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The Theoretical Connotation and Systematic Essence of Core Competence of Agricultural High-tech Enterprises

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Abstract Six representative interpretations about the core competence of the corporate proposed by the researchers both at home and abroad from different perspectives are introduced, which includes "Resource theory", "Capacity theory", "Integration theory of assets and mechanism", "Theory of consumer surplus", "Theory of institutions and systems" and "Theory of innovation". It is pointed out that although these interpretations play an active role in enriching the theory of core competence, it still faces the problems to further deepen these interpretations; the first problem is how to give a precise definition; the second is about its extension; the third is on the logical and practical relationship between the production mechanism and its sustainable competitive advantages; the fourth is the problems in the production process and the corresponding management. Both the systematic essence and features of core competence are introduced; the first is the system self-organization process produced within the corporate; the second is the interaction between corporate system and environment; it needs a growing and evolution process. This paper briefly describes the essence of core competence of agricultural high-tech corporate, introduces its five features including systematicness, integration, non-imitation, ductility and non-equilibrium, and finally explains its component parts, mainly including corporate culture system, technological innovation system, human resource system, management capability system, corporate production and marketing system, financial capability system and adaptability system.

Key words Agricultural high-technology, Core competence, Systematic essence, Technological innovation, China

Under the background of building a well-off society in an all-around way, the problems concerning agriculture, rural areas and rural people attract more and more attention, and have become an emphasis and difficulty of constructing a well-off society. As agricultural high-tech corporate plays an important role in improving the overall agricultural benefits and accelerating the modernization process of agriculture, it seems particularly urgent to conduct an in-depth research on it. Core competence is a new concept coming along with the knowledge-based economy. In their *The Core Competence of the Corporation*, Coimbatore K. Prahalad and G. Hamel define the core competence as "the corporate capability to develop unique products, unique technology and unique marketing techniques, and it is the collective and accumulated know-how, involving how to coordinate diverse production skills and integrate multiple streams of technologies. Based on the study achievements of the scholars both at home and abroad, the author explores the theoretical connotation and systematic essence of the core competence of agricultural high-tech corporate so as to provide references for relevant studies.

1 The connotation of core competence

The researchers study and interpretate the core competence of the corporate from different angles, which can be classified into six categories. ① "Resource theory". It holds that, the core competence, which involves technique, skills and

knowledge, is a special ability to use and allocate resources in a unique way. ② "Capacity theory". The school of capacity theory represented by Rossby and Christensen deems that capacity is the productivity which determines resource structure, and resource is the basis to performing capacity^[1]. ③ "Integration theory of assets and mechanism". The school of integration theory of assets and mechanism believes that the core competence of the corporate are the integrated application and reflection of all core assets, and the organic integration of the corporate's diverse skills, complementary assets and operating mechanism, as well as the organic combination of different technical systems regulations and skills. ④ "Theory of consumer surplus". It believes that the essence of core competence is consumer surplus, consumer surplus is the quality and value of the products and services the consumers get above other competitors. ⑤ "Theory of institutions and systems". The school of "theory of institutions and systems" holds that the institution and system of a corporate are the most basic core competence. ⑥ "Theory of innovation". The school of "theory of innovation" thinks that core competence is the corporate's capacity to continuously create new products and provide new services so as to adapt to the market.

The above six definitions of core competence give an interpretation of core competence from their own perspectives and dimensions, which plays an active role in and makes contributions to enriching the theories about core competence. However, through research, I found that, as the mainstream viewpoint about current corporate capacity, the theory of core competency still needs to be further studied and deepened. ① it still needs a precise definition about the core competence of the

corporate. Coimbatore K. Prahalad and G. Hamel only define core competence as skill and expertise, which still exists certain limitations. Other various definitions are only the views of different schools, not yet unified. What's else, Core competence differs from as well as links with the concepts of resource, capacity and competitiveness, their relationship needs to be clarified. ② Problems about the extension of core competence. What the content of core competence should include and which kind of core competence the corporate should build are two different questions. To mistake these two questions as one has become an important problem facing the existing research, which, to a great extent, stifles strategy because strategy means more choices. ③ Problems about the logical and practical relationship between production mechanism of core competence and the sustainable competitive advantage it brought. Corporate internal capacity theory, theory of sustainable competitive advantage and core competence theory all haven't established a relationship between these two aspects. ④ Problem concerning the production process of core competence and corresponding management. The existing theories about core competence emphasize practical analysis while lack recognition of its regularity. It is until 5 – 15 years later that the inspection of core competence the corporations need comes into effect, which determines that the process of the corporate's enhancing its core competence is no less than a gamble^[2]. Therefore, it needs to study the production process and evolution rules of core competence.

