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Building Operational Performance using Strategic Agility through Competitive Capability: Roles of Innovation Capability and Talent Development in the Oil and Gas Industry

Victor Efe Onoriode Sodje

[1]*NiBS University, South Legon, Accra*
Corresponding Author*:* **Victor Efe Onoriode Sodje**
Email: victorfejiro@yahoo.com

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Abstract

Conflicting findings remain in the relationship between strategic agility dimensions and performance. However, inadequate explanations exist. This leaves room for further debate. The study attempts to resolve this conflict. It contributes by introducing a mediator—competitive capability—and two conditional factors—innovation capability and talent development—leveraging the dynamic capability and human capital theories. This study collected and analysed quantitative data from 218 top executives across 175 oil and gas companies in Nigeria. The partial least square-structural equations modelling technique was used to analyse the data. The study found that competitive capability partially mediated in the relationship between strategic agility and operational performance. Innovation capability and talent development positively moderated the relationship between strategic agility and competitive capability. This study provides practical lessons for oil and gas company managers and boards. First, managers should invest in technologies and systems that enable quick data analysis and decision-making. For instance, they should invest in oil production facilities that alert managers to potential problems before they escalate. They should invest in security monitoring technologies to quickly identify theft, vandalism, or illegal bunkering attempts. Second, managers should invest in specific competitive capabilities. For instance, they should invest in 3D/4D seismic imaging technologies to minimise exploratory drilling failures and expand the reservoir description. Third, boards should design and implement reward systems that recognize and compensate innovation and risk-taking. This study contributes to the strategic management field by resolving

the agility–performance inconsistency paradox using competitive capability. It challenges existing works that have assumed that the relationship between strategic agility and performance is straightforward. It is the first to show how innovation capability and talent development may be manipulated to enhance competitive capability in the context of agile operations. It provides contextual evidence from Nigeria's oil and gas industry.

Keywords: *agility, dynamic capabilities, innovation capability, talent development, Nigeria;*

1. Introduction

There is a lack of precision in delineating the dimensions of strategic agility (Walter, 2021). The lack of precision resulted in conflicting findings on the relationship between strategic agility dimensions and performance (e.g., Aldhaheri & Ahmad, 2023; Zastempowski & Cyfert, 2023). To illustrate, Zastempowski and Cyfert (2023) opine that only competence and responsiveness dimensions strengthened performance. In contradiction, Bidhandi and Valmohammadi (2017), found that all four elements of strategic agility—strategic speed, strategic responsiveness, strategic flexibility, and strategic competency (Sharifi & Zhang, 1999)—increased performance. The mixed findings suggest that the elements of strategic agility may have varied levels of influence on performance. However, this conflict remains unresolved (Aldhaheri & Ahmad, 2023). This opens the concept of strategic agility to subsequent debate and warrants a re-examination of the strategic agility elements.

Companies that embrace strategic agility typically become more competitive (Amini & Rahmani, 2023) as they explore various differentiating methods (Aldhaheri & Ahmad, 2023). Competitive capability refers to the specific processes and metrics that a company uses to separate itself from competitors, which makes it attain superiority and excellence (Porter, 1980; Magretta, 2011). A key competitive capability is a company's ability to efficiently and promptly adapt and respond to unforeseen industry modifications (Ngai et al., 2011).

The literature suggests that strategic agility and competitive capability are positively related (Aldhaheri & Ahmad, 2023; Zastempowski & Cyfert, 2023; Amini & Rahmani, 2023; Motalo et al., 2023; Tufan & Mert, 2023). At the same time, capability and operational performance are positively related (Chen et al., 2022; Yu et al., 2022; Iranmanesh et al., 2021; Saragih et al., 2020). Yet, the mediating role of competitive capability is not clear and yet to be fully comprehended. Competitive capability has functioned as a mediator (Rezazadeh et al., 2023; Elgarhy & Abou-Shouk, 2023; Marolt et al., 2022; Rashidirad & Salimian, 2020; Oyewobi et al., 2019); therefore, it may similarly mediate in the relationship between strategic agility and operational performance. Given the mixed findings between strategic agility dimensions and performance, this study contributes by introducing competitive capability as a mediator in the relationship between strategic agility and operational performance.

Companies that are competitive consider environmental and safety stewardship a priority in their operations (Bade et al., 2024). As they seek to decrease accidents and environmental carbon emissions, they invest heavily in advanced safety protocols, capacity-building activities, and site equipment (Shabani et al., 2023). This puts them in a better position to minimise workplace accidents (Hauashdh et al., 2022). By doing this, they are able to better manage their supply chain (Meredith & Shafer, 2023), as they create and maintain good associations with suppliers, create efficient inventory and logistics management practices, and use supply chain

optimisation that includes digital technologies (Yang et al., 2021). Consequently, they decrease obstructions, decrease lead times, and eventually improve operational performance (Kamalahmadi et al., 2022).

The dynamic capability view theory provides insights into this perspective. The theory holds that companies possessing superior dynamic capabilities will surpass those with inferior dynamic ones by giving them a competitive advantage (Teece et al., 1997). Essentially, companies can increase their operational performance by adequately harnessing their dynamic capabilities (Maiti et al., 2020), such as strategic agility and competitive capability. As a company offers timely reactions and adopts flexibility and effectiveness, it becomes dynamic and enjoys a competitive advantage (Chen, 2019). The dynamic capability theory also explains how a company consolidates strategic agility and competitive capability to enhance operational performance.

Innovation capability represents another crucial dynamic capability that can be leveraged to drive competitive capability. Innovation capability refers to the ability to create, cultivate, and execute new ideologies and solutions that offer value to a company (Hurley & Hult, 1998). Innovation capability represents a key dynamic capability that is useful to attaining and constantly enhancing company deliverables (Nguyen et al., 2024; Alghamdi & Agag, 2024; Kruger & Steyn, 2024). In addition, innovation capability has functioned as a moderator in existing studies (Vakulenko, 2021; AlMulhim, 2021). However, the available literature on firm innovation capability ignores how innovation capability may be conditioned to shape the strategic agility–competitive capability relationship.

Talent development also represents another crucial dynamic capability that can be leveraged to shape competitive capability. Talent development refers to the preparation, selection, and implementation of growth strategies for all of the employees within a company (Garavan et al., 2012). The rationale behind talent development is to enable workers to get fresh expertise and experience to advance the success of companies (Chen et al., 2021). The literature suggests that talent development is vital for improving strategic agility (Kafetzopoulos, 2022; Jooss et al., 2024) and competitive capability (Pagan-Castano et al., 2022). Yet, the available literature precludes information on how talent development may shape competitive the capability of companies.

Companies within the oil and gas industry in Nigeria have passed through several operational performance challenges. These challenges include exploration problems, falling production, funding problems, criminality, vandalism, theft, illegal bunkering, oil price fluctuations, etc. (Omotola & Fayomi, 2024). Scholars have argued that these performance challenges exist because the oil and gas companies in Nigeria persist in doing what was once right for too long (Fakunmoju et al., 2020; Arokodare, 2021; Georgewill, 2021). They submit to the rigidity of their business model (Akpobolokami, 2022; Arokodare et al., 2023).

