

Impact of Dynamic Capability on Enterprise Growth Performance under Environmental Dynamism

Yan Chao, Yoonhee Kang

Department of Business Administration, Tongmyong University, South Korea,
yan729yong@gmail.com; yhkang@tu.ac.kr

Abstract. Enterprise practice faces an important challenge in understanding and utilizing dynamic capabilities to adapt to the dynamics of the competitive environment. Furthermore, it became the focus of academic research. However, the existing research mainly focuses on large and medium-sized manufacturing enterprises, and the research on the dynamic capabilities of technology-based SMEs (small and medium-sized enterprises) is relatively scarce. The fundamental building blocks of national economic development are technology-based SMEs, and these enterprises' dynamic capabilities are crucially important from a strategic perspective for promoting innovation in businesses and regions. Based on analyzing scholars' research on dynamic capabilities, this study adds environmental dynamism as a moderator. It examines the relationship between technology-based SMEs' dynamic capabilities or the ability to sense, seize and reconfigure enterprise growth performance. The area of the questionnaire survey is mainly concentrated in the small and medium-sized technology-based enterprises in Shandong Province. The object of the questionnaire survey is the small and medium-sized scientific and technological enterprises in Shandong Province. We use regression analysis for empirical research. The results show that enterprises with dynamic capabilities can effectively promote the development of enterprise growth performance. When an industry faces a highly volatile environment, dynamic capabilities can facilitate business growth by enhancing its ability to respond to changes in the environment.

Keywords: dynamic capability, enterprise growth performance, environmental dynamism, technological SMEs.

1. Introduction

Research in strategic management has traditionally been focused on how an enterprise maintains a sustainable competitive advantage. The resource-based view and the core competency view were the two main theories to explain this for a very long period. These two theories emphasize the importance of core competency elements such as unique resources and core technologies within an enterprise to enterprise growth. However, with the development of social technology and the emergence of global competition, the environment that enterprises face is increasingly chaotic and unpredictable. Old resources and capabilities become obsolete and become a negative force that hinders the growth of new capabilities, resulting in the problem of "Core Rigidities." These theories cannot explain why some companies perform better than others in a dynamic market competition environment. Thus, the dynamic capability theory came into being.

The era of innovation 2.0 has changed enterprises' market demand and business environment (Collins et al., 2021; Singg 2019). The environment becomes more complicated and dynamic as social rivalry deepens. For technology-based SMEs, the funds, technology, and other resources available in the organization are limited, and it is generally difficult to have strong R&D (research and development) capabilities. They can only improve reaction speed to external information and resource utilization efficiency with dynamic capabilities. Therefore, the construction of dynamic capabilities such as flexible operating mechanisms and management processes is crucial for technology-based SMEs. In light of this, academic research has turned its attention to the question of how to build dynamic capabilities that may compensate for a lack of personal resources. However, most research focuses on large manufacturing companies or mature companies. Hence our understanding of the dynamic capability of technology-based SMEs is limited. Therefore, this paper focuses on two questions: First, what impact do the three dimensions of dynamic capabilities have on the growth performance of technology-based SMEs? Second, whether environmental dynamics will enhance the impact of dynamic capabilities on enterprise growth performance?

2. Theoretical background

2.1. Enterprise growth performance

Different scholars have different definitions of enterprise growth. Peng and Luo (2000) believed that the expansion of the original organizational business reflects the enterprise's growth. Tippins and Sohi (2003) believe that enterprise growth is a process, a trend, and takes a long time to emerge. Zhang Zhengang (2014) and Andon et al., (2019) defined enterprise growth as the sum of the work results achieved by the organization at a specific time. Performance is the core of management and the ultimate goal of all organizations. Based on the literature review, scholars mainly