2 Systematic essence and features of core competence of agricultural high-tech corporations

2.1 Systematic essence of core competence Competition emerges as soon as corporate appears. Although there are many different schools and interpretations on the theory of core competence, they always focus on two issues, involving how to form competitive advantages and how to maintain and enhance competitive advantages. Looking back to the course of the development of market economy, we find that the constant involvement of corporate organizations is always around how to adapt to the environment and enhance its own competitiveness. Therefore, it is always a theoretical and practical focus to endow the corporate with the capacity to form and maintain its competitive advantages.

Different experts have different perceptions of core competence. On the surface, there is only difference on theory, which, however, actually reflects the complexity of the thing itself and indicates that there are still some underlying causes and essential attribute for people to dig out. Therefore, core competence is complicated and systematic. Both its subject-corporations and its object-environment are interrelated, interacting and evolving complex organic systems.

As shown in history, as an organic system, the corporate and its operation environment all experience an evolution process from simple to complex, from relative isolation to interdependence, from closed to open and from certainty to uncer-

tainty. This will inevitably lead to the inter-corporate system competition evolving from the competition among general products to that among core products, from general resources to resource system and from general ability to core competence, which is a deeper competition characterized by the proceeding from exterior to interior, from system elements to the system as a whole and from system form to the core essence of system. Thus, the analysis and study of core competence should also be elevated to such level and depth. Based on this, the author holds that the core competence of agricultural high-tech corporate is essentially an attribute unique to a corporate system which enables the corporate to have a sustainable competitive edge under a specific subsistence and development environment. It is produced in the unique self-organization process within the corporate organic system and established through the interaction between the internal system and environment, and will continuously update and develop with the evolution of the corporate internal system and external environment.

2.2 Systematic features of core competence

2.2.1 Core competence appears in the internal self-organization process of system within the corporate organization. During the operation of modern economy, both the agricultural high-tech corporate organization and its environment are complicated system. Corporate is not only a simple production unit, instead, it is an active organization which produces and creates new functions and attributes through the organic integration of various elements (resources, knowledge and capacity, etc.) and continuous evolution. Whether the corporate can obtain its superior position, existence as well as development or not under such a complex, volatile and competitive environment, primarily depends on its own internal organizational factors. However, in terms of its immanence, the existing "theories of core competence" only views it as an internal "integration of resources", "system of capacity" or "system of knowledge", etc, which though reflects the features of core competence of the corporate to some extent, only limits to a certain aspect or certain level. It can be seen from the systematic essence of corporate that the source and immanence of core competence lie in the internal self-organization of the system in the corporate. This self-organization or "spontaneous order emerges gradually and spontaneously under the interaction of specific organizational structures (internal order) and the influence of specific environments." Chinese scholar, Professor Guan Yixin deems that, "core competence, a kind of coordinated and organizational force, organizes and coordinates various resources involving those tangible and intangible, knowledge-based and personality-based, as well as its subject-labor, non-labor, and then integrates them into one organization system for production and operation as well as for reaping a profit"^[2]. As different from traditional economy, currently many resources and elements, in particular those which is tangible and decomposable, could be easily obtained through transaction, learning or imitation, it is quite difficult to rely on the advantages of these resources and elements to gain a competitive advantage, even with an advantage, it is still difficult to sustain.

According to the systematic theory, these resources, knowledge and capacity and other elements should be diverse and complementary in nature, which lays the foundation of the viability and innovation of the corporate. Secondly, they must be integrated into a specific internal environment suitable for their organic coordination, which is an unique self-organization condition within the corporate system, the merits and demerits of this condition determine the basic conditions of the system function or capacity, as well as the basic properties of the corporate's core competence. Because according to these conditions, through the self-organization process, agricultural high-tech corporate system could create the coordination mechanism, dynamic mechanism and innovative mechanism unique to this system so that the potential of various elements within this system could be fully explored and expanded so as to form and maintain the competitive advantages of this system.

