Analyzing the impact of Consultant and Project Manager Competencies on Business Performance Mediated by Consulting Performance

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컨설턴트 역량과 프로젝트 관리자 역량이 컨설팅 성과를 매개로 경영성과 간의 구조적 관계분석

이 록

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This empirical analysis investigates the impact of consultant competency and project manager (PM) competency on business performance. Two hundred and twenty four chief executive officers and executive members at small and medium sized firms in the manufacturing sector were surveyed, yielding several outcomes. First, consultant competency positively affects consulting performance. Second, consultant competency positively affects business performance. Third, PM competency does not have a significant influence on consulting performance. Fourth, PM competency does not have a significant impact on business performance. Fifth, consulting performance does not have a significant effect on business performance. Finally, regarding the mediation effect of consulting performance on the influence of consultant competency and PM competency on business performance, consulting performance had no significant impact. Thus, expertise and insight are crucial for a consulting business to enable the growth of professional consultants. Furthermore, this study is expected to enhance the consulting performance of small and medium sized manufacturing firms by providing useful data to consultants and project managers when carrying out consulting projects.

Keywords: Consultant Competency, Project Manager Competency, Consulting Performance, Business Performance, Structural Equation Model

1. Introduction

The uncertain business environment has recently intensified the need for expertise in technology and management. Advancement in cutting edge technology has ushered in a period of convergence technology. Companies are actively utilizing management consulting services for their sustainable growth, and the importance of and interest in consulting has increased with industrial development [27].

Vol. 46, No. 3 : 231-240, September 2023 ISSN : 2005-0461 / EISSN : 2287-7975

Management consulting is a professional activity that involves the provision of advice and guidance on optimal solutions for various key problems within an organization by researching and analyzing them [30, 34]. With the increasing demand for management consulting as well as changes in

Received 12 August 2023; Finally Revised 13 September 2023;

Accepted 14 September 2023

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market demands and companies, consultancy clients are shifting toward establishing strategies based on their response capabilities for resolving technical, managerial, and engineering challenges and issues that need to be addressed simultaneously in the pursuit of short-term or specific issue resolutions. Management consulting is a professional service that provides advice and guidance to companies or organizations to help them implement solutions to resolve management problems. It is also necessary to maximize client firms' consulting outcomes through changes in management actions during the consulting process [4].

The impact of consultants and PM's continues to increase with the help of external experts [24], and the successful performance of consultants and PMs directly or indirectly affects corporate performance through solutions to major management issues of the requesting organization. Consultants and PM roles are emphasized in order to successfully carry out management consulting and projects and ultimately contribute to consulting performance and organizational performance [19]. The professional competencies of consultants and PM's are very important for the completion of successful consulting projects, and they are strategic means to improve corporate management and improve performance generation [39]. However, looking at the previous studies, most of the studies on the simple relationship between consultants and consulting performance are not specifically presented from the perspective of customers [7, 20, 32]. In order to carry out such successful consulting, we would like to investigate in depth the key factors of consultant capabilities and PM capabilities, their impact on management performance, and the mediating effect of consulting performance.

Therefore, the purpose of this study is to empirically identify the structural causal relationship between the consultant's capabilities and the PM's capabilities on management performance through consulting performance in domestic small and medium-sized manufacturing companies. In addition, the composition procedure of this paper described the theoretical background of the study in Chapter 2, analyzed structural causal relationships, established research models and hypotheses, and described operational definitions of variables and data analysis methods. Chapter 4 describes the results of empirical analysis, and Chapter 5 presents the results of this paper in the order of summary, academic and practical implications, limitations of research, and future research directions.

2. Theoretical Background

2.1 Consultant Competency

Management consulting performance studies distinguish between expertise and attitude in consulting competency, which is also referred to as problem solving ability, consulting experience, technical knowledge, and consulting execution competency or consulting capabilities; it is also proposed as a key variable that influences consulting performance [3, 16, 38].