A company's ability to respond to these challenges is critical to remaining a going concern. The strategic agility concept is considered a vital tool to convert fundamental business processes by aiding oil and gas companies to become more responsive to changes in the global environment (Oliveira-Dias et al., 2022). Al Humdan et al. (2020) explain strategic agility as the ability of a company to adapt to change successfully by being ready and capable of responding quickly and effectively to emerging risks and market uncertainties.

Against this backdrop, the purpose of this research is to investigate the development

of strategic agility and operational performance through competitive capability in Nigeria's oil and gas industry while exploring the moderating roles of innovation capability and talent development in the relationship between strategic agility and competitive capability.

The study seeks to achieve four objectives: (1) to explain the effect of strategic agility on operational performance; (2) to explain the intervening effect of competitive capability in the relationship between strategic agility and operational performance; (3) to investigate the moderating role of innovation capability in the relationship between strategic agility and competitive capability; and (4) to explore the moderating role of talent development in the relationship between strategic agility and competitive capability.

2. Literature Review

2.1 Theoretical Review

2.1.1 Dynamic Capability View

The dynamic capability theory holds that companies possessing superior dynamic capabilities will surpass those with inferior dynamic ones by giving them competitive advantage (Teece et al., 1997). The theory regards strategic agility, competitive capability, innovative capability, and talent development as dynamic capabilities that a company can leverage to achieve operational performance over rivals.

Human Capital Theory

Becker (1964) came up with the human capital theory. The theory considers talent development as a form of education and training for employees, categorizing them as investments in employees' talent development. Marshall (1920) states that, "The most valuable of all capital is invested in humans" (p.564). The human capital theory helps to better understand how talent development might affect the connection between strategic agility and competitive capability. Investment in employee skills and knowledge via talent development programs may enhance the competitive capability of a company. This human capital investment is required to support agile companies in their quest to excel in competition.

Integration of Dynamic Capability and Human Capital Theories

This study integrates the dynamic capability and human capital theories. The integration of dynamic capability and human capital theories occurs when talent development, which is originally explained by human capital theory, is also considered a dynamic capability in the context of dynamic capability theory. As such, talent development represents both a dynamic capability and an investment in human capital that can be manipulated. This manipulation may either enhance or undermine the relationship between strategic agility and competitive capability.

2.2 Hypotheses Development

2.2.1 Strategic Agility and Operational Performance

Strategic agility is the ability of a firm to adapt to change successfully by being ready and capable of responding quickly and effectively to emerging risks and market uncertainties (Al Humdan et al., 2020). Sharifi and Zhang (1999) has proposed four strategic agility dimen-

sions—strategic speed, strategic responsiveness, strategic flexibility, and strategic competency. Strategic speed refers to the timeliness of a company's behaviour, which aid them to smartly and quickly exploit opportunities while also enhancing organisational success (Gölgeci et al., 2020). Strategic responsiveness is a company's ability to rapidly exploit opportunities provided by changing consumer preferences or environmental circumstances (Walter, 2021). Strategic flexibility refers to the ability to respond to industry ambiguity (Huo et al., 2021). Strategic competency represents a company's ability to efficiently and effectively achieve its targets and aims (Attar & Abdul-Kareem, 2020).

Strategic agility enables companies to change their business model more frequently, faster, and in a wider range of ways than in the past (Battistella et al., 2017). Companies that embrace strategic agility stand a chance of increasing stability in customer satisfaction (Tam et al., 2020) and performance (Clampit et al., 2022; Cho et al., 2023; Panda, 2022). They enjoy digitalization (Pfaff, 2023), absorption capacity (Lippsmeyer & Langemeier, 2023), sustainability benefits (Tufan & Mert, 2023), and improved employee work engagement (Ludviga & Kalvina, 2023). They can better innovate (Bouguerra et al., 2023), manage risks (Saleh & Saad, 2023), survive in uncertain times (Elali, 2021), are resilient (Olaleye et al., 2021), stand the tests of time, and withstand environmental dynamics (Reed, 2021). To this end, this research anticipates that strategy agility and operational performance will positively related. It hypothesizes that:

H_1: Strategic agility will have a positive influence on operational performance among the oil and gas companies.

2.2.2 Strategic Agility, Competitive Capability, Operational Performance

Competitive capability is a firm's utilisation of specific procedures and metrics that distinguish it from its rivals and enable it to achieve excellence and superiority (Porter, 1980; Magretta, 2011). The available literature theoretically offers credence for a positive connection between strategic agility and competitive capability (Aldhaheri & Ahmad, 2023; Zastempowski & Cyfert, 2023; Amini & Rahmani, 2023; Motalo et al., 2023; Tufan & Mert, 2023). It also provides support for a positive relationship between capability and operational performance (Chen et al., 2022; Yu et al., 2022; Iranmanesh et al., 2021; Saragih et al., 2020).

In addition, several studies (Rezazadeh et al., 2023; Elgarhy & Abou-Shouk, 2023; Marolt et al., 2022; Rashidirad & Salimian, 2020; Oyewobi et al., 2019) have demonstrated the mediating role of competitive capability. Therefore, competitive capability has the potential to do the same in the relationship between strategic agility and operational performance. From the foregoing, this study proposes that:

H_2: Strategic agility will positively influence operational performance through the intervention of competitive capability.

2.2.3 Innovation Capability, Strategic Agility, Competitive Capability

Innovation capability refers to a company's ability to generate, develop, and implement novel ideas and solutions that create value, balancing risk tolerance and creativity to drive technological advancements and operational improvements in exploration, production, and sustainability practices (Hurley & Hult, 1998). Innovation capability represents a key dynamic capability that is useful to attaining and constantly enhancing company deliverables (Nguyen

et al., 2024; Alghamdi & Agag, 2024; Kruger & Steyn, 2024).

Vokurka and Fliedner (1998) consider strategic agility as a context-contingent capability. Given this, this study theorizes that an organisation's ability to stay agile may be contingent on other dynamic capabilities within the organisation. This view is supported by Vagnoni and Khoddami (2016), who maintain that a company's success in attaining and remaining strategically agile depends on other dynamic capabilities within their control, one of which is innovation capability.

As internal resources, companies can manipulate innovation capability to shape competitive capability in the context of agile operations. Such that strong innovation capability can improve the strategic agility–competitive capability relationship. The relevance of the innovation capability concept is explicated in the literature (for example, Hutton et al., 2024; Sultana et al., 2022). In addition, innovation capability has functioned as a moderator in several direct relationships (Vakulenko, 2021; AlMulhim, 2021). Therefore, this study hypothesizes that:

H_3: The relationship between strategic agility and competitive capability will be enhanced when innovation capability is higher than lower.