2.2.2 Core competence is established in the interactive process between corporate system and environment. Although the production of core competence primarily depends on the endogenous system of the corporate, which, however, is only a necessary condition rather than a sufficient condition in forming core competence. At this point misunderstanding exists, people always mix the "core capacity" up with "core competence". To be specific, "competence" is an attribute which is formed and displayed during the interaction between a subject system and its environment rather than an attribute which reflects the features of its system; while "capacity" is a functional attribute of a system which only reflects the intrinsic property of the system itself, thus it depends entirely on the system's own intrinsic factors. Therefore, in this sense, competence is a kind of capacity in the sense of interactive competition instead of in the functional sense. Competence emphasizes the "success" in the competition rather than the "function". The capacity of the corporate is the foundation and condition of its competence, but whether the capacity could be eventually transformed into effective market competence or not, yet relies on the full play of its capacity and its competition with other opponents, and is yet subject to the evaluation on its corporate value by the market and customers^[3].

The credibility and value of agricultural high-tech corporate originate from their own behaviors, but they are established on the market's evaluation and approval of corporate behaviors during the interactive process between the corporate and environment, rather than proclaimed by the corporate itself, which could get its full evidence from the three criteria to judge the core competence proposed by Coimbatore K. Prahalad and G. Hamel in their *The Core Competence of the Corporation*: it should be approved by the market; it should bring the customers special benefits; it should not provide its competitors with easy access to imitation. This clearly demonstrates that core competence contains the interactive process between corporate and environment. As the capacity of the corporate is only the unilateral condition, only those capacities, which create value to the customers, get approval from the market, provide the corporate with the chances to get access to certain real and poten-

tial market, as well as could not be easily imitated by others, are of great value and meaning to the corporate and possible to become the core competence of the corporate. All those above fully prove that, the core competence of agricultural high-tech corporate is formed and shaped in the self-organization of the intrinsic system of the corporate, while however, is established during the interaction with the external environment.

2.2.3 Core competence needs a growing and evolving process. As its nature and basic feature shows, the core competence of agricultural high-tech corporate is a property owned by the corporate which is a complex system in order to get better subsistence and development as well as adaptation to the competition. However, to form the self-organization condition specially needed in the generation of core competence and to obtain the dominant position during the interaction with the environment are all impossible to be fulfilled within a short term, they are "gradually and spontaneously taking their shape under the interaction between certain organizations and the influence of certain environment". This is because "this resource is the result of human behavior rather than the subjective design of human. It cannot be pre-set, instead, it is coming along with a spontaneous, highly uncertain accumulation process with greater possibility of failure than success". Therefore, it is a growing and evolving process of accumulation characterized by "historical dependence and cumulativeness". Thus, in defining core competence, Prahalad and Hamel emphasize on the "accumulation" of "the know-how or capacity to coordinate different production skills and organically integrate diverse techniques", because it can only be obtained through the constant learning and accumulation of the organization itself rather than from market transactions. Thus, Prahalad and Hamel believe that the core competence can only be formed through continuous improvement which will takes a decade or even longer time^[4]. All in all, the conditions needed in the production of the core competence of agricultural high-tech corporate as well as the generation and development of the core competence itself all need a historical evolution process, which is an objective fact already been proved by the theory and practice of core competence, and is in line with the objective laws of the generation and evolution of a complex system.

3 The connotation, basic feature and component elements of core competence of agricultural high-tech corporate

3.1 The connotation of the core competence of agricultural high-tech corporate Core competence is a unique and difficult-to-imitate competitive system which is formed based on the long-term accumulation of knowledge and by integrating the innovation capacity, human resources and corporate culture as a whole. The nature of the core competence is an organic and multi-polar complex system formed in the interaction of seven major elements(Fig. 1)^[5].

3.2 Basic features

3.2.1 Systematicness. Systematicness is the natural property of the core competence of agricultural high-tech corporate.

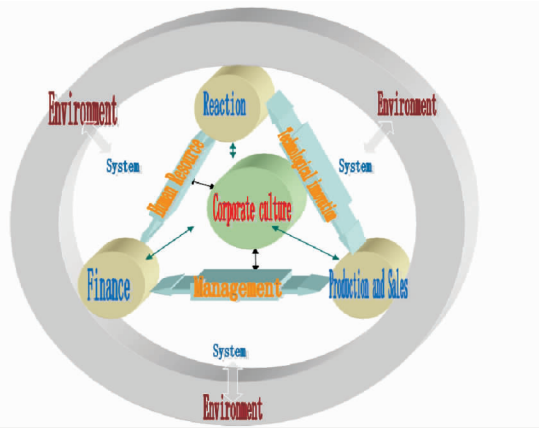


Fig. 1 System of Core Competence of Agricultural high-tech enterprises

Core competence is a complex and open system. Both its subject-corporate organization and its object-environment are inter-related, interacting and constantly evolving complex and organic systems.