The success or performance of management consulting is emphasized as the most important factor that affects business results, characterized by a consultant's qualifications, expertise, experience, and performance, which are all referred to as consultant competency. The sub components of consultant competency include strategic thinking, consulting initiative and performance management, consulting methodology and expertise, communication skills, analysis, and alternative measures, professional responsibility and ethics, ability to cope with situations, and information collecting ability [26].

Kumar et al. [20] suggested 16 competency factors for successful consulting from consulting suppliers, including consulting methods in business operations and good communication with clients, asserting that these are the strategic key competencies that consultants should carry.

Furthermore, from the perspective of clients receiving consulting services, Simon and Kumar [32] stated that the strategic consulting capability of management consultants is a major factor for successful management consulting, emphasizing active interaction, technical knowledge, defining problems, diligence and honesty, receptiveness and level of understanding of client companies, marketing, and reasonable expectations.

Ko et al. [18] argued that the expertise and management competency of consultants are decisive factors for the successful performance of consulting and that the reputation of management consulting firms influences performance. This study, therefore, applies the notion of consultant competency provided by Israel et al. [15] This includes all the defining characteristics mentioned in previous studies, and it categorizes consultant competency into ability, attitude, and knowledge.

2.2 PM Competency

PMs are members of client firms that play a key role when

working with consultants on consulting projects. PMs interact and communicate with consultants frequently and offer assistance to ensure successful projects [36]. PM competency entails the required capabilities in leading a project as the manager; these include the ability to plan, perform, and control the project to meet the set goals in the areas of cost, time, and quality within a set schedule [8]. Regarding the key role of PMs when reaching project goals, Geoghegan and Dulewicz [9] emphasized project management abilities to effectively use limited resources, such as cost and labor, allocated to a project for its successful outcome as the key competency of PMs. In addition, collaboration with consultants can be defined as one of the core competencies of the project manager in generating the project's performance [19]. They have the required intellectual, resource management, and human relations abilities to manage a project overall [1].

Hence, the ability of PMs to effectively understand the functions of a consultant is a required competency to consistently achieve the expected outcomes even after the consulting project ends. Regarding competency results provided in previous studies, this study categorizes PM competency into the sub-areas of intellectual ability, management ability, and human relations ability.

2.3 Consulting Performance

Consulting performance, in general, is evaluated for its success or failure depending on whether the set goals have been reached through consulting services. A successful consulting performance is perceived to positively impact business performance, but there is a lack of studies examining specific performances of consulting [11, 21].

Prior studies on consulting performance have mostly focused on improvements to and the means of the consulting process to enhance the financial solvency of consulting firms [4, 10].

Furthermore, consulting performance is closely related to the means and subjects of consulting, key demands of consulting clients, expectations of clients, and their degree of participation in consulting projects. It has been established that the extent to which a company recognizes the problems it is facing is a crucial factor in improving consulting outcomes [14].

Shin and You [31] stated that the core elements of management consulting performance are reaching the client's expected goals, satisfying clients, meeting delivery deadlines, availability of practical recommendations, meeting measurable fi-

nancial goals, performing within a given budget, providing updated data throughout consulting period, and offering additional post-consulting support.

According to Wang [37], the level of support and interest in consulting by the management in client firms in terms of factors like the required manpower, budget, and participation in consulting are critical factors that influence the outcome of consulting performance.

Evidently, factors that affect consulting performance, and even maximize it, mainly stem from the competency level of consultants in terms of job skills.

2.4 Business Performance

From the perspective of a company requesting consultancy, efficient management of the consulting process leads to achieving planned costs and time and quality goals, which then improves the company's business performance. Business performance, in terms of consulting, means increased customer satisfaction, cost reduction, market share, and productivity after having received consulting services [23].

Research related to business performance is complex and difficult to define clearly since measuring business performance based on only simple performance measurements may raise numerous controversies. Various studies, therefore, are being conducted by distinguishing the degree of contribution of financial and non-financial performance measurements as business performance [28].

