enterprises in China have low learning absorption ability and limited resources and abilities, it is very hard to gain knowledge spillover of international buyers. Chen (2004)[5] considered learning absorption ability positively influences the effect of knowledge spillover, so it also becomes the key for OEM enterprises to cultivate dynamic capability and obtain lasting competitive edge.

As an advanced ability, learning absorption ability is not enough only by efforts, and external social network platform is required. Under binary OEM mode, OEM enterprises can gain much intentional knowledge transfer from international buyers, and gradually transform to ODM so as to have the chance to achieve product upgrading. Such upgrading can meet the demand of international buyers for high-quality and high-efficiency products. But for OEM enterprises, the identity of OEM is not changed, and this is a kind of “pseudo-upgrading”. To change the role of OEM and upgrade to OBM or chain from ODM, it is required to cultivate learning absorption ability from the higher-level or deeper-level knowledge field, as shown in Fig.3. This is restrained by international buyers. Thus, it is very hard to gain strategic knowledge from the contract relation. This inevitably requires OEM enterprises to actively open up more learning channels, seek suitable strategic partners and make the most of the business eco-circle to set up social network relation platform beneficial to learning ability cultivation. The researches of Federica and Antonello[6] indicate an organization with strong learning absorption ability can more easily gain more superior social capitals. It thus can be seen that, learning absorption ability of OEM enterprises and the formation of social network relation capability have the inherent characteristic of dynamic evolution.
Figure 3. Learning Absorption Ability Acquisition Channel of OEM Enterprises in Transformation and Upgrading Process.

Data source: drawn by the author

**Dimensionality Relation between Social Network Relation Capability and Resource Integration of OEM Enterprises**

With the rapid development of internet information technology, distribution characteristics of heterogeneous resources such as knowledge, information and technology are enhanced obviously[7]. Current market competition has changed to the competition among value ecological networks. In the internet era where resources are highly dispersive, OEM enterprises inevitably need to try their best to set up the ecological community contributing to cultivation of dynamic competitiveness with the online and offline major participants with core resources so as to improve the value share in international labor division. In the face of severe domestic and overseas situations in recent years, some international OEM organizations with the vision establish strategic partnership with overseas distributors through building direct warehouses and 4S stores or utilize e-commerce platforms such as Ali, Taobao and Jingdong to engage in e-commerce OEM and integrate online and offline resources so as to develop profit sources from multiple channels. Geand Robert (2009)[8] et al. also indicated that superior social relation network is the key for OEM enterprises to gain heterogeneous resources. Social network relation capability also becomes the important driving force for their transformation and upgrading. It thus can be seen that, social network relation capability and resource allocation capability of OEM enterprises have close internal relations. The implementation the latter needs to be based on the former. The both supplement each other and jointly promote transformation and upgrading of OEM enterprises.

**Internal Relation between Resource Integration Capability and Organizational Learning of OEM Enterprises**

25% of shoes were once made in Dongguan, and the profit was as high as 40%. But now, the average profit is less than 3%, and even some are in deficit. The situations of traditional manufacturing industry are worrying. Premier Li Keqiang especially investigated and surveyed upgrading problem of traditional manufacturing industry when conducting investigations in Dongguan in October 2016. Meanwhile, he also indicated that, it was very urgent to transform and upgrade such “dependence-type” OEM mode. It is not easy for transformation and upgrading. It is found through interwove of multiple OEM enterprises that, insufficient fund is the biggest obstacle. For the enterprises with vision, this cannot hinder their implementation of transformation and upgrading strategy, because intangible knowledge capability and interpersonal connections are the most valuable resources. In essence, they are the cash in material resources[9]. Thus, what local
OEM enterprises truly lack is how to mine, acquire, learn and absorb various relevant resources, and integrate these resources to generate greater capabilities. As internet information technology is deeply applied in economic and social fields, linking ability is more important than possessing capability for enterprise competitiveness. Innovation based on trans-boundary integration has become the competition requirement of internet era[10]. It is hard to achieve it without strong organizational learning absorption capability.

Only in this way, OEM enterprises can get rid of the awkward situation of being “captured”, and to improve competitiveness. It thus can be seen that, learning absorption ability and resource. Integration capability of organizations are closely related. The former is the foundation and energy of the latter, while the latter is the driving force and result of the former. Under the interaction of the two, OEM enterprises can cultivate dynamic upgrading capability and gain the lasting competitive edge.

In conclusion, in the face of current development trend, dynamic capability cultivation is the strategic direction of OEM enterprises to achieve transformation and upgrading. However, dynamic capability is a multidimensional and comprehensive ability. Its formation is inevitably based on value eco-circle, organizational learning ability, social network relation ability and resource integration capability. It is cultivated by continuous participation in market competition.

Organizational learning ability provides growth foundation and intellectual support for resource integration capability and social network relation ability. Social network relation ability offers development platform and channel for resource integration capability and organizational learning ability. Resource integration capability is the driving force and goal to achieve organizational learning ability and social network relation ability. The three capabilities supplement each other and form “trinitarian”

Dynamic capability growth mechanism of OEM enterprises (see Fig. 4).