3.2.2 Integration. Under the action of three major systems including system of corporate culture, system of corporate innovation capacity and system of corporate human resource, the corporate conducts the integration of diverse capacities and resources.

3.2.3 Non-imitation. Relying on its unique human and technological advantages, core competence of agricultural high-tech corporate gradually generates its unique technological innovation capacity, the capacity to develop human resources and corporate culture, *etc.*, during its long-term management practices, which are the individual products of the corporate.

3.2.4 Ductility. Core competence is a growing dynamic coordinate system, it is the female parent, it is the core, and it has the spillover effect, which enables the corporate to maintain its continuous competitive advantage in the original competitive areas, expands the market around its core competence, and obtains sustainable competitive advantages in its market area through innovation.

3.2.5 Non-equilibrium. The innovation, research and development of the capacities embody another one nature of the core competence of agricultural high-tech corporate. In the construction of the core competence of the corporate, there is inherited progressive development in technology as well as a breakthrough in technological revolution.

3.3 Component elements The core competence of agricultural high-tech corporate consists of seven sub-systems, each sub-system contains several small sub-systems.

3.3.1 Corporate culture system. Researchers have four different views about the core development capacity of high-tech corporate, which, in their point of view, equals to high-tech products, system, the capacity to reap a profit and the capacity to occupy more market share, but all these views neglect the deeper things behind the core competence of high-tech corporate-corporate culture, that is, the total spiritual wealth created by people in the development process of the corporate. As the

innate culture of the corporate staff is difficult to be transplanted, the capacity which is the most difficult to imitate is the core development capacity of high-tech corporate. The deepest level of the core development capacity of the corporate involves the corporate culture, corporate philosophy and corporate ethnics, they are the source of life of the corporate. Corporate culture is also a kind of productivity, as an incentive for corporate growth, the advanced corporate culture covers three sub-systems including corporate values, learning group and corporate brands, which determines the form and development of corporate competence.

3.3.2 Technological innovation capacity System. Technological innovation belongs to neither pure technical area nor pure economic area, instead, it belongs to a technical and economic area with both technical and economic features. The technological innovation capacity is a kind of capacity to commercialize the technical achievements as well as the capacity to introduce the corporate research and development results into economic activities so as to realize their economic value. It includes two sub-systems-research level and innovative capacity.

3.3.3 Human resource system. Human resource is the source of the sustainable development of high-tech corporate as well as the direct driving force for corporate development. Agricultural high-tech corporate gains its high profits from the high-added value of the products, while the main production and operation elements needed in the creation of high-added value are contained in the information, technology, patents and skills which are the intellectual factors having a positive impact on the corporate production and operation activities. Therefore, human resource is irreplaceable to meet the requirements for high intelligence of the high technology. System of human resource includes the basic capacity system and the system of the strategic development of human resources.

3.3.4 Management system. The management capacity refers to the capacity of the corporate to constantly innovate and adjust the corporate organizational structure, internal management model, each basic management system, incentive and restraint mechanism and the information management system which could maintain the normal functioning, living and development of the corporate during its production and management process. It is the internal development capacity of the corporate and the activated factor and incentive factor in developing the capacity of the corporate, the management system covers two sub-systems including strategic management and basic management.

3.3.5 Corporate production and marketing system. It includes two sub-systems—production system and marketing system. The marketing capacity is the capacity to realize the market competitiveness of high-tech products through market exploitation and market occupation. The production capacity refers to the capacity to supply the market with products with the existing production equipments and labor force. Only by taking full advantages of market information, producing and selling the innovative products to the consumers, and providing perfect after-sale service can the corporate achieve sustainable economic

benefits.

3.3.6 Financial capability system. The corporate financial capacity means the capacity of the corporate to operate and manage the capital and asset during its production, management and development process, which assures the money needed in the operation and development of the corporate. It involves three sub-systems including the profitability, asset management capacity and anti-risk ability.

3.3.7 Adaptability. Adaptability is the ability of the corporate to promptly adjust product structure so as to fit to the occurring changes in market supply and demand, propensity to consume as well as technical innovation and progress. It is the key to success in the complicated competitive environment. Bell and Pavitt have pointed out "adaptability is the ability of the corporate to make conscious reaction to the important events, opportunities and external threats at the right time so as to obtain or maintain competitive advantages"^[6]. The enterprises should establish early warning system and response mechanisms, and arm themselves with scientific and effective prevention awareness and measures so as to cope with the market crisis and preclude market risk. The adaptability includes two sub-systems—daily response and emergency response.

