

Study on Influence of Enterprise Competence, Trust Relationship, and System Environment on the Autonomous Upgrade of Enterprise

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Abstract—In this paper, we take 316 questionnaires from OEM enterprises in Suzhou, Wuxi, Zhongshan, Shenzhen, Huizhou and other places as the research samples. By SPSS software, this paper comprehensively uses reliability, validity test, regulating effect, exploratory factor analysis and other methods to empirically analyze the influence of the foundries' technology power, market power and brand power on their enterprise functional upgrading. This study puts forward the upgrading strategy of OEM enterprises from the perspective of cultivating the "three powers" of the OEM enterprise's technology power, market power and brand power.

Keywords—Enterprise competence; Trust relationship; System environment; Enterprise upgrade

I. INTRODUCTION

Domestic and foreign scholars have conducted a great deal of theoretical and empirical research on how enterprise's competence affects its upgrading, providing theoretical support and empirical reference for the upgrading of enterprise. In the new globalized environment, what is the composition of the competence of OEM, how the system environment of the enterprise affects the conversion of the enterprise's competence and then the upgrading of the enterprise, these questions are pending for further studies. To better understand the inherent mechanism of the enterprise's competence to affect its upgrading, it is necessary to study the regulatory role of the trust relationship and the system environment, which is of important realistic significance for the enterprise's self-construction and competence selection and the realization of enterprise upgrading. This study takes trust relationship and system environment as the regulatory variables between enterprise competence and its upgrading to test the regulating effect of the environmental variables.

II. LITERATURE REVIEW AND RESEARCH ASSUMPTIONS

Kaplinsky [1] argues that enterprises in different positions of the value chain have the corresponding power. The power organization coordinates the value creation activities of the enterprises in the value chain and carries out the value distribution. Technical competence and brand competence are the main sources of market power concentration of the world leading enterprises, as well as the decisive factors in determining the value distribution of the global value chain. The key to the upgrading of OEM enterprises in developing countries embedded in the global value chain lies in their

absorptive capacity and learning speed, changing timing, position, scale and growth opportunities in the global value chain [2]. According to the previous explanation and analysis of the theoretical basis of the model, combined with the development characteristics of OEM enterprises, this study takes technology power, market power and brand power these three kinds of power as the main contents for the construction of OEM enterprises competence, and further studies how these powers affect the upgrading of OEM enterprises.

A. The hypothetical relationship between technology power and OEM enterprise upgrading

The technology power is an important driving force for the upgrading of OEM enterprises. This study considers that there are two aspects in the technology power of OEM enterprise upgrading: technical power and technical ability. In the global value chain, foundries with more advanced technological experience, professional knowledge and innovative abilities are more depended technically and have relatively stronger technical power; and their technical power grows with the identification and application of technical opportunities [3]. Under full competition situation, the technology acquired by foundries can obtain short-term market power but would disappear soon [4]. Patents have created great monopoly power in the industry [5], which gives power to multinational corporations in the value chain and causes foundries to enter the high-end barriers and catch-up traps in the value chain. The technical standards are affecting the operational efficiency of the enterprises, and their setters' mandatory intervention of the controller has affected the products and the upgrading process of the enterprises [6]. Based on above analysis, this paper presents the following hypothesis:

H1: the intensity of technology power of the OEM is positively correlated to its functional upgrading.

B. The assumption of market power and OEM enterprise upgrade

The research on the OEM enterprises' market power is different from the pricing behavior of the traditional monopoly enterprises. OEM enterprises can also form some market forces in the market, so as to obtain more profits. An enterprise with market power can change the sales of its competitors by changing prices or promotions [7]. Liu Zhibiao [8] thinks that the upgrade of OEM enterprises will encounter the dual blocks of the technological forces possessed by the

multinational companies in developed countries and the market power of international buyers. OEM enterprises may choose to form a domestic market value chain based on the huge domestic market, establish a "regional" value chain and cultivate domestic market power. According to above analysis, this paper presents the following hypothesis:

H2: the intensity of market power of the OEM is positively correlated with its functional upgrading.