define growth performance from process and results. The process perspective focuses on quantity accumulation, and the result perspective focuses on improving quality. High-tech enterprises are typically intelligence-intensive and have high intelligence traits as compared to traditional enterprises. Therefore, the growth performance of high-tech enterprises comes not only from financial factors but also from the intellectual factors possessed by the enterprise. The evaluation of growth performance cannot ignore the important influence of non-financial factors such as intelligence. The composition of growth performance of high-tech enterprises should include non-financial factors, which is a combination of all important factors. The primary focus of this PAPER is on the impact of three dimensions on corporate performance, with a particular emphasis on defining its connotation from the perspectives of results and non-financials. Enterprise growth performance is defined as "the output and results of an enterprise within a period," which is consistent with the definition of enterprise growth in the research of Wu (2010) and other scholars. Through a review of the literature, it was discovered that domestic and international scholars are currently focusing their research on enterprise growth on the relationship between resource-based views and performance, on the growth of family businesses and new ventures, or on the growth of technology-based SMEs. Therefore, the research on the dynamic capabilities of technological SMEs and the mechanism of enterprise growth will enrich the practical basis for enterprise growth.

2.2. Dynamic capability and Enterprise growth performance

The growth of an enterprise is manifested in the acquisition of a sustainable competitive advantage. In different periods of enterprise development, the sources of sustainable competitive advantage vary. The resource accumulation perspective and the core competence perspective of the capability school cannot explain the basis of the enterprise's competitive advantage under the contingency theory. On the basis of previous research, Teece (1997) first proposed the concept of dynamic ability. He believes that there is ability for enterprises to adapt to changes in the environment, which comes from the integration of enterprise information and relationships. Since then, many scholars have defined dynamic capabilities from different perspectives. Teece (2007) proposes a dynamic capability framework that includes perceiving information, seizing opportunities, and reconfiguring their intangible and tangible assets. Malik Kotabe (2009) argues that dynamic capabilities are embedded in processes such as organizational learning, reverse engineering, and manufacturing flexibility in emerging market firms. Chien & Tsai (2012) analyzed the difference between conventional capabilities and dynamic capabilities, arguing that conventional capabilities help companies gain existing competitive advantages, and dynamic capabilities play a role in operating conventional capabilities, which are a series of knowledge accumulation and interaction. process. Denford (2013) believes that the formation of dynamic capabilities is based on knowledge innovation and application, including both the understanding of current knowledge and the

understanding of new information. The ability based on the alternating cycle of old and new knowledge is dynamic capability. Combining previous studies and the purpose of this study, the research of Teece et al. (2007) is used to divide dynamic capabilities into sensing, seizing, and reconfiguring.

The ability to sense is the capacity to scan and investigate local and foreign markets and technologies, primarily involving investment research activities, examining potential customer needs, trends in industry and market structures, and gaining an immediate understanding of responses from suppliers and competitors. Once a new opportunity is perceived, new commercialization investments, such as new products, processes, or services, are required to seize it. This is the ability to seize the opportunity. It mainly includes the choice of investment decisions and organizational innovation. Investment decisions are reflected in the timing and scale of corporate investment. Organizational innovation mainly includes selecting product architectures and business models to define the value delivered to customers. The combination of the two is indispensable. The process of calibrating the market, identifying opportunities, and investing resources into the right opportunities has laid a long-term foundation for the future of the enterprise. In the ever-changing market and technology, the key to the continuous growth of enterprises is to reconfigure resources and organizational structure. It mostly entails enhancing the management structure, which brings managers' decision-making closer to customers and the marketplace, and redesigning the everyday transaction process, etc.

The capability to reconfigure relationships and resources to adapt to environmental changes faster and more agilely than other competitive enterprises, or dynamic ability, is one of the secret weapons for obtaining sustainable competitive advantages and achieving good enterprise performance, according to numerous theoretical and empirical studies. The research of Wang & Ahmed (2007) shows that the benign effect on the growth of enterprises should be revealed by observing the long-term performance of enterprises. The empirical research of Chinese scholar Hu Wangbin et al. (2009) showed that dynamic capabilities can help new firms outperform competitors in terms of growth levels. Liu Gang et al. (2013) conducted a survey on medium-sized enterprises in China, recovered a large amount of primary data, and after analyzing the relevant data, came to the conclusion that enterprises should focus on building dynamic capabilities that adapt to the environment, such as coordination, integration and innovation. Hsu and Wang (2013) also proposed that dynamic capability can improve the business to update its resources and knowledge, through which an organization can restructure operating routines to help the enterprise achieve superior performance and growth. Therefore, we make the following assumptions:

H1: The dynamic capabilities of technology-based SMEs are related to enterprise growth performance.