4 Conclusion

In summary, the connotation and essence of the core competence of agricultural high-tech corporate is the unique ability and attribute of the corporate to achieve its sustainable competitive advantages in a particular subsistence and development environment. The core competence of agricultural high-tech corporate consists of seven sub-systems, namely corporate culture system, technological innovation system, human resource system, management capability system, corporate production and marketing system, financial capability system

and adaptability system. The systems interact and form an organic and multiple complex system. As shown in the empirical analysis of agricultural high-tech enterprises, three systems, including corporate culture system, technological innovation system and human resource system, take precedence over the other four, within each sub-system there are also a number of elements interacting with each other.

References

- [1] ERICKSON B. Competitive advantage and the core competence of the corporation[M]. Dalian: Dongbei University of Finance & Economics Press, 1998. (in Chinese).
- [2] GUAN YX. The core competence of the corporation; way to strategic management winner[M]. Beijing: China Financial & Economic Publishing House, 2002. (in Chinese).
- [3] LI XD. How to train the core competence of the corporation of China[J]. Modern Management Science, 2003(11): 3–7. (in Chinese).
- [4] WANG BA. Academic trends of the core competence of the corporation[J]. Journal of Fujian Administration Institute, 2000(1): 8–10. (in Chinese).
- [5] ZHAO QH. The core competence of agricultural high-tech enterprise[M]. Beijing: China Agricultural Science and Technology Press, 2008. (in Chinese).
- [6] JIANG HC. The competition following and equilibrium of firms core competence and no-core competence[J]. Science & Technology Progress and Policy, 2009(9): 138–142. (in Chinese).
- [7] YUAN L. Preliminary study on the depth development of rural tourism under the view of integration agriculture[J]. Journal of Anhui Agricultural Sciences, 2009, 37(13): 475–476, 479. (in Chinese).
- [8] PENG XZ. Countermeasures of developing high and new technical agriculture[J]. Journal of Hubei College of Finance and Economics, 2002, 14(3): 16–17. (in Chinese).
- [9] WU KS, DOU XC. Analysis of the influencing factors of grain security in Wuwei City[J]. Journal of Anhui Agricultural Sciences, 2009, 37(23): 392–393, 396. (in Chinese).
- [5] MA XS. Improve the cultural quality of the population, strengthen and improve country education[J]. Jiangxi Educational Research, 2005(8): 7–9. (in Chinese).
- [6] WANG XZ. Study of the relationship between the population quality and the social economic development[J]. Journal of Henan Institute of Education: Philosophy and Social Science, 2007, 26(1): 101–106. (in Chinese).
- [7] LI CY. Research on financing of rural infrastructure construction in the central China[J]. Journal of Tongling College, 2006(6): 33–35. (in Chinese).
- [8] ZHANG QM. Enhancing infrastructure construction to promote development of modern agriculture[J]. Jiangdong Forum, 2007(2): 16–21. (in Chinese).
- [9] ZHANG RM. Exploitation of the road of collaboration between rural education and economic social development[J]. Chinese Rural Education, 2009(5): 41–42. (in Chinese).
- [10] WU GL. Countermeasures of speeding up rural infrastructure construction[J]. Rural Public Finance and Finance, 2009(4): 17–18. (in Chinese).
- [11] WEN JB. Seize the opportunity to promote comprehensive rural reform, in order to provide the system guarantee for building new socialist countryside[J]. Seeking Truth, 2006(18): 3–9. (in Chinese).
- [1] National Bureau of Statistics of China. China statistical yearbook – 2008[M]. Beijing: China Statistics Press, 2008. (in Chinese).
- [2] YUAN JQ. Causes of the agricultural insufficiency investment and countermeasures[J]. Macroeconomics Management, 2005(12): 28–31. (in Chinese).
- [3] LI DS. A serious shortage of agricultural inputs in China[EB/OL]. (2004–03–02). [2009–12–16]. http://www.agronet.com.cn/News/Detail_169868.aspx. (in Chinese).
- [4] ZHANG BS. Agricultural inputs expect legislative guarantee[J]. The People's Congress of China, 2009(3): 14–15. (in Chinese).

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to reduce population pressure and to promote regional development, as well as the fundamental measure to turn population burden into human advantage. The key organization and system guarantees for the development of central area are to reinforce the construction of rural organizations, to strengthen management function of government and to consolidate the construction of agricultural technology development and extension institutions.

References