2.2.4 Talent Development, Strategic Agility, Competitive Capability

Talent development involves the preparation, selection, and execution of growth plans for all of the talent pool and aligns development initiatives with talent management procedures (Garavan et al., 2012). Talent development enables workers to bring fresh expertise and experience to companies, increasing their adaptability, innovation, and stability in the midst of environmental dynamism (Chen et al., 2021). To ensure that companies have a current and prospective talent supply to accomplish their long-term goals, they must develop talent.

A company's agile capability leverages the influence of people and recognises the value of employees as a company asset, placing a greater emphasis on empowerment, training, and education, which are reflected in the talent development programmes championed by the company (Goldman et al., 1995). According to the literature, talent development is a crucial dynamic capability that can help a company achieve and continually improve its strategic agility (Kafetzopoulos, 2022; Jooss et al., 2024) and competitive capability (Pagan-Castano et al., 2022). In addition, a number of published studies opine that competitiveness is raised in companies that strive to create talent development practices (Kafetzopoulos, 2022). In this regard, companies that make talent development a top-most priority can better enhance the strategic agility–competitive capability relationship. To this extent, this study hypothesizes that:

H_4: The relationship between strategic agility and competitive capability will be enhanced when talent development is higher than lower.

2.3 Conceptual Model

Using the dynamic capability view and human capital theories as lenses, Figure 1 presents a conceptual framework based on four research objectives for this study. In this framework, strategic agility functions as the key predictor construct, while operational performance represents the target response construct. Strategic agility is modelled as a multi-dimensional construct, comprising four sub-constructs of strategic speed, strategic responsiveness, strategic flexibility, and strategic competency. Competitive capability serves as a mediating construct.

Both innovation capability and talent development function as moderators in the strategic agility-competitive capability relationship. Slack resources, business dynamism, and board experience serve as control variables on the mediator construct (that is, competitive capability). Similarly, firm size, firm age, and technological dynamism serve as control variables on the target response construct (that is, operational performance).

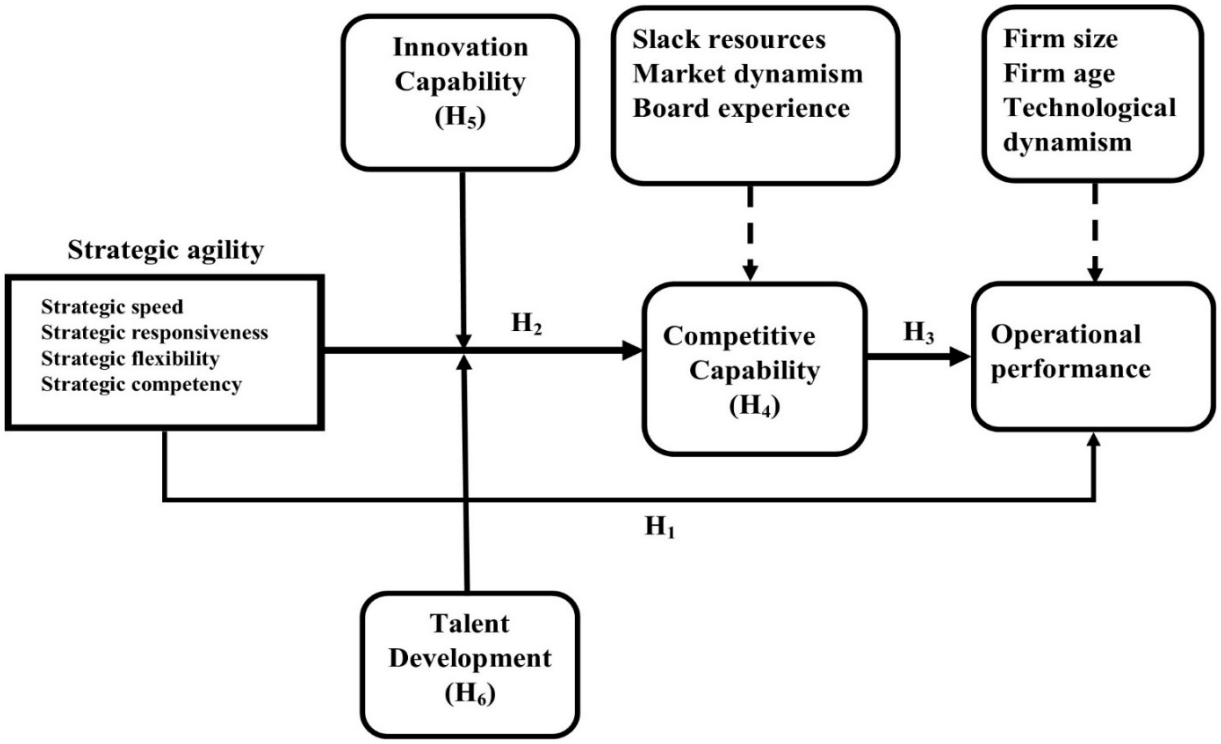

Figure 1. Conceptual Model

3. Methods

3.1 Design, Population, Sampling

The study adopted the explanatory research approach. The population of this study included upstream, midstream, and downstream oil and gas businesses operating in Nigeria. Using stratified sampling, the target population comprises companies in Delta State, Lagos State, Rivers State, and Bayelsa State. These regions were selected due to the prevalence of major oil and gas corporations in their locations. These regions presented a total of 50 upstream, 25 middle stream, and 100 downstream companies as of 29th October 2024.

Two top executives were chosen from each company (the chief executive officer and any other board member). The researcher of this study needed at least one respondent from each of the 175 companies. So, the researcher selected two persons per company just in case one executive does not respond. This approximates the target population at 350 individuals. A

census was used to select all 350 top executives to serve as potential respondents. Consequently, two-stage sampling was adopted.

3.2 Data Collection

A structured questionnaire (measures of key constructs found in Appendix A) was self-completed by the top executives of the oil and gas companies, who served as respondents. A total of 350 photocopies of the data collection instrument were carefully packaged in envelopes and accompanied and distributed to the top executives, and they retrieved them once they completed the task. The top executives were only required to complete a single questionnaire. The data was collected at a snapshot, one point in time.

To reduce the degree of non-response and facilitate data collection, follow-ups were carried out through personal visits and phone calls to the selected companies. Data collection spanned approximately one month. Two hundred and eighteen (218) of the 350 blank questionnaires that were distributed were effectively completed and returned; thus, they were incorporated into the data analysis. This process led to the sample realisation rate of 62.29% (218/350*100%).

Ethical concerns that were addressed included but not limited to willingness to participate in the research, the right to secrecy, anonymity, and privacy of information. To minimize common method biases, this study used dissimilar measure response layouts for distinct variables (Podsakoff et al., 2012). Furthermore, the researcher obtained indicators for independent and dependent constructs from various sources. The conceptual framework did not contain any psychological constructs.

3.3 Sample

The results of the background characteristics of the firms include firm age, staff strength, net worth of the firm, board experience of respondents, respondents' knowledge on strategic agility, competitive capability, operational performance, innovation capability, and talent development. These characteristics were displayed in Table 1.

