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# Corporate Competence and Business Performance: Focus on Korean Domestic Venture Companies in the Service Industry\*

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## Abstract

**Purpose:** This study empirically examines the relations among corporate performance, technology, and corporate capabilities for service companies to find factors that could affect the competitiveness of the service industry. Most study on technology in the service industry have been conducted in developed countries, and yet there exist not sufficient empirical reviews. **Research design, data and methodology:** This paper, using rare empirical data, examines Korea's service industry and aims to make an academic and managerial contribution to the understanding of the relation between corporate competence and performance. This study analyzes 567 Korean Domestic Companies in Non-manufacturing and Service Industry, using the 2020 Detailed Survey of Venture Businesses (2500) data. Frequency analysis, correlation analysis, and regression analysis are performed. **Results:** Results show, Hypothesis 1 that internal competence has positive influence on technological strength, is supported. However, Hypothesis 2 that technological strength mediates between internal competence and business performance, Hypothesis 3 that external competence has positive influence on technological strength and Hypothesis 4 that technological strength mediates between external competence and business performance are all partially supported/rejected. **Conclusions:** This study suggests that technological strength is an important factor that affects both market share and sales. And mediating effect of technology strength emphasized in market share. However, in managing sales, more cautious approach and a more detailed analysis are needed..

**Keywords :** Market Share, Sales, Technological Strength, Internal Competence, External Competence, Service Venture

**JEL Classification Code :** M1, M10, M19

## 1. Introduction

In the history of economic change, major developed countries with long-standing knowledge and research foundations have supported their companies with

technology. Relations among competence, technology strength and business performance have been a major field of research for many years. Research on technology and business performance has been actively conducted mainly in developed countries. In particular, it has been suggested

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that technology has a positive effect on business performance for manufacturing companies (Geisler, 1995; Etzkowitz & Leydesdorff, 2000). However, as the economy has developed, the transition from manufacturing to service sector has progressed. In particular, Korea underwent rapid economic changes due to high industrialization in a very short period compared with other countries. With these developments, the share of the service sector in the overall economy has risen significantly. In fact, as of 2021, the service sector also has a higher proportion than the manufacturing sector in Korea's real economy. The manufacturing accounts for 36.3% of value-added while the service accounts for 51.4%. Manufacturing accounted for 18.6% and service accounted for 67.3% of employment. The manufacturing industry accounts for 28% of GDP and the service industry for 65%. According to the 2022 Bank of Korea GDP analysis, the service sector's contribution to GDP was more than twice as high as that of the manufacturing sector. As such, the service sector has achieved remarkable growth in scale. Despite the high growth, however, Korea's service sectors' technological competitiveness is considered to be still low (Ahn et al., 2006; Lee et al., 2010).

There seems to exist a lack of awareness of the importance of technology at the service providers level as well as at the government level. Compared with the government's emphasis on technology in the manufacturing sector since the 1990s, providing a wide range of policy tools and various incentives, the service industry has been discriminated against. Also academic research on technology and business performance has mainly focused on manufacturing industries. However, in recent years, awareness of the importance of technology has been increasing in the service sector (Howell, 2001). Bolstering technology in the service sector is becoming a major policy issue for the government. In Korea, the Ministry of Strategy and Finance has established a service industry department to expand support for the sector, and started the pan-governmental establishment called "Council of Service Industry Advancement (2010)". The Ministry of Trade, Industry and Energy also announced a "promising service standard for the era of the 4th industrial revolution" in 2019, allowing the service sector to move into industrial complexes in 2020, and forming a support group for overseas expansion, etc. Likewise, interest and support in the service sector are increasing.

This study empirically examine the relations among corporate performance, technology, and corporate capabilities for service companies to find factors that could affect the competitiveness of the service industry. We expect to find corporate capabilities that affect corporate performance and technology, thereby providing practical

implications for the relation between corporate performance and technology in service sector. In addition, most of research on technology in the service industry have been conducted in developed countries, and there are not sufficient empirical research available (Amable et al., 1998; U. Kaiser, 2002; Hipp & Grupp, 2005; Miles 2007; Jaw et al., 2010; A-L Mention, 2011, Bruch & Rdha, 1998; Al-Sharif et al., 2023). Further, very few papers empirically examined the relationship between technology and corporate performance in Korea's service industry (Choi & Seo, 2011; Kwak, 2011; Suh & Kim, 2012; Kim & Chung, 2014; Kwon & Lee, 2020). This paper, using rare empirical data, examines Korea's service industry and aims to make an academic and managerial contribution to the understanding of the relation between corporate competence and performance.