As it is not simple to define, measure, and determine business performance and its results, Bourne et al. [6] distinguished between objective and subjective performance, or financial and non-financial performance, that are applied in the process of measuring performance. They then proved that financial performance is a crucial factor as a performance indicator when determining how much it has contributed to the achievement of revenue generation.

Furthermore, Albuquerque et al. [2], similar to previous researchers, presented components of business performance, such as sales, operating profit, market share, asset value, and stock value, from the aspect of financial performance indicators.

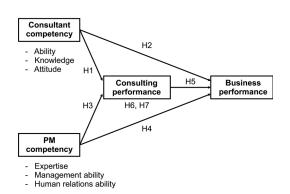
By distinguishing consulting characteristic factors into two major categories, i.e., the demand-side characteristics of consulting awareness and the supply-side characteristics of consultant capabilities, Kim et al. [17] demonstrated that both demand and supply side characteristics have an impact on

business performance [17]. This study, therefore, reflects the aforementioned factors when taking measurements.

3. Materials and Methods

3.1 Research Model and Hypothesis Setting

This study used consultant competency and PM competency as the independent variables and business performance as the dependent variable. Consulting performance was applied as a mediation variable to examine its mediation effect on the structural correlation between the variables. Based on Israel et al. [15], the ability, knowledge, and attitude of consultants were set as the subfactors of consultant competency. Similarly, in reference to Geoghegan and Dulewicz [9], expertise, management ability, and human relations ability were set as the subfactors of PM competency. Furthermore, in previous studies, corporate performance was distinguished between consulting performance factors and business performance factors. Particularly, based on Hong et al.'s [12] take on performance, the consulting performance factors were set as antecedents, while the business performance factors were set as consequents. Figure 1 illustrates the research model.



<Figure 1> Research model and hypothesis setting

- H1: Consultant competency positively affects consulting performance.
- H2: Consultant competency positively affects business performance.
- H3: PM competency positively affects consulting performance.
- H4: PM competency positively affects business performance.
- H5: Consulting performance positively affects business performance.

- H6: Through the mediation effect of consulting performance, consultant competency influences management competency.
- H7: Through the mediation effect of consulting performance, PM competency influences management competency.

3.2 Operational Definition of the Measurement Tool and Variables

3.2.1 Measurement tool

This study utilized questionnaires as a measurement tool, which was composed as explained below. First, 17 questions were allocated for the independent variable of consultant competency, which included three factors: consultant's ability, knowledge, and attitude. Second, using the scale provided by Lee et al. [22], 17 questions were allocated for the independent variable of PM competency, which included three factors: PM's expertise, management ability, and human relations ability. Third, regarding the mediation variable of consulting performance, four questions on budget, range, deadline, and quality were used, as defined by Simon and Kumar [32]. Lastly, the dependent variable of business performance was allocated four questions on clients' consulting satisfaction level [29], financial performance [13], process improvements [25], and performance capacity improvements.

3.2.2 The Operational Definition of Variables

The first variable, consultant competency, is the ability to collect and analyze information necessary for performing consulting tasks and the ability to diagnose and propose solutions for problems at a client company [16]. Thus, consulting ability is included in consultant competency. Furthermore, a consultant's attitude is the ethical behavior and responsibility that one should uphold when providing consulting services [33]. Lastly, a consultant's knowledge is the overall knowledge in management necessary for consulting, knowledge in specialized areas, and knowledge required to perform analysis [25].

The second variable, PM competency, is a different type of influence, and given that it portrays more human traits than other sources of influence, it reflects such qualities. Among the 15 sub-factors of PM competency, the main elements of emotional competency, intelligence quotient (IQ), management quotient (MQ), and emotional quotient (EQ), were set as independent variables [9].