C. The hypothetical relationship between the brand power and OEM enterprise functional upgrading

Customer-based brand power reflects the values, power structure, and long-term market dominance of technology excellence. The financial value of a brand depends on its "brand strength," namely its strength of customer franchise [9]. It's because small businesses must often rely on networks and word-of-mouth to build strong, profitable and unique associations [10]. Through branding, the foundries can create, cultivate and innovate their market assets, foster the brand awareness and consumer brand equity such as reputation to enhance and control the trust of customers, as well as create profits for the foundries. Based on above analysis, this paper presents the following hypothesis:

H3: the intensity of brand power of OEM is positively correlated with its functional upgrading.

D. The regulatory role of trust relationship

According to the social embeddedness theory, trust is the foundation for the foundries to cooperate with other enterprises and members. Mutual trust can reduce the constraints of both parties and is also the key factor for the growth of the OEM enterprises. McAllister [11] divided trust into emotional trust and cognitive trust. Nooteboom [12] divided trust into motivated trust and non-self-interested trust, which is the connection and dependence established by long-term cooperation between the two parties. Stronger trust relationship can reduce cost in the profit, recognition, power and other aspects that brought by sharing, it can meet the psychological or exchange expectations of both parties [13], as well as gradually establish the related power scope of the OEM enterprises. Based on above analysis, this paper presents following hypotheses:

H4: The role of OEM's technology power on its functional upgrading is regulated by the trust relationship, the better the trust relationship, the higher level of its technology power, the more conducive to promote the functional upgrading of the OEM enterprises.

H5: The role of OEM's market power on its functional upgrading is regulated by the trust relationship, the better the trust relationship, the higher level of its market power, the more conducive to promote the functional upgrading of the OEM enterprises.

H6: The role of OEM's brand power on its functional upgrading is regulated by the trust relationship, the better the trust relationship, the higher level of its brand power, the more conducive to promote the functional upgrading of the OEM enterprises.

E. The regulatory role of the system environment

The system environment in which the foundries are situated is an important factor affecting the strategic decision-making of OEM enterprises. The system environment formed by relevant systems such as the innovation system of the country (region), innovation policies, science and technology system, intellectual property protection system, contract system and industry standards etc. The system environment is conducive to promoting more R&D investment in foundries, stimulating the entrepreneurs' innovation spirit and realizing technological upgrading of the foundries. The market environmental factors are important factors in forming a favorable environment for the market and brand promotion of the foundries, including formal system environment such as RMB appreciation, incentive policies, tax advantages, trade barriers, property rights system, subsidy system, drawback on export tax, financing system, market access system, antitrust system, etc, and informal system environment such as rights, contracts, ethics and moral awareness [14], etc. Based on above analysis, this paper presents the following hypotheses:

H7: The role of OEM's technology power on its functional upgrading is regulated by the system environment, the better the system environment, and the higher level of its technology power, the more conducive to promote the functional upgrading of the OEM enterprises.

H8: The role of OEM's market power on its functional upgrading is regulated by the system environment, the better the system environment, the higher level of its market power, the more conducive to promote the functional upgrading of the OEM enterprises.

H9: The role of OEM's brand power on its functional upgrading is regulated by the system environment, the better the system environment, the higher level of its brand power, the more conducive to promote the functional upgrading of the OEM enterprises.

To summarize above assumptions, the theoretical framework of this study is shown in Fig. 1.

III. RESEARCH DESIGN AND METHODS

A. Sample selection and questionnaire design

The research objects of the questionnaires are also the research objects of this study, namely OEM enterprises with a self-willingness of upgrading which have accumulated certain resources and abilities, and are preparing for functional upgrading. These enterprises mainly engaged or are engaging in OEM manufacturing; the types of these enterprises include state-owned companies, Sino-foreign joint ventures, small and medium-sized enterprises. Finally, there are 322 returned questionnaires, after deleting the ones with incorrect answers, or incomplete information, or unmatched company type, we got 316 valid questionnaires in the end, and the qualification rate of the returned questionnaires was 91.68%.