This study focuses on small and medium-sized venture companies which in most cases require technologies for success. The number of research on the relation between technological capabilities and performance of venture companies is limited in spite of their social and economic impact and importance. Using the Korean Domestic Venture Company of the Non-manufacturing and Service Industry data, we analyze the mediating influence of technological strength between competency (Internal/External) and business performance (Market Share/Sales). Since the research on service companies (Kwak, 2011) is limited, we also aim to examine how important technology is to small and medium-sized venture service companies. Specifically, the impact of small and medium venture service company capabilities on technology and business performance is analyzed. The results of this study are expected to provide implications for small and medium-sized venture service companies to establish ways to improve their successful technology and management performance, showing that technology mediates between corporate competency and business performance.

Our sample consists of 567 Korean Domestic Company of Non-manufacturing and Service Industry, from the 2020 detailed survey of Venture Businesses (2500) data. The reason for targeting only domestic service ventures with no overseas sales is that companies with overseas performance and companies without overseas performance are expected to have differences in endogenous corporate capabilities and experience. We intend to increase the generalization of the use of empirical results by reducing the deviation of characteristics of analysis targets. In the end, this study analyzes the mediating influence of technology strength between corporate competence (Internal/External) and business performance (Market Share/Sales) of Korean Domestic

Venture Companies in the Non-manufacturing and Service Industry. To empirically analyze the causal relationship among corporate competence, technology strength and business performance, we employ regression analysis by SPSS 22.0, frequency analysis and correlation analysis.

The structure of this study is as follows. Chapter 2, based on the literature review, presented the hypotheses of this study. Chapter 3 shows methodology and Chapter 4 provides empirical results. Finally, Chapter 5 describes the conclusion, implications, and limitations.

## 2. Literature Review and Hypothesis

Small and medium-sized venture companies have relatively insufficient resources and capabilities compared to large multinational companies, so they must build strong internal capabilities to compete (Amit & Schoemaker, 1993). In addition, venture companies are required to actively utilize external resources to overcome the shortage of internal resources (Stevenson et al., 1994; Timmons, 1994; Lee et al., 2001). In the end, resources mobilized from outside along with the resources and capabilities accumulated by companies contribute to strengthening competitiveness as well as creating management performance of venture companies. However, in the past, empirical research has mainly been conducted to treat internal capabilities and external resources as separate antecedents (Jeong et al., 2014). In response, this study seeks to identify the impact of both venture companies' internal capabilities and external resource utilization on corporate performance, and to explore the resources that service venture companies must possess and increase to increase corporate performance and the resources to be used from outside (Kim & Kim, 2020; Kyung, 2021).

Management performance research is the oldest and eternal field of business administration. In particular, this study aims to analyze factors that affect the management performance of venture companies. Therefore, to ensure the accuracy of management performance measurement, this study intends to analyze from the standpoint that it is desirable to damage both objective and subjective indicators (Tsai et al., 1991; Zahra, 1996). Accordingly, objective management performance measures financial performance, and subjective management performance measures market share. In recent, technology competency has been a source of competitive advantage for a company (Henderson & Cockburn, 1994). Also, the number of existing studies have shown that a company's technological capabilities directly and indirectly affect the performance of a venture company (Shrader & Simon,

1997; Lee et al., 2001). Technical competence is a concept that includes R&D, which can be defined as the ability to include knowledge creation and utilization that enables companies to strengthen their competitive advantage (Suh & Kim, 2012). Due to the nature of venture companies, resources such as funds, manpower, and information are relatively insufficient compared to large multinational companies (Lee et al., 2001), so companies can survive only with continuous R&D and innovation activities for long-term competitive advantage (Conceicao et al., 2002).