Table 1. Background Characteristics of Firms

Variable	Frequency	Percentage
Firm age		
0- 3 years	31	14.23
4-7 years	38	17.43
8-11 years	89	40.82
12-15 years	45	20.64
15 years and above	15	6.88
Staff strength		
1- 20 persons	23	10.55
21-40	16	7.34
41-60	18	8.26
61-80	89	40.83
81-100	42	19.26

101 and above	30	13.76
Net worth		
US$25 million – 50 million	25	11.47
US$51 million – 100 million	126	57.80
US$101 million – 500 million	39	17.89
US$ above 500 million	28	12.84
Board experience		
0- 3 years	42	19.27
4-7 years	107	49.08
8-11 years	44	20.18
12-15 years	19	8.72
15 years and above	6	2.75

Table 1 revealed that most of the oil and gas companies had been in existence for 8 to 11 years since they were incorporated (n = 89, 40.82%), followed by 12-15 years (n = 45, 20.64%), then 4-7 years (n = 38, 17.43%), followed by 0-3 years (n = 31, 14.23%), and finally 15 years and above (n = 15, 6.88%). This result suggests that the sample includes younger and older firms.

Further analysis showed that the oil and gas companies kept a relatively small staff strength, with 89 companies revealing a staff strength between 61 and 80 persons, representing 40.83% of the total sample. Forty-two (42) companies, representing 19.26% of the total sample, followed this with a staff strength of 81-100 persons. Thirty (30) companies, representing 13.76% of the total sample, were next with a staff strength of 101 and above persons. Twenty-three (23) companies, representing 10.55% of the total sample, followed this with a staff strength of 1-20 persons. Eighteen (18) companies, representing 8.26% of the total sample, were next with a staff strength of 40-60 persons. Sixteen (16) companies, representing 7.34% of the total sample, followed this with a staff strength of 21-40 persons (Table 1).

Moreover, Table 1 showed that a vast majority (n = 126, 57.80%) of the oil and gas companies had a net worth of US$51 million–100 million, followed by those with a net worth of US$101 million–500 million (n = 39, 17.89%), closely preceded by a net worth of above US$500 million (n = 28, 12.84%), and then companies with a net worth of US$25 million–50 million (n = 25, 11.47%). Oil and gas companies with a net worth of about US$51-100 million and US$101 million–500 million in Nigeria typically represent mid- to large-sized operators with substantial operational capabilities.

Further analysis revealed that most of the respondents have 4 to 7 years of experience working in the boardroom (n = 107, 49.08%), followed by 44 respondents (20.18%) who indicated that they have 8-11 years of experience on the board of their companies (Table 1). Board members with 4-11 years of experience are seasoned decision-makers who understand both traditional and emerging industry dynamics.

3.4 Data Analysis

Smart PLS software package 4 by Ringle et al. (2014) was employed. The tool that was applied was partial least squares-structural equation modelling (PLS-SEM). First, reliability and validity tests were conducted to ensure data cleaning. Second, the direct effects were analysed. Third, the mediation effect was analysed using the variance-accounted-for approach. Then, the moderating effect was examined using the product indicator approach.

4. Results

4.1 Descriptive Statistics

The mean results of Table 2 showed that the oil and gas companies were strategically agile. Agile firms tailor their activities to meet the new market or operational demands (Braunscheidel & Suresh, 2009). The companies scored high on operational performance. Operational performance holds significant importance for companies, as it enhances the efficiency of production activities and facilitates the creation of high-quality products (Kaynak, 2003), resulting in greater revenue and profit for the organisations.

Table 2. Descriptive Statistics

Variables	Valid indicators	Mean	Median	Standard deviation	P-value	Excess kurtosis	Skewness
Strategic agility	SS02	5.41	6.00	1.43	0.00	1.09	-1.11
	SS05	5.80	6.00	1.31	0.00	2.51	-1.48
	SS07	5.52	6.00	1.33	0.00	0.84	-0.97
	SR05	5.62	6.00	1.27	0.00	0.80	-0.94
	SR06	5.61	6.00	1.34	0.00	1.48	-1.15
	SR07	5.39	6.00	1.33	0.00	0.47	-0.74
	SF01	5.78	6.00	1.26	0.00	1.38	-1.19
	SF02	5.75	6.00	1.33	0.00	2.08	-1.38
	SF06	5.50	6.00	1.34	0.00	0.66	-0.91
	SC02	5.76	6.00	1.27	0.00	1.24	-1.15
	SC03	5.74	6.00	1.33	0.00	2.08	-1.38
	SC05	5.49	6.00	1.33	0.00	0.75	-0.91
Operational performance	OP01	5.57	6.00	1.23	0.00	2.02	-1.23
	OP02	5.53	6.00	1.43	0.00	1.75	-1.38
	OP03	5.57	6.00	1.32	0.00	1.87	-1.30
	OP04	5.57	6.00	1.23	0.00	1.95	-1.20
	OP05	5.50	6.00	1.42	0.00	1.75	-1.35
	OP06	5.57	6.00	1.32	0.00	1.89	-1.28
	OP07	5.50	6.00	1.44	0.00	1.62	-1.34
	OP08	5.52	6.00	1.33	0.00	1.65	-1.22
	OP09	5.55	6.00	1.25	0.00	1.74	-1.15

Innovation capability	IC01	5.71	6.00	1.14	0.00	1.23	-0.86
	IC02	5.72	6.00	1.07	0.00	0.42	-0.68
	IC03	5.77	6.00	1.02	0.00	1.16	-0.94
	IC04	5.78	6.00	1.10	0.00	0.28	-0.77
	IC05	5.66	6.00	1.15	0.00	1.11	-0.82
Slack resources	SLR02	5.40	6.00	1.18	0.00	0.49	-0.64
	SLR03	5.51	6.00	1.15	0.00	0.53	-0.70
	SLR04	5.57	6.00	1.13	0.00	0.44	-0.62
Technological dynamism	TDY01	5.57	6.00	1.09	0.00	1.96	-0.99
	TDY02	5.68	6.00	1.11	0.00	1.55	-0.90
	TDY03	5.61	6.00	1.29	0.00	0.57	-0.89
	TDY04	5.51	6.00	1.32	0.00	1.72	-1.14
Talent development	TD01	2.18	2.00	1.24	0.00	1.97	1.37
	TD02	2.25	2.00	1.34	0.00	1.14	1.23
	TD05	2.35	2.00	1.29	0.00	0.53	1.02
	TD06	2.21	2.00	1.14	0.00	1.16	0.99
	TD07	2.38	2.00	1.29	0.00	2.29	1.26
	TD08	2.24	2.00	1.19	0.00	0.60	0.90
Market dynamism	MD01	4.75	5.00	1.74	0.00	-0.43	-0.60
	MD03	4.70	5.00	1.69	0.00	-0.54	-0.59
	MD06	4.70	5.00	1.64	0.00	-0.38	-0.44
Competitive capability	CC01	5.53	6.00	1.34	0.00	1.99	-1.21
	CC02	5.45	6.00	1.18	0.00	0.53	-0.68
	CC03	5.37	6.00	1.31	0.00	1.27	-1.01

The companies had a robust innovation capability. This means that they were proficient in creating new goods and processes, as well as attaining exceptional technological and managerial performance. The companies had a high degree of organisational assets that are yet to be fully utilized (i.e. slack resources). The companies showed a high rate of technological transformation (i.e. technological dynamism) and demonstrated robust competitive capability.