H1.1: Sensing is related to enterprise growth performance.

H1.2: Seizing is related to enterprise growth performance.

H1.3: Reconfiguring is related to enterprise growth performance.

2.3. Moderating effect of environmental dynamism

With the development of dynamic capability theory, some researchers have found that dynamic capability has different effects on enterprise performance under different conditions. To a large extent, these different conditions are reflected as the influence of dynamic capability situational factors. Therefore, studying the impact mechanism of enterprise dynamic capability on performance from a contingency perspective is significant.

Some scholars have proposed that the dynamic of the environment in which the enterprise is located is likely to be the situational component determining the link between the two in the studies done on dynamic capability and enterprise performance. Environmental dynamics refers to a state in which the external environment is constantly changing, and this change is unpredictable. Scholars generally divide environmental dynamics into multiple dimensions for research. Kohli (1993) divides environmental dynamics into technological dynamics and market dynamics.

Customer dynamics are problematic due to market dynamics, which speed up technical developments in the sector and make it impossible to foresee the route of technological progress. Differences in preferences are accelerating, making it difficult for companies to grasp customer satisfaction in a short period accurately. Eckhardt (2003) pointed out in his research on entrepreneurial opportunities that environmental dynamics is the precondition for opportunity identification. Powell (1987) pointed out that the external environment is the leading factor in changing corporate behavior **错误!未找到引用源。**, and changes in corporate behavior will lead to adjustments in the company's internal organizational structure, ultimately affecting the company's business performance.

Wu (2010) surveyed 253 enterprises in Taiwan and pointed out that although the resource-based view is effective in some aspects, in a turbulent environment; dynamic capabilities have more significant effect on business performance. In other words, companies with dynamic capabilities are easier to achieve long-term development in the tumultuous technology and market. Jiao Hao (2013) further pointed out that environmental variables mediates the effect of dynamic capabilities on corporate performance, and the more turbulent the environment, the more significant the positive correlations between dynamic capabilities and corporate performance **错误!未找到引用源。**

A company may not need dynamic capabilities in a relatively stable environment because its construction costs may outweigh the benefits. However, in a turbulent

environment, companies gradually lose resource advantages. Companies must focus on products and processes innovation, explore new markets, and find new ways to compete (Makadok, 2001). Thus, we make the hypothesis as follows:

H2: Environmental dynamism mediates the effect of dynamic capability on enterprise growth performance.

H2.1: Environmental dynamism mediates the effect of sensing on enterprise growth performance.

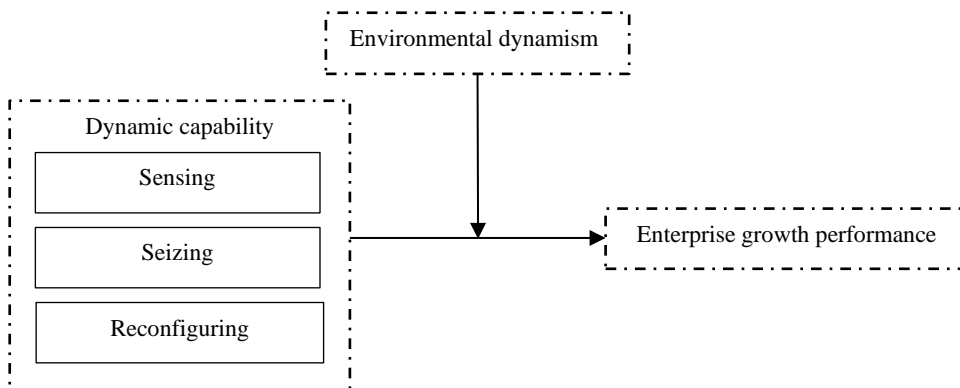
H2.2: Environmental dynamism mediates the effect of seizing capacity enterprise on growth performance.