### 2.1. Internal Competence and Business Performance

Resource-based theory(RBT) aims to grasp the business performance of an enterprise by focusing on the internal resources held by an enterprise from the perspective that its internal resources affect its business performance (Wemerfelt, 1984; Grant, 1991; Barney, 1991; Amit & Schoemaker 1993). According to resource-based theory, as a basic element of core competencies, focuses on internal resources such as R&D capabilities, production, and marketing activities. Core competency is defined as the ability to efficiently deliver high value to customers based on a resource-based perspective (Prahalad & Hamel, 2003; Lee et al., 2010). Corporate competency generally places importance on marketing, development capability, technology from an internal perspective and ability to respond to environmental changes from an external perspective. Both perspective is generally divided into major elements of corporate management activities. In the end, it is to continue to possess and secure discriminatory capabilities that are difficult for competitors to imitate in a competitive environment that rapidly changes sustainable competitive advantage (Prahalad & Hamel, 2003). Resources are the source of competence, and competence is the source of competitive advantage (Wenerfelt, 1984; Barney, 1986).

However, venture companies are relatively lacking in material, human resources and capabilities compared to large multinational companies, and have disadvantages in acquiring information and knowledge (Bradley & Rubach, 1999; Henderson, 1999). To overcome these disadvantages and prepare for rapidly changing competition, venture companies must develop unique and rare resources and capabilities (Amit & Schoemaker, 1993).

Based on this discussion, this study hypothesizes that the stronger the internal capabilities of venture companies, the higher the technology strength and business performance.

**H1:** Internal competence has positive influence on

technology strength.

**H2:** Technology strength mediates between internal competence and business performance.

## 2.2. External Competence and Business Performance

Wide-ranging cooperation based on socioeconomic networks is seen as a new trend in the name of open innovation. It corresponds to strategic management which actively introduces external resources to send idle capital inside a company to the outside or to resolve the abundant resources. Smaller companies need strategies to utilize external partners (Britton, 1993; Teece et al., 1997).

In particular, since venture companies have relatively insufficient resources and capabilities compared to large multinational companies, it is a more necessary concept at a time when entrepreneurs and managers emphasize the utilization of resources rather than ownership (Timmons, 1994; Kaufaman & Todtling, 2002; Park & Lee, 2006). In particular, as information exchange through the network can compensate for insufficient capabilities, procurement of insufficient resources from outside or effective use of external resources becomes an important capability that positively affects the survival and success of a company (Sharader & Simon, 1997; Park & Lee, 2006; Kwon, 2010; Zeng et al., 2010; Cho et al., 2018). Network competency refers to the ability to build, maintain, and utilize external relationships, and affects strategic decision-making (Teece et al., 1997).

Connections between government agencies or community institutions increase the viability of venture companies by linking them to the institutional environment (Baum & Oliver, 1991), and sponsorship from government agencies can play a positive role in creating and creating performance for venture companies (Flynn, 1993; Kim & Seo, 2010). In particular, the government's direct and indirect support policies, including the provision of policy resources, are reported to be important from the perspective of improving the technological innovation and corporate performance of venture companies (Kim 2008).

According to prior research from a network perspective, it can be confirmed that external networks are an important influence factor on the enterprise performance of venture companies (Oviatt & McDougall, 1994). The reciprocal and mutual relationship with cooperative and network companies are capabilities that overcome constraints on the size and experience of venture companies and have a positive impact on performance (Hansen & Witkowski, 1995). In particular, it is confirmed that the number of networks has a significant effect on

corporate performance (Tyebee, 1990; Zhao & Aram, 1995; Kwon, 2004).

Based on this discussion, this study hypothesizes that the stronger the external capabilities of venture companies, the higher the technology strength and business performance.

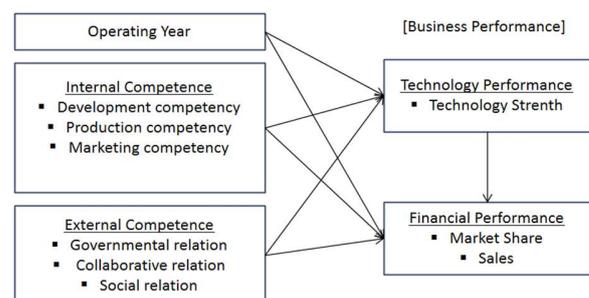
**H3:** External competence has positive influence on technology strength.

**H4:** Technology strength mediates between external competence and business performance.

## 3. Methodology

### 3.1. Research Model & Measurement

Research model is developed from the discussion on the literature review,. As shown in <Figure 1>, this study analyzes the relationship between competence(internal/external) and business performance(market share/sales). We also investigates whether technological strength mediates between competence and business performance. This study considered two business performance measures, market share as relative performance and sales as absolute performance and two competence: internal competence and external competence. Internal competence includes measures such as development competency, production competency and marketing competency and external competence measures are governmental relation, collaborative relation and social relation.