However, the companies fell short in the preparation, selection, and execution of growth plans for all of their talent pool (i.e. talent development). This area needs improvement to guarantee that the companies have a current and prospective talent supply to accomplish long-term goals and develop initiatives (Garavan et al., 2012). The oil and gas industry of Nigeria, composed of consumers and competitors, displayed a high degree of exit and entry.

Some of the excess kurtosis and skewness values suggested that the dataset was not normally distributed. However, PLS-SEM, which was used to analyse the dataset, is highly resilient under circumstances where the dataset is not normal (Hair et al., 2017). Therefore, there was no need for concern.

4.2 Reliability and Convergent Validity Tests

Table 3 suggests that the variables were reliable because the Cronbach's alpha and

composite reliability values were all greater than 0.7. In addition, the variables demonstrated greater convergent validity. This is because the average variance extracted (AVE) values were all greater than 0.5.

Table 3. Reliability and Validity

Variables	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Competitive capability	0.85	0.86	0.91	0.77
Innovation capability	0.91	0.91	0.93	0.73
Market dynamism	0.76	0.81	0.86	0.67
Operational performance	0.97	0.97	0.97	0.78
Slack resources	0.81	0.81	0.89	0.72
Strategic agility	0.96	0.96	0.97	0.71
Talent development	0.88	0.90	0.91	0.63
Technological dynamism	0.86	0.87	0.91	0.70

4.3 Discriminant Validity Tests

Table 4 displayed the Fornell-Larcker Criterion and Heterotrait-Monotrait Ratio. The bold and italicised values in the Fornell-Larcker criterion (left hand) were bigger than any inter-variable correlation values. The heterotrait-monotrait ratio for all the variables (right side) was below 0.85. The results suggested that discriminant validity was assured.

Table 4. Discriminant Validity

	Fornell-Larcker Criterion								**Heterotrait-Monotrait Ratio**							
Variables	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Competitive capability	***0.88***															
Innovation capability	0.65	***0.85***							0.74							
Market dynamism	0.38	0.25	***0.82***						0.44	0.28						
Operational performance	0.55	0.43	0.16	***0.88***					0.60	0.46	0.17					

Slack resources	0.72	0.54	0.33	0.49	***0.85***				0.76	0.63	0.39	0.55				
Strategic agility	0.59	0.45	0.16	0.74	0.59	***0.85***			0.64	0.49	0.17	0.76	0.66			
Talent development	-0.54	-0.60	-0.36	-0.39	-0.66	-0.49	***0.79***		0.61	0.66	0.43	0.42	0.76	0.52		
Technological dynamism	0.74	0.52	0.38	0.47	0.83	0.59	-0.59	***0.84***	0.76	0.58	0.44	0.51	0.72	0.64	0.66	

4.4 Exploratory Factor Analysis

Table 5 displayed the exploratory factor analysis.

Table 5. Exploratory Factor Analysis

Variables	**Components**								
	Indicators	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Competitive capability	CC01	0.74							
	CC02	0.80							
	CC03	0.80							
	CC04	0.51							
	CC05	0.43							
Innovation capability	IC01		0.74						
	IC02		0.75						
	IC03		0.74						
	IC04		0.75						
	IC05		0.78						
Market dynamism	MD01			0.64					
	MD02			0.45					
	MD03			0.76					
	MD04			0.51					
	MD05			0.44					
	MD06			0.75					
Operational performance	OP01				0.90				
	OP02				0.91				
	OP03				0.89				
	OP04				0.89				
	OP05				0.89				
	OP06				0.86				
	OP07				0.89				
	OP08				0.86				
	OP09				0.88				

Slack resources	SLR01					0.51			
	SLR02					0.72			
	SLR03					0.79			
	SLR04					0.74			
Strategic agility	SC01						0.44		
	SC02						0.64		
	SC03						0.78		
	SC04						0.53		
	SC05						0.80		
	SF01						0.65		
	SF02						0.78		
	SF03						0.24		
	SF04						0.47		
	SF05						0.62		
	SF06						0.80		
	SR01						0.41		
	SR02						0.54		
	SR03						0.32		
	SR04						0.52		
	SR05						0.43		
	SR06						0.71		
	SR07						0.74		
	SS01						0.54		
	SS02						0.67		
	SS03						0.42		
	SS04						0.38		
	SS05						0.79		
	SS06						0.56		
	SS07						0.81		
Talent development	TD01							0.66	
	TD02							0.71	
	TD03							0.53	
	TD04							0.33	
	TD05							0.76	
	TD06							0.65	
	TD07							0.69	
	TD08							0.69	
Technological dynamism	TDY01								0.76
	TDY02								0.86
	TDY03								0.74
	TDY04								0.79
	TDY05								0.54

4.5 Confirmatory Factor Analysis

During exploratory factor analysis, some indicators were removed because they did not meet the 0.7 benchmark. This helped to enhance the robustness of the final model. The affected indicators were competitive capability (CC04, CC05), market dynamism (MD02, MD04, MD05), slack resources (SLR01), strategic agility (SC01, SC04, SF03, SF04, SF05, SR01, SR02, SR03, SR04, SR05, SS01, SS03, SS04, SS06), and technological dynamism (TDY05).

The exploratory factor analysis also saw the deletion of all the indicators of board experience, which served as one of the control variables for the mediator construct—competitive capability—because they failed to meet the benchmark. The same applied to firm size and firm age, which served as control variables for the target dependent variable—operational performance. As a result, these three variables—board experience, firm size, and firm age—and their indicators were completely eradicated. The writer only kept variables that had at least two reliable indicators meeting the threshold. **F**igure 2 displays the confirmatory factor analysis. It also shows the beta values of the final structural model.