H2.3: Environmental dynamism mediates the effect of reconfiguring on enterprise growth performance.

2.4. Theoretical framework

This study proposes a measurable dynamic capability model by conceptualizing, streamlining, and quantifying dynamic capabilities 错误!未找到引用源。 . Specifically, we identified a set of capabilities—sensing, seizing, and reconfiguring—that enables enterprises to respond quickly to changes in the market and relationships, and upgrade the capital of SMEs, as shown in <Fig. 1>.

Fig.1: Theoretical framework.



3. Research Methods

2.5. Sample collection

The questionnaire in this paper is evaluated by the five-item Likert-type scale. The questionnaire survey procedure began on March 7, 2022, and it lasted 57 days. Our sampling strategy includes all high-tech SMEs located in Shandong Province, China. Survey data were collected from the EMBA and MBA class students in Shandong Province. They are the middle and senior management of the enterprise. The questionnaires were filled out voluntarily anonymously. A total of 400 questionnaires

were distributed, and 314 questionnaires were recovered, with a recovery rate of 78.5%. A total of 271 valid questionnaires were obtained after excluding the questionnaires with missing, multiple, or obvious random selections.

Most of the respondents in this survey are aged 25-40 group (70%) educated with college and undergraduate degrees comprised 84.5%, with less than ten years, accounting for 80.8%. In terms of enterprise-scale, the highest is 51-100 employees, accounting for 37.64%, followed by less than 50 employees, accounting for 22.14%; in terms of industry nature, there are distributions in various industries, mainly concentrated in software development and information technology, accounting for 31.73% and 24.72%; in terms of enterprise age, it is primarily focused on 3-15 years, accounting for 64.5%. Consequently, the survey data are evenly distributed, and the responding firms appear representative of the study population.

Table 1: Descriptive statistical analysis of human demography

	Items	Count	Column N %
Age	under 25	8	2.95%
	25-30	84	31.00%
	31-35	28	10.33%
	36-40	77	28.41%
	41-45	42	15.50%
	Over 46	32	11.81%
Education	Below senior high school	4	1.48%
	Senior high school	18	6.64%
	community college	108	39.85%
	College (4 years)	121	44.65%
	Graduate or above	20	7.38%
Tenure	less than 5 years	127	46.86%
	5-10 years	92	33.95%
	11-20 years	37	13.65%
	more than 21years	15	5.54%
Industry	Manufacturing	22	8.12%
	information Technology	67	24.72%
	biomedicine	34	12.55%
	New energy and new materials	41	15.13%
	software development	86	31.73%
	other	21	7.75%
Number of employees	under 50	60	22.14%
	51-100	102	37.64%
	101-200	51	18.82%
	201-300	45	16.61%
	301-500	13	4.80%

Years of establishment	less than 3 years	8	2.95%
	3-5 years	57	21.03%
	6-10 years	111	40.96%
	11-15 years	46	16.97%
	16-20 years	23	8.49%
	more than 21years	26	9.59%

2.6. Variable measurement

The current research does not have a unified standard for the measurement of dynamic capability. According to the literature review and the definition of the dynamic capability of technological SMEs, this paper adopts the scale of Wilden (2013) to measure the perception capability, using four items such as "industry information or market information can be widely disseminated within the enterprise". The acquisition ability is measured with 4 items such as "investment decision-making is led by customers looking for solutions", and the reconstruction ability is measured with 4 items such as "being able to adjust working methods and management models in a timely manner according to the needs of development". According to a study by Hill and Jone (2007), the growth performance of the company is determined by four variables, one of which is "our firm innovates quicker than the competitors." For the measurement of environmental dynamics, this study mainly refers to the scales compiled by Jaworski and Kohli (1993) and uses seven items such as "the technology update speed of the industry in which the enterprise is located" to measure.

2.7. Validity and reliability of variables

As shown in Table 2, the Cronbach's α value for all five dimensions exceed 0.7, indicating acceptable reliability. In addition, the KMO value is 0.874, greater than 0.7, which means the data is valid. After rotating with verimax method, the cumulative variance explanation rate is 71.451%, which is greater than 50%. It shows that the interpretability of extracting common factors is good. Overall, the results obtained by the rotation component matrix are consistent with the scales and dimensions divided by the research design. Moreover, the loading value of each item in each latent variable is more significant than 0.5. Therefore, the validity of the questionnaire is high, and the questionnaire is effective. Follow-up research analysis can be carried out.