**Figure 4. “Trinitarian” Dynamic Capability Growth Mechanism of OEM Enterprises.**

Data source: drawn by the author

**Strategy Suggestions on Dynamic Capability Cultivation for OEM Enterprises under Internet View**

**To Change Traditional Manufacturing Mode with Internet Idea**

As network information technology rapidly penetrates in traditional manufacturing industry, and many new production and operation ideas such as industrial cloud and industrial internet appear, manufacturing internet has presented the new operation mode of “manufacturing + service” with the distinct characteristics of online service, crowdsourcing design, intelligent products and intelligent manufacturing. Meanwhile, a manufacturing mode change of customization (C2B) based on
internet platform is brought about[11]. Such consumer-driven business mode contributes to eliminating adverse factors caused by production and marketing information asymmetry, and improving individualized, flexible and quick market response ability so as to enhance terminal control ability of traditional manufacturing enterprises and get rid of “low-end capture” of international buyers. Qingdao Hongling Group is a clothing enterprise which succeeded in transforming to ODM from OEM by internet manufacturing and big data mining. When traditional OEM enterprises had weak profits and even struggled to survive, annual income and profit growth rate of Hongling Group was as high as 150%. The recipe for success is that it utilized big data analysis for customization to meet individuation demand of 99% of customers in the world. They spent 12 years researching and integrating type data of more than 2.2 million of people. Moreover, they conducted large quantities of experiments to establish the huge internet factory driven by big data so that the group had the ability to achieve C2M (Customer to Manufacturer) mode. We can see in the workshop of Hongling that, the fabric, style, color and finished clothes on the assembly line are entirely different, but it can carry out batch customized production through industrialization. Hongling brilliantly applied “internet +” to change traditional manufacturing industry and tried to redefine the value and position of manufacturing link in the global value chain. This is the direction and goal of OEM enterprises to achieve transformation and upgrading by dynamic capability cultivation.

To Conduct Resources Integration and Strategic Cooperation by Depending on Internet Platform

Under traditional closed business mode, operation center of OEM enterprises is in the internal and they may easily ignore the action of external environment on their development[12]. Under the new normalcy of internet sharing economy, business operation owns the features of openness and dynamic. Lower cost, more resources and higher profits are from the external. So, the business center is in the external. OEM enterprises may utilize internet platform to conduct efficient internal and external resource integration and to seek the optimal partners for establishment of long-term strategic cooperation relationship with the idea of “not all, but practical” so as to achieve the development goal of competition, cooperation and win-win and get rid of the unidirectional dependence on international buyers. “Tao Factory” built by Alibaba opens up a new transformation path for OEM enterprises - e-commerce OEM enterprises. With the rapid development of online shopping economy, market information asymmetry appears. E-commerce sellers are encountered with a series of problems, such as the difficulties in seeking high-quality factories, receiving small orders, developing new styles and re-ordering. Local OEM enterprises are faced with such difficulties as few funds, few resources, few orders and narrow channels. As a middle bridge of e-commerce sellers and local superior factories, “Tao Factory” well solves these difficulties. It conducts flexible, efficient and trans-boundary integration of supply chain to generate obvious economic benefit through massive demands of e-commerce buyers and agglomeration effect of superior factory supply. Compared with traditional OEM enterprises, due to strict factory screening mechanism of Alibaba, the OEM enterprises of “Tao Factory” own the features and advantages of internet so that “Tao Factory” can operate smoothly and stably to achieve multi-win situation. Local OEM enterprises may depend on powerful e-commerce platforms similar to Tao Factory to conduct horizontal and vertical integration of industry chain resources, create multi-element value network, open up new profit channels, construct dynamic capability in “outsourcing” and “refocusing” synergy in the value chain and achieve enterprise transformation and upgrading.

To Optimize Organizational Structure and Establish Learning-oriented Enterprise Culture Full of Innovation and Enterprising Spirit

The era of Internet economy has high requirements for market response efficiency. Only efficient, flat and smooth organization structure and continuous management innovation can capture market opportunity and gain competitive edge. To cultivate dynamic capability, OEM enterprises should transform function gathering to process management. On the one hand, OEM enterprises should
break traditional top-down vertical boundary, establish flat management platform, and make employees focus on achieving corporate vision, mission and aim and achieve the management of self-organization type. On the other hand, OEM enterprises should break the horizontal boundary divided according to functional department, stress that every link of BPR (Business Process Reengineering) operations from global optimum goal, combine personal success with the process success, and eliminate sectionalism and profit decentralism. Only such open and simple process organization structure is beneficial to fully mine and activate potentials of knowledge-based employees, and create learning-oriented enterprise culture full of innovation and enterprising spirit so as to cultivate proper human capital.

Open synergy and sharing economy are current development keynote, which provides good development opportunity for OEM enterprises to cultivate dynamic capability. But depending on enterprises themselves is far from enough during the cultivation of the advanced ability. The action of government is indispensable. How to construct more thorough public infrastructure and efficient productive service platform, reduce operation cost of OEM enterprises and make them achieve effective synergy and sharing in the value eco-circle? This will become the decisive macroscopic element for OEM enterprises to gain lasting dynamic competitive edge.

Conclusion
With regard to upgrading strategy of local OEM enterprises, the academic circle mostly focuses on the positive promotion effect of organizational ability on enterprise strategy upgrading. With the sharp change of external environment, once organizational ability of local OEM enterprises lacks flexibility, it is very difficult for them to cope with ever-changing dynamic environment, and they may easily be caught in “comparative advantage trap” of core competence rigidity. Dynamic capability is the core of organizational ability, and also the leading force of transformation and upgrading of OEM enterprises. As the integration degree of internet and manufacturing industry improves continuously, local OEM enterprises should seize the era opportunity, make the best of internet information technology, break organizational boundary, form network cooperation and innovation platform, share valuable knowledge and information elements, integrate internal and external resources and construct the key capability system in continuous learning, exploration and practice. Only in this way, they can own lasting competitive edge.

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