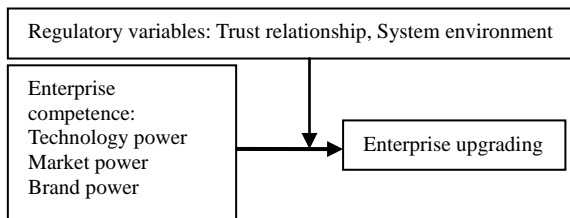


Fig. 1. Study model diagram

B. Measurement of variables

With reference to the theoretical and empirical research in the fields of enterprise upgrading and enterprise competence, this study designed a relevant research scale. The enterprise survey questionnaires include enterprise competence, trust relationship, system environment and enterprise upgrading, all three aspects, with a total of 54 indicators. The measurement of variables of this study were designed using 7-level subjective perception Likert scale method (Likert scale), 7-level scales and scoring method were chosen to prevent over-skewness in the measurement data.

IV. DATA ANALYSIS AND HYPOTHESIS TESTING

A. Test of reliability and validity

The measurement scale of this study is based on collecting the results of relevant researches, combining with interview results to make appropriate changes in the mature scales of existing studies, which to some extent provides better reliability and validity to the measure of the variables. In the meantime, this study uses SPSS 21.0 software to conduct related tests; the results are shown in Table I. First of all, the Cronbach's α values of all dimensions are above 0.800, showing that the reliability of the scale is at a high level. Therefore, it can be inferred that the questionnaire design is credible. Second, the KMO values in all dimensions of the questionnaire were all above 0.700, much higher than the lowest standard of 0.500. The significance of the spherical test in each dimension was observed, and Sig values were all 0.000 highly significant. After factor analysis, the lowest explained variance is 66.714%, higher than the standard of 50%; After orthogonal rotation, analyze factors in each dimension, by extracting a common factor in each dimension to further observe the load of each dimension factor we can know that, the lowest load is 0.758, far higher than the lowest standard of 0.300. According to the test results of the validity analysis, the structural validity of the questionnaire design is completely qualified.

TABLE I. RELIABILITY ANALYSIS RESULTS OF MEASURING TOOLS (N = 316)

Variable type	Item (Outline)	Cronbach's α coefficient	Variable type	Item (Outline)	Cronbach's α coefficient
Technology power		0.914	System environment		0.942
	Emphasis on intellectual property	0.908		Reduce tax burden on enterprises	0.921
	Apply for patents in the field of expertise	0.912		Simplify the process	0.921
	Competition of technical standards	0.900		Development of intermediary organizations	0.942
	Industrial intellectual property system	0.898		The degree of development of the product market	0.922
	Related patent federation	0.902		The degree of development of the factor market	0.921
	Formulation of industry standards	0.913		Broaden the financing channels	0.924
	Leading the introduction of new products	0.908		Tax-free, tax-cut, interest subsidy	0.916
	Competitive core technology	0.900		Talent education and training system	0.924
	Complementary resources	0.907		Technical standards	0.920
	Improve production, technological process	0.916		Foster innovative culture	0.923
Brand power		0.918		Performance of legal system	0.925
	High brand reputation	0.896	Trust relationship	Exchange information and resources	0.888
	Unified brand positioning	0.914		Carry out cooperation projects	0.895
	Purchase intention of premium	0.898		Share information and resources	0.886
	Unique brand image	0.920		Strictly perform the contractual duties	0.911
	Brand gets more popular	0.903		Verbal agreements accountability	0.921
	Leader in product categories	0.901		Timely provision of services	0.916
	Welcome because of innovation	0.905	Functional upgrading		0.948
	Cost-effective products	0.892		R&D and marketing departments	0.941
Market power		0.942		Product R&D technology	0.946
	Market research capacities	0.929		Has core technologies	0.939
	Matching extent of new products	0.932		New product development	0.937
	Pricing power	0.940		Product R&D capacities	0.940

Cont. to TABLE I

Cooperation, alliance	0.926	Collaborative development of new products	0.941
Market management innovation level	0.930	Promotion department or function	0.940
Channel leadership status	0.928	The speed of new products promotion	0.939
Larger market share	0.928	Influence on the terminal market	0.941
Affect marketing strategies of the competitors	0.938	Improve customer satisfaction	0.943