Table 2: Factor analysis results of research variables

Title	Communality	Factor name					Conbach's Alpha
		Sensing	Sensing	Reconfiguring	Performance	Environment	
Sensing1	0.563	0.592					0.833
Sensing2	0.646	0.629					
Sensing3	0.819	0.877					
Sensing4	0.79	0.873					
Seizing1	0.766		0.856				0.803
Seizing2	0.684		0.723				
Seizing3	0.695		0.797				
Seizing4	0.593		0.747				
Reconfiguring1	0.653			0.693			0.881
Reconfiguring2	0.778			0.81			
Reconfiguring3	0.777			0.784			
Reconfiguring4	0.759			0.733			
Performance1	0.815				0.881		0.917
Performance2	0.731				0.824		
Performance3	0.808				0.886		
Performance4	0.836				0.885		
Environment1	0.625					0.773	0.906
Environment2	0.765					0.825	
Environment3	0.711					0.808	
Environment4	0.614					0.584	
Environment5	0.747					0.732	
Environment6	0.608					0.704	
Environment7	0.652					0.647	
Eigenvalue		4.557	3.519	3.132	2.665	2.56	
Variance ratio		19.814	15.301	13.618	11.586	11.131	
Cumulative proportion of variance		19.814	35.116	48.734	60.32	71.451	
KMO					0.874		
Bartlett sphericity test	Chi-square					4121.94	
	Degree of freedom					253	
	Significance test					0.000	
*p<0.05, **p<0.01, ***p<0.001							
Factor loading method Principal Component Analysis Verimax Method							

3. Empirical Analysis

3.1. Relevant analysis

The correlation analysis uses the Pearson correlation method to obtain the correlation coefficients of each dimension of dynamic capability, enterprise growth performance, and environmental dynamics, as shown in Table 3. The correlation coefficients between each dimension of dynamic capability and enterprise growth performance

are significant. Specifically, the correlation coefficient between sensing and the growth performance of SMEs is 0.454, the correlation coefficient between seizing and the growth performance of SMEs is 0.598, and the correlation coefficient between Reconfiguring and the growth performance of SMEs is 0.579. Hence, the correlation coefficient between each dimension of dynamic capability and enterprise growth performance is positive, indicating a positive correlation between dynamic capability and enterprise growth performance. The stronger the dynamic capability, the higher the level of enterprise growth performance.

Table 3: Correlation analysis

Variable	Sensing	Seizing	Reconfiguring	Growth performance	Environmental dynamism
Sensing	1				
Seizing	0.380**	1			
Reconfiguring	0.410**	0.353**	1		
Growth performance	0.454**	0.598**	0.579**	1	
Environmental dynamism	0.356**	0.320**	0.322**	0.260**	1

Note: **p<0.01 , *p<0.05

3.2. Moderation effect test

We employed moderated multiple regression to further explore the impact of dynamic capabilities on enterprise growth performance and investigate the dynamism of the environment. We found that sensing ability is positively related to enterprise growth performance ($\beta=0.429$, $p<0.001$). Seizing and reconfiguring also have a significant predictive effect on enterprise growth performance. After adding the interaction term, the explanatory degree of the corresponding variable increases, ΔR^2 is significant. The regression coefficients of the interaction items "sensing*environmental dynamics" and "reconfiguring*environmental dynamics" are not significant, but the regression coefficient of the interaction term "seizing*environmental dynamics" was significant ($\beta=0.837$, $p<0.05$). It can be seen that environmental dynamics have no moderating effect on sensing, reconfiguring ability, and enterprise growth performance. However, environmental dynamism has a moderating impact on seizing ability and enterprise growth performance.