The strategic consulting capabilities of consultants, communication between a client company and consultants, cooperation and participation of the client company, wide ranging skills,

Variables	Measurement Items	References		
Consultant competency	Problem solving skills required to perform consulting tasks Ability to diagnose and present alternatives Ability to gather and analyze information Expertise required for consulting management knowledge ability ethical behavior and a sense of responsibility	[17]		
PM competency	Analysis ability Vision presentation ability PM competency strategic thinking skills Resource management capabilities communication skills			
Consulting performance Process based on successful consulting results Building productive customer relationships a success-oriented approach Seizing a Silent Gap Opportunity		[15]		
Business performance	Customer perspective, non-financial perspective Whether the results of the consultation are successful Learning and Growth Perspectives	[36, 38]		

⟨Table 1⟩ Measurement of Variables

technical knowledge, defining problems, diligence and honesty, acceptance and understanding of the client company, marketing, and reasonable expectations are among the 16 key success factors of management consulting [32]; these comprise the third variable: consulting performance. Based on these factors, a five point Likert scale was built in observation of the following principles: result based process, establishing a productive client relationship, success oriented approach, and searching for appropriate niche opportunities, where a higher point indicates a greater likelihood of endogenous factors in consulting performance.

The fourth variable, business performance, uses the corporate social responsibility (CSR) evaluation system, which covers ethical management, the local community and the environment, and labor, and the business performance index that is based on the trust and cooperation of consumers [25]. Latent variables are formed by measuring a scale that reflects the exogenous variable of consulting performance, which considers nonfinancial perspectives like the client's perspective, internal process perspective, and learning and growth perspective.

4. Empirical Analysis

4.1 Data Collection and Method of Analysis

This study selected 400 small and medium sized manufacturing firms in South Korea and surveyed the chief executive

officers (CEOs) and executive officers. The survey was conducted between September and November 2022 through offline and online questionnaires, and a total of 258 responses were collected. Excluding unfaithful and incomplete responses, a total of 224 responses were used as data for the empirical analysis. Using AMOS 24, the validity, reliability, and structural equation modeling analyses were performed to test the hypotheses.

4.2 Sample Characteristics

The general characteristics of the sample were as follows: 78.5% of the respondents were male and 21.5% were female; 60.5% had a college degree, 32.3% had a master's degree, and 7.2% had a doctoral degree; in the area of technology/management consulting, 51.5% participated in management/operations/financial accounting consulting, followed by 36.4% in research and development, and 12.1% in product innovation. Regarding sales per year, 47.5% of respondents' firms earned KRW 5.1 billion - 10 billion, 26.4% earned KRW 2.1 billion - 5 billion, 19.5% earned KRW 10.1 billion - 30 billion, and 6.6% earned KRW 30 billion - 50 billion. Regarding the amount spent on consulting fees per year, 68.3% spent KRW 5 million - 10 million, 14.8% spent KRW 10 million - 50 million, 12.5% spent less KRW 5 million, and 4.4% spent KRW 50 million - 100 million. Lastly, 30.5% of the firms were involved in the automobile/heavy equipment sector, 27.3% in the shipbuilding sector, 21.6% in the space and aircraft sector, 13.2% in the information technology (IT)

communication sector, and 7.4% in the hydrogen/nano sector.

4.3 Validity and Reliability

4.3.1 Confirmatory Factor Analysis

Before testing the research model, the measurement variables of consultant competency, PM competency, consulting performance, and business performance were tested for their validity and reliability. This study employed the measurement tools that were used in previous studies to test the validity and reliability, and the confirmatory factor analysis (CFA) was carried out to test the validity of the measurement tools, which further eliminated items that diminished unidimensionality. The maximum likelihood method was used as the parameter estimation method. Additionally, Cronbach's α was drawn from the final measurement items' reliability test, which was reached through the CFA for each concept in the study. In addition, when looking at the conceptual reliability of all variables was higher

than 0.7, with consultant competency of 0.811, PMs competency of 0.822, consulting performance of 0.742 and business performance of 0.807. Next, the average variance extraction value was also 0.59 for consultant competency, 0.607 for PMs competency, 0.594 for consulting performance, and 0.635 for business performance, which was higher than 0.5 for all variables. As described above, the convergent validity of these study variables was confirmed. <Table 2> summarize the results of measurement model analysis.