**Figure 1:** Research Model

To analyze the mediating influence of technological strength between competence (internal/external) and business performance (market share/sales), this study uses data and measurement from the detailed survey of venture businesses 2020. The detailed survey of venture businesses is an extensive annual survey of venture businesses

conducted by MSS (Ministry of SMEs and Startups) and a survey collected by KOSME (Korea SMEs and Startups Agency) and KVBA (Korea Venture Business Association). The detailed survey of venture businesses is answered by high-level managers such as chief managers, executives or CEO (Chief Executive Officer).

This study measures business performance as a dependent variable. Two business performances are considered. First, market share which is a relative concept of business performance. Second, sales which is an absolute concept of business performance. According to a detailed survey of venture businesses, market share is asked by 'Domestic market share of your company's flagship products as of 2019' and measured in %. And sales are asked by 'Sales of the income statement as of the end of December 2019' and measured in Log terms. This study measures technological strength as a mediating variable. And according to a detailed survey of venture businesses, technology strength is asked as a recognition of the firm's technological strength compared with Korea's top-level enterprises with five-point Likert scale (1 lower than Koean's top-level enterprise (60~69%), 2 lagged than Koean's top-level enterprise (70~79%), 3 closed Koean's top-level enterprise (80~89%), 4 similar as Koean's top-level enterprise (90~99%), 5 same as Koean's top-level enterprise (100%)).

This study measures competence as the independent variable. Two competences are considered, internal competence and external competences. Internal competence is the awareness of the competence among in-house capabilities. Therefore internal competence is measured with recognition of competence compared with competition, which includes three competency areas: development competency, production competency and marketing competency. Internal competence is asked by the question of 'What level of competence does your company have compared with rivals in areas of development, production and marketing with a five-point Likert scale (1 very low, 2 low, 3 average, 4 high, 5 very high). Development competence is about technology, design, and new product/goods development capabilities. Production competence is about production and quality capabilities. And marketing competence is about marketing, brand, market planning and analysis capabilities. External competence is the relational strength with interested parties like government, other companies and society. Therefore external competence is measured by the number of activities participated with the parties; government, other companies and society. Governmental relation is counted by the number of government benefits types as government policy support funds like 'R&D funds (investment), loans (policy funds), warranty support (guarantee issuance loans), and other support (business

start-up commercialization and export support, etc.)'. Collaborative relation is counted by the number of collaborative activities with outside companies as external collaboration activity such as cooperation with universities (industrial-academic cooperation), research institutions (government-funded laboratories, specialized production laboratories, etc.), cooperation with SMEs (small and medium-sized enterprises), cooperation with middle-standing enterprises, cooperation with foreign companies, etc. And social relation is counted by the number of CSR (corporate social responsibility) types practiced by the company as CSR activity like material donation/donation, talent donation, shared value creation (CSV: creating shared value), community service activities, sponsorship activities, etc.

Lastly, one control variable, operating year is included in this study. The operating year is measured as a business year of the company as class/zone(?) variables by, 1 as under 3 years, 2 as between 4~10 years, 3 as between 11~20 years and 4 as over 21 years.

### 3.2. Sample

This study uses the 2020 detailed survey of venture businesses data to analyze the influence of technological strength and competence on business performance. Among this extensive 2020 detailed survey of venture businesses data, this study focuses on domestic companies of non-manufacturing in the service sector and a total of 567 company data are included. Table 1 shows the characteristics of 567 samples.

Operating year of 255(45.0%) firms are in 4~10 year, 215(37.9%) in 11~20 years, 55(9.7%) in over 21 years and 42(7.4%) in under 3 years. Development competence shows majority of 298(52.6%) are in high, 231(40.7%) in average, 20(3.5%) in low, 17(%) in very high and 1(0.2%) in the lowest. Production competence shows 338(59.60%) are in average, 154(27.2%) in high, 39(6.9%) in low, 32(5.6%) in the lowest and 4(0.7%) in the highest. Marketing competence shows 337(59.40%) in average, 127(22.4%) in high, 97(17.1%) in low, 5(0.9%) in the highest and 1(0.2%) in the lowest. Governmental relation shows that for the number of received government subsidy benefits, 'None' are 429(75.7%) and 'There is' are 138(24.3%). The mean is 0.2875 and the maximum is 4 times. Collaborative relation shows that for the number of organizations with collaborative activities, 'None' are 440(77.6%) and 'There is' are 127(22.4%). The mean is 0.321 and the maximum is 5 times. Social relation shows that for the number of CSR types in practice, 'None' are 445(78.5%) and 'There is' are 122(21.5%). The mean is 0.2399 and the maximum is 2 types. Technological strength shows as Koean's top-level enterprise (90~99%) 193(34.0%), in closed Koean's top-