Table 4: Regression analysis

	Model 1			Model 2			Model 3		
	B	β	P-Value	B	β	P-Value	B	β	P-Value
constant	1.404		0.031	1.394		0.017	4.538		0.001
Sensing	0.481	0.429	0.000	0.477	0.425	0.000	0.152	0.136	0.661
Seizing	0.297	0.219	0.000	0.293	0.214	0.000	0.409	0.503	0.037
Reconfiguring	0.388	0.385	0.000	0.261	0.191	0.000	0.004	0.004	0.988
Environmental dynamism				0.041	0.038	0.630	0.900	0.831	0.036
Sensing* Environmental dynamism							0.102	0.570	0.366
Seizing* Environmental dynamism							0.144	0.837	0.011
Reconfiguring* Environmental dynamism							0.012	0.077	0.880
R ²	0.495			0.512			0.857		
adjusted R ²	0.491			0.506			0.855		
ΔR^2	0.495			0.017***			0.345**		
F	158.462			316.137			494.393		
Sig	0.000			0.000			0.000		
P<0.1*,P<0.05**,P<0.001***									

4. Research result and Discussion

4.1. Summary of research hypothesis

Regression analysis was carried out through SPSS25.0 to verify the proposed six hypotheses. The specific results are shown in Table 5.

Table 5: Summary of research hypothesis

Research hypothesis		The verification results
H1.1	Sensing is related to enterprise growth performance	Is accepted
H1.2	Seizing is related to enterprise growth performance	Is accepted
H1.3	Reconfiguring is related to enterprise growth performance	Is accepted
H2.1	Environmental dynamism plays a moderating role in the relationship between sensing and enterprise growth performance	Is not accepted
H2.2	Environmental dynamism plays a moderating role in the relationship between seizing and enterprise growth performance	Is accepted
H2.3	Environmental dynamism plays a moderating role in the relationship between reconfiguring and enterprise growth performance	Is not accepted

4.2. Discussion

The empirical analysis verifies the positive effect of the three dimensions of dynamic capabilities of technology-based SMEs on the growth performance, hence H1.1, H1.2, and H1.3 receive support. The conclusions of this study are consistent with those of Pavlou & Elsayy (2011). However, they differ from this paper regarding the dimensional division of dynamic capabilities and the research objects. Firms that can rapidly identify customer needs, seize market opportunities, and reconfigure their strategic resources can pay more attention to the full mobilization of external resources such as partners, customers and even competitors in a fiercely competitive environment and make updates to prepare your business for its next opportunity.

The empirical results show that the environmental dynamism has no significant moderating effect on the sensing ability, reconfiguring ability, and growth performance of technology-based SMEs. Environmental dynamics mediates the effect of seizing capability on firm growth performance. It means environmental dynamics can enhance the impact of seizing capabilities on firm growth performance. When the market and technology change, technology-based SMEs can quickly make decisions based on evaluating their resources and capabilities, grasp market opportunities, and cater to market demands due to their flexible organizational structures to achieve outstanding performance.

5. Conclusion

5.1. Findings and implications

According to the data analysis results, this paper draws the following conclusions. The three dimensions of dynamic capabilities significantly correlate with firm growth performance. Dynamic capabilities can help companies integrate resources and create value in a complex and turbulent environment to gain a competitive advantage, as well as help companies to observe environmental changes and identify customers.

To fulfill the demands of the company's sustainable growth, it is necessary to understand consumer wants, identify market possibilities opportunities, and quickly put implement strategic solutions into action. First, sensing is conducive to improving the technological growth performance of technology-based SMEs. By sensing market and customer needs, generating market intelligence, and disseminating and interpreting market intelligence, technology-based SMEs can respond to market intelligence, such as pursuing specific market segments.

Second, seizing is conducive to improving the growth performance of technology-based SMEs. The architecture and business model of a product are chosen, which aids in defining the value provided to customers and accelerating profit conversion. It also aids in choosing enterprise boundaries for co-specialization and access to complementary assets, as well as in developing loyalty and commitment to lessening decision-making errors.

Third, reconfiguring can also significantly improve the growth performance of technology-based SMEs. Reconfiguring enables enterprises to effectively integrate key information in the Micro-Innovation Market, and helps enterprises to improve and adjust organizational processes and business practices that do not match environmental changes, thereby promoting the improvement of enterprise growth performance.