4.4 Results of Hypotheses Testing

4.4.1 Evaluation of the Structural Equation Model

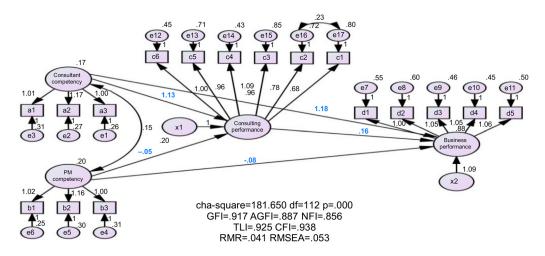
This study tested the aforementioned hypotheses to investigate the structural correlations between consultant competency, PM consultant, consulting performance, and business performance. The structural equation model (SEM) analysis, which was constructed based on the established research model in <Figure 2>, was performed, and the following outcomes

Variables		Standardized	Non-standardized	S.E.	Т	Р	Error variance	AVE	CR	
Consultant	\rightarrow	a1	0.594	1				0.316		0.811
	\rightarrow	a2	0.684	1.17	0.153	7.63	***	0.268	0.59	
	\rightarrow	a3	0.629	0.999	0.138	7.215	***	0.262		
PM competency	\rightarrow	b1	0.67	1				0.247	0.607	
	\rightarrow	b2	0.687	1.146	0.15	7.658	***	0.296		0.822
	\rightarrow	b3	0.625	0.986	0.137	7.219	***	0.306		
Consulting performance	\rightarrow	c4	0.713	1.376	0.211	6.513	***	0.444	0.594	0.742
	\rightarrow	c5	0.579	1.225	0.208	5.877	***	0.721		
	\rightarrow	c6	0.693	1.295	0.201	6.437	***	0.44		
	\rightarrow	c3	0.536	1.199	0.213	5.622	***	0.861		
	\rightarrow	c2	0.502	1				0.719		
	\rightarrow	d1	0.637	1				0.553	0.635	0.807
Business performance	\rightarrow	d2	0.641	1.053	0.134	7.841	***	0.6		
	\rightarrow	d3	0.691	1.052	0.127	8.299	***	0.458		
	\rightarrow	d4	0.627	0.883	0.115	7.709	***	0.454		
	\rightarrow	d5	0.677	1.06	0.13	8.179	***	0.5		

<Table 2> CFA Results and Convergent Validity

⟨Table 3⟩ Path Analysis

	Hypothesis paths	Standardized	Non-standardized	S.E.	C.R	Р
H1	Consultant competency—Consulting performance	0.739	1.127	0.354	3.181	0.001
H2	Consultant competency Business performance	0.793	1.18	0.413	2.856	0.004
Н3	PM competency—Consulting performance	-0.033	-0.047	0.299	-0.157	0.875
H4	PM competency-Business performance	-0.055	-0.077	0.268	-0.287	0.774
Н5	Consulting performance Business performance	0.165	0.161	0.134	1.201	0.23



⟨Figure 2⟩ Path Analysis

were drawn: Chi-square=181,65, DF=112, goodness of fit index (GFI)=0.917, adjusted GFI (AGFI)=0.887, comparative fit index (CFI)=0.938, and root mean square residual (RMR)=0.041. GFI, AGFI, and CFI values of 0.8 or greater, and RMR value of 0.05 or lower were deemed appropriate [5].

4.4.2 Results of Testing Direct Effect Hypotheses

The SEM analysis was implemented to test the research hypothesis related to direct effects in the structural model. <Table 3> summarizes the test results for hypotheses H1, H2, H3, H4, and H5.

Testing H1 revealed that consultant competency has a significant, positive effect on consulting performance. This outcome supports the H1, which suggests the need to improve consultant competency to increase consulting performance.

Testing H2 revealed that consultant competency has a significant, positive effect on business performance. This outcome suggests that greater consultant competency may lead to maximizing the business performance of a firm.