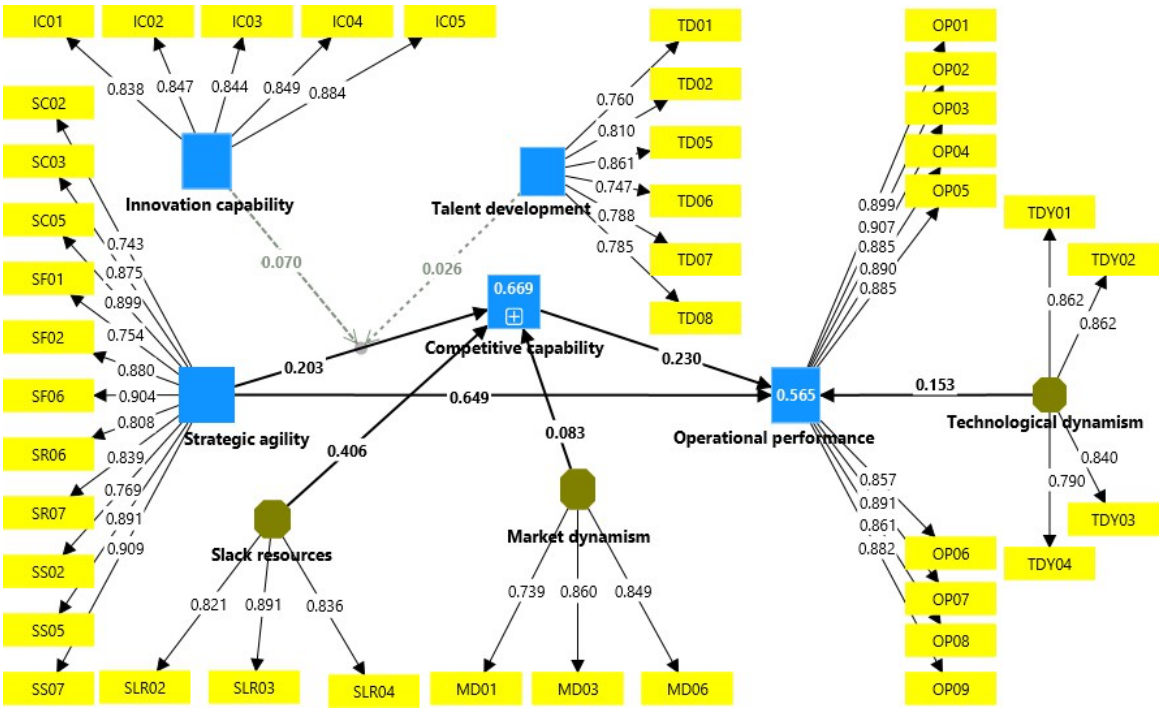

Figure 2. Confirmatory Factor Analysis and Beta Values of Final Structural Model

4.6 Tests of Hypotheses

The first objective of this study was to examine the effect of strategic agility on operational performance. Figure 2 (β values) and Figure 3 (*p* values) showed that strategic agility and operational performance were positively and significantly related (β = 0.65, *p* = 0.00), as hypothesized. This finding offered evidence in favour of the first hypothesis (H_1) of this study.

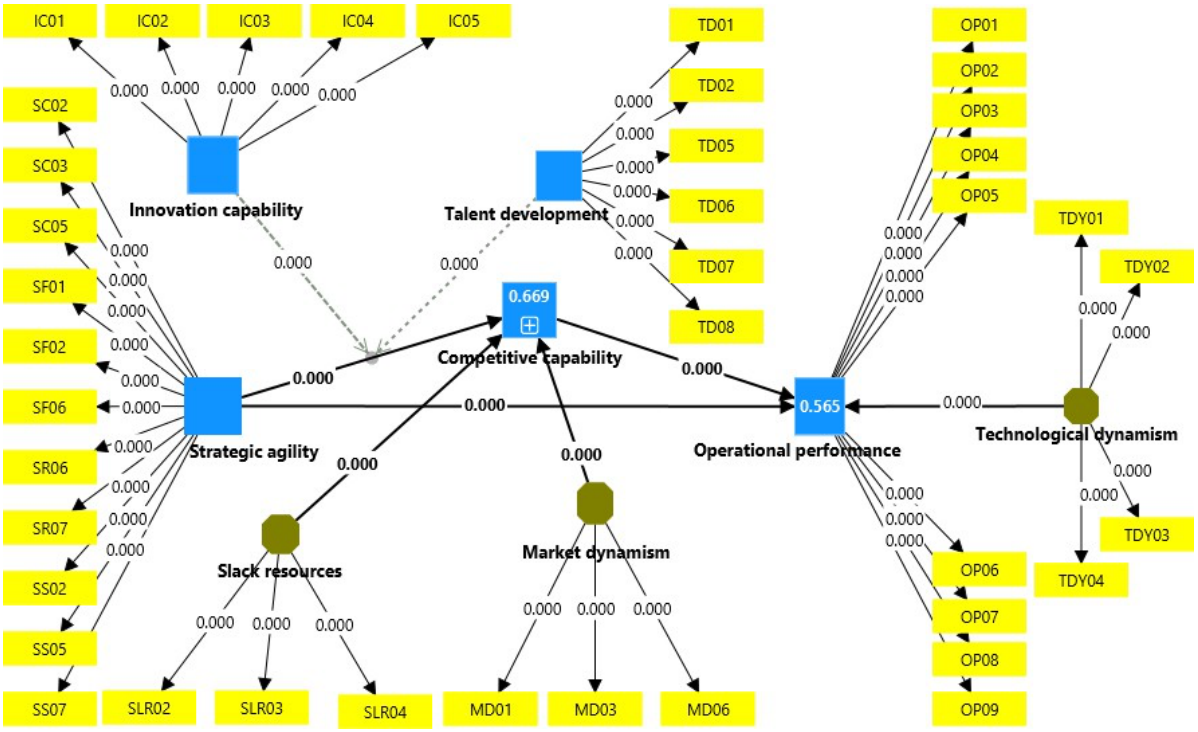

Figure 3. P-values of Final Structural Model

The second objective of this study was to explain the intervening effect of competitive capability in the relationship between strategic agility and operational performance. As suggested by Preacher and Hayes (2004, 2008), partial mediation takes place when the variance-accounted-for is above 20% but below 80%. Table 6 estimates the variance-accounted-for to be 28.57%. So, the mediation analysis showed that competitive capability partially mediated in the relationship between strategic agility and operational performance.

Table 6. Variance-Accounted-For Analysis for the Mediating Impact of Competitive Capability between Strategic Agility and Operational Performance

Type of Effect	Particulars	β	*p*-value	VAF
Direct Effect	Strategic Agility->Operational Performance	0.65	0.00	-
Indirect Effect	Strategic Agility->Competitive Capability->Operational Performance	0.26	0.00	-

Total Effect	[(Strategic Agility->Operational Performance) + (Strategic Agility->Competitive Capability->Operational Performance)]	0.91	-	-
VAF	(Strategic Agility->Competitive Capability->Operational Performance) /[(Strategic Agility->Operational Performance) + (Strategic Agility->Competitive Capability->Operational Performance)]*100%	-	-	28.57%

The third objective of this study was to investigate the moderating role of innovation capability in the relationship between strategic agility and competitive capability. By observing Figure 2 (β values) and Figure 3 (*p*-values), this research found that innovation capability positively and significantly moderated the relationship between strategic agility and competitive capability (β = 0.07, *p* = 0.00), as hypothesized. This finding supports the third hypothesis (H_3) of this study.