Thus, it can be seen that the key to promoting enterprise growth is to build dynamic capabilities. The essence of dynamic capabilities is to update the core resources and key ability of the enterprise continuously, and it is the ability to "change capabilities." In the era of innovation 2.0, technology-based SMEs must focus on the construction of dynamic capabilities and fully mobilize external knowledge, realize the internalization of external expertise, and the optimization of overall knowledge to achieve sustainable competitive advantages. Meanwhile, they should expand the adjustable range of enterprise resources and the total amount of knowledge, overcome "core rigidity," and achieve a balance between cultivating existing capabilities and building new capabilities.

The findings of this study also indicate that environmental dynamics mediates the effect of the seizing ability on enterprise growth performance of technology-based SMEs. Environmental dynamics will strengthen the role of acquisition capabilities on the growth performance of technology-based SMEs. Seizing an opportunity involves an assessment of existing and emerging capabilities and the most likely market acceptance of possible investments. As the turbulence of the external environment increases, companies will correspondingly improve the flexibility and openness of their response to environmental turbulence, which will enhance the decision-making efficiency of the company and thus improve the company's performance.

5.2. Limitations and future research directions

The analysis used in this study is constrained because it is based only on data from Shandong Province. Although this can reduce the impact on statistical analysis due to differences in the degree of economic development, it also reduces the scope of applicability of the conclusions of this study. The influence of dynamic capacities on firm growth at various phases of development is not taken into account, which is the second constraint. The growth of an enterprise is a dynamic process. During this long-term process, enterprises at different life stages face various opportunities and challenges, and the factors that affect their growth are distinct. Therefore, the impact and role of dynamic capabilities on enterprise growth at different stages should also be different. Moreover, this study mainly extends the explanation of dynamic capability by Teece et al. (2007). Subsequent research can refer to related academics' studies of dynamic capabilities, such as the dimensional division of dynamic capabilities by Chinese scholar Jiao Hao (2012). Therefore, future research can extend the theoretical structure proposed in this paper to explore the influence of

dynamic capabilities on growth performance at different stages of enterprise development.

References

Alegre, J., Sengupta, K., & Lapiedra, R. (2013). Knowledge management and innovation performance in a high-tech SMEs industry. *International Small Business Journal*, 31(4), 454-470. DOI:10.1177/0266242611417472.

Andon, M. & Svetlozar, M. (2019). Research on distributed intelligent recommendation algorithm for personalized customization from consumer to enterprise. *International Journal of Smart Business and Technology*, 7(2), 45-54. DOI:10.21742/IJSBT.2019.7.2.05.

Carlos, M. J. (2011). Social capital and dynamic capabilities in international performance of SMEs. *Journal of Strategy and Management*, 4(4), 404-421. DOI:10.1108/17554251111181034.

Collins, M. Q, & Galbraith, E. (2021). A study on advertising strategy based on the impact of a business reputation on the market. *International Journal of Smart Business and Technology*, 9(2), 107-118. DOI:10.21742/IJSBT.2021.9.2.09.

Dutta, S., Narasimhan, O. M., & Rajiv, S. (2005). Conceptualizing and measuring capabilities: Methodology and empirical application. *Strategic Management Journal*, 26(3), 277-285. DOI:10.1002/smj.442.

Eckhardt, J. T. & Shane, S. A. (2003). Opportunities and entrepreneurship. *Journal of Management*, 29(3), 333-349. DOI:10.1177/014920630302900304.

Gann, D. M. & Salter, A. J. (2000). Innovation in project-based, service-enhanced firms: the construction of complex products and systems. *Research Policy*, 29(7-8), 955-972. DOI:10.1016/S0048-7333(00)00114-1.

Helfat, C. E. & Peteraf, M. A. (2009). Understanding dynamic capabilities: progress along a developmental path. *Strategic Organization*, 7(1), 91-102. DOI:10.1002/smj.910.