level enterprise(80~89%) 177(31.2%), lagged than Koean's top-level enterprise(70~79%) 157(27.7%), same as Koean's top-level enterprise(100%) 36(6.3%) and the smallest in lower than Koean's top-level

enterprise(60~69%) 4(0.7%). And Mean, Minimum and Mazimum of the market share and Sales are show in Table 1.

**Table 1:** Sample Characteristics

(N=567)			N	%		
Control Variable	Operating Year		Under 3 Years	42	7.4	
			4~10 Years	255	45.0	
			11~20 Years	215	37.9	
			Over 21 Years	55	9.7	
Independent Variable	Internal Competence	Development Competency	Very Low	1	0.2	
			Low	20	3.5	
			Average	231	40.7	
			High	298	52.6	
			Very High	17	3.0	
		Production Competency	Very Low	32	5.6	
			Low	39	6.9	
			Average	338	59.6	
			High	154	27.2	
		Marketing Competency	Very High	4	0.7	
			Very Low	1	0.2	
			Low	97	17.1	
			Average	337	59.4	
			High	127	22.4	
		External Competence	Governmental Relation	Very High	5	0.9
				None	429	75.7
	There is			138	24.3	
	Mean: 0.2875, Median: 0, S.D.: 0.56101, Dispersion: 0.315, Minimum: 0, Maximum: 4.00					
	Collaborative Relation			None	440	77.6
				There is	127	22.4
Mean: 0.321, Median: 0, S.D.: 0.67198, Dispersion: 0.452, Minimum: 0, Maximum: 5						
Social Relation	None		445	78.5		
	There is		122	21.5		
	Mean: 0.2399, Median: 0, S.D.: 0.48179, Dispersion: 0.232, Minimum: 0, Maximum: 2					
Mediating Variable	Technology Strength		lower than Koean's top-level enterprise(60~69%)	4	0.7	
			lagged than Koean's top-level enterprise(70~79%)	157	27.7	
			closed Koean's top-level enterprise(80~89%)	177	31.2	
			similar as Koean's top-level enterprise(90~99%)	193	34.0	
			same as Koean's top-level enterprise(100%)	36	6.3	
Dependent Variable	Market Share(%)		Mean: 2.5062, Median: 1, S.D.: 5.02311, Dispersion: 25.232, Minimum: .01, Maximum: 80			
	Sales(Mil. Won)		Mean: 10985.1164, Median: 4451, S.D.: 20662.81929, Dispersion: 426952101.0, Minimum: 3.0, Maximum: 244432.0			

#### 4. Empirical Results

This study analyzed the influence of technology strength and competence(internal/external) on business performance(market share/sales) of Korean domestic

venture companies in the non-manufacturing and service industry, especially, focusing on mediating effect of technological strength. Correlation analysis is performed and results are shown in Table 2. The correlation result shows that the highest correlation exists between development competency and technology strength(0.559).

**Table 2: Results of Correlation Analysis**

	Mean	S.D	1	2	3	4	5	6	7	8	9	10
1	2.499	0.770	1									
2	3.547	0.624	.060	1								
3	3.104	0.765	.170 *	.236 *	1							
4	3.067	0.659	.160 *	.444 *	.253 *	1						
5	0.288	0.561	-.071	.095*	.083*	.072	1					
6	0.321	0.672	.072	.200 *	.093*	.183 *	.125 *	1				
7	0.240	0.482	.182 *	.115 *	.158 *	.250 *	-.046	.084*	1			
8	3.176	0.933	.096*	.559 *	.304 *	.499 *	.139 *	.121 *	.004	1		
9	2.506	5.023	.015	.191 *	.112 *	.229 *	.037	.103*	-.010	.315 *	1	
10	8.229	1.633	.401 *	.137 *	.197 *	.412 *	-.068	.012	.290 *	.239 *	.219 *	1