The fourth and final objective of this study was to explore the moderating role of talent development in the relationship between strategic agility and competitive capability. By observing Figure 2 (*β* values) and Figure 3 (*p*-values), this study found that talent development positively and significantly moderated the relationship between strategic agility and competitive capability (*β* = 0.03, *p* = 0.00), as hypothesized. This finding supports this study's fourth and final hypothesis (H_4).

Regarding the control variables, Figure 2 (*β* values) and Figure 3 (*p*-values) revealed that slack resources (*β* = 0.41, *p* = 0.00) and market dynamism (*β* = 0.08, *p* = 0.00) had positive and significant impacts on competitive capability. In addition, technological dynamism showed a positive and significant impact on operational performance (*β* = 0.15, *p* = 0.00).

5. Discussion and Conclusions

5.1 Discussion of Findings

This study sought to achieve four objectives. With regards to the first objective, the results revealed that strategic agility and operational performance were positively and significantly related. This finding implies that the strategic agility drives operational performance. The finding builds on the findings of earlier studies in the field (Amini & Rahmani, 2023; Tam et al., 2020; Pfaff, 2023; Lippsmeyer & Langemeier, 2023; Tufan & Mert, 2023; Ludviga & Kalvina, 2023; Bouguerra et al., 2023; Saleh & Saad, 2023; Elali, 2021; Olaleye et al., 2021; Reed, 2021). The finding also moves the theory of dynamic capabilities view forward.

Regarding the second objective, the finding indicated that competitive capability partially mediated in the relationship between strategic agility and operational performance. This implies that agile companies build stronger competitive capability and this, in turn, improves their operational performance. This finding improves on previous works in the area (Aldhaheri & Ahmad, 2023; Zastempowski & Cyfert, 2023; Amini & Rahmani, 2023; Motalo et al., 2023; Tufan & Mert, 2023; Chen et al., 2022; Yu et al., 2022; Iranmanesh et al., 2021; Saragih et al., 2020; Rezazadeh et al., 2023; Elgarhy & Abou-Shouk, 2023; Marolt et al., 2022; Rashidirad & Salimian, 2020; Oyewobi et al., 2019). This finding also builds on the theory of dynamic capability.

Concerning the third objective, the finding indicated that innovation capability positively and significantly moderated the relationship between strategic agility and competitive capability. This finding implies that the relationship between strategic agility and competitive capability is strengthened when the oil and gas companies' innovation capability is high but weakened when it is low.

This finding represents a ground-breaking contribution to the strategic management literature. In addition, it builds on a number of works on innovation capability (for example, Hutton et al., 2024; Sultana et al., 2022). Furthermore, it challenges existing works that have assumed that the relationship between strategic agility and competitive capability is straightforward (Aldhaheri & Ahmad, 2023; Zastempowski & Cyfert, 2023). Also, this finding supports what other studies have found about how innovation capability can change other direct relationships (Vakulenko, 2021; AlMulhim, 2021). The finding adds to the dynamic capability view by showing how a company can improve its ability to innovate in order to become more competitive in agile operations.

The fourth and final objective of this study was to explore the moderating role of talent development in the relationship between strategic agility and competitive capability. The finding revealed that talent development positively and significantly moderated the relationship between strategic agility and competitive capability, as expected. This finding implies that relationship between strategic agility and competitive capability is tougher if organisations invest in their talent but feebler if they do not. This finding expands on earlier works on the topic (Kafetzopoulos, 2022; Jooss et al., 2024; Pagan-Castano et al., 2022) and adds to Becker's (1964) human capital theory.

5.2. Theoretical Contributions

The findings of this study provide empirical evidence supporting the core tenets of the dynamic capabilities view theory. It extends the applicability of human capital theory. It also advances the strategic management, human resource management, and operations management fields.

Beyond these discipline-specific contributions, the study makes broader theoretical contributions to our understanding of how organizations function in high-risk, capital-intensive environments. By examining these relationships in the Nigerian oil and gas industry, the research provides insights into how theoretical frameworks developed primarily in western contexts apply in emerging market settings. This helps advance theory development by identifying boundary conditions and contextual factors that influence the application of existing theoretical frameworks.

The study's integration of multiple theoretical perspectives—dynamic capabilities view and human capital theory—represents a significant contribution to management theory by

showing how these different theoretical lenses can be combined to better understand complex organisational phenomena.

By examining how strategic agility influences both immediate competitive capability and longer-term operational performance, the study provides insights into the time-dependent nature of capability development and deployment.

In sum, this research therefore makes substantial theoretical contributions across multiple fields. The integration of multiple theoretical perspectives and the examination of complex moderating and mediating relationships advances our understanding of how organizations can develop and deploy capabilities to achieve superior performance in challenging environments.

5.3. Practical Recommendations

5.3.1 Managerial Implications

Executives should prioritize the strategic agility by investing more in their strategic competencies. They should build and maintain robust competitive capability. Managers should design organizational cultures and structures that actively promote innovation. Executives should execute organized rotation opportunities, mentoring programs, and career development pathways that expose employees to different aspects of the business. Operational leaders should concentrate on developing more responsive and flexible operational systems.

5.3.2 Policy Implications

Given the interconnected nature of these findings, policymakers should developing integrated policy frameworks that simultaneously address strategic agility, innovation, and talent development. This include establishing industry-wide standards for strategic management practices while providing support mechanisms for companies to meet these standards through innovation and talent development initiatives.

5.4. Limitation and Further Directions

This study has several notable limitations that open pathways for future research. The research focused solely on Nigeria's oil and gas industry, which may limit the generalizability of findings to other countries or regions with different regulatory environments, market structures, and operational challenges. The cross-sectional nature of the data collection means that the study captures relationships at a single point in time, potentially missing important temporal dynamics in how strategic agility develops and influences performance over time.

Future research could address these limitations by conducting longitudinal studies to examine how strategic agility, competitive capability, and operational performance evolve over time, particularly during periods of significant market disruption or technological change. Cross-cultural comparative studies could investigate how the relationships identified in this research manifest differently across various national contexts, helping to establish boundary conditions for the findings.

Researchers might also explore additional moderating variables beyond innovation capability and talent development. For instance, organizational culture, leadership styles, or environmental turbulence could influence the relationship between strategic agility and competitive capability. The role of digital transformation and technology adoption in enabling strategic agility and enhancing operational performance represents another promising avenue for inves-

tigation. Additionally, researchers could investigate potential negative consequences or trade-offs associated with pursuing strategic agility, as the current study appears to focus primarily on positive outcomes.

Finally, given the industry's increasing focus on sustainability and environmental concerns, future research could examine how strategic agility enables companies to balance economic performance with environmental and social responsibilities. Studies might also explore how strategic agility influences other important outcomes beyond operational performance, such as environmental performance, stakeholder relationships, or long-term sustainability.