Hitt, M. A., Bierman, L., & Shimizu, K. (2001). Direct and moderating effects of human capital on strategy and performance in professional service firms: A resource-based perspective. *Academy of Management Journal*, 44(1), 13-28. DOI:10.5465/3069334.

Hoy, F. & Verser, T. G. (1994). Emerging business, emerging field: Entrepreneurship and the family firm. *Entrepreneurship Theory and Practice*, 19(1), 9-23. DOI:10.1177/104225879401900101.

Hsu, L. C. & Wang, C. H. (2010). Clarifying the effect of intellectual capital on performance: the mediating role of dynamic capability. *British Journal of Management*, 23(2), 179-205. DOI:10.1111/j.1467-8551.2010.00718.x.

Jiao, H., Alon, I., & Koo, C. K. (2013). When should organizational change be implemented? The moderating effect of environmental dynamism between dynamic capabilities and new venture performance. *Journal of Engineering and Technology Management*, 30(2), 188-205. DOI:10.1016/j.jengtecman.2013.01.005.

Kang, S. C., Morris, S. S., & Snell, S. A. (2007). Relational archetypes, organizational learning, and value creation: Extending the human resource architecture. *Academy Of Management Review*, 32(1), 236-256. DOI:10.5465/amr.2007.23464060.

Kohli, A. K. & Jaworski, B. J., & Kumar, A. (1993). MARKOR: A measure of market orientation. *Journal of Marketing Research*, 30(4), 467-477. DOI:10.2307/3172691.

Leonard-Barton D. (1992). Core capabilities and core rigidities: A paradox in managing new product development. *Strategic Management Journal*, 13(1), 111-125. DOI:10.1016/0024-6301(93)90313-5.

Lei, D., Slocum, J. W., & Pitts, R. A. (1999). Designing organizations for competitive advantage: The power of unlearning and learning. *Organizational Dynamics*, 27(3), 24-38. DOI:10.1016/S0090-2616(99)90019-0.

Liu, W., Sun, L., & Li, W., (2018). How does dynamic capability affect logistics service integrator's growth performance. *International Journal of Services Technology and Management*, 24(1-3), 151-172. DOI:10.1504/IJSTM.2018.10011480.

Makadok, R. Toward a synthesis of the resource-based and dynamic-capability views of rent creation. *Strategic Management Journal*, 22(5), 387-401. DOI:10.1002/smj.158.

Pavlou, P. A. & El Sawy, O. A. (2011). Understanding the elusive black box of dynamic capabilities. *Decision Sciences*, 42(1), 239-273. DOI:10.1111/j.1540-5915.2010.00287.x.

Peng, M. W. & Luo, Y. (2000). Managerial ties and firm performance in a transition economy: The nature of a micro-macro link. *Academy Of Management Journal*, 43(3), 486-501. DOI:10.5465/1556406.

Powell, W. W. (1987). Hybrid organizational arrangements: New form or transitional development?. *California Management Review*, 30(1), 67-87. DOI:10.2307/41165267.

Singh, S. (2019). Research on application of precision marketing based on big data. *International Journal of Smart Business and Technology*, 7(1), 17-26. DOI:10.21742/IJSBT.2019.7.1.02.

Teece, D. J. (2007). Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance. *Strategic management journal*, 28(13), 1319-1350. DOI:10.1002/smj.640.

Tippins, M. J. & Sohi, R. S. (2003). IT competency and firm performance: is organizational learning a missing link?. *Strategic Management Journal*, 24(8), 745-761. DOI:10.1002/smj.337.

Wu, L. Y. (2010). Applicability of the resource-based and dynamic-capability views under environmental volatility. *Journal of Business Research*, 63(1), 27-31. DOI:10.1016/j.jbusres.2009.01.007.

Wang, C. L. & Ahmed, P. K. (2007). Dynamic capabilities: A review and research agenda. *International Journal Of Management Reviews*, 9(1), 31-51. DOI:10.1111/j.1468-2370.2007.00201.x.

Zahra, S. A., Sapienza, H. J., & Davidsson, P. (2006). Entrepreneurship and dynamic capabilities: A review, model and research agenda. *Journal of Management Studies*, 43(4), 917-955.