TABLE II. REGRESSION ANALYSIS OF THE RELATIONSHIP BETWEEN THE OEM ENTERPRISE'S DRIVING FORCE AND ITS FUNCTIONAL UPGRADING (N = 292)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Constant term	59.854***	64.332***	64.332***	59.840***	59.196***	59.736***	61.314***	59.985***	59.957***
Control variables									
Enterprise type	.366	.251	-.146	.318	.390	-.085	.129	.138	.064
Predictive variables									
Technology power	.783***			.431***			.391***		
Market power		1.006***			.768***			.641***	
Brand power			1.141***			.679***			.585***
Regulatory variables									
Trust relationship				.760***	.417**	.698**			
Technology power * Trust relationship				.002					
Market power * Trust relationship					.015***				
Brand power * Trust relationship						.021***			
System environment									
Technology power * System environment							.421***	.296**	.405***
Market power * System environment								.002**	
Brand power * System environment									.004
Model Statistics									
R ²	.689	.818	.748	.808	.832	.801	.880	.854	.843
R ² after adjustment	.678	.812	.739	.794	.820	.786	.871	.843	.831
Statistics	62.014***	126.067***	83.018***	56.871***	67.072***	53.232***	99.210***	79.123***	71.111***
Conclusion									
Conclusion	Obvious	Obvious	Obvious	Not obvious	Obvious	Obvious	Obvious	Obvious	Not obvious
Assumption									
Assumption	Valid	Valid	Valid	Invalid	Valid	Valid	Valid	Valid	Invalid

B. Correlation analysis

All variables were correlated and all were significantly correlated at P < 0.05 and above, confirming the rationality of previous hypotheses.

C. Test results

This paper draws on the analytical methods of the regulatory variables of Wen Zhonglin et al. (2005) to study the regulatory role of trust relationship and system environment on the driving force and functional upgrading of the OEM enterprises. According to the previous research assumptions, nine test models are established accordingly. The test results of the models are shown in Table II, and then the significance of the regulating effect is judged according to the trend of sig value and R2 value of the test results. According to Table II, the influence of the control variable "enterprise type" on the dependent variable "functional upgrading" is not significant.

V. CONCLUSION

This study discusses the issues of OEM enterprises' independent innovation and brand creation from the perspective of enterprise powers. In practice, the OEM

enterprises would also seek upgrading strategies actively, but they are under huge pressure and facing the unpredictability of the future, so they are lacking of confidence in implementing the strategies.

A. The regulatory role of trust relationship on the driving force and functional upgrading of the OEM enterprises

The influence of OEM enterprises' technology power, market power and brand power on the upgrading of enterprise functions is regulated by the trust relationship between the enterprises and their network members. In-depth study found that the significance of regulatory role of the trust relationship is different from the attribute of driving force. The influence of trust relationship on the technology power and the foundries' functional upgrading is not obvious. For the OEM enterprises, it's necessary to distinguish the imitation technologies from the independent technological innovation; their difference is in establishing broader trust relationship network, not limited to the trust and dependence on the technical aspects of multinational corporations. The influence of trust relationship on the market power, the brand power, and the foundries' functional upgrading is significant. The trust relationship can alter the communication context between the OEM enterprises

and their partners, so as to help them obtaining more information for their functional upgrading. As business functions continue to improve, the customer loyalty and brand awareness are increasing, the foundries would have more opportunities to cooperate with better external resources and to attract excellent technologies and marketing talents, the regulatory role of the trust relationship will be reflected in the upgrading of enterprises from many aspects.

B. The regulatory role of system environment on the driving force and functional upgrading of the OEM enterprises

This study confirms that the system environment can regulate the influence of the driving force and functional upgrading of the OEM enterprises. The establishment of system environment comes from the law, culture, economy, politics, science and technology, finance and other aspects, which is three-dimensional management from the state to the local government. In an unstable external environment, the system environment is of particular importance. Appropriate system environment can provide the OEM enterprises with upgrading conditions and direction guidance, and it can reduce the resistance of enterprises upgrading; narrow the gap with multinational corporations. Enterprises with a strong desire to upgrade are more dependent on the system; they take the initiative to make use of the favorable factors of the system environment to shape their competence, and the role of system environment changes from pulling force to the driving force. The government would also change the upgrading willingness of the enterprises by altering the systems, so as to promote the implementation of relevant policies more efficiently than expected.

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