5.5 Conclusions

First, this study concludes that strategic agility drives operational performance. Second, this study concludes that agile organisations build stronger competitive capability. Third, this study concludes that organisations with robust competitive capability are better positioned to drive operational performance. Fourth, this study concludes that agile organisations build stronger competitive capability and this, in turn, improve operational performance. Fifth, this study concludes that the relationship between strategic agility and competitive capability is strengthened if an organisation's innovation capability is higher but weakened if it is lower. Sixth, this study concludes that the relationship between strategic agility and competitive capability is tougher if organisations invest in their talent but feebler if they do not.

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Appendix. Measures of Key Constructs

Constructs	Code	Items	Source (s)	Scale answering format
Strategic speed	SS01	In our organisation, we prefer and tend to take our time when making strategic decisions.	Souitaris and Maestr (2010)	1: Strongly disagree to 7: Strongly agree
	SS02	Our organisation generally believe in making quick strategic decisions.		
	SS03	Our organisation places speed to a greater extent when planning or thinking about strategies.		
	SS04	Relative to our major competitors, our organisation design strategic plans very quickly.	Yi et al. (2014)	
	SS05	Relative to our major competitors, our organisation implement strategic plans very quickly.		
	SS06	Relative to our major competitors, the top managers in our organisation agree with each other rapidly on the design and implementation of new strategies.		
	SS07	Relative to our major competitors, the employees in our organisation accept firms' new strategies or strategic adjustments very quickly.		
Strategic responsiveness	SR01	Our organisation constantly monitor our level of commitment and orientation to serving customer needs.	Narver et al. (2004)	1: Strongly disagree to 7: Strongly agree
	SR02	Our organisation freely communicate information about our successful and unsuccessful customer experiences across all business functions.		
	SR03	Our organisation's strategy for competitive advantage is based on our understanding of customer needs.		
	SR04	Our organisation measure customer satisfaction systematically and frequently.		
	SR05	Our organisation is more customer-focused than our competitors.		
	SR06	Our organisation believe this business exists primarily to serve customers.		
	SR07	Data on customer satisfaction are disseminated at all levels in our organisation regularly.		

Strategic flexibility	SF01	Our organisation is flexible in responding to opportunistic shifts in economic conditions.	Zahra *et al*. (2008)	1: Strongly disagree to 7: Strongly agree
	SF02	Our organisation is flexible in responding to the emergence of an unexpected market opportunity.		
	SF03	Our organisation is flexible in responding to the emergence of a new technology that adversely affects your existing business.		
	SF04	Our organisation is flexible in responding to opportunistic shifts in customer needs and preferences.		
	SF05	Our organisation is flexible in responding to the market entry of new competition.		
	SF06	Our organisation is flexible in responding to adverse changes in government regulations.		
Strategic competency	SC01	Our organisation is committed to meeting its major operational deadlines.	McGrath et al. (1995)	1: Strongly disagree to 7: Strongly agree
	SC02	Our organisation is committed to meeting its operational quality objectives.		
	SC03	Our organisation is committed to meeting its operational reliability objectives.		
	SC04	Our organisation is committed to meeting its operational cost objectives.		
	SC05	Our organisation is committed to meeting its overall objectives.		
Competitive capability	CC01	Our organisation offers product quality that creates higher value for customers.	Kafetzopoulos et al. (2015)	1: Strongly disagree to 7: Strongly agree
	CC02	Our organisation maintains the operational and production costs at a low level.		
	CC03	Our organisation delivers on time the type and volume of product required by customer(s).		
	CC04	Our organisation is flexible in responding to the market rapidly within a short period.		
	CC05	Our organisation introduces new products faster than major competitors.		

Operational performance	OP01	Our organisation has been flexible to changes in volume.	Dal Pont et al. (2008)	1: Strongly disagree to 7: Strongly agree
	OP02	Our organisation has been able to maintain conformance to product specifications.		
	OP03	Our organisation has been able to ensure on-time delivery performance.		
	OP04	Our organisation has been flexible to change the product mix.		
	OP05	Our organisation has been able to maintain fast delivery.		
	OP06	Our organisation's productivity standards are higher than market standards.	Domenek et al. (2022)	
	OP07	Our organisation's productive processes have become more efficient		
	OP08	Our organisation's production costs are lower, compared to market standards.		
	OP09	Our organisation has achieved a reduction of unplanned downtime due to production reprogramming.		

Talent development	TD01	Our organisation has human resource policies in place to cultivate talent internally.	Son et al. (2020)	1: Not at all to 7: To a great extent
	TD02	In this organisation, we employ headhunting firms in order to find exceptional candidates.		
	TD03	In this organisation, we offer talented personnel a variety of learning opportunities so that they may cultivate their skills through a range of domestic experiences.		
	TD04	In this organisation, we provide exceptional employees with a variety of learning opportunities so that they may expand their horizons through international experiences.		
	TD05	Our organisation has a mentoring and coaching programme designed exclusively for exceptional employees.		
	TD06	In this organisation, we provide exceptional personnel with more opportunities to complete demanding assignments.		
	TD07	Our organisation provides specifically tailored compensation and benefit packages to its most talented personnel.		
	TD08	In this organisation, we provide special initiatives or developmental assignments that align with the professional objectives of our talented staff.		
Innovation capability	IC01	Our organisation frequently tries out new ideas.	Lin (2007) and Hurley et al. (1998)	1: Strongly disagree to 7: Strongly agree
	IC02	Our organisation is creative in its operating methods.		
	IC03	Our organisation is frequently the first to market new products and services.		
	IC04	Innovation is perceived as too risky in our organisation and is resisted.		
	IC05	Our new product introduction has increased during the last five years.		

Slack resources	SR01	Our organisation has uncommitted resources that can quickly be used to fund new strategic initiatives.	Atuahene - Gima et al. (2005) and Simsek et al. (2007)	1: Strongly disagree to 7: Strongly agree
	SR02	Our organisation has few resources available in the short run to fund its initiatives.		
	SR03	Our organisation is able to obtain resources at short notice to support new strategic initiatives.		
	SR04	Our organisation has substantial resources at the discretion of management for funding strategic initiatives.		
Market dynamism	MD01	In our kind of business, customers' product and service preferences change quite a bit over time.	Jaworski and Kohli (1993)	1: Strongly disagree to 7: Strongly agree
	MD02	Our customers tend to look for new products and services all the time.		
	MD03	Sometimes our customers are very price-sensitive, but on other occasions, price is relatively unimportant.		
	MD04	We are witnessing demand for our products and services from customers who never bought them before.		
	MD05	New customers tend to have product and service-related needs that are different from those of our existing customers.		
	MD06	We cater for many of the same customers that we used to in the past.		
Technological dynamism	TDY01	The technology in our industry is changing rapidly.	Jaworski and Kohli (1993)	1: Strongly disagree to 7: Strongly agree
	TDY02	Technological changes provide big opportunities in our industry.		
	TDY03	It is very difficult to forecast where the technology in our industry will be in the next 2 to 3 years.		
	TDY04	A large number of new product ideas have been made possible through technological breakthroughs in our industry.		
	TDY05	Technological developments in our industry are rather minor.		