Note: Sig. : \* p < 0.05, \* p < 0.01, 1 Operating Year, 2 Development Competency, 3 Production Competency, 4 Marketing Competency, 5 Governmental Relation, 6 Collaborative Relation, 7 Social Relation, 8 Technology Strengy, 9 Market Share, 10 Sales

To analyze the relationships among business performance, technological strength and competence and the mediating influence of technological strength, this study uses stepwise regression analysis and Baron and Kenney's (1986) mediating concept. The results of regression analysis are shown in Table 3. In M1, for technology strength, market share and sales, operating year as a control variable and independent variables of three internal competencies and three external competencies are included. Then in M2, for market share and sales, all the variables of M1 and technology strength are included. As a result of multicollinearity in regression analysis, the VIFs shown in Table 3 are 10 or less, so the multicollinearity is verified in this analysis. Also the tolerances is checked, although not presented in the table, and it is confirmed that all tolerances are greater than 0.1.

First, in technology strength, M1(operating year and independent variables) explains 42.6% of technology strength. The result shows that all three internal competencies have significant positive effects on technology strength, from high to low, development(.399), marketing(.317) and production(.144) competency. Among external competencies, social relation(.144) and governmental relation(.066) have significant positive effects on technology strength. However collaborative relation and operating year are not significant. Therefore, Hypothesis 1, which states internal competence has a positive influence on technology strength, is supported. However, Hypothesis 3, which is external competence has a positive influence on technology strength, is partial(partially supported/rejected).

Second, in market share, little increase in explanation is shown from M1(6.1%) to M2(9.9%). This means that market share is better explained when including technology strength than only with competence. The result shows that technology strength(.261) and marketing competency(.103) have a significant positive influence on

market share. However, all the other variables are not significant. As for the mediating role of technology strength, results show different aspects of competence. For internal competence, development competency and production competency are fully mediated by technology strength. However, marketing competency is partially mediated by technology strength. As for external competence, both governmental relations and social relations are fully mediated by technology strength. Therefore, Hypothesis 2, which states technology strength mediate between internal competence and business performance and Hypothesis 4, which is technology strength mediate between external competence and business performance, are both partial(partially supported/rejected).

Third, in sales, little increase in explanation was shown from M1(31.1%) to M2(31.6%). This suggests that sales are a bit better explained when including technology strength than only with competence. The result shows that the operating year(.310) has a significant positive influence on sales. It also shows that technology strength(.106) has a significant positive influence on sales. However, incompatible influence results in both internal competence and external competence are shown. Among internal competence, marketing competency(.316) shows a positive yet development competency(-.088) shows a negative influence on sales. And production competency is not significant. In external competency, social relation(.161) shows a positive but collaborative relation(-.073) shows a negative effect. And governmental relations are not significant. As for the mediating role of technology strength, results show different aspects of competence. Among competence, only the production competency was fully mediated by technology strength while development competency, marketing competency, and social relation are partially mediated by technology strength.

**Table 3: Results of Stepwise Regression Analysis**

St.B(t)		Technology Strength	Market Share		Sales		VIF	H
		M1	M1	M2	M1	M2		
Operating Year		.030 (.903)	-.019 (-.455)	-.027 (-.652)	.314* (8.665)	.310* (8.604)	1.078	
Internal Competence	Development Competency	.399* (11.004)	.096* (2.074)	-.008 (-.161)	-.046 (-1.159)	-.088* (-2.025)	1.578	H1: Support
	Production Competency	.144* (4.272)	.052 (1.211)	.015 (.340)	.055 (1.491)	.040 (1.065)	1.163	H2: Partial
	Marketing Competency	.317* (8.513)	.186* (3.906)	.103* (2.080)	.349* (8.578)	.316* (7.323)	1.540	
External Competence	Governmental Relation	.066* (2.019)	-.001 (-.024)	-.018 (-.443)	-.054 (-1.529)	-.061+ (-1.725)	1.047	H3: Partial
	Collaborative Relation	-.029 (-.866)	.053 (1.252)	.060 (1.458)	-.076* (-2.093)	-.073* (-2.015)	1.072	H4: Partial
	Social Relation	.144* (4.302)	.076+ (-.782)	.039 (.907)	.146* (3.985)	.161* (4.348)	1.141	
Technology Strength				.261* (4.930)		.106* (2.299)	1.763	
St.R <sup>2</sup>		.426	.061	.099	.311	.316		
F		60.969* *	6.255* *	8.739* *	37.490 *	33.716* *		

Note: Sig. \*\* p < 0.001, \* p < 0.01, + p < 0.05

## 5. Conclusions

As the importance of technology in the service industry and venture companies increases, this study aims to analyze the causal relationship among corporate competency, technological strength and business performance of Korean domestic venture companies in the service industry. We analyze the impact of small and medium venture service company capabilities on technology and business performance. In particular, this study tried to verify the mediating effect of technology on corporate competency and business performance. We test four hypotheses. As shown in Table 3, Hypothesis 1 (Internal competence gives a positive influence on technology strength) is supported. However, all the other hypotheses (H2, H3 and H4) are partially supported, as some internal and external competencies show significance but others are not.