Upon testing H3, it was found that PM competency has an insignificant effect (p=0.875) on consulting performance, thus rejecting the hypothesis. This finding suggests that PM competency does not have a direct influence on consulting

performance.

Testing H4 showed that PM competency has an insignificant effect (p=0.774) on business performance, thus rejecting this hypothesis. This suggests that PM competency does not directly influence business performance.

Testing H5 revealed that consulting performance has an insignificant effect (p=0.23) on business performance, thus rejecting this hypothesis. This finding suggests that consulting performance does not directly influence business performance.

4.4.3 Mediation Effect Analysis

In the SEM analysis, the bootstrap method was additionally applied to verify the mediation effect of consulting performance. <Table 4> summarizes the results of testing H6 and H7.

Testing H6 indicated that the 95% confidence interval (CI) included "0" for the indirect effect (.034) of consultant competency on business performance through the mediation of consulting performance, suggesting the mediation effect to be insignificant and ultimately, rejecting H6. This outcome demonstrates that consulting performance does not mediate between consultant competency and business performance.

Testing H7 revealed that the 95% CI included "0" for the indirect effect (.028) of PM competency on business perform-

<Table 4> Test Results for Mediation Effect Hypotheses

	Hypothesis paths	Indirect effect (Unstandardized coefficient)	95%Cl (Bias-corrected bootstrap)	Р	
Н6	Consultant competency—Consulting performance	Business performance	.034	(012302)	.149
Н7	PM competency—Consulting performance	Business performance	.028	(177131)	.154

ance through the mediation of consulting performance, suggesting the mediation effect to be insignificant and ultimately, rejecting H7. This result demonstrates that consulting performance does not mediate between PM competency and business performance.

5. Conclusions and Implications

To verify the direct effects of the independent variables of consultant competency and PM competency on the endogenous variables of consulting performance and business performance, and the significance of the mediation effect of consulting performance for the influence of each independent variable on business performance, this study conducted confirmatory factor analysis, path analysis, and mediation effect analysis. Regarding the significance of direct effects, consultant competency has a positive impact on both consulting performance and business performance, but PM competency has a negative effect on each endogenous variable. From an academic point of view, this study suggests that consulting services from famous overseas or domestic consulting companies can be provided by all institutions with large manpower and abundant funds, increasing the direct influence of consultants' capabilities on endogenous variables. However, small and medium-sized firms with a smaller workforce and financial inflexibility can achieve business performance through consulting performance. The importance of the PM's role and competency is relatively more emphasized in such firms since it is up to the PMs to produce consulting performance through the consulting coupon system and other forms of financial support from the government. In the case of client firms with a small number of employees, they receive budgetary assistance from the government and must employ a skillful consultant within the given financial means. In such firms, the expertise, management, and human relations capabilities of the PM are a medium between consulting performance and business performance, playing a decisive role in the success or failure of the latter. However, for firms with a large number of employees and with many participating in a consulting service, the ability, knowledge, and attitude of consultants, rather than PM competency, have a direct impact on business performance.

Nonetheless, management consulting by external experts offers advice or guidance, rather than directly solving management challenges that client companies face. Hence, the implementation of the results of management consulting into

the company's actual business activities is determined by the judgement and responsibility of the management. This study confirmed that the mediating effect of consulting performance for the exogenous variables of consultant competency and PM competency, which impact business performance, depends on the size of the client company and the number of participants in consulting.

From a practical point of view, this study is significant in that it presented efficient and effective ways to carry out consulting. It established that the high competency of PMs is essentially a merging of their expertise, management ability, and human relations ability.

Finally, it is necessary to strengthen the collaboration system between consultants and PMs in order to increase the performance capabilities of successful consulting projects.

The limitation of this study is that it did not consider the size of consulting client firms, their types of business, and consulting field and duration. Future studies that take the aforementioned factors into account are expected to greatly contribute to improving the technology and management consulting solutions for small and medium sized manufacturing companies.

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