### 5.1. Discussion of the Findings

For small and medium-sized venture companies to improve their performance, the use of internal resources is important, but as their ability to respond to market openings and environmental changes is emphasized, network activities with external resources such as cooperation activities with other organizations are also important. Responding to environmental changes such as market and technological changes is likely to increase competitiveness and it is necessary to include externally oriented activities such as responding to environmental changes along with appropriate utilization of internal resources.

Our empirical results suggest three managerial implications and two academic contributions. As for managerial implications, first, technology strength is an important factor in improving both market share and sales. And to improve technology strength, both internal and external competence are important, except for collaborative relations. Improving internal competence includes improving development competency, production competency and marketing competency. Therefore to improve development competency, companies should invest and emphasize technological capabilities, design capabilities, and new product/goods development capabilities. And to improve production competency, companies should invest and emphasize production capabilities and quality capabilities. Also to improve marketing competency companies should invest and emphasize marketing capabilities, branding capabilities, market planning and analysis capabilities. Additionally, improving external competence to increase technological strength includes improving governmental relations and social relations. To increase governmental relations, companies should try to receive government benefits such as government policy support funds like 'R&D funds (investment), loans (policy funds), warranty support (guarantee issuance loans), and other support (business start-up commercialization and export support, etc.) as many as possible. Also to increase social relations companies should try to practice many CSR activities like material donation/donation, talent donation, shared value creation (CSV: creating shared value), community service activities, sponsorship activities, etc. Second, in improving market share, improving technological strength and

marketing competency is important. Especially in market share, the mediating effect of technology strength stands out. Lastly, in improving sales, improving technology strength, marketing competency and social relations are important. However, development competency and collaborative relations have a negative influence on sales. This implies that an increase in development competency demands an increase in investment cost. Also, the increase in collaborative relations demands an increase in managerial costs. And to SME and venture companies, such an increase in investment cost and managerial cost has a negative influence on sales. However, still, development competency and collaborative relations have a positive influence on technological strength and technological strength, in turn, has a positive influence on sales. Therefore SMEs and venture companies should consider development competency and collaborative relations in a more cautious way and more detailed analysis is needed.

This study has two academic contributions. First, this study conducts an empirical analysis of the SME in service industry, which are rare in existing research. Although there have been few studies in the service industry itself (Choi & Seo, 2011; Kwak, 2011; Suh & Kim, 2012; Kim & Chung, 2014; Kwon & Lee, 2020), this study could be seen as a cornerstone because a very few SME's research on the service industry are available. Second, this study verifies the mediating effect of technological strength between competence and business performance. Existing research focuses on technological capabilities or innovation performance as the final dependent variable (Kwon & Lee, 2020; Al-Sharif et al., 2023). However this study shows the mediating effect of technology strength by placing the final dependent variable as financial performance.

## 5.2. Limitations and Future Research

Despite the academic contribution and academic contribution, this study has two limitations. First, internal capabilities and external resource utilization may not be equal antecedent roles. For example, internal capabilities can play a mediating role between external resource utilization and corporate performance (Choi et al., 2013; Lee & Song, 2019), and external resource utilization can play a moderating role between internal capabilities and corporate performance (Kang et al., 2020). Therefore, further consideration and analysis of the role of internal capabilities and external resource utilization should be made in future research. Second, internal capabilities and external resource utilization are not used respectively but are complementary to each other to achieve a company's management goals or improve management performance. Therefore, an analysis of the interaction between the internal capabilities and the external resources utilization

should be added in analysis (Thompson, 2017; Lee et al., 2001; Lee, 2004; Kim & Kim, 2020). Considering the complementary and dependent relationship between venture companies' internal capabilities and external resource utilization, future research needs to verify the interaction effect of internal capabilities and external resource